Permit No.	Scan Date	DIN
9401	August 16, 2011	14846

30 Patewood Drive, Suite 100
Patewood Plaza One
Greenville, SC 29615

864.281.0030 PHONE
864.281.0288 FAX

www.TRCsolutions.com

RECEIVED
August 15, 2011
Solid Waste Section
Asheville Regional Office

APPROVED DOCUMENT
Division of Waste Management
Solid Waste Section
Date September 20, 2011 By LY Frost

August 10, 2011

Mr. Larry Frost
North Carolina Department of Environment and Natural Resources
Division of Waste Management - Solid Waste Section
Asheville Regional Office
2090 U.S. Highway 70
Swannanoa, NC 28778

Subject: Domtar Paper Company, LLC (Domtar) - Landfill No. 3, Plymouth, NC
Phase 3 & 4 – Construction Quality Assurance Report

Dear Mr. Frost:

Domtar Paper Company, LLC (Domtar), Plymouth, NC initiated construction of Phase 3 and 4 of landfill No. 3 at the mill in February of 2011. The construction of the wells was completed in May 2011. Enclosed are one hard copy and a CD of the ***Landfill No.3 – Phase 3 &4 Construction Quality Assurance Report*** for your review and approval. The mill looks forward to receiving their operating permit for the newly constructed cells.

If you have any question or comment, please don't hesitate to contact me at 864-234-9462.

Sincerely,

TRC Environmental Corporation

Michael B. Parker, P.E.
Project Manager

Attachments

cc: Diane Hardison – Domtar Paper Company, LLC
Kari Cahoon – Domtar Paper Company, LLC
Todd Martin – TRC
Central Files

Permit No.	Scan Date	DIN
9401	**August 16, 2011**	**14846**

RECEIVED
August 15, 2011
Solid Waste Section
Asheville Regional Office

Landfill No. 3 – Phase 3 & 4
Construction Quality Assurance Report

Domtar Paper Company, LLC

August 2011

TRC

Table of Contents

Project Summary iv

1. Certifications 1-1
   - 1.1 Certification 1-1
   - 1.2 Conclusions and Recommendations 1-1

2. Introduction 2-1
   - 2.1 Project Background 2-1
   - 2.2 Purpose and Scope 2-2

3. Construction Roles and Responsibilities 3-1

4. Site Survey and Construction Control 4-1
   - 4.1 Construction Layout Survey 4-1
   - 4.2 Record Survey 4-1

5. Site Preparation 5-1
   - 5.1 Sediment Control Facilities 5-1
   - 5.2 Abandonment of Monitoring Well MW-07 and Observation Well OW-14 5-1
   - 5.3 Clearing and Grubbing 5-2
   - 5.4 Topsoil Stripping 5-2
   - 5.5 Removal of the Sedimentation Basin Discharge Structure 5-2
   - 5.6 General Fill 5-3

6. Prepared Subgrade Layer and Select Clay Fill Layer Construction 6-1
   - 6.1 Compacted Prepared Subgrade Fill Placement 6-1
   - 6.2 Select Clay Fill Placement 6-2
   - 6.3 Prepared Subgrade and Select Clay Fill Testing 6-3

7. Geosynthetic Liner Installation 7-1
   - 7.1 Base Grade Surface Preparation 7-1
   - 7.2 GCL and Geomembrane Installation 7-1
     - 7.2.1 Anchor Trenches 7-2
     - 7.2.2 Placement 7-2

7.2.3 GCL Seaming 7-2
7.2.4 Geomembrane Seaming 7-3
7.2.5 Trial Welds 7-3
7.3 GCL and Geomembrane Testing 7-3
7.3.1 GCL Conformance Samples 7-3
7.3.2 Geomembrane Conformance Samples 7-3
7.3.3 Geomembrane Nondestructive Testing 7-4
7.3.4 Geomembrane Destructive Testing 7-4

8. Geocushion Installation 8-1
8.1 Geocushion Deployment 8-1
8.2 Geocushion Seaming 8-1

9. Leachate Collection System Construction 9-1
9.1 Graded Granular Filter 9-1
9.2 Leachate Collection and Transfer System 9-2
9.2.1 Leachate Collection Piping 9-2
9.2.2 Pump Station Manhole, Sump, and Transfer System 9-4

10. Miscellaneous Construction Activities 10-1
10.1 Access Road Construction 10-1
10.2 Topsoil, Seed, Fertilize and Mulch 10-1
10.3 Borrow Site Restoration 10-1
10.4 Wood Reclaim Pile 10-2

List of Tables

Table 1 Summary of Subbase Fill and Perimeter Berm Field Densities as Determined by Nuclear Density Gauge
Table 2 Summary of Prepared Subgrade and Select Clay Fill Field Densities as Determined by Nuclear Density Gauge
Table 3 Summary of Liner Coordinates, Elevations, and Thicknesses
Table 4 Summary of Sump Coordinates and Elevations for Select Clay Fill Liner Area
Table 5 Summary of Leachate Collection Pipe Coordinates and Elevations

List of Plan Sheets

Plan Sheet 1	Title Sheet
Plan Sheet 2	Existing Conditions Map and Site Layout Plan
Plan Sheet 3	Liner Grading
Plan Sheet 4	Geomembrane Panel Layout Diagram
Plan Sheet 5	Leachate Piping
Plan Sheet 6	Engineering Cross Sections
Plan Sheet 7	Landfill Details
Plan Sheet 8	Leachate Collection and Removal System Details
Plan Sheet 9	Miscellaneous Details
Plan Sheet 10	Electrical Plan

List of Appendices

Appendix A	Regulatory Correspondence
Appendix B	Daily Construction Reports
Appendix C	Construction Photographs
Appendix D	Prepared Subgrade Fill and Select Clay Fill Laboratory Test Results
Appendix E	Manufacturers' Information
Appendix F	Geosynthetic Quality Assurance Certifications
Appendix G	Geomembrane Liner Installation Forms
Appendix H	GCL Installation Information
Appendix I	Conformance Test Results and Laboratory Seam Test Results
Appendix J	Submittal Information
Appendix K	Graded Granular Filter Laboratory Test Results
Appendix L	Leachate Collection Pipe Cleaning Report and Videos

Project Summary

■ Project name:	Domtar Paper Company, LLC Landfill No. 3 – Phase 3 & 4 Construction Quality Assurance Report
■ Contractors:	Ryan Inc. Central – Mid-Atlantic (Ryan) - General Contractor Chance & Associates, Inc. – Surveying Chesapeake Containment Systems, Inc. – Geosynthetics installer
■ Construction quality assurance:	RMT North Carolina, Inc.
■ Geosynthetics conformance testing laboratory:	TRI/Environmental, Incorporated
■ Soil testing and geomembrane seam testing laboratory:	RMT North Carolina, Inc.
■ Liner construction start:	March 1, 2006
■ Substantial completion:	May 13, 2011
■ Liner area constructed:	Approximately 7.5 acres
■ Subbase construction:	
– Placement dates:	March 1, 2011 – April 7, 2011
■ Prepared subgrade:	
– Placement dates:	March 14, 2011 – April 14, 2011
– Quantity:	Approximately 12,100 cubic yards

- Select clay fill under sump:
  - Placement dates: April 8, 2011 – April 8, 2011
  - Quantity: Approximately 40 cubic yards
- GCL and geomembrane:
  - Placement dates: April 4, 2011 – April 15, 2011
  - Quantity: Approximately 327,000 square feet
- Geocushion:
  - Placement dates: April 11, 2011 – April 16, 2011
  - Quantity: Approximately 327,000 square feet
- Select aggregate fill (No. 67 Stone) layer:
  - Placement dates: April 18, 2011 – April 30, 2011
  - Quantity: Approximately 12,100 cubic yards
- Granular drainage layer:
  - Placement dates: April 23, 2011 – May 2, 2011
  - Quantity: Approximately 6,100 cubic yards
- Leachate collection pipe:
  - Placement dates: April 13, 2011 – April 27, 2011
  - Quantity: Approximately 2,050 linear feet of collection pipe

Section 1
Certifications

1.1 Certification

I, Michael B. Parker, hereby certify that I am a registered professional engineer in the State of North Carolina; that the construction related to Phases 3 and 4 of the Domtar Paper Company, LLC industrial solid waste facility, Landfill No. 3 was completed in substantial conformance with the approved construction plan application (CPA), dated June 2008 and revised August 2009, August 2010, and November 2010, the CQAP contained in that document, the requirements of Subchapter 13B of the 15 NCAC, and standard engineering practices. To the best of my knowledge, the information presented in this Construction Quality Assurance Report was prepared in accordance with applicable North Carolina Department of Environment and Natural Resources requirements.

Michael B. Parker
Signature

Michael B. Parker, P.E.
Print Name

August 10, 2011
Date

This certification is based on personal observations, photographs, and the daily construction reports.

1.2 Conclusions and Recommendations

On the basis of RMT North Carolina, Inc.'s (RMT's),[1] construction observations, soil and geosynthetics testing, and record surveys, Landfill No. 3 Phase 3 & 4 liner construction activities have been performed in substantial conformance with the project plans and specifications and the requirements established by the North Carolina Department of Environment and Natural Resources (NCDENR). Therefore, it is recommended that Phase 3 & 4 liner construction at the Domtar Paper Company, LLC Landfill be approved and a permit to operate Domtar Paper Company Landfill No.3 – Phases 2, 3, and 4 be issued.

[1] RMT North Carolina, Inc., became TRC Engineers, Inc., effective June 6, 2011.

Section 2
Introduction

2.1 Project Background

The Domtar Paper Company, LLC (Domtar [formerly the Weyerhaeuser Company]) facility in Plymouth, North Carolina, consists of an integrated kraft process pulp and paper mill. Solid wastes generated by facility operations are disposed of in a state-permitted, on-site landfill (Landfill No. 3). On May 16, 2000, North Carolina Department of Environment and Natural Resources (NCDENR) issued a Permit-To-Construct, No. 94-01, Landfill No. 3 Phase 1A; December 14, 2000, NCDENR granted approval to operate Landfill No. 3 Phase 1A; November 25, 2002, NCDENR issued a Permit-To-Construct, Landfill No. 3 Phases 1B and 2; October 14, 2003, NCDENR granted approval to operate Landfill No.3 Phases 1A, 1B, and 2; and November 10, 2010, NCDENR issued a Permit-To-Construct, No. 94-01, landfill No. 3 Phases 3 and 4. The November 10, 2010 Permit-To-Construct (revised May 17, 2011), No. 94-01, landfill No. 3 Phases 3 and 4 is included in Appendix A. Final cover construction on Landfill No. 3 Phases 1A and 1B was initiated in the fall of 2010 and completed in early spring 2011. Waste filling in Landfill No. 3 is currently occurring in Phase 2.

This report documents the construction of Landfill No. 3 Phases 3 & 4 and is being submitted to the NCDENR for approval to operate Landfill No. 3 Phases 2, 3, and 4.

Phase 3 and 4 construction observation, documentation services, geomembrane laboratory destructive testing, and field and laboratory soil testing were performed by RMT. Chance & Associates, Inc. (CAI) of New Bern, North Carolina, performed the record surveying.

An RMT representative was on-site during the following construction events:

- Construction of the perimeter and phase delineation berms.
- Development of the bottom of the prepared subgrade layer (subbase)
- Installation of the prepared subgrade layer
- Installation of the select clay fill layer under the leachate sump
- Installation of the Geosynthetic Clay Liner (GCL)
- Installation of the 60-mil HDPE geomembrane
- Installation of the geocushion
- Placement of the select aggregate fill (No. 67 crushed stone) layer
- Placement of the select granular fill (Sand) layer
- Installation of the leachate collection and transfer piping

- Installation of the pump station manhole
- Construction of the access roads
- Placement of the topsoil.
- Restoration of the borrow area
- Observation of survey documentation performed by the surveyor

Upon completion of these items, RMT documented that they were constructed in substantial conformance with the project plans and specifications.

2.2 Purpose and Scope

This Report and its accompanying plan set detail RMT's construction observation that was conducted during the Domtar Landfill No. 3 Phase 3 and 4 liner construction. The survey data document RMT's findings and compare record drawings with the Phase 3 and 4 liner construction plans and project specifications; and address the requirements of NCDENR approval letters and the Erosion Control and Sedimentation Plan.

The scope of this Report includes documentation of the following construction activities:

- Site Preparation
- Prepared Subgrade Layer and Select Clay Fill Layer Construction
- Geosynthetic Liner Installation
- Geocushion Installation
- Leachate Collection System Installation
- Access Road Construction
- Topsoil, seed fertilize and Mulch
- Borrow Site Restoration

The following items were used in preparing this Report:

- Daily construction observation reports (Appendix B)
- Project plans and specifications
- Construction photographs (Appendix C)
- Field/Laboratory testing results
- Manufacturers' information

Section 3
Construction Roles and Responsibilities

The names and addresses of the companies who performed the tasks and carried out the roles and responsibilities are as follows:

ROLE/RESPONSIBILITY	COMPANY
Owner/operator	Domtar Paper Company, LLC. P.O. Box 747 Highway 149 North Plymouth, NC 27962
Construction quality assurance report preparation	TRC Engineers, Inc. 30 Patewood Drive, Suite 100 Patewood Plaza One Greenville, SC 29615
Construction manager	RMT North Carolina, Inc. 30 Patewood Drive, Suite 100 Patewood Plaza One Greenville, SC 29615
Construction general contractor	Ryan Central, Inc. 2700 East Racine Street Racine, WI 53545
Soil testing laboratory	RMT, Inc. 744 Heartland Trail Madison, WI 53717
Survey documentation	Chance & Associates, Inc. 201 East Camp Kiro Road New Bern, NC 28560
GCL, geomembrane, and geocushion installation	Chesapeake Containment Systems, Inc. 352 Earls Road Middle River, MD 21220
Electrical subcontractor	Eastern Omni Contractors, Inc. 118 Oakmont Drive Greenville, NC 27835
Subcontractor (erosion, surface water, and dust controls including seeding, fertilizing, and mulching).	General Maintenance, Inc. (GMI) P.O. Box 578 Plymouth, NC 27962

Section 4
Site Survey and Construction Control

4.1 Construction Layout Survey

The layout survey and staking was performed by Ryan Central, Inc. (Ryan). Ryan used a Global Positioning System (GPS) controlled dozer loaded with a Digital Terrain Model (DTM) of the Phase 3 and 4 design for constructing the liner and perimeter berms. Ryan also had a survey grade GPS rover that was used to layout construction items. The following construction items were staked or laid out by Ryan:

- Perimeter berm limits and exterior grades
- Phase 3 and 4 subbase grades (bottom of prepared subgrade layer) on a 50-foot grid and at critical locations
- Phase 3 and 4 base grades (top of prepared subgrade layer) on the same 50-foot grid and at critical locations as the subbase grades
- Subbase grades (bottom of select clay fill) in the leachate collection sump
- Base grades (top of select clay fill) in the leachate collection sump
- Top of leachate collection pipe at maximum 50-feet intervals
- Top of graded granular filter on a 50-foot grid and at critical locations

RMT used Ryan's layout staking and layout data to document the soil testing locations and the lift thickness during prepared subgrade placement.

4.2 Record Survey

The record surveys were performed by Chance & Associates, Inc (CAI). CAI currently provides Domtar with surveying services for landfill operations, and thus was familiar with the site and site control. Existing control points were used to establish the site grid (see Plan Sheet 3). The construction items documented included the following:

- Subbase grades (bottom of prepared subgrade layer) on a maximum 50-foot grid pattern and at key locations.
- Base grades (top of prepared subgrade layer) on a maximum 50-foot grid pattern and at key locations.
- Subbase grades (bottom of select clay fill) in the leachate collection sump
- Base grades (top of select clay fill) in the leachate collection sump
- Geomembrane seams, panel corners, and repairs locations.

- Top of leachate collection and cleanout pipe locations and elevations at maximum 50-foot intervals.
- Top of forcemain pipe locations and elevations
- Top of graded granular filter on a 50-foot grid and at critical locations
- Locations of the access roads
- Location of electrical power lines
- Perimeter grading
- Location of the wood reclaim pile
- Clear and grub limits

Section 5
Site Preparation

5.1 Sediment Control Facilities

In August, 2010, RMT submitted to NC DENR, Division of Land Resources, Land Quality Section, on behalf of Domtar, an erosion and sedimentation control plans (ESCP) for the proposed soil borrow area that was used for Phases 3 and 4 construction. RMT also submitted an additional ESCP for Phases 3 and 4 construction in September 2010. The ESCPs were approved by NC DENR, Division of Land Resources, Land Quality Section. The Phase 3 and 4 construction documented in this CQA report was performed in substantial conformance with the Permit to Construct (PTC) and ESCPs.

Prior to commencing construction activities on Phases 3 and 4, erosion control fencing (silt fencing) was installed by General Maintenance, Inc. (GMI) of Plymouth, North Carolina to minimize the transport of sediment off the site. GMI was a subcontractor to Ryan. The approximate location of the silt fencing is presented on Plan Sheets 2, 3, and 5 of the accompanying Plan Set (refer to Detail 2 on Plan Sheet 9). Silt fencing was installed at appropriate locations along the perimeter of the landfill construction limits, along sections of the haul road to the soil borrow area, and in the soil borrow area. Other erosion control devices, including sediment traps, surface roughening, a gravel construction entrance/exit, riprap, and grass-lined channels were also utilized.

5.2 Abandonment of Monitoring Well MW-07 and Observation Well OW-14

Monitoring well MW-07 and observation well OW-14 existed within the Phase 3 and 4 construction limits and were abandoned at the beginning of Phase 3 and 4 construction. These wells were abandoned on March 4, 2011 by well contractor Parratt Wolff, Inc. (Parratt Wolff) of Hillsborough, North Carolina. Well MW-07 and OW-14 were 20 feet and 16 feet deep, respectively. Parratt Wolff abandoned the wells by removing (pulling) the entire well casing of each well and grouting the holes after casing removal using a tremie pipe. Parratt Wolff completed well abandonment forms for each of the abandoned wells and submitted the forms to the North Carolina Department of Environment and Natural Resources - Division of Water Quality. Copies of the abandonment forms are included in Appendix A. Photograph 1 in Appendix C shows Parratt Wolff grouting MW-07 using a tremie pipe.

5.3 Clearing and Grubbing

A large portion of the Phase 3 and 4 construction area was covered with trees and woody vegetation. The trees and woody vegetation were cleared and the stumps were grubbed from the construction limits prior to the start of construction. The trees, stumps, and woody vegetation removed during the clearing and grubbing operations were chipped on-site (refer to Photograph 2 in Appendix C showing the wood chip piles of the cleared and grubbed materials). The wood chips from the clearing and grubbing were loaded and hauled to Domtar's mill where the chips were burned for fuel.

5.4 Topsoil Stripping

Available topsoil was stripped from the Phase 3 and 4 construction limits after the area was cleared and grubbed and the wood chip piles had been removed. D6 dozers were used to push the topsoil into piles and an excavator was used to load the topsoil from the piles into Volvo A40E off-road haul trucks. Refer to Photograph 3 in Appendix C showing topsoil being loaded into the off-road haul trucks. The haul trucks hauled and stockpiled the topsoil south of the Phases 3 and 4 construction limits on the eastern side of the haul road to the soil borrow area. Plan Sheet 2 shows the approximate location of the topsoil stockpile area. Topsoil from the topsoil stockpile was used to topsoil the exterior slopes of the perimeter berms and diversion berm, as well as, other disturbed areas towards the end of Phase 3 and 4 construction.

5.5 Removal of the Sedimentation Basin Discharge Structure

A sedimentation basin with a corrugated metal pipe (CMP) discharge structure existed in the northeastern portion of the Phase 3 and 4 construction area. The discharge structure consisted of a vertical CMP stand pipe (located in the approximate location of the proposed Phase 3 and 4 leachate sump) connected to a horizontal CMP culvert pipe that discharged to a drainage swale located east of the Phase 3 and 4 eastern perimeter berm.

Ryan removed the vertical CMP stand pipe and horizontal CMP culvert pipe structure on April 22, 2011. Refer to Photograph 4 in Appendix C showing Ryan removing the sedimentation basin vertical stand pipe. In order to remove the horizontal CMP discharge pipe, Ryan excavated through the existing access road/perimeter berm located east of Phase 3 and 4. Ryan did not backfill the excavation through the eastern access road/perimeter berm after the removal of the horizontal CMP to reduce the need for pumping surface water runoff from the Phase 3 and 4 liner area during construction. The excavation was left open to allow surface water from the cell to gravity drain into the eastern grass-lined drainage channel. Ryan constructed a sediment trap east of the excavated trench to control sediment discharge into the grass-lined drainage channel. Refer to Photograph 5 in Appendix C showing the silt trap constructed east of Phases 3 and 4. The excavated trench was backfilled on April 14, 2011 prior

to the completion of geomembrane installation. The sediment trap will remain in-place at least until the area is stabilized with established vegetation.

5.6 General Fill

Placement of general fill (fill) commenced on March 8, 2011 and was completed on May 3, 2011. General fill placement included excavating and filling to Phase 3 and 4 subbase, constructing the east and west perimeter berms, and constructing the southern delineation berm. Upon excavating and exposing subbase, RMT's on-site personnel examined exposed subbase for geological anomalies or unexpected subsurface conditions to determine if an inspection by a North Carolina-registered geologist was required prior the fill placement for liner construction per Condition 8 in Attachment 2 of the November 10, 2010 permit to construct (refer to Appendix A). RMT's observations of the subbase did not identify any geological features or anything that would affect the stability or integrity of the landfill constructed above the subbase. Photograph 6 in Appendix C shows some of the exposed subbase soil near the beginning of Phase 3 and 4 construction. The exposed subbase soils were determined to be consistent with those assumed in the design, therefore an inspection by a North Carolina-registered geologist was not conducted.

The perimeter berms, delineation berm, and base areas were constructed by placing fill material in maximum 8-inch-thick loose lifts to obtain approximate 6-inch thick compacted lifts. General fill was obtained from cut material excavated during subbase development and from the on-site soil borrow area located east of the Phase 3 and 4 liner area. Refer to Plan Sheet 2 showing the soil borrow area location.

Ryan used dozers to push fill from the Phase 3 and 4 cut areas of the subbase to fill areas. Ryan used Volvo A40E off-road haul trucks to haul the general fill from the borrow area to fill areas for Phase 3 and 4 construction. A dozer was then used to level the soil to an approximate 8-inch–thick loose lift prior to compaction with a Caterpillar 815 wedge foot compactor.

General fill was tested for in-field moisture and density by nuclear methods, in accordance with American Society for Testing and Materials (ASTM) D2922, and was compacted to a minimum 95 percent of the Standard Proctor (ASTM D 698) maximum dry density. Proof-rolling of the subbase cuts and fills with loaded haul trucks were also observed throughout construction by TRC to determine stability. In-field moisture and dry densities were periodically documented using a calibrated nuclear density gauge (NDG). In-field NDG soil testing results on the general fill densities are presented in Table 1. Laboratory soils analysis for general fill (prepared subgrade fill soil was used as general fill) are presented in Appendix D.

Ryan used a Global Positioning System (GPS) equipped dozer loaded with a Digital Terrain Model (DTM) of the Phase 3 and 4 bottom of prepared subgrade layer design (subbase design grades). Record (as-constructed) subbase elevations were documented on an approximate 50-foot grid by CAI after completing finish grading of the subbase. Record elevations for the subbase grades are presented in Table 3. Plan Sheet 3 illustrates the survey point number locations. As shown in the table, the actual subbase elevations are generally at, or lower than, the design grades. Lower subbase grades result in a prepared subgrade layer thickness of greater than 1 foot.

Ryan used a Caterpillar 315 excavator to excavate to bottom of select clay fill layer grades (subbase grades) of the leachate collection sump located on the northeast side of the Phase 3 and 4 liner area. Record subbase elevations were documented at slope breaks in the sump by CAI after completing excavation of the sump subbase. Record elevations for the sump subbase grades are presented in Table 4. Plan Sheet 3 illustrates the survey point number locations documented in the sump. As shown in the table, the actual grades are lower than the design grades. Lower subbase grades result in a select clay fill layer thickness of greater than 2 feet.

Section 6
Prepared Subgrade Layer and Select Clay Fill Layer Construction

The Phase 3 and 4 landfill base and sidewall liner system include the following components, from top to bottom:

- 18-inch graded granular filter layer [6 inches of select granular fill (sand) overlying 12 inches of select aggregate fill (No. 67 stone)]
- 32 ounce geocushion
- 60-mil HDPE geomembrane (smooth on the base and textured on the sidewalls)
- Geosynthetic clay liner (GCL)
- 1-foot thick compacted prepared subgrade fill (Kv = 4.2 x 10^{-4} cm/sec) or
- 2-foot thick compacted select clay fill [in the sump area only] (Kv = 1 x 10^{-7} cm/sec)

Refer to Detail A on Plan Sheet 7 showing the liner configuration.

6.1 Compacted Prepared Subgrade Fill Placement

The 1-foot thick prepared subgrade layer was constructed in approximately 8-inch thick loose lifts resulting in approximate 6-inch lifts after compaction.

The prepared subgrade fill was obtained from the on-site soil borrow source. Excavation at the borrow site was performed utilizing a John Deere 450D excavator supported by Volvo A40E off-road haul trucks to transport materials to the placement areas.

Dozers were used to level the prepared subgrade fill material into approximate 8-inch thick loose lifts prior to compaction with a Caterpillar 815 (44,175 lb.) self propelled wedge foot compactor. Refer to Photograph 7 in Appendix C. The Caterpillar 815 compactor made several passes over the prepared subgrade fill lift to provide a uniform, compacted soil mass. Refer to Photograph 8 in Appendix C showing the Caterpillar 815 compacting a lift of prepared subgrade fill. The compacted lift of prepared subgrade fill was then smooth drum rolled with a Caterpillar CS 563 smooth drum vibratory compactor to seal the compacted prepared subgrade fill in preparation for field density/moisture testing. Refer to Subsection 6.3 for a discussion on laboratory and field testing performed on the prepared subbase fill.

Placement of prepared subbase fill lifts continued as describes above until the minimum prepared subgrade thickness was achieved.

Prepared subgrade fill excavated from the soil borrow area was generally 3 to 6 percent wet of optimum moisture content as determined by the Standard Proctor test. The project specifications require that the prepared subgrade fill be placed a minimum of 2 percent wet of optimum moisture content, therefore no water was added to the prepared subgrade fill during placement. To ensure a good bond between lifts, the upper couple of inches of each preceding smooth drum-rolled lift was mechanically scarified with the dozer's tracks. The dozers made many passes over the preceding lift to scarify the lift prior to placing the next lift.

Ryan used a Global Positioning System (GPS) equipped dozer loaded with a DTM of the Phase 3 and 4 top of prepared subgrade layer (base grade) design to finish grade the top of the prepared subgrade layer. Refer to Photograph 10 in Appendix C showing the top of the prepared subgrade layer being finish graded with a GPS equipped dozer. The finished graded base grades were then rolled with a smooth drum–roller. Refer to Photograph 11 in Appendix C showing the finished graded top of prepared subgrade layer being smooth-drum rolled. Record top of the finished prepared subgrade layer elevations were documented on a 50-foot grid by CAI using a Total Station. Record elevations for the base grades were shot at the same locations as the subbase grades to verify that the minimum thickness of the prepared subgrade layer was achieved. The survey data and thickness data are presented in Table 3. The locations of the documented points are illustrated on Plan Sheet 3. As shown in the table, the minimum thicknesses of the prepared subgrade were at or greater than the minimum design thicknesses required for the project.

6.2 Select Clay Fill Placement

The design for Phase 3 and 4 provided for one leachate collection sump located on the northeastern side of Phase 3 and 4. Sump details are presented on Plan Sheet 8. The leachate collection sump has a 2-foot-thick layer of low permeability soil (select clay fill) with a hydraulic conductivity of less than 1.0×10^{-7} cm/s in lieu of the 1-foot thick prepared subgrade layer.

The select clay fill material was obtained from the on-site soil borrow area. The total amount of low-permeable soil used to construct the 2-foot layer in the sump was approximately 40 cubic yards.

The select clay fill layer was placed in lifts and compacted using the same equipment and methods used for the placement and compaction of the prepared subgrade layer described Subsection 6.1 above. The only difference between the placement of the prepared subgrade fill and the select clay fill is that granular bentonite was added to and mixed into the select clay fill during placement. The granular bentonite was added to the select clay fill after the select clay fill was leveled into maximum 8-inch-thick loose lifts with a dozer. Granular bentonite from 50 pound bags was hand dumped and spread over the loose lift of select clay fill. The Caterpillar

815 wedge foot compactor then made many passes over the select clay fill lift to mix the bentonite into the select clay fill and to compact the select clay fill.

Field and laboratory testing that was conducted on the select clay fill is discussed in Subsection 6.3 below. Granular bentonite was added the select clay fill in anticipation that it would give better hydraulic conductivity results.

Ryan used a Caterpillar 315 excavator in combination with a small John Deere 650 dozer to finish grade the top of the select clay fill layer in the sump. The finished top of the select clay fill (base grade) was then rolled with a smooth drum–roller. Record top of the select clay fill elevations of the sump were then surveyed at breaks in slope by CAI using a Total Station. Record elevations for the base grades were shot at the same locations as the subbase grades to verify that the minimum thickness of the select clay fill layer under the sump was achieved. The survey data and thickness data are presented in Table 4. The locations of the documented points are illustrated on Plan Sheet 3. As shown in the table, the minimum thicknesses of the select clay fill were at or thicker than the minimum design thicknesses required for the project.

6.3 Prepared Subgrade and Select Clay Fill Testing

Both field and laboratory tests were performed on the prepared subgrade fill and select clay fill to document its conformance with the project requirements. The prepared subgrade fill and select clay fill was sampled at the soil borrow area and from the liner during placement in Phase 3 and 4.

Representative samples of prepared subgrade fill and select clay fill were obtained from the on-site borrow source at a frequency of one for every 4,000 cubic yards placed. The representative samples were collected at the start of construction and analyzed in RMT's soil laboratory for Standard Proctor (ASTM D698), Atterberg limits (ASTM D4318), and grain-size analysis (ASTM D422). The representative samples were also analyzed for hydraulic conductivity (ASTM D5084) compacted to 95 percent of the maximum dry density and at 2 percent wet of optimum moisture content as determined by the Standard Proctor test. Hydraulic conductivity analysis was conducted on the prepared subgrade fill and select clay fill samples at these compaction perimeters to verify that minimum hydraulic conductivities (4.2×10^{-4} cm/sec for prepared subgrade fill and 1.0×10^{-7} cm/sec for select clay fill) could be met during construction at this project compaction specification. A total of four representative samples were collected and analyzed in the laboratory for the approximately 12,100 cubic yards of material placed. The laboratory test results for the representative samples are contained in Appendix D.

Relatively undisturbed samples were also collected with Shelby tubes to determine the quality of the prepared subgrade fill and select clay fill placed. Holes resulting from Shelby tube sample

collection in the liner were backfilled with granular bentonite. Shelby tube samples were analyzed for Atterberg limits (ASTM D4318), grain-size analysis (ASTM D422), moisture content (ASTM D2216), hydraulic conductivity (ASTM D5084), and dry density. Shelby tube samples on the prepared subgrade fill were collected at a minimum frequency of one sample per acre-foot placed. A total of 14 Shelby tube samples were collected on the approximate 14 acre-feet of prepared subgrade fill placed. Shelby tube samples on the select clay fill were collected at a frequency of one sample per lift. A total of four lifts of select clay fill were placed in the sump. Four Shelby tubes samples were collected on the select clay fill placed in the sump. The laboratory test results for the undisturbed Shelby tube samples are contained in Appendix D.

Field density testing was performed with a calibrated Troxler nuclear moisture-density gauge, based on ASTM D2922 and D3017 at a probe depth of 6 inches. Holes resulting from the use of this gauge in the liner were backfilled with granular bentonite. Field testing of the prepared subgrade fill consisted of moisture-density tests performed on an approximate 100-foot grid for each lift of prepared subgrade fill placed. Testing of every other lift was offset by approximately 50 feet to provide a more representative sample of the compactive effort throughout the increment. Field testing of the select clay fill consisted of one moisture-density test performed on each lift of select clay fill placed in the sump. The field test results revealed that the prepared subbase fill layer and select clay fill layer under the sump was constructed in conformance with the minimum project requirement of 95 percent of the Standard Proctor maximum dry density and at a minimum of 2 percent wet-of-optimum moisture content. The results of the field density tests on the prepared subgrade fill and select clay fill are summarized in Table 2.

Based on the laboratory and field test results, the prepared subgrade fill and select clay fill portions of the Phase 3 and 4 liner were constructed in substantial conformance with project requirements.

Section 7
Geosynthetic Liner Installation

The geosynthetic liner included a geosynthetic clay liner (GCL) installed under a 60-mil–thick high-density polyethylene (HDPE) geomembrane (smooth on the base and textured on the sidewalls), as illustrated by Detail A on Plan Sheet 7.

The GCL and geomembrane were installed by Chesapeake Containment Systems, Inc. (Chesapeake), of Mid River, Maryland. The GCL and geomembrane were manufactured by GSE of Houston, Texas. The GCL used for the project was BentoLiner® NSL. The Geomembrane used for the project was 60 mil GSE HD textured and smooth geomembrane. Appendix E contains the manufacturers' specifications for the GCL and geomembrane.

The manufacturers' GCL and geomembrane quality assurance certifications are contained in Appendix F. Appendix B contains copies of the daily construction reports. Appendix G contains copies of the completed geomembrane installation forms, which should be referenced in conjunction with the daily construction reports. Installation of the components of the geosynthetic liner is further discussed below.

7.1 Base Grade Surface Preparation

The top of the prepared subgrade and select clay fill layers were smooth drum-rolled, prior to GCL deployment. The GCL subgrade was also repaired and rerolled as deployment took place to repair areas affected by equipment traffic and precipitation. Prior to the deployment of the GCL, the GCL subgrade was examined by Chesapeake and RMT to determine if the subgrade was acceptable for GCL deployment and eventually geomembrane deployment. If the subgrade was not acceptable, the subgrade was repaired or allowed to dry, as necessary, until the subgrade was determined to be acceptable prior to deploying GCL over the subgrade. After the subgrade was determined acceptable, a Subgrade Surface Acceptance form was prepared by Chesapeake. Chesapeake completed a subgrade surface acceptance forms for each day of deployment. The subgrade surface acceptance forms are included in Appendix G.

7.2 GCL and Geomembrane Installation

GCL and geomembrane installation began on April 4, 2010 and was completed on April 14, 2011. The GCL panel layout diagram and the GCL panel placement form are included in Appendix H. Documentation of the installation of the geomembrane is included on the forms in Appendix G.

7.2.1 Anchor Trenches

The GCL panels were anchored in trenches along the east and west perimeter berms and southern phase delineation berm of Phase 3 and 4. Anchor trenches were a minimum of 2 feet deep and a minimum of 2 feet wide. Refer to Details 1 and 2 on Plan Sheet 7 illustrating the locations and construction of the anchor trenches. Ryan used a Caterpillar 315 excavator to excavate the anchor trenches. A majority of the anchor trench was constructed as a bench rather than trench to allow easier access for geosynthetic deployment and geomembrane welding. Photograph 12 in Appendix C show Ryan constructing the anchor trench along the phase delineation berm as a bench.

7.2.2 Placement

GCL and geomembrane deployment began on the western side of Phases 3 and 4 and progressed toward the east. Textured panels were placed on the sideslopes and smooth geomembrane panels were placed on the base of the liner.

A skid loader with an attached spreader bar was used to deploy the GCL and geomembrane panels. Photograph 13 in Appendix C shows GCL deployment and Photograph 14 shows geomembrane deployment. GCL was usually deployed early in the morning until about the middle of the morning and then geomembrane was deployed until the GCL that was deployed earlier in the day was covered. After covering the GCL deployed in the morning, Chesapeake alternated the deployment of GCL and geomembrane so that all the deployed GCL was covered with geomembrane at the end of the day.

Care was taken during placement of the GCL and geomembrane so that no potentially damaging objects were placed directly on top of the GCL or geomembrane. As the panels were being deployed and seamed, they were inspected for defects. Observed defects in the GCL were immediately repaired prior to covering with the geomembrane. Observed defects on the geomembrane were marked for repair on the geomembrane and logged on panel repair forms, which are included in Appendix G. Observed defects on the geomembrane were repaired and nondestructively tested. Panels were also inspected for damage after installation and seaming activities were completed just prior to geocushion installation. Geomembrane panel and repair locations are shown on Plan Sheet 4.

7.2.3 GCL Seaming

Seaming of the GCL panels consisted of overlapping the panels and placing a bead of granular bentonite between the overlapped panels as recommended by the GCL manufacturer. The GCL panels were overlapped 6-inches to 9-inches on longitudinal

seams and a minimum of 24-inches on the panel end seams. Photograph 15 in Appendix C shows the bead of granular bentonite for a GCL seam.

7.2.4 Geomembrane Seaming

Seaming of the geomembrane panels occurred after placement. The primary seaming method was dual hot wedge fusion. Extrusion welds were performed on patches and repairs. Typical field methods were followed in performing the seaming. Field seaming data are presented in Appendix G. Refer to Photographs 16 and 17 in Appendix C for depictions of the seaming methods.

7.2.5 Trial Welds

Trial welds were performed by the seaming technician performing the welding at the start of each day, and approximately every 4 hours thereafter, for each fusion and extrusion welding machine. The trial welds were tested in the field for acceptable tensile strength.

7.3 GCL and Geomembrane Testing

GCL testing was performed in the laboratory. Geomembrane testing was performed both in the field and in the laboratory. Conformance testing was done by TRI Environmental, Inc. (TRI), of Austin, Texas. Laboratory destructive testing was performed by RMT's laboratory in Madison, Wisconsin. Nondestructive testing was performed in the field, while the destructive testing was performed in the field by Chesapeake and in the laboratory by RMT.

7.3.1 GCL Conformance Samples

One hundred fifty-four GCL rolls (358,050 square feet) were delivered to the site to be used for Phase 3 and 4 construction. A total of 6 conformance samples were collected from the 154 GCL rolls delivered to the site. The GCL conformance samples were collected by TRI at the manufacturing plant. TRI also performed the conformance testing on the GCL at their laboratory. Appendix I contains the results of the GCL conformance testing.

7.3.2 Geomembrane Conformance Samples

Thirty-six geomembrane rolls (397,800 square feet) were delivered to the site to be used for Phase 3 and 4 construction. A total of 6 conformance samples were collected from the 36 rolls delivered to the site. The conformance samples were collected by TRI at the manufacturers' plant. The geomembrane conformance testing was performed by TRI in their laboratory. TRI also collected and conducted thickness measurements on all of the

36 rolls delivered to the site. Appendix I contains the results of the geomembrane conformance testing and the thickness measurements.

7.3.3 Geomembrane Nondestructive Testing

Each geomembrane seam was nondestructively tested in the field. Nondestructive tests consisted of air pressure–testing the fusion-welded seams, and vacuum box–testing the extrusion-welded seams, repairs, and capped seams. Short fusion seam segments that did not pass air pressure–testing or that could not be air pressure–tested were capped or patched, and the cap or patch was vacuum box–tested. Nondestructive seam testing documentation is included in Appendix G. Nondestructive testing is shown in Photographs 18 and 19 in Appendix C.

7.3.4 Geomembrane Destructive Testing

Destructive seam samples were obtained for field and laboratory testing. The destructive samples were obtained by Chesapeake at locations selected and marked by RMT.

Destructive samples were taken at a minimum of one test per 500 linear feet of seam in accordance with the CQA plan. Acceptance criteria for destructive testing are included in Appendix I. The destructive samples were tested in the field by Chesapeake with the field tensiometer for both peel and shear. The results of these field tests are presented on the Destructive Testing form in Appendix G. The samples were also tested in the laboratory by RMT. Five coupons from each destructive sample were tested for both peel and shear by Chesapeake in the field and by RMT in the laboratory. The laboratory test results are included in Appendix I. The destructive testing locations are shown on Plan Sheet 4. After the destructive samples were collected, the geomembrane was repaired with patches and nondestructively tested at the destructive sample locations. All destructive samples passed both field and laboratory testing.

Section 8
Geocushion Installation

A geocushion was installed over the geomembrane liner to protect the geosynthetic liner from damage during construction of the leachate collection system and during landfilling operations. The geocushion consists of a 32 ounce per square yard nonwoven polypropylene geotextile. The geocushion is NW32 manufactured by GSE. Appendix E contains the manufacturers' specifications for the geocushion. A total of 169 rolls (380,300 sf) of geocushion were delivered to the site. The manufacturers' quality assurance certifications for the geocushion rolls are contained in Appendix F.

8.1 Geocushion Deployment

The geocushion over the geomembrane was installed by Chesapeake after the installation of the geomembrane was completed, tested and documented. Installation of the geocushion started on April 11, 2011 and was completed on April 16, 2011.

Geocushion was deployed using a Gehl RS6 42 Forklift with an attached spreader bar and a balloon type tired ATV and hand power. The forklift suspended the roll at the edge of the liner while the ATV pulled the geocushion off the roll and dragged the geocushion into approximate position before the panel was placed into position by hand. Photograph 20 in Appendix C show geocushion being deployed.

8.2 Geocushion Seaming

Geocushion panels were fusion bonded using a dual hot wedge welding machine. Photograph 21 in Appendix C show Chesapeake making a geocushion seam. As provided by the technical specifications, there were no testing requirements for geotextile seaming. RMT visually inspected the panels and seams and identified no issues during seaming.

Section 9
Leachate Collection System Construction

9.1 Graded Granular Filter

The 18-inch–thick graded granular filter consists of two aggregate components: a minimum 1-foot-thick select aggregate fill layer of North Carolina Department of Transportation (DOT) No. 67 crushed stone having a minimum hydraulic conductivity of 1 cm/sec, and a 6-inch select granular fill layer having a minimum hydraulic conductivity of 1.0×10^{-3} cm/sec. The select aggregate fill (No. 67 stone) consists of clean, debris-free natural materials obtained from the Hanson Aggregates – Rocky Mount Quarry located in Rocky Mount, North Carolina. The select granular fill (sand) consists of clean, debris-free natural materials obtained from the American Materials Company, LLC, Greenville Mine, located in Greenville, North Carolina. Submittal information on the No. 67 stone and the select granular fill is included in Appendix J. Approximately 12,100 cubic yards of select aggregate fill (No. 67 stone) and 6,100 cubic yards of sand were placed during construction.

The No. 67 stone was placed on the base and sideslopes of the liner. The No. 67 stone was placed by dumping the material in bulk to create minimum 3-foot thick access roads along the existing phase delineation berm and within the Phase 3 and 4 lined area. This 3-foot thick access roads allowed Volvo A40E haul trucks to haul the aggregate inside the landfill without applying unacceptable stress on the geomembrane. The No. 67 stone was placed to a uniform thickness of approximately 12 inches on the base and sidewalls, utilizing Caterpillar D6 LGP dozers and a John Deere 650 LPG dozer. No. 67 Stone was generally placed along the geomembrane wrinkles and not across them. This kept the geomembrane from overlapping itself and minimized the stress that the stone might have on wrinkles within the geomembrane. Personnel provided guidance to the equipment operators during placement of the drainage material over the geosynthetic liner. The personnel guiding the equipment walked out and dispersed wrinkles in the geomembrane to the extent possible to reduce the stress on the geomembrane liner. Refer to Photographs 22 and 23 in Appendix C showing No. 67 stone being placed over the geosynthetic liner. The select granular fill was placed on the base and up the sidewalls. The sand was placed utilizing the 3-feet thick No. 67 stone or select granular fill roads utilizing the same methods used to install the No. 67 stone layer. After the 3-foot thick stone and sand access roads were no longer needed to support the haul trucks, the roads were removed by spreading out the material with dozers and utilizing the material in the No. 67 stone and select granular fill layers.

Prior to placing the select granular fill layer over the No 67 stone layer, Ryan used a the GPS equipped dozer loaded with a DTM of the as-constructed top of prepared subgrade surface to finish grade the No. 67 stone to the minimum thicknesses required. After the No. 67 stone was finish graded, Ryan commenced with the placement of the sand layer over the finish graded area. Ryan also utilized the GPS equipped dozer to finish grade the top of the sand layer to the minimum required thickness. Refer to Photographs 24 through 26 in Appendix C.

Record top of the select granular fill layer elevations were documented on a 50-foot grid by CAI using a Total Station. Record elevations for the top of sand grades were shot at the same locations as the base grades to verify that the minimum thickness of the graded granular filter was achieved. The thickness of the sand layer was measured to the top of No. 67 stone at the surveyed locations and documented to determine the sand layer and No.67 stone layer thicknesses. The survey data and thickness data are presented in Table 3. The locations of the documented points are illustrated on Plan Sheet 3. As shown in the table, the minimum thicknesses of the No.67 stone layer and sand layer were at or greater than the minimum design thicknesses required for the project.

Laboratory testing was performed on the select aggregate fill and the select granular fill at a minimum frequency of one sieve analysis for every 1,000 cubic yards. Constant head permeability tests were performed on the No. 67 stone and the sand at a rate of one test for every 2,500 cubic yards placed. Laboratory results of these tests are presented in Appendix K. Although the grain-size analyses indicated that some samples of the No. 67 stone were slightly finer than specified on the No. 4 sieve size, and slightly coarser on the 3/8-inch and 3/4-inch sieve sizes, permeability test data indicate the material has suitable hydraulic conductivity properties. Gradations are still acceptable for providing drainage media filtration.

9.2 Leachate Collection and Transfer System

The leachate collection piping system consists of two west-to-east perforated pipes and one north-south pipe located at the toe of the eastern slope. Refer to Plan Sheet 5 showing the leachate collection and transfer system layout. The collection pipes drain to a leachate collection sump. Leachate collected in the sump is pumped, utilizing a pump station manhole, into dual contained HDPE pipe connected to the existing Phase 2 dual contained pipe transfer system. Refer to the details on Plan Sheet 8 showing how the leachate collection and transfer system was constructed.

9.2.1 Leachate Collection Piping

The leachate collection piping consists of perforated 6-inch-diameter SDR 17 HDPE pipe. The perforations in the collection pipe consist two rows of 0.5 inch diameter holes

spaced at 6 inches on center. The rows are parallel to the axis of the pipe and 120 degrees apart. The pipe was placed 3 inches above the floor of the landfill with the holes facing down (see Detail A on Plan Sheet 7). Pipe joints were made using butt-fusion techniques for HDPE pipe. The majority of the pipe was welded outside the liner area and was place in the liner area after geocushion installation was complete. Cleanouts were installed at the ends of the collection pipes to gain access to the pipes for jetting and cleaning. The cleanouts were constructed as illustrated by Detail 1 on Plan Sheet 7. The west-to-east cleanout pipes have cleanouts on both ends of each pipe to allow cleaning/jetting from either end. The north-south collection pipe is connected to the 18-inch diameter leachate collection riser pipe in the sump as shown on Detail G on Plan Sheet 8. Therefore, cleanout access to the northern side of the north-south pipe is only from the northern cleanout and cleanout access to the southern side of the north-south pipe is only from the southern cleanout.

The collection pipe was bedded with minimum of 3 inches of bedding stone (No. 67 stone) between the bottom of the pipe and the geosynthetic liner. The pipe was bedded under the pipe by hand during placement of the No.67 stone layer. The bedding under the pipe was measured by RMT to ensure that a minimum of 3 inches of bedding existed under the pipe prior to placing the remainder of the bedding around the collection pipe. Refer to Photograph 27 in Appendix C.

Record top of the collection pipe elevations were documented at minimum 50-feet intervals by CAI using a Total Station. The pipe survey data is presented in Table 5, and the locations of the documented points are illustrated on Plan Sheet 5.

Laboratory testing was performed on the pipe bedding material at a minimum frequency of one sieve analysis for every 1,000 linear feet of pipe installed (minimum of 3 test were required). Constant head permeability tests were performed on the pipe bedding stone at minimum rate of one test for every 2,500 linear feet of pipe installed. A total of 3 sieve and 2 hydraulic conductivity tests were conducted for the approximately 2,050 linear feet of collection pipe installed. Laboratory results of these tests are presented in Appendix K. The results on the pipe bedding stone samples indicate that the grain-size analyses met the requirements for No. 67 stone. The permeability test data indicate the material has suitable hydraulic conductivity properties. Gradation of the pipe bedding is acceptable for restricting stone filtration from entering into the pipe holes.

Jetclean America of Lulz, Florida, high-pressure jetted and video-inspected the existing leachate collection pipes in Landfill No. 3, as well as video-inspected the new leachate collection pipes installed in Phase 3 and 4. The existing collection pipes were jetted and

videoed on May 10, 2011, and the Phase 3 and 4 pipes were videoed on May 11, 2011. The leachate collection pipe cleaning report and DVD videos are included in Appendix L. The Phase 3 and 4 collection pipe videos are on the DVD labeled Video 3 and the existing pipe videos are on the DVDs labeled Video 1 and Video 2. The cleanout numbers referenced in the Phase 3 and 4 video are identified on Plan Sheet 5.

9.2.2 Pump Station Manhole, Sump, and Transfer System

The pump station manhole and sump were constructed as shown on the details on Plan Sheet 8. Two 18-inch-diameter leachate collection riser pipes are flange connected to the pump station manhole. The leachate collection riser pipes extend into the leachate collection sump and are connected in the sump with a "U shaped" pipe. The portion of the leachate collection riser pipe in the sump is perforated with ½ inch holes. The leachate pumps are installed in the inclined riser pipes. Refer to Photograph 28 in Appendix C.

The pump station manhole is a 6-feet-diameter (inside diameter) HDPE manhole with a fiberglass cover installed on a concrete pad. The manhole contains 3-inch-diameter ball valves and check valves as shown on Details 1 and F on Plan Sheet 8. Cam lock fittings connect the flexible hose from the pump to the 3-inch diameter HDPE piping in the manhole. The manhole was prefabricated by Forrer Supply Company. The shop drawing of the pump station manhole is included in Appendix J. Refer to Photograph 29 in Appendix C showing the inside of the pump station manhole.

The 3-inch diameter piping in the manhole is connected to 3-inch diameter forcemain pipe at the back side of the manhole where the piping transitions to dual containment piping outside the pump station manhole. The two lateral dual contained 3-inch-diameter carrier pipes (inside 6-inch-diameter containment pipes) tee into a dual contained (6-inch-diameter pipe inside 10-inch-diameter pipe) header pipe that was installed along the eastern perimeter berm. Refer to Photograph 30 in Appendix C showing Ryan butt-fusion welding the dual contained forcemain to the pump station manhole and the tees connecting the 3-inch dual contained lateral pipes to the 6-inch forcemain header pipe . The dual contained forcemain header pipe was connected to the existing Phase 2 dual contained forcemain header pipe located on the northeast side of Phase 3 and 4. Refer to Photograph 31 in Appendix C showing Ryan fusion welding the dual contained forcemain header to the existing Phase 2 dual contained forcemain header pipe. The forcemain header pipe was extended along the eastern perimeter berm and capped in the southeastern corner of Phase 3 and 4 for connecting to future liner phases. The location of the capped forcemain pipe was marked with a c-post for locating

the pipe in the future. The top of the forcemain pipe was surveyed by CAI at intervals along the pipe, as well as at the tie-in, tees and cap. The as constructed forcemain location is shown on Plan Sheet 4.

The forcemain pipe carrier and containment pipes were air pressure tested by Ryan prior to installation of the pipe. Ryan tested the pipe by sealing all the ends of the carrier pipe and the annular space between the pipes. The pipes were tested at a minimum air pressure of 5 pounds per square inch and held for a minimum of 30 minutes. The dual contained pipe passed air pressure testing. Refer to Photograph 32 in Appendix C showing the forcemain carrier pipe being pressure tested.

Two EPG SurePump 5 HP, 460 Volt, 3-Phase pumps were installed in the 18-inch–diameter collection riser pipes (one pump in each riser pipe) to pump the leachate collected in the sump to the leachate forcemain. Refer to Photograph 33 in Appendix C showing a leachate pump prior to installation. The pumps, pump panels, leads, controls, transducers, stainless steel cables, flexible hose, and other appurtenances associated with the pumps were procured by Domtar. The list of items procured by Domtar is included in Appendix E. Ryan's electrical subcontractor [Eastern Omni Contractors, Inc. (Omni)] of Greenville, North Carolina installed the pump panels, controls, and other electrical work associated with the pumps. The two pumps are set to run in lead-lag/alternating mode. Omni also installed the conduits and power cable from the existing leachate pump station manhole MH-5 to the new leachate pump station manhole (MH-6). The electrical plan for Phase 3 and 4 construction is shown on Plan Sheet 10 and the location of the electrical conduit is shown on Plan Sheet 5. Refer to Photographs 34 and 35 in Appendix C showing the panels being installed at the pump station manhole and the power conduit installed from the existing leachate pump station manhole MH-5 to MH-6.

Representatives from EPG were on-site the week of May 9, 2011 and tested the operation of the MH-6 pumps. Some wiring issues were identified by EPG. Omni corrected the wiring issues and the pumps were operating properly.

Section 10
Miscellaneous Construction Activities

10.1 Access Road Construction

Twenty four-feet-wide and 16-feet-wide access roads were constructed during Phase 3 and 4 construction at the locations shown on Plan Sheet 3. The roads consisted of an 8-inch–thick aggregate base course compacted over an 8 ounce per square yard non-woven geotextile manufactured by GSE. Manufactures' specifications for the 8-ounce geotextile (NW8) are contained in Appendix E. Quality control certifications on the 8-ounce geotextile are contained in Appendix F. The aggregate base course was obtained from the Hanson Aggregates – Rocky Mount Quarry located in Rocky Mount, North Carolina. Submittal information on the aggregate base course (ABC) is included in Appendix J. Ryan used haul trucks and dump trucks to haul the ABC from the on-site stockpile to the access road for placement. Dozers leveled the stone over the 8-ounce geotextile prior to compacting the ABC with a Caterpillar CS 563 smooth-drum roller. Refer to Photograph 36 in Appendix C showing a dozer leveling the ABC prior to compaction with the smooth-drum roller.

10.2 Topsoil, Seed, Fertilize and Mulch

An 8-inch thick layer of topsoil was placed at the locations shown on the details 1 and 2 on Plan Sheet 7. Topsoil was obtained from the on-site topsoil stockpile located south of the Phase 3 and 4 liner area on the east side of the haul road to the soil borrow area (see Plan Sheet 2). The topsoil was hauled from the topsoil stockpile to the perimeter of Phase 3 and 4 for placement using Volvo A40E off road haul trucks. Dozers were used to place the topsoil to an approximate thickness of 8 inches. After completing topsoil placement, GMI seeded, fertilized, and mulched the disturbed areas. Refer to Photograph 37 in Appendix C.

10.3 Borrow Site Restoration

The borrow site was restored by grading the disturbed areas of borrow area and seeding the area. The disturbed areas were graded to have smooth transitions in grade and to have positive drainage to a central area to have the borrow area function as a large sedimentation/infiltration basin. The borrow area was seeded by GMI under subcontract to Ryan. Refer to Photograph 38 in Appendix C showing the graded and seeded borrow area.

10.4 Wood Reclaim Pile

Domtar currently has a wood reclaim pile where wood products are stockpile and are reclaimed for use. The location of the wood reclaim pile is shown on Plan Sheet 2.

Table 1

Summary of Subbase Fill and Perimeter Berm Field Densities as Determined by Nuclear Density Gauge

Domtar Phase 3 & 4 Liner Construction

Plymouth, North Carolina

I.D. #	LOCATION	DRY DENSITY (pcf)	MOISTURE (%)	COMPACTION (%)	TEST DATE/STANDARD PROCTOR VALUE: MAX. DRY DENSITY, OPTIMUM MOISTURE
154	Delineation Berm	108.1	17.3	96.4	3/11/11 -- 112.1 pcf @14.4 %
226	Delineation Berm	109.1	16.2	97.3	3/11/11 -- 112.1 pcf @14.4 %
310	Delineation Berm	108.0	17.3	96.3	3/11/11 -- 112.1 pcf @14.4 %
104	West Perimeter Berm	112.5	15.9	100.4	3/14/11 -- 112.1 pcf @14.4 %
107	West Perimeter Berm	112.8	15.5	100.6	3/14/11 -- 112.1 pcf @14.4 %
108	West Perimeter Berm	111.4	16.6	99.4	3/14/11 -- 112.1 pcf @14.4 %
268	Subbase Fill	110.9	16.5	98.9	3/15/11 -- 112.1 pcf @14.4 %
292	Subbase Fill	111.1	16.7	99.1	3/15/11 -- 112.1 pcf @14.4 %
295	Subbase Fill	110.6	17.2	98.7	3/17/11 -- 112.1 pcf @14.4 %
266	Subbase Fill	104.3	20.8	97.0	3/21/11 -- 107.5 pcf @17.5 %
291	Subbase Fill	103.7	21.3	96.5	3/21/11 -- 107.5 pcf @17.5 %
289	Subbase Fill	111.9	15.9	99.8	3/22/11 -- 112.1 pcf @14.4 %
301	Subbase Fill	109.7	16.6	97.9	3/22/11 -- 112.1 pcf @14.4 %
213	Subbase Fill	112.9	15.3	100.7	3/22/11 -- 112.1 pcf @14.4 %
325	Subbase Fill	111.5	15.6	99.5	3/23/11 -- 112.1 pcf @14.4 %
369	Subbase Fill	110.3	15.7	98.4	3/23/11 -- 112.1 pcf @14.4 %
314	Subbase Fill	109.5	17.4	99.1	3/23/11 -- 110.5 pcf @16.1 %
325	Subbase Fill	107.5	18.1	97.3	3/23/11 -- 110.5 pcf @16.1 %
324	Subbase Fill	108.3	18.0	98.0	3/23/11 -- 110.5 pcf @16.1 %
364	Subbase Fill	110.8	16.6	98.8	3/23/11 -- 110.5 pcf @16.1 %
353	East Perimeter Berm	109.7	18.0	99.3	4/14/11 -- 110.5 pcf @16.1 %
356	East Perimeter Berm	110.4	17.8	99.9	4/14/11 -- 110.5 pcf @16.1 %
355	East Perimeter Berm	110.8	18.2	100.3	4/14/11 -- 110.5 pcf @16.1 %
353	East Perimeter Berm	110.4	18.1	99.9	4/14/11 -- 110.5 pcf @16.1 %
353	East Perimeter Berm	111.2	17.6	100.6	4/14/11 -- 110.5 pcf @16.1 %
107	West Perimeter Berm	108.2	18.5	97.9	4/14/11 -- 110.5 pcf @16.1 %
110	West Perimeter Berm	109.2	19.0	98.8	4/14/11 -- 110.5 pcf @16.1 %
Requirements Summary:				≥ 95	
Mean				98.8	
Standard Deviation				1.3	
Maximum				100.7	
Minimum				96.3	

Prepared by: Kim Pawlisch

Checked by: Oliver Kaiser

Project No.: 05794.49.001

Table 2

Summary of Prepared Subgrade and Select Clay Fill Field Densities as Determined by Nuclear Density Gauge

Domtar Phase 3 & 4 Liner Construction

Plymouth, North Carolina

I.D. #	COORDINATES NORTH	COORDINATES EAST	LIFT#	DRY DENSITY (pcf)	MOISTURE (%)	ABOVE OPTIMUM MOISTURE (%)	COMPACTION (%)	TEST DATE/STANDARD PROCTOR VALUE: MAX. DRY DENSITY, OPTIMUM MOISTURE
132	767890	2658110	1	108.7	16.9	2.5	97.0	3/14/11 -- 112.1 pcf @ 14.4 %
134	767810	2658110	1	106.5	19.1	4.7	95.0	3/14/11 -- 112.1 pcf @14.4 %
136	767710	2658110	1	107.0	16.6	2.2	95.5	3/14/11 -- 112.1 pcf @14.4 %
138	767610	2658110	1	103.4	20.4	2.9	96.2	3/14/11 -- 107.5 pcf @17.5 %
142	767508	2658110	1	104.3	20.6	3.1	97.0	3/19/11 -- 107.5 pcf @17.5 %
156	767891	2658210	1	105.8	18.9	2.8	95.8	3/14/11 -- 110.5 pcf @16.1 %
158	767810	2658210	1	107.5	16.6	2.2	95.9	3/14/11 -- 112.1 pcf @14.4 %
160	767710	2658210	1	103.2	20.6	3.1	96.0	3/14/11 -- 107.5 pcf @17.5 %
162	767610	2658210	1	103.5	20.1	2.6	96.3	3/14/11 -- 107.5 pcf @17.5 %
166	767508	2658210	1	105.2	19.8	2.3	97.9	3/19/11 -- 107.5 pcf @17.5 %
180	767892	2658310	1	110.0	16.7	2.3	98.1	3/14/11 -- 112.1 pcf @14.4 %
182	767810	2658310	1	103.1	20.8	3.3	95.9	3/14/11 -- 107.5 pcf @17.5 %
184	767710	2658310	1	102.9	20.9	3.4	95.7	3/14/11 -- 107.5 pcf @17.5 %
186	767610	2658310	1	102.2	21.0	3.5	95.1	3/14/11 -- 107.5 pcf @17.5 %
190	767508	2658310	1	104.1	20.2	2.7	96.8	3/19/11 -- 107.5 pcf @17.5 %
204	767893	2658410	1	108.9	18.2	3.8	97.2	3/14/11 -- 112.1 pcf @14.4 %
206	767810	2658410	1	104.0	20.5	3.0	96.7	3/14/11 -- 107.5 pcf @17.5 %
208	767710	2658410	1	104.3	20.3	2.8	97.0	3/14/11 -- 107.5 pcf @17.5 %
210	767610	2658410	1	106.6	18.3	2.2	96.5	3/15/11 -- 110.5 pcf @16.1 %
214	767508	2658410	1	103.5	20.3	2.8	96.3	3/19/11 -- 107.5 pcf @17.5 %
228	767895	2658510	1	108.4	17.0	2.6	96.7	3/15/11 -- 112.1 pcf @14.4 %
230	767810	2658510	1	108.1	17.3	2.9	96.4	3/15/11 -- 112.1 pcf @14.4 %
232	767710	2658510	1	105.4	19.9	3.8	95.4	3/15/11 -- 110.5 pcf @16.1 %
234	767610	2658510	1	106.0	18.6	2.5	95.9	3/15/11 -- 110.5 pcf @16.1 %
238	767508	2658510	1	103.1	20.5	3.0	95.9	3/19/11 -- 107.5 pcf @17.5 %
252	767895	2658610	1	107.8	17.8	3.4	96.1	3/24/11 -- 112.1 pcf @14.4 %
254	767810	2658610	1	107.1	18.1	3.7	95.5	3/24/11 -- 112.1 pcf @14.4 %
256	767711	2658610	1	102.5	19.9	2.4	95.3	3/21/11 -- 107.5 pcf @17.5 %
258	767610	2658610	1	108.1	17.7	3.3	96.3	3/19/11 -- 112.1 pcf @14.4 %
262	767508	2658610	1	105.2	20.5	3.0	97.9	3/19/11 -- 107.5 pcf @17.5 %
276	767895	2658710	1	108.9	17.9	3.5	97.1	3/24/11 -- 112.1 pcf @14.4 %
278	767810	2658710	1	108.6	18.3	3.9	96.9	3/24/11 -- 112.1 pcf @14.4 %
280	767712	2658710	1	105.2	19.9	2.4	97.9	3/21/11 -- 107.5 pcf @17.5 %
282	767610	2658710	1	103.8	20.8	3.3	96.5	3/21/11 -- 107.5 pcf @17.5 %
286	767508	2658710	1	103.0	21.1	3.6	95.8	3/19/11 -- 107.5 pcf @17.5 %
300	767896	2658810	1	103.7	21.0	3.5	96.5	4/8/11 -- 107.5 pcf @17.5 %
302	767810	2658810	1	104.5	20.6	3.1	97.2	4/8/11 -- 107.5 pcf @17.5 %
304	767713	2658810	1	105.1	20.2	2.7	97.7	3/21/11 -- 107.5 pcf @17.5 %
306	767610	2658810	1	105.3	21.0	3.5	97.9	3/21/11 -- 107.5 pcf @17.5 %
310	767508	2658810	1	103.2	20.9	3.4	96.0	3/19/11 -- 107.5 pcf @17.5 %
323	767896	2658907	1	105.5	20.8	3.3	98.1	4/8/11 -- 107.5 pcf @17.5 %
326	767713	2658903	1	102.9	21.6	4.1	95.7	3/21/11 -- 107.5 pcf @17.5 %
328	767610	2658910	1	102.2	22.3	4.8	95.1	3/21/11 -- 107.5 pcf @17.5 %
332	767508	2658910	1	103.8	20.7	3.2	96.5	3/21/11 -- 107.5 pcf @17.5 %
343	767810	2658916	1	103.6	21.0	3.5	96.5	4/14/11 -- 107.5 pcf @17.5 %
114	767860	2658081	2	108.1	18.6	4.2	96.4	3/21/11 -- 112.1 pcf @14.4 %
116	767760	2658081	2	107.5	18.7	4.3	95.9	3/21/11 -- 112.1 pcf @14.4 %
118	767660	2658081	2	107.7	16.7	2.3	96.1	3/21/11 -- 112.1 pcf @14.4 %
120	767560	2658081	2	107.5	17.0	2.6	95.9	3/21/11 -- 112.1 pcf @14.4 %
145	767860	2658160	2	103.1	20.7	3.2	95.9	3/17/11 -- 107.5 pcf @17.5 %
147	767760	2658160	2	102.9	19.5	2.0	95.7	3/18/11 -- 107.5 pcf @17.5 %
149	767660	2658160	2	102.9	19.8	2.3	95.7	3/18/11 -- 107.5 pcf @17.5 %
151	767560	2658160	2	104.4	20.5	3.0	97.1	3/18/11 -- 107.5 pcf @17.5 %
169	767860	2658260	2	102.8	20.9	3.4	95.6	3/17/11 -- 107.5 pcf @17.5 %

Table 2 (continued)

Summary of Prepared Subgrade and Select Clay Fill Field Densities as Determined by Nuclear Density Gauge

Domtar Phase 3 & 4 Liner Construction

Plymouth, North Carolina

I.D. #	COORDINATES NORTH	COORDINATES EAST	LIFT#	DRY DENSITY (pcf)	MOISTURE (%)	ABOVE OPTIMUM MOISTURE (%)	COMPACTION (%)	TEST DATE/STANDARD PROCTOR VALUE: MAX. DRY DENSITY, OPTIMUM MOISTURE
171	767760	2658260	2	106.4	20.3	2.8	99.0	3/18/11 -- 107.5 pcf @17.5 %
173	767660	2658260	2	104.0	19.7	2.2	96.8	3/18/11 -- 107.5 pcf @17.5 %
175	767560	2658260	2	102.7	22.4	4.9	95.6	3/18/11 -- 107.5 pcf @17.5 %
193	767860	2658360	2	105.8	21.1	3.6	98.4	3/17/11 -- 107.5 pcf @17.5 %
195	767760	2658360	2	104.9	19.9	2.4	97.6	3/18/11 -- 107.5 pcf @17.5 %
197	767660	2658360	2	102.2	21.5	4.0	95.1	3/18/11 -- 107.5 pcf @17.5 %
199	767560	2658360	2	102.4	22.5	5.0	95.3	3/18/11 -- 107.5 pcf @17.5 %
217	767860	2658460	2	105.5	19.2	3.1	95.5	3/17/11 -- 110.5 pcf @16.1 %
219	767760	2658460	2	103.5	20.4	2.9	96.3	3/25/11 -- 107.5 pcf @17.5 %
221	767660	2658460	2	103.2	20.7	3.2	96.0	3/25/11 -- 107.5 pcf @17.5 %
223	767560	2658460	2	102.1	20.6	3.1	95.0	3/25/11 -- 107.5 pcf @17.5 %
241	767860	2658560	2	103.5	19.5	2.0	96.3	3/25/11 -- 107.5 pcf @17.5 %
243	767760	2658560	2	103.2	19.7	2.2	96.0	3/25/11 -- 107.5 pcf @17.5 %
245	767660	2658560	2	107.0	20.1	2.6	99.5	3/23/11 -- 107.5 pcf @17.5 %
247	767560	2658560	2	103.2	21.3	3.8	96.0	3/23/11 -- 107.5 pcf @17.5 %
265	767860	2658660	2	106.8	20.0	2.5	99.3	3/25/11 -- 107.5 pcf @17.5 %
267	767760	2658660	2	103.6	21.5	4.0	96.4	3/25/11 -- 107.5 pcf @17.5 %
269	767660	2658660	2	106.5	21.0	3.5	99.0	3/23/11 -- 107.5 pcf @17.5 %
271	767560	2658660	2	102.2	21.8	4.3	95.0	3/23/11 -- 107.5 pcf @17.5 %
289	767860	2658760	2	109.1	19.5	3.4	98.7	4/8/11 -- 110.5 pcf @16.1 %
291	767760	2658760	2	109.5	19.6	3.5	99.1	4/8/11 -- 110.5 pcf @16.1 %
293	767660	2658760	2	104.3	21.0	3.5	97.0	3/23/11 -- 107.5 pcf @17.5 %
295	767560	2658760	2	103.3	21.0	3.5	96.1	3/23/11 -- 107.5 pcf @17.5 %
313	767860	2658860	2	110.4	19.0	2.9	99.9	4/8/11 -- 110.5 pcf @16.1 %
315	767760	2658860	2	108.6	20.3	4.2	98.3	4/8/11 -- 110.5 pcf @16.1 %
317	767660	2658860	2	109.0	20.1	4.0	98.7	4/8/11 -- 110.5 pcf @16.1 %
319	767560	2658860	2	109.5	19.9	3.8	99.1	4/8/11 -- 110.5 pcf @16.1 %
SCF	Select Clay Fill in Sump		1	107.0	19.7	2.2	101.0	4/8/11 -- 105.9 pcf @17.5%
SCF	Select Clay Fill in Sump		2	105.4	19.9	2.4	99.5	4/8/11 -- 105.9 pcf @17.5%
SCF	Select Clay Fill in Sump		3	106.4	20.0	2.5	100.5	4/8/11 -- 105.9 pcf @17.5%
SCF	Select Clay Fill in Sump		4	105.6	19.9	2.4	99.7	4/8/11 -- 105.9 pcf @17.5%
Requirements Summary:						≥ 2	≥ 95	
Mean						3.2	96.8	
Standard Deviation						0.7	1.4	
Maximum						5.0	101.0	
Minimum						2.0	95.0	

Prepared by: Kim Pawlisch

Checked by: Oliver Kaiser

Project No.: 05794.49.001

Table 3
Summary of Liner Coordinates, Elevations, and Thicknesses
Domtar Paper Company, LLC
Landfill No. 3 - Phase 3 & 4 Construction
Plymouth, North Carolina

POINT NO.	LOCATION		SUBBASE GRADES (FT.)		BASE GRADES (FT.)		PREPARED SUBGRADE THICKNESS (FT.)		TOP OF SELECT GRANULAR FILL GRADES (FT.)		NO. 67 CRUSHED STONE LAYER THICKNESS (FT.)		SELECT GRANULAR FILL LAYER THICKNESS (FT.)		DESCRIPTION
	NORTHING	EASTING	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	
102	767897.11	2658076.66	41.59	41.59	42.59	42.71	1.0	1.1	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
103	767860.00	2658076.66	41.61	41.28	42.61	42.79	1.0	1.5	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
104	767809.99	2658076.66	42.00	42.00	43.00	43.17	1.0	1.2	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
105	767760.00	2658076.66	42.39	42.33	43.39	43.43	1.0	1.1	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
106	767710.11	2658076.66	42.78	42.66	43.78	44.01	1.0	1.3	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
107	767660.00	2658076.66	43.17	42.99	44.17	44.40	1.0	1.4	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
108	767610.06	2658076.66	43.56	43.21	44.56	44.62	1.0	1.4	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
109	767560.00	2658076.66	43.95	43.91	44.95	45.00	1.0	1.1	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
110	767523.13	2658076.66	44.24	44.22	45.24	45.42	1.0	1.2	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
111	767519.10	2658076.61	45.65	45.32	46.70	46.93	1.1	1.6	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
112	767508.10	2658076.61	45.92	44.89	46.92	46.97	1.0	2.1	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
113	767893.561	2658079.25	41.68	41.18	42.73	42.67	1.1	1.5	43.73	43.81	1.0	1.1	N/A	N/A	Top of Berm Break
114	767860.00	2658080.66	41.64	41.19	42.69	42.82	1.1	1.6	43.69	44.02	1.0	1.2	N/A	N/A	Top of Berm Break
115	767809.99	2658080.66	42.03	41.53	43.08	43.24	1.1	1.7	44.08	44.61	1.0	1.4	N/A	N/A	Top of Berm Break
116	767760.00	2658080.66	42.42	42.30	43.47	43.66	1.1	1.4	44.47	45.01	1.0	1.3	N/A	N/A	Top of Berm Break
117	767710.11	2658080.66	42.81	42.85	43.86	44.09	1.1	1.2	44.86	45.30	1.0	1.2	N/A	N/A	Top of Berm Break
118	767660.00	2658080.66	43.20	43.09	44.25	44.46	1.1	1.4	45.25	45.54	1.0	1.1	N/A	N/A	Top of Berm Break
119	767610.06	2658080.66	43.59	43.63	44.64	44.78	1.1	1.1	45.64	45.78	1.0	1.0	N/A	N/A	Top of Berm Break
120	767560.00	2658080.66	43.98	43.95	45.03	45.20	1.1	1.2	46.03	46.20	1.0	1.0	N/A	N/A	Top of Berm Break
121	767523.13	2658080.66	44.27	44.15	45.32	45.49	1.1	1.3	46.32	46.60	1.0	1.1	N/A	N/A	Top of Berm Break
122	767888.098	2658089.54	39.04	39.04	40.04	40.82	1.0	1.8	41.54	43.16	1.0	1.4	0.5	0.9	Toe of Slope Corner
123	767860.00	2658089.95	38.60	38.63	39.60	40.06	1.0	1.4	41.10	42.47	1.0	1.4	0.5	1.0	Toe of Slope
124	767809.99	2658092.66	38.09	38.06	39.09	39.71	1.0	1.6	40.59	42.88	1.0	2.0	0.5	1.2	Toe of Slope
125	767760.00	2658089.88	39.40	39.30	40.40	40.74	1.0	1.4	41.90	43.08	1.0	1.3	0.5	1.0	Toe of Slope
126	767710.11	2658087.11	40.71	40.75	41.71	42.20	1.0	1.5	43.21	44.22	1.0	1.4	0.5	0.6	Toe of Slope
127	767660.00	2658089.83	40.20	40.23	41.20	41.76	1.0	1.5	42.70	44.08	1.0	1.5	0.5	0.8	Toe of Slope
128	767610.06	2658092.53	39.69	39.62	40.69	41.04	1.0	1.4	42.19	44.09	1.0	1.6	0.5	1.4	Toe of Slope
129	767560.00	2658092.20	40.19	40.01	41.19	41.70	1.0	1.7	42.69	44.26	1.0	1.6	0.5	1.0	Toe of Slope
130	767534.42	2658092.02	40.45	40.30	41.45	41.93	1.0	1.6	42.95	45.81	1.0	2.6	0.5	1.3	Toe of Slope
131	767894.353	2658110.00	41.01	41.01	42.06	42.23	1.1	1.2	43.56	44.21	1.0	1.4	0.5	0.6	Top Inside Break of Delineation Berm
132	767887.761	2658110.00	38.79	38.79	39.79	40.15	1.0	1.4	41.29	41.97	1.0	1.2	0.5	0.6	Toe of Delineation Berm Slope
133	767860.00	2658110.00	38.50	38.46	39.50	39.56	1.0	1.1	41.00	41.08	1.0	1.0	0.5	0.5	Grid Point
134	767809.99	2658110.00	38.00	37.82	39.00	39.09	1.0	1.3	40.80	41.05	1.3	1.4	0.5	0.6	Leachate Collection Trench
135	767760.00	2658110.00	39.30	39.23	40.30	40.36	1.0	1.1	41.80	41.92	1.0	1.1	0.5	0.5	Grid Point

Table 3 (continued)
Summary of Liner Coordinates, Elevations, and Thicknesses
Domtar Paper Company, LLC
Landfill No. 3 - Phase 3 & 4 Construction
Plymouth, North Carolina

POINT NO.	LOCATION		SUBBASE GRADES (FT.)		BASE GRADES (FT.)		PREPARED SUBGRADE THICKNESS (FT.)		TOP OF SELECT GRANULAR FILL GRADES (FT.)		NO. 67 CRUSHED STONE LAYER THICKNESS (FT.)		SELECT GRANULAR FILL LAYER THICKNESS (FT.)		DESCRIPTION
	NORTHING	EASTING	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	
136	767710.11	2658110.00	40.60	40.21	41.60	41.73	1.0	1.5	43.10	43.31	1.0	1.1	0.5	0.5	High Point
137	767660.00	2658110.00	40.10	39.92	41.10	41.17	1.0	1.2	42.60	42.72	1.0	1.1	0.5	0.5	Grid Point
138	767610.06	2658110.00	39.60	39.45	40.60	40.67	1.0	1.2	42.40	43.25	1.3	1.9	0.5	0.7	Leachate Collection Trench
139	767560.00	2658110.00	40.10	39.88	41.10	41.17	1.0	1.3	42.60	42.76	1.0	1.1	0.5	0.5	Grid Point
140	767534.14	2658110.00	40.36	40.26	41.36	41.92	1.0	1.7	42.86	44.04	1.0	1.4	0.5	0.7	Toe of Delineation Berm Slope
141	767519.11	2658110.00	45.32	45.11	46.37	46.62	1.1	1.5	47.37	47.85	1.0	1.2	N/A	N/A	Top Inside Break of Delineation Berm
142	767508.11	2658110.00	45.59	45.25	46.59	46.53	1.0	1.3	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
143	767894.537	2658160.00	40.76	40.76	41.81	42.03	1.1	1.3	43.31	43.92	1.0	1.3	0.5	0.6	Top Inside Break of Delineation Berm
144	767887.382	2658160.00	38.45	38.45	39.45	39.79	1.0	1.3	40.95	41.31	1.0	1.0	0.5	0.5	Toe of Delineation Berm Slope
145	767860.00	2658160.00	38.25	38.20	39.25	39.36	1.0	1.2	40.75	40.92	1.0	1.1	0.5	0.5	Grid Point
146	767809.99	2658160.00	37.75	37.72	38.75	38.87	1.0	1.1	40.55	40.88	1.3	1.4	0.5	0.6	Leachate Collection Trench
147	767760.00	2658160.00	39.05	38.88	40.05	40.12	1.0	1.2	41.55	41.72	1.0	1.1	0.5	0.5	Grid Point
148	767710.11	2658160.00	40.35	40.07	41.35	41.34	1.0	1.3	42.85	42.91	1.0	1.1	0.5	0.5	High Point
149	767660.00	2658160.00	39.85	39.67	40.85	40.89	1.0	1.2	42.35	42.40	1.0	1.0	0.5	0.5	Grid Point
150	767610.06	2658160.00	39.35	39.29	40.35	40.47	1.0	1.2	42.15	42.59	1.3	1.5	0.5	0.6	Leachate Collection Trench
151	767560.00	2658160.00	39.85	39.56	40.85	40.88	1.0	1.3	42.35	42.40	1.0	1.0	0.5	0.5	Grid Point
152	767533.39	2658160.00	40.12	39.91	41.12	41.37	1.0	1.5	42.62	43.34	1.0	1.5	0.5	0.5	Toe of Delineation Berm Slope
153	767519.14	2658160.00	44.82	44.83	45.87	46.11	1.1	1.3	46.87	47.50	1.0	1.4	N/A	N/A	Top Inside Break of Delineation Berm
154	767508.14	2658160.00	45.09	45.01	46.09	46.15	1.0	1.1	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
155	767894.82	2658210.00	40.50	40.50	41.55	42.06	1.1	1.6	43.05	43.80	1.0	1.1	0.5	0.6	Top Inside Break of Delineation Berm
156	767888.45	2658210.00	38.23	38.23	39.23	39.78	1.0	1.5	40.73	41.39	1.0	1.1	0.5	0.5	Toe of Delineation Berm Slope
157	767860.00	2658210.00	38.00	37.80	39.00	38.97	1.0	1.2	40.50	40.55	1.0	1.1	0.5	0.5	Grid Point
158	767809.99	2658210.00	37.50	37.51	38.50	38.70	1.0	1.2	40.30	40.60	1.3	1.4	0.5	0.5	Leachate Collection Trench
159	767760.00	2658210.00	38.80	38.72	39.80	39.89	1.0	1.2	41.30	41.53	1.0	1.1	0.5	0.5	Grid Point
160	767710.11	2658210.00	40.10	39.81	41.10	41.11	1.0	1.3	42.60	42.68	1.0	1.1	0.5	0.5	High Point
161	767660.00	2658210.00	39.60	39.55	40.60	40.68	1.0	1.1	42.10	42.18	1.0	1.0	0.5	0.5	Grid Point
162	767610.06	2658210.00	39.10	38.99	40.10	40.22	1.0	1.2	41.90	42.40	1.3	1.6	0.5	0.6	Leachate Collection Trench
163	767560.00	2658210.00	39.60	39.53	40.60	40.67	1.0	1.1	42.10	42.20	1.0	1.0	0.5	0.5	Grid Point
164	767532.64	2658210.00	39.87	39.62	40.87	41.24	1.0	1.6	42.37	43.23	1.0	1.5	0.5	0.5	Toe of Delineation Berm Slope
165	767519.16	2658210.00	44.32	44.16	45.37	45.49	1.1	1.3	46.37	47.15	1.0	1.7	N/A	N/A	Top Inside Break of Delineation Berm
166	767508.16	2658210.00	44.59	44.54	45.59	45.56	1.0	1.0	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
167	767894.881	2658260.00	39.94	39.94	40.99	41.35	1.1	1.4	42.49	43.75	1.0	1.9	0.5	0.5	Top Inside Break of Delineation Berm
168	767888.606	2658260.00	38.07	38.07	39.07	39.44	1.0	1.4	40.57	41.15	1.0	1.1	0.5	0.6	Toe of Delineation Berm Slope
169	767860.00	2658260.00	37.75	37.67	38.75	38.77	1.0	1.1	40.25	40.39	1.0	1.0	0.5	0.6	Grid Point

Table 3 (continued)
Summary of Liner Coordinates, Elevations, and Thicknesses
Domtar Paper Company, LLC
Landfill No. 3 - Phase 3 & 4 Construction
Plymouth, North Carolina

POINT NO.	LOCATION		SUBBASE GRADES (FT.)		BASE GRADES (FT.)		PREPARED SUBGRADE THICKNESS (FT.)		TOP OF SELECT GRANULAR FILL GRADES (FT.)		NO. 67 CRUSHED STONE LAYER THICKNESS (FT.)		SELECT GRANULAR FILL LAYER THICKNESS (FT.)		DESCRIPTION
	NORTHING	EASTING	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	
170	767809.99	2658260.00	37.25	37.20	38.25	38.39	1.0	1.2	40.05	40.29	1.3	1.4	0.5	0.5	Leachate Collection Trench
171	767760.00	2658260.00	38.55	38.51	39.55	39.68	1.0	1.2	41.05	41.19	1.0	1.0	0.5	0.5	Grid Point
172	767710.11	2658260.00	39.85	39.86	40.85	40.87	1.0	1.0	42.35	42.43	1.0	1.1	0.5	0.5	High Point
173	767660.00	2658260.00	39.35	39.26	40.35	40.34	1.0	1.1	41.85	41.93	1.0	1.1	0.5	0.5	Grid Point
174	767610.06	2658260.00	38.85	38.84	39.85	39.89	1.0	1.1	41.65	41.78	1.3	1.4	0.5	0.5	Leachate Collection Trench
175	767560.00	2658260.00	39.35	39.26	40.35	40.40	1.0	1.1	41.85	41.93	1.0	1.0	0.5	0.5	Grid Point
176	767531.88	2658260.00	39.63	39.57	40.63	40.98	1.0	1.4	42.13	43.10	1.0	1.6	0.5	0.5	Toe of Delineation Berm Slope
177	767519.18	2658260.00	43.81	43.70	44.86	44.99	1.1	1.3	45.86	46.38	1.0	1.4	N/A	N/A	Top Inside Break of Delineation Berm
178	767508.18	2658260.00	44.08	44.05	45.08	45.13	1.0	1.1	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
179	767895.168	2658310.00	39.72	39.72	40.77	41.09	1.1	1.4	42.27	44.28	1.0	2.7	0.5	0.5	Top Inside Break of Delineation Berm
180	767888.965	2658310.00	37.93	37.93	38.93	39.38	1.0	1.4	40.43	40.91	1.0	1.0	0.5	0.5	Toe of Delineation Berm Slope
181	767860.00	2658310.00	37.50	37.40	38.50	38.55	1.0	1.2	40.00	40.08	1.0	1.0	0.5	0.5	Grid Point
182	767809.99	2658310.00	37.00	36.92	38.00	38.22	1.0	1.3	39.80	40.22	1.3	1.5	0.5	0.5	Leachate Collection Trench
183	767760.00	2658310.00	38.30	38.24	39.30	39.41	1.0	1.2	40.80	40.94	1.0	1.0	0.5	0.5	Grid Point
184	767710.11	2658310.00	39.60	39.47	40.60	40.72	1.0	1.2	42.10	42.29	1.0	1.1	0.5	0.5	High Point
185	767660.00	2658310.00	39.10	39.05	40.10	40.14	1.0	1.1	41.60	41.66	1.0	1.0	0.5	0.5	Grid Point
186	767610.06	2658310.00	38.60	38.54	39.60	39.55	1.0	1.0	41.40	41.58	1.3	1.4	0.5	0.6	Leachate Collection Trench
187	767560.00	2658310.00	39.10	39.09	40.10	40.13	1.0	1.0	41.60	41.70	1.0	1.1	0.5	0.5	Grid Point
188	767531.13	2658310.00	39.39	39.36	40.39	40.89	1.0	1.5	41.89	42.93	1.0	1.5	0.5	0.5	Toe of Delineation Berm Slope
189	767519.20	2658310.00	43.31	43.03	44.36	44.59	1.1	1.6	45.36	45.92	1.0	1.3	N/A	N/A	Top Inside Break of Delineation Berm
190	767508.20	2658310.00	43.58	43.51	44.58	44.65	1.0	1.1	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
191	767895.035	2658360.00	39.46	39.46	40.51	40.55	1.1	1.1	42.01	43.74	1.0	2.7	0.5	0.5	Top Inside Break of Delineation Berm
192	767889.512	2658360.00	37.77	37.77	38.77	39.08	1.0	1.3	40.27	40.65	1.0	1.1	0.5	0.5	Toe of Delineation Berm Slope
193	767860.00	2658360.00	37.25	37.10	38.25	38.33	1.0	1.2	39.75	39.98	1.0	1.1	0.5	0.5	Grid Point
194	767809.99	2658360.00	36.75	36.72	37.75	37.99	1.0	1.3	39.55	39.92	1.3	1.4	0.5	0.5	Leachate Collection Trench
195	767760.00	2658360.00	38.05	37.98	39.05	39.06	1.0	1.1	40.55	40.57	1.0	1.0	0.5	0.5	Grid Point
196	767710.11	2658360.00	39.35	39.19	40.35	40.48	1.0	1.3	41.85	42.06	1.0	1.1	0.5	0.5	High Point
197	767660.00	2658360.00	38.85	38.79	39.85	39.85	1.0	1.1	41.35	41.37	1.0	1.0	0.5	0.5	Grid Point
198	767610.06	2658360.00	38.35	38.19	39.35	39.50	1.0	1.3	41.15	41.53	1.3	1.4	0.5	0.6	Leachate Collection Trench
199	767560.00	2658360.00	38.85	38.81	39.85	39.86	1.0	1.1	41.35	41.48	1.0	1.1	0.5	0.5	Grid Point
200	767530.38	2658360.00	39.15	39.02	40.15	40.73	1.0	1.7	41.65	42.88	1.0	1.7	0.5	0.5	Toe of Delineation Berm Slope
201	767519.23	2658360.00	42.81	42.70	43.86	44.05	1.1	1.3	44.86	45.26	1.0	1.2	N/A	N/A	Top Inside Break of Delineation Berm
202	767508.23	2658360.00	43.08	42.74	44.08	44.11	1.0	1.4	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
203	767894.086	2658410.00	39.13	39.13	40.18	40.33	1.1	1.2	41.68	43.24	1.0	2.4	0.5	0.5	Top Inside Break of Delineation Berm

Table 3 (continued)
Summary of Liner Coordinates, Elevations, and Thicknesses
Domtar Paper Company, LLC
Landfill No. 3 - Phase 3 & 4 Construction
Plymouth, North Carolina

POINT NO.	LOCATION		SUBBASE GRADES (FT.)		BASE GRADES (FT.)		PREPARED SUBGRADE THICKNESS (FT.)		TOP OF SELECT GRANULAR FILL GRADES (FT.)		NO. 67 CRUSHED STONE LAYER THICKNESS (FT.)		SELECT GRANULAR FILL LAYER THICKNESS (FT.)		DESCRIPTION
	NORTHING	EASTING	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	
204	767888.966	2658410.00	37.20	37.20	38.20	38.79	1.0	1.6	39.70	40.38	1.0	1.1	0.5	0.5	Toe of Delineation Berm Slope
205	767860.00	2658410.00	37.00	36.94	38.00	38.02	1.0	1.1	39.50	39.55	1.0	1.0	0.5	0.5	Grid Point
206	767809.99	2658410.00	36.50	36.46	37.50	37.63	1.0	1.2	39.30	39.65	1.3	1.4	0.5	0.6	Leachate Collection Trench
207	767760.00	2658410.00	37.80	37.70	38.80	38.84	1.0	1.1	40.30	40.40	1.0	1.1	0.5	0.5	Grid Point
208	767710.11	2658410.00	39.10	39.08	40.10	40.22	1.0	1.1	41.60	41.79	1.0	1.1	0.5	0.5	High Point
209	767660.00	2658410.00	38.60	38.58	39.60	39.58	1.0	1.0	41.10	41.11	1.0	1.0	0.5	0.5	Grid Point
210	767610.06	2658410.00	38.10	38.09	39.10	39.15	1.0	1.1	40.90	41.13	1.3	1.5	0.5	0.5	Leachate Collection Trench
211	767560.00	2658410.00	38.60	38.55	39.60	39.66	1.0	1.1	41.10	41.23	1.0	1.1	0.5	0.5	Grid Point
212	767529.62	2658410.00	38.90	38.69	39.90	40.58	1.0	1.9	41.40	42.82	1.0	1.7	0.5	0.5	Toe of Delineation Berm Slope
213	767519.25	2658410.00	42.31	42.29	43.36	43.55	1.1	1.3	44.36	44.56	1.0	1.0	N/A	N/A	Top Inside Break of Delineation Berm
214	767508.25	2658410.00	42.58	42.32	43.58	43.68	1.0	1.4	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
215	767893.82	2658460.00	38.76	38.76	39.81	39.90	1.1	1.1	41.31	43.09	1.0	2.7	0.5	0.5	Top Inside Break of Delineation Berm
216	767887.50	2658460.00	37.20	37.20	38.20	38.32	1.0	1.1	39.70	39.91	1.0	1.1	0.5	0.5	Toe of Delineation Berm Slope
217	767860.00	2658460.00	36.75	36.73	37.75	37.79	1.0	1.1	39.25	39.30	1.0	1.0	0.5	0.5	Grid Point
218	767809.99	2658460.00	36.25	36.00	37.25	37.34	1.0	1.3	39.05	39.39	1.3	1.4	0.5	0.6	Leachate Collection Trench
219	767760.00	2658460.00	37.55	37.41	38.55	38.61	1.0	1.2	40.05	40.16	1.0	1.0	0.5	0.5	Grid Point
220	767710.11	2658460.00	38.85	38.82	39.85	39.96	1.0	1.1	41.35	41.47	1.0	1.0	0.5	0.5	High Point
221	767660.00	2658460.00	38.35	38.36	39.35	39.41	1.0	1.0	40.85	40.97	1.0	1.1	0.5	0.5	Grid Point
222	767610.06	2658460.00	37.85	37.88	38.85	38.96	1.0	1.1	40.65	40.93	1.3	1.4	0.5	0.6	Leachate Collection Trench
223	767560.00	2658460.00	38.35	38.33	39.35	39.34	1.0	1.0	40.85	40.88	1.0	1.0	0.5	0.5	Grid Point
224	767528.87	2658460.00	38.66	38.67	39.66	40.20	1.0	1.5	41.16	42.32	1.0	1.4	0.5	0.7	Toe of Delineation Berm Slope
225	767519.27	2658460.00	41.81	41.82	42.86	43.08	1.1	1.3	43.86	44.46	1.0	1.4	N/A	N/A	Top Inside Break of Delineation Berm
226	767508.27	2658460.00	42.08	41.90	43.08	43.30	1.0	1.4	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
227	767894.565	2658510.00	38.76	38.76	39.81	39.92	1.1	1.2	41.31	42.67	1.0	2.3	0.5	0.5	Top Inside Break of Delineation Berm
228	767887.261	2658510.00	37.00	37.00	38.00	38.08	1.0	1.1	39.50	39.68	1.0	1.1	0.5	0.5	Toe of Delineation Berm Slope
229	767860.00	2658510.00	36.50	36.43	37.50	37.57	1.0	1.1	39.00	39.24	1.0	1.2	0.5	0.5	Grid Point
230	767809.99	2658510.00	36.00	36.01	37.00	37.22	1.0	1.2	38.80	39.20	1.3	1.5	0.5	0.5	Leachate Collection Trench
231	767760.00	2658510.00	37.30	37.31	38.30	38.48	1.0	1.2	39.80	40.07	1.0	1.1	0.5	0.5	Grid Point
232	767710.11	2658510.00	38.60	38.12	39.60	39.44	1.0	1.3	41.10	41.20	1.0	1.3	0.5	0.5	High Point
233	767660.00	2658510.00	38.10	38.13	39.10	39.18	1.0	1.1	40.60	40.68	1.0	1.0	0.5	0.5	Grid Point
234	767610.06	2658510.00	37.60	37.52	38.60	38.72	1.0	1.2	40.40	40.58	1.3	1.4	0.5	0.5	Leachate Collection Trench
235	767560.00	2658510.00	38.10	38.00	39.10	39.20	1.0	1.2	40.60	40.69	1.0	1.0	0.5	0.5	Grid Point
236	767528.12	2658510.00	38.42	38.30	39.42	39.94	1.0	1.6	40.92	42.24	1.0	1.6	0.5	0.7	Toe of Delineation Berm Slope
237	767519.29	2658510.00	41.31	41.11	42.36	42.56	1.1	1.4	43.36	44.20	1.0	1.6	N/A	N/A	Top Inside Break of Delineation Berm

Table 3 (continued)
Summary of Liner Coordinates, Elevations, and Thicknesses
Domtar Paper Company, LLC
Landfill No. 3 - Phase 3 & 4 Construction
Plymouth, North Carolina

POINT NO.	LOCATION		SUBBASE GRADES (FT.)		BASE GRADES (FT.)		PREPARED SUBGRADE THICKNESS (FT.)		TOP OF SELECT GRANULAR FILL GRADES (FT.)		NO. 67 CRUSHED STONE LAYER THICKNESS (FT.)		SELECT GRANULAR FILL LAYER THICKNESS (FT.)		DESCRIPTION
	NORTHING	EASTING	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	
238	767508.29	2658510.00	41.58	41.37	42.58	42.79	1.0	1.4	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
239	767892.794	2658560.00	37.80	37.80	38.85	38.90	1.1	1.1	40.35	42.11	1.0	2.7	0.5	0.5	Top Inside Break of Delineation Berm
240	767886.722	2658560.00	36.38	36.38	37.38	37.48	1.0	1.1	38.88	39.13	1.0	1.0	0.5	0.6	Toe of Delineation Berm Slope
241	767860.00	2658560.00	36.14	36.14	37.14	37.24	1.0	1.1	38.64	38.76	1.0	1.0	0.5	0.5	Grid Point
242	767809.99	2658560.00	35.64	35.50	36.64	36.74	1.0	1.2	38.44	38.74	1.3	1.4	0.5	0.6	Leachate Collection Trench
243	767760.00	2658560.00	36.94	36.74	37.94	38.04	1.0	1.3	39.44	39.59	1.0	1.0	0.5	0.5	Grid Point
244	767710.52	2658560.00	38.23	37.97	39.23	39.13	1.0	1.2	40.73	40.88	1.0	1.3	0.5	0.5	High Point
245	767660.00	2658560.00	37.72	37.71	38.72	38.85	1.0	1.1	40.22	40.49	1.0	1.1	0.5	0.5	Grid Point
246	767610.06	2658560.00	37.23	37.26	38.23	38.34	1.0	1.1	40.03	40.42	1.3	1.6	0.5	0.5	Leachate Collection Trench
247	767560.00	2658560.00	37.73	37.67	38.73	38.75	1.0	1.1	40.23	40.26	1.0	1.0	0.5	0.5	Grid Point
248	767527.75	2658560.00	38.05	37.67	39.05	39.40	1.0	1.7	40.55	41.62	1.0	1.5	0.5	0.7	Toe of Delineation Berm Slope
249	767519.32	2658560.00	40.81	40.68	41.86	42.01	1.1	1.3	42.86	43.46	1.0	1.5	N/A	N/A	Top Inside Break of Delineation Berm
250	767508.32	2658560.00	41.08	41.01	42.08	42.16	1.0	1.2	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
251	767893.206	2658610.00	37.46	37.46	38.51	38.52	1.1	1.1	40.01	41.69	1.0	2.7	0.5	0.5	Top Inside Break of Delineation Berm
252	767887.376	2658610.00	36.10	36.10	37.10	37.48	1.0	1.4	38.60	39.17	1.0	1.2	0.5	0.5	Toe of Delineation Berm Slope
253	767860.00	2658610.00	35.78	35.68	36.78	36.89	1.0	1.2	38.28	38.42	1.0	1.0	0.5	0.5	Grid Point
254	767809.99	2658610.00	35.28	35.28	36.28	36.38	1.0	1.1	38.08	38.45	1.3	1.5	0.5	0.6	Leachate Collection Trench
255	767760.00	2658610.00	36.58	36.41	37.58	37.73	1.0	1.3	39.08	39.33	1.0	1.1	0.5	0.5	Grid Point
256	767710.94	2658610.00	37.86	37.22	38.86	38.88	1.0	1.7	40.36	40.50	1.0	1.1	0.5	0.5	High Point
257	767660.00	2658610.00	37.35	37.18	38.35	38.39	1.0	1.2	39.85	39.96	1.0	1.1	0.5	0.5	Grid Point
258	767610.06	2658610.00	36.85	36.74	37.85	37.97	1.0	1.2	39.65	39.96	1.3	1.4	0.5	0.6	Leachate Collection Trench
259	767560.00	2658610.00	37.35	37.14	38.35	38.45	1.0	1.3	39.85	40.00	1.0	1.0	0.5	0.5	Grid Point
260	767527.38	2658610.00	37.68	37.63	38.68	39.31	1.0	1.7	40.18	41.65	1.0	1.6	0.5	0.7	Toe of Delineation Berm Slope
261	767519.34	2658610.00	40.31	40.20	41.36	41.60	1.1	1.4	42.36	43.00	1.0	1.4	N/A	N/A	Top Inside Break of Delineation Berm
262	767508.34	2658610.00	40.58	40.19	41.58	41.67	1.0	1.5	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
263	767893.922	2658660.00	37.23	37.23	38.28	38.40	1.1	1.2	39.78	41.15	1.0	2.2	0.5	0.5	Top Inside Break of Delineation Berm
264	767887.362	2658660.00	35.79	35.79	36.79	37.16	1.0	1.4	38.29	38.87	1.0	1.2	0.5	0.5	Toe of Delineation Berm Slope
265	767860.00	2658660.00	35.42	35.33	36.42	36.54	1.0	1.2	37.92	38.12	1.0	1.1	0.5	0.5	Grid Point
266	767809.99	2658660.00	34.92	34.91	35.92	36.15	1.0	1.2	37.72	38.23	1.3	1.6	0.5	0.5	Leachate Collection Trench
267	767760.00	2658660.00	36.22	36.21	37.22	37.43	1.0	1.2	38.72	38.99	1.0	1.1	0.5	0.5	Grid Point
268	767711.36	2658660.00	37.49	37.39	38.49	38.59	1.0	1.2	39.99	40.21	1.0	1.1	0.5	0.5	High Point
269	767660.00	2658660.00	36.97	36.73	37.97	38.06	1.0	1.3	39.47	39.57	1.0	1.0	0.5	0.5	Grid Point
270	767610.06	2658660.00	36.48	36.30	37.48	37.71	1.0	1.4	39.28	39.72	1.3	1.5	0.5	0.5	Leachate Collection Trench
271	767560.00	2658660.00	36.98	36.85	37.98	38.15	1.0	1.3	39.48	39.67	1.0	1.0	0.5	0.5	Grid Point

Table 3 (continued)
Summary of Liner Coordinates, Elevations, and Thicknesses
Domtar Paper Company, LLC
Landfill No. 3 - Phase 3 & 4 Construction
Plymouth, North Carolina

POINT NO.	LOCATION		SUBBASE GRADES (FT.)		BASE GRADES (FT.)		PREPARED SUBGRADE THICKNESS (FT.)		TOP OF SELECT GRANULAR FILL GRADES (FT.)		NO. 67 CRUSHED STONE LAYER THICKNESS (FT.)		SELECT GRANULAR FILL LAYER THICKNESS (FT.)		DESCRIPTION
	NORTHING	EASTING	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	
272	767527.01	2658660.00	37.31	37.24	38.31	38.57	1.0	1.3	39.81	40.95	1.0	1.9	0.5	0.5	Toe of Delineation Berm Slope
273	767519.36	2658660.00	39.81	39.40	40.86	41.06	1.1	1.7	41.86	42.80	1.0	1.7	N/A	N/A	Top Inside Break of Delineation Berm
274	767508.36	2658660.00	40.08	39.64	41.08	41.14	1.0	1.5	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
275	767895.273	2658710.00	36.30	36.30	37.35	37.58	1.1	1.3	38.85	40.85	1.0	2.8	0.5	0.5	Top Inside Break of Delineation Berm
276	767889.179	2658710.00	35.38	35.38	36.38	36.65	1.0	1.3	37.88	38.45	1.0	1.3	0.5	0.5	Toe of Delineation Berm Slope
277	767860.00	2658710.00	35.06	34.32	36.06	36.26	1.0	1.9	37.56	37.86	1.0	1.1	0.5	0.5	Grid Point
278	767809.99	2658710.00	34.56	34.48	35.56	35.81	1.0	1.3	37.36	37.79	1.3	1.4	0.5	0.6	Leachate Collection Trench
279	767760.00	2658710.00	35.86	35.36	36.86	37.01	1.0	1.6	38.36	38.54	1.0	1.0	0.5	0.5	Grid Point
280	767711.77	2658710.00	37.12	36.39	38.12	38.06	1.0	1.7	39.62	39.73	1.0	1.2	0.5	0.5	High Point
281	767660.00	2658710.00	36.60	36.48	37.60	37.75	1.0	1.3	39.10	39.27	1.0	1.0	0.5	0.5	Grid Point
282	767610.06	2658710.00	36.10	35.91	37.10	37.16	1.0	1.2	38.90	39.13	1.3	1.4	0.5	0.6	Leachate Collection Trench
283	767560.00	2658710.00	36.60	36.41	37.60	37.76	1.0	1.4	39.10	39.28	1.0	1.0	0.5	0.5	Grid Point
284	767526.65	2658710.00	36.93	36.67	37.93	38.23	1.0	1.6	39.43	40.64	1.0	1.7	0.5	0.7	Toe of Delineation Berm Slope
285	767519.39	2658710.00	39.30	39.23	40.35	40.45	1.1	1.2	41.35	42.25	1.0	1.8	N/A	N/A	Top Inside Break of Delineation Berm
286	767508.39	2658710.00	39.57	39.01	40.57	40.83	1.0	1.8	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
287	767901.05	2658760.00	36.04	36.04	37.09	37.09	1.1	1.1	38.59	40.28	1.0	2.7	0.5	0.5	Top Inside Break of Delineation Berm
288	767895.66	2658760.00	35.06	35.11	36.06	36.77	1.0	1.7	37.56	38.35	1.0	1.1	0.5	0.5	Toe of Delineation Berm Slope
289	767860.00	2658760.00	34.70	34.60	35.70	35.97	1.0	1.4	37.20	37.50	1.0	1.0	0.5	0.5	Grid Point
290	767809.99	2658760.00	34.20	34.20	35.20	35.36	1.0	1.2	37.00	37.34	1.3	1.4	0.5	0.6	Leachate Collection Trench
291	767760.00	2658760.00	35.50	35.41	36.50	36.59	1.0	1.2	38.00	38.10	1.0	1.0	0.5	0.5	Grid Point
292	767712.19	2658760.00	36.75	36.58	37.75	37.84	1.0	1.3	39.25	39.46	1.0	1.1	0.5	0.5	High Point
293	767660.00	2658760.00	36.22	36.04	37.22	37.34	1.0	1.3	38.72	38.90	1.0	1.1	0.5	0.5	Grid Point
294	767610.06	2658760.00	35.73	35.59	36.73	36.91	1.0	1.3	38.53	38.95	1.3	1.5	0.5	0.5	Leachate Collection Trench
295	767560.00	2658760.00	36.23	36.05	37.23	37.31	1.0	1.3	38.73	38.85	1.0	1.0	0.5	0.5	Grid Point
296	767526.28	2658760.00	36.56	36.43	37.56	38.12	1.0	1.7	39.06	39.67	1.0	1.1	0.5	0.5	Toe of Delineation Berm Slope
297	767519.46	2658760.00	38.79	38.40	39.84	39.50	1.1	1.1	40.84	41.12	1.0	1.6	N/A	N/A	Top Inside Break of Delineation Berm
298	767508.46	2658760.00	39.07	38.37	40.07	40.24	1.0	1.9	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
299	767901.05	2658810.00	35.25	35.25	36.30	36.30	1.1	1.1	37.80	39.48	1.0	2.7	0.5	0.5	Top Inside Break of Delineation Berm
300	767895.88	2658810.00	34.70	34.30	35.70	35.89	1.0	1.6	37.20	37.59	1.0	1.1	0.5	0.6	Toe of Delineation Berm Slope
301	767860.00	2658810.00	34.34	34.24	35.34	35.55	1.0	1.3	36.84	37.20	1.0	1.1	0.5	0.5	Grid Point
302	767809.99	2658810.00	33.84	33.82	34.84	35.04	1.0	1.2	36.64	37.03	1.3	1.4	0.5	0.6	Leachate Collection Trench
303	767760.00	2658810.00	35.14	35.06	36.14	36.26	1.0	1.2	37.64	37.84	1.0	1.1	0.5	0.5	Grid Point
304	767712.60	2658810.00	36.38	36.05	37.38	37.52	1.0	1.5	38.88	39.17	1.0	1.2	0.5	0.5	High Point
305	767660.00	2658810.00	35.85	35.61	36.85	36.99	1.0	1.4	38.35	38.53	1.0	1.0	0.5	0.5	Grid Point

Table 3 (continued)
Summary of Liner Coordinates, Elevations, and Thicknesses
Domtar Paper Company, LLC
Landfill No. 3 - Phase 3 & 4 Construction
Plymouth, North Carolina

POINT NO.	LOCATION		SUBBASE GRADES (FT.)		BASE GRADES (FT.)		PREPARED SUBGRADE THICKNESS (FT.)		TOP OF SELECT GRANULAR FILL GRADES (FT.)		NO. 67 CRUSHED STONE LAYER THICKNESS (FT.)		SELECT GRANULAR FILL LAYER THICKNESS (FT.)		DESCRIPTION
	NORTHING	EASTING	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	
306	767610.06	2658810.00	35.35	35.30	36.35	36.55	1.0	1.3	38.15	38.38	1.3	1.3	0.5	0.5	Leachate Collection Trench
307	767560.00	2658810.00	35.85	35.61	36.85	36.99	1.0	1.4	38.35	38.50	1.0	1.0	0.5	0.5	Grid Point
308	767525.91	2658810.00	36.19	36.12	37.19	37.69	1.0	1.6	38.69	39.39	1.0	1.2	0.5	0.5	Toe of Delineation Berm Slope
309	767519.43	2658810.00	38.30	38.16	39.35	39.32	1.1	1.2	40.35	40.61	1.0	1.3	N/A	N/A	Top Inside Break of Delineation Berm
310	767508.43	2658810.00	38.57	38.13	39.57	39.75	1.0	1.6	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
311	767901.05	2658860.00	35.23	35.23	36.28	36.28	1.1	1.1	37.78	39.07	1.0	2.3	0.5	0.5	Top Inside Break of Delineation Berm
312	767896.11	2658860.00	34.34	33.96	35.34	35.82	1.0	1.9	36.84	37.52	1.0	1.1	0.5	0.6	Toe of Delineation Berm Slope
313	767860.00	2658860.00	33.98	33.90	34.98	35.15	1.0	1.3	36.48	36.66	1.0	1.0	0.5	0.5	Grid Point
314	767809.99	2658860.00	33.48	33.16	34.48	34.70	1.0	1.5	36.28	36.63	1.3	1.3	0.5	0.6	Leachate Collection Trench
315	767760.00	2658860.00	34.78	34.68	35.78	35.95	1.0	1.3	37.28	37.52	1.0	1.1	0.5	0.5	Grid Point
316	767713.02	2658860.00	36.00	35.41	37.00	36.95	1.0	1.5	38.50	38.54	1.0	1.1	0.5	0.5	High Point
317	767660.00	2658860.00	35.47	35.31	36.47	36.63	1.0	1.3	37.97	38.21	1.0	1.1	0.5	0.5	Grid Point
318	767610.06	2658860.00	34.98	34.90	35.98	36.17	1.0	1.3	37.78	38.22	1.3	1.5	0.5	0.5	Leachate Collection Trench
319	767560.00	2658860.00	35.48	35.22	36.48	36.61	1.0	1.4	37.98	38.19	1.0	1.1	0.5	0.5	Grid Point
320	767525.55	2658860.00	35.82	35.49	36.82	37.30	1.0	1.8	38.32	39.03	1.0	1.2	0.5	0.5	Toe of Delineation Berm Slope
321	767519.45	2658860.00	37.80	37.62	38.85	38.79	1.1	1.2	39.85	41.10	1.0	2.3	N/A	N/A	Top Inside Break of Delineation Berm
322	767508.45	2658860.00	38.07	37.97	39.07	39.17	1.0	1.2	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
323	767896.31	2658907.12	35.41	35.41	36.41	36.41	1.0	1.0	37.91	38.20	1.0	1.3	0.5	0.5	Toe of Slope/Collection Pipe
324	767860.00	2658906.33	33.65	33.56	34.65	34.83	1.0	1.3	36.15	36.65	1.0	1.2	0.5	0.6	Toe of Slope/Collection Pipe
325	767760.00	2658903.86	34.42	34.11	35.47	35.51	1.1	1.4	36.97	37.62	1.0	1.6	0.5	0.5	Break Point of trench
326	767713.38	2658902.57	35.64	34.74	36.69	36.60	1.0	1.9	38.19	38.27	1.0	1.2	0.5	0.5	Break Point of trench
327	767660.00	2658907.00	35.07	34.69	36.12	35.97	1.1	1.3	37.62	37.84	1.0	1.3	0.5	0.6	Break Point of trench
328	767610.06	2658910.00	34.60	34.63	35.60	35.88	1.0	1.3	37.40	38.37	1.3	1.9	0.5	0.6	Leachate Collection Trench
329	767560.00	2658910.00	35.10	34.87	36.10	36.33	1.0	1.5	37.60	38.41	1.0	1.5	0.5	0.6	Grid Point
330	767525.18	2658910.00	35.45	35.41	36.45	36.87	1.0	1.5	37.95	39.34	1.0	1.9	0.5	0.6	Toe of Delineation Berm Slope
331	767519.48	2658910.00	37.30	36.70	38.35	38.56	1.1	1.9	39.85	40.71	1.0	1.6	0.5	0.6	Top Inside Break of Delineation Berm
332	767508.48	2658910.00	37.57	37.07	38.57	38.72	1.0	1.7	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
334	767760.00	2658906.72	33.46	33.46	34.51	34.79	1.1	1.3	36.31	37.33	1.3	1.9	0.5	0.6	Leachate Collection Trench
335	767713.38	2658908.09	33.80	33.81	34.85	35.37	1.1	1.6	36.65	38.34	1.3	2.4	0.5	0.6	Leachate Collection Trench
336	767660.00	2658909.67	34.18	34.17	35.23	35.43	1.1	1.3	37.03	37.68	1.3	1.7	0.5	0.5	Leachate Collection Trench
337	767610.06	2658911.14	34.59	34.60	35.59	35.62	1.0	1.0	37.39	37.50	1.3	1.4	0.5	0.5	Leachate Collection Trench
338	767560.00	2658912.99	35.08	35.10	36.08	36.18	1.0	1.1	37.58	37.71	1.0	1.0	0.5	0.5	Toe of Slope
339	767525.15	2658914.28	35.42	35.42	36.42	36.46	1.0	1.0	37.92	38.36	1.0	1.4	0.5	0.5	Slope Intersection
341	767896.31	2658915.73	36.15	36.15	37.20	37.20	1.1	1.1	38.20	39.85	1.0	2.6	N/A	N/A	Top of Berm Break

Table 3 (continued)
Summary of Liner Coordinates, Elevations, and Thicknesses
Domtar Paper Company, LLC
Landfill No. 3 - Phase 3 & 4 Construction
Plymouth, North Carolina

POINT NO.	LOCATION		SUBBASE GRADES (FT.)		BASE GRADES (FT.)		PREPARED SUBGRADE THICKNESS (FT.)		TOP OF SELECT GRANULAR FILL GRADES (FT.)		NO. 67 CRUSHED STONE LAYER THICKNESS (FT.)		SELECT GRANULAR FILL LAYER THICKNESS (FT.)		DESCRIPTION
	NORTHING	EASTING	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	DESIGN	RECORD	
342	767860.00	2658915.73	36.73	36.17	37.78	37.85	1.1	1.7	38.78	39.18	1.0	1.3	N/A	N/A	Top of Berm Break
343	767809.99	2658915.73	36.60	36.60	37.65	37.68	1.1	1.1	38.65	40.75	1.0	3.1	N/A	N/A	Top of Berm Break
344	767760.00	2658915.73	36.47	35.62	37.52	37.75	1.1	2.1	38.52	39.27	1.0	1.5	N/A	N/A	Top of Berm Break
345	767713.38	2658915.73	36.35	36.22	37.40	37.62	1.1	1.4	38.40	38.91	1.0	1.3	N/A	N/A	Top of Berm Break
346	767660.00	2658915.73	36.20	36.14	37.25	37.20	1.1	1.1	38.25	38.90	1.0	1.7	N/A	N/A	Top of Berm Break
347	767610.06	2658915.73	36.07	35.64	37.12	37.19	1.1	1.6	38.12	39.64	1.0	2.4	N/A	N/A	Top of Berm Break
348	767560.00	2658915.73	35.94	35.87	36.99	37.07	1.1	1.2	37.99	38.75	1.0	1.7	N/A	N/A	Top of Berm Break
349	767523.67	2658915.73	35.85	35.60	36.90	37.13	1.1	1.5	37.90	39.40	1.0	2.3	N/A	N/A	Top of Berm Break
351	767896.31	2658919.73	36.59	36.59	37.59	37.59	1.0	1.0	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
352	767860.00	2658919.73	36.70	36.64	37.70	37.69	1.0	1.1	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
353	767809.99	2658919.73	36.57	36.57	37.57	37.69	1.0	1.1	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
354	767760.00	2658919.73	36.44	35.84	37.44	37.76	1.0	1.9	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
355	767713.38	2658919.73	36.32	36.31	37.32	37.62	1.0	1.3	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
356	767660.00	2658919.73	36.17	36.15	37.17	37.19	1.0	1.0	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
357	767610.06	2658919.73	36.04	36.02	37.04	37.08	1.0	1.1	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
358	767560.00	2658919.73	35.91	35.90	36.91	37.00	1.0	1.1	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
359	767523.67	2658919.73	35.82	35.73	36.82	37.31	1.0	1.6	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
360	767519.48	2658919.83	37.20	37.16	38.25	38.44	1.1	1.3	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner
361	767508.48	2658919.73	37.47	37.37	38.47	38.57	1.0	1.2	N/A	N/A	N/A	N/A	N/A	N/A	Limits of Composite Liner

Prepared by: K. Pawlisch
Checked by: O. Kaiser

Table 4
Summary of Sump Coordinates and Elevations for Select Clay Fill Liner Area
Domtar Paper Company, LLC
Landfill No. 3 - Phase 3 & 4 Construction
Plymouth, North Carolina

	BOTTOM OF SELECT CLAY				TOP OF SELECT CLAY				SELECT CLAY THICKNESS		
	LOCATION		SUBBASE GRADES		LOCATION		BASE GRADES				
POINT NO.	NORTHING	EASTING	DESIGN	RECORD	NORTHING	EASTING	DESIGN	RECORD	DESIGN	RECORD	DESCRIPTION
362	767798.64	2658883.99	32.49	32.47	767798.64	2658883.99	34.60	34.71	2.11	2.24	Sump Perimeter
363	767809.99	2658884.81	32.19	32.06	767809.99	2658884.81	34.30	34.41	2.11	2.35	Sump Perimeter
364	767820.76	2658884.39	32.30	32.29	767820.76	2658884.39	34.41	34.53	2.11	2.23	Sump Perimeter
365	767820.29	2658905.47	32.15	32.13	767820.29	2658905.47	34.26	34.44	2.11	2.31	Sump Perimeter
366	767809.99	2658905.25	32.05	31.24	767809.99	2658905.25	34.15	34.37	2.11	3.13	Sump Perimeter
367	767799.77	2658905.55	32.12	31.92	767799.77	2658905.55	34.23	34.54	2.11	2.62	Sump Perimeter
368	767799.13	2658904.95	32.33	32.29	767799.13	2658904.95	34.44	34.51	2.11	2.22	Sump Perimeter
369	767805.66	2658890.96	30.15	29.95	767805.99	2658891.28	32.15	32.41	2.00	2.46	Sump Bottom
370	767814.31	2658890.89	30.15	30.04	767813.99	2658891.22	32.15	32.48	2.00	2.44	Sump Bottom
371	767814.31	2658899.54	30.15	30.11	767813.99	2658899.22	32.15	32.76	2.00	2.65	Sump Bottom
372	767805.66	2658899.61	30.15	29.70	767805.99	2658899.28	32.15	32.58	2.00	2.88	Sump Bottom

Prepared by: K. Pawlisch
Checked by: Oliver Kaiser

Table 5
Summary of Leachate Collection Pipe Coordinates and Elevations
Domtar Paper Company, LLC
Landfill No. 3 - Phase 3 & 4 Construction
Plymouth, North Carolina

POINT NO.	LOCATION		COLLECTION PIPE INVERT ELEVATION (FT.)		DESCRIPTION
	NORTHING	EASTING	DESIGN	RECORD	
134	767809.99	2658110.00	39.29	39.24	Leachate Collection Trench
138	767610.06	2658110.00	40.89	40.87	Leachate Collection Trench
146	767809.99	2658160.00	39.04	39.01	Leachate Collection Trench
150	767610.06	2658160.00	40.64	40.61	Leachate Collection Trench
158	767809.99	2658210.00	38.79	38.96	Leachate Collection Trench
162	767610.06	2658210.00	40.39	40.53	Leachate Collection Trench
170	767809.99	2658260.00	38.54	39.00	Leachate Collection Trench
174	767610.06	2658260.00	40.14	40.12	Leachate Collection Trench
182	767809.99	2658310.00	38.29	38.40	Leachate Collection Trench
186	767610.06	2658310.00	39.89	41.11	Leachate Collection Trench
194	767809.99	2658360.00	38.04	38.41	Leachate Collection Trench
198	767610.06	2658360.00	39.64	39.71	Leachate Collection Trench
206	767809.99	2658410.00	37.79	37.80	Leachate Collection Trench
210	767610.06	2658410.00	39.39	39.33	Leachate Collection Trench
218	767809.99	2658460.00	37.54	37.63	Leachate Collection Trench
222	767610.06	2658460.00	39.14	39.05	Leachate Collection Trench
230	767809.99	2658510.00	37.29	37.52	Leachate Collection Trench
234	767610.06	2658510.00	38.89	39.02	Leachate Collection Trench
242	767809.99	2658560.00	36.93	37.11	Leachate Collection Trench
246	767610.06	2658560.00	38.52	38.54	Leachate Collection Trench
254	767809.99	2658610.00	36.57	36.88	Leachate Collection Trench
258	767610.06	2658610.00	38.14	38.26	Leachate Collection Trench
266	767809.99	2658660.00	36.21	36.40	Leachate Collection Trench
270	767610.06	2658660.00	37.77	37.90	Leachate Collection Trench
278	767809.99	2658710.00	35.85	35.91	Leachate Collection Trench
282	767610.06	2658710.00	37.39	37.47	Leachate Collection Trench
290	767809.99	2658760.00	35.49	35.59	Leachate Collection Trench
294	767610.06	2658760.00	37.02	37.11	Leachate Collection Trench
302	767809.99	2658810.00	35.13	35.16	Leachate Collection Trench
306	767610.06	2658810.00	36.64	36.83	Leachate Collection Trench
314	767809.99	2658860.00	34.77	34.87	Leachate Collection Trench
318	767610.06	2658860.00	36.49	36.30	Leachate Collection Trench
323	767886.46	2658907.33	35.29	35.98	Toe of Slope/Collection Pipe
324	767860.00	2658906.83	34.94	35.47	Toe of Slope/Collection Pipe
334	767760.00	2658906.72	34.80	35.04	Leachate Collection Trench
335	767713.38	2658908.09	35.14	35.62	Leachate Collection Trench
336	767660.00	2658909.67	35.52	35.90	Leachate Collection Trench
337	767610.06	2658911.14	35.88	36.13	Leachate Collection Trench
365	767821.20	2658906.10	34.55	34.69	Sump Inlet
367	767797.34	2658899.82	34.52	34.99	Sump Inlet

Prepared by: K. Pawlisch
Checked by: O. Kaiser

Domtar

DOMTAR PAPER COMPANY, LLC

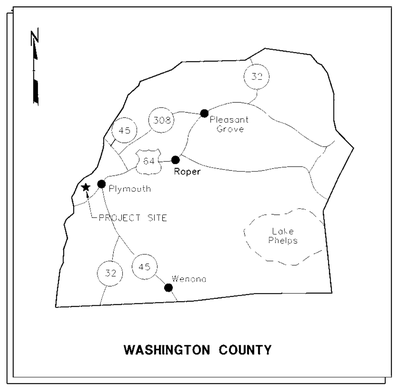
LANDFILL NO. 3 - PHASE 3 & 4 CONSTRUCTION QUALITY ASSURANCE REPORT

PREPARED FOR: DOMTAR PAPER COMPANY, LLC
PLYMOUTH, NORTH CAROLINA

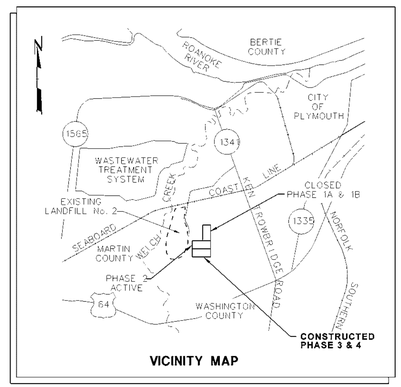
PREPARED BY: TRC ENGINEERS, INC.

DATE: AUGUST 2011

NORTH CAROLINA



WASHINGTON COUNTY



VICINITY MAP

LEGEND

	EXISTING	AS-CONSTRUCTED
ROAD		
BUILDING		
CONTOUR		34
WETLANDS		
DRAINAGE FLOW DIRECTION		
MONITORING WELL		
CONTROL POINT		
POWER POLE (LIGHT POLE)		
SPOT ELEVATION		
TREE LINE		
PROPERTY LINE		
LIMITS OF COMPOSITE LINER CONSTRUCTION		
EROSION CONTROL FENCE		SF

ABBREVIATIONS

APPROX	APPROXIMATELY	I. E.	INVERT ELEVATION
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS	INV EL	INVERT ELEVATION
		LF	LINEAR FEET
BM	BENCH MARK	LC	LEACHATE COLLECTION
℄	CENTERLINE	LP	LIGHT POLE
CHDPE	CORRUGATED HIGH DENSITY POLYETHYLENE	LFM	LEACHATE FORCE MAIN
		MAX	MAXIMUM
CONC	CONCRETE	MH	MANHOLE
CS	CARBON STEEL	MIN	MINIMUM
CSP	CORRUGATED STEEL PIPE	MISC	MISCELLANEOUS
DIA	DIAMETER	N	NORTH
DET	DETAIL	NO.	NUMBER
DI	DROP INLET	NTS	NOT TO SCALE
DWG	DRAWING	OD	OUTSIDE DIAMETER
E	EAST	PI	POINT OF INTERSECTION
EA	EACH	PERF	PERFORATED
EL,ELEV	ELEVATION	PC	POINT OF CURVATURE
EXIST	EXISTING	℄	PROPERTY LINE
FT	FEET	PSF	POUNDS PER SQUARE FT.
FUT	FUTURE	PSI	POUNDS PER SQUARE IN.
FM	FORCE MAIN	R	RADIUS
GA	GAGE, GAUGE	REV	REVISION
GALV	GALVANIZED	RR	RAILROAD
GR	GRADE	REQ'D	REQUIRED
HDPE	HIGH DENSITY POLYETHYLENE	SAN	SANITARY SEWER
HORIZ	HORIZONTAL	SECT	SECTION
HP	HIGH POINT	STA	STATION
HW	HEADWALL	STD	STANDARD
ID	INSIDE DIAMETER	T/CONC	TOP OF CONCRETE
		TYP	TYPICAL
		W/	WITH

GENERAL NOTES

1. EXISTING PLANIMETRIC AND TOPOGRAPHIC INFORMATION THAT LIES WITHIN THE FOOTPRINT OF LANDFILL No. 3 (PHASE 1A & 1B) ARE THE TOP OF FINAL COVER AS-CONSTRUCTED GRADES.
2. CONTROL MONUMENT INFORMATION:

NCGS MONUMENT "ADVISOR"	NCGS MONUMENT "BENNETT"
GRID COORDINATES N=765,196.26' E=2,655,512.73' (NAD 83)	GRID COORDINATES N=764,423.87' E=2,658,436.50' (NAD 83)
ELEV = 36.12' (NGVD 29)	ELEV = 37.71' (NGVD 29)

3. EXISTING PLANIMETRIC AND TOPOGRAPHIC INFORMATION THAT FALLS OUTSIDE THE LIMITS OF LANDFILL No. 3 (PHASE 1A & 1B) AS DESCRIBED IN NOTE 1. WAS DEVELOPED FROM A SURVEY PERFORMED BY McKIM & CREED ENGINEERING, INC., CAREY, NORTH CAROLINA, DATED APRIL 26, 2001. ALL COORDINATES AND BEARINGS ARE BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NAD 83. ALL ELEVATIONS SHOWN ARE IN FEET AND ARE BASED ON NGVD 1929 DATUM. PROPERTY LINES BASED ON SURVEY PROVIDED BY McKIM & CREED AND INFORMATION PROVIDED BY WEYERHAEUSER COMPANY. ELEVATIONS SHOWN IN THE BORROW AREAS (PLAN SHEET 2) HAVE BEEN ALTERED BY CONSTRUCTION AND DO NOT REPRESENT ACTUAL ELEVATIONS.
4. THE PROPOSED SITE IS LOCATED IN WASHINGTON COUNTY, SOUTHWEST OF THE CITY OF PLYMOUTH, NORTH CAROLINA, AS SHOWN ON THE VICINITY MAP.
5. EROSION AND SEDIMENT CONTROL MEASURES WERE IMPLEMENTED, MONITORED, AND MAINTAINED ON A REGULAR BASIS TO CONTAIN SEDIMENTS WITHIN THE PROPERTY DURING AND AFTER LANDFILL/EARTHWORK OPERATIONS UNTIL THE DISTURBED AREAS ARE REVEGETATED OR OTHERWISE STABILIZED. CONTRACTOR COMPLIED WITH THE EROSION AND SEDIMENT CONTROL PLAN (ESCP) FOR THE CONSTRUCTION OF PHASE 3 AND 4 DATED SEPTEMBER 2010 AND FOR THE ON-SITE SOIL BORROW AREA DATED AUGUST 2010.
6. MONITORING WELLS AND OTHER ENVIRONMENTAL MONITORING FEATURES WERE PRESERVED AND PROTECTED DURING CONSTRUCTED.

DRAWING LIST

SHEET NO.	TITLE
1	TITLE SHEET
2	EXISTING CONDITIONS MAP AND SITE LAYOUT PLAN
3	LINER GRADING
4	GEOMEMBRANE PANEL LAYOUT DIAGRAM
5	LEACHATE PIPING
6	ENGINEERING CROSS SECTIONS
7	LANDFILL DETAILS
8	LEACHATE COLLECTION AND REMOVAL SYSTEM DETAILS
9	MISCELLANEOUS DETAILS
10	ELECTRICAL PLAN

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

TRC

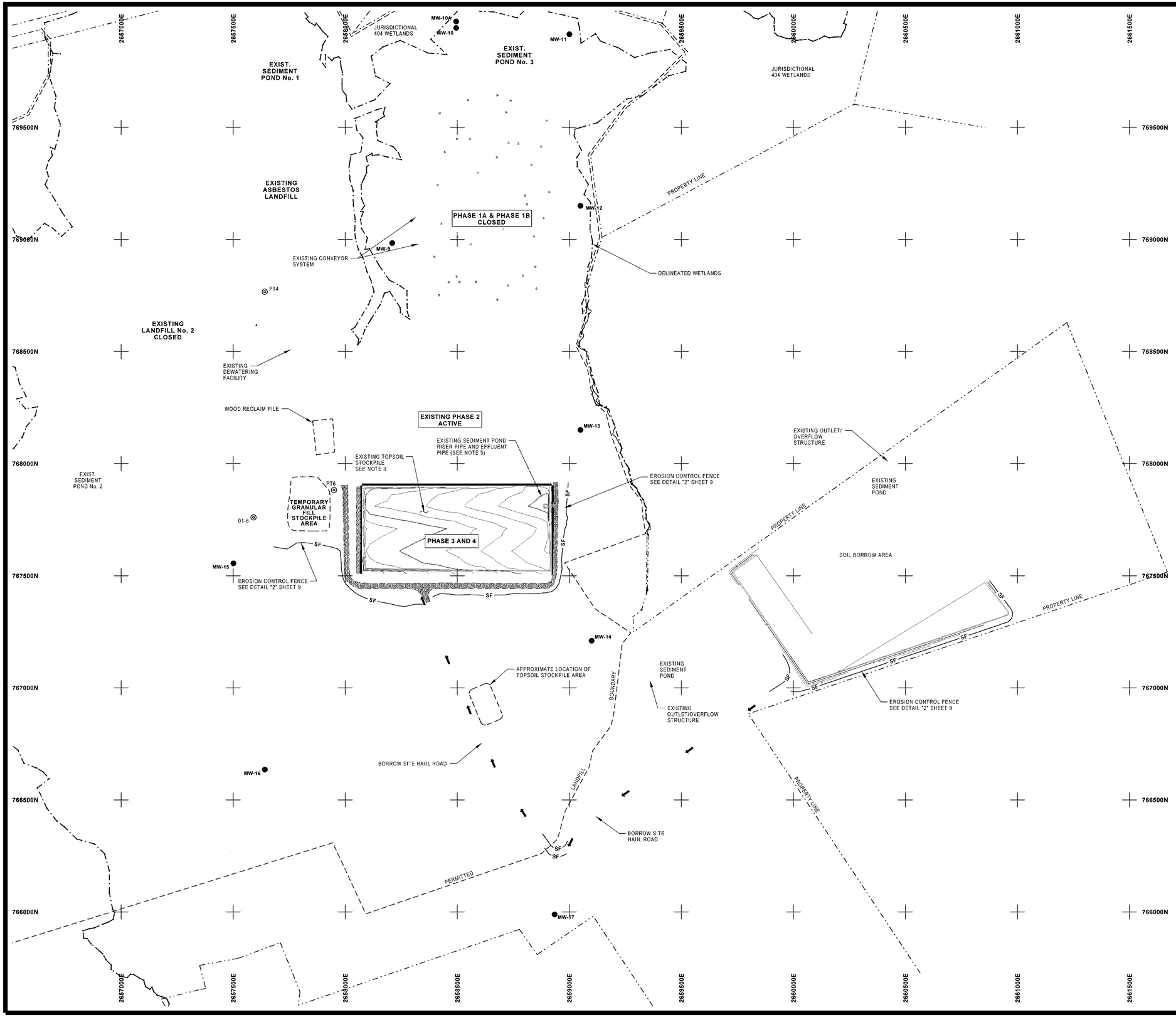
NORTH CAROLINA
LICENSE NO. F-0591

Plot Data
Design File: J:\057941491\title.prt
Drawing File: J:\057941491\title.prt
Plot File: J:\057941491\title.prt
Plot Scale: 1.000000 ' = 1.000000 "
Plotter: HP PDF Driver
Plot Area: Full Design
Rotation: 0.000000
Plotted: Aug 08 08:32:38 2011
Levels: Ref, Ref1, Ref2, Ref3

Reference Files
Ref File 1: - no ref name -
Ref File 2: - no ref name -
Ref File 3: - no ref name -
Ref File 4: - no ref name -
Ref File 5: - no ref name -
Ref File 6: - no ref name -
Ref File 7: - no ref name -
Ref File 8: - no ref name -
Ref File 9: - no ref name -

Logical Names
(1) no ref logical
(2) no ref logical
(3) no ref logical
(4) no ref logical
(5) no ref logical
(6) no ref logical
(7) no ref logical
(8) no ref logical
(9) no ref logical
(10) no ref logical

Levels
(1) no ref levels
(2) no ref levels
(3) no ref levels
(4) no ref levels
(5) no ref levels
(6) no ref levels
(7) no ref levels
(8) no ref levels
(9) no ref levels
(10) no ref levels



NOTES

1. REFER TO SHEET 1 FOR STANDARD LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. BORROW SITE HAUL ROAD UPGRADES WERE APPROVED BY THE OWNER/ ENGINEER PRIOR TO IMPLEMENTATION.
3. EXISTING TOPSOIL STOCKPILE NOTED WAS REMOVED PRIOR TO PHASE 3 AND 4 CONSTRUCTION. EXCESS TOPSOIL WAS STOCKPILED IN THE TOPSOIL STOCKPILE AREA SOUTH OF PHASE 3 AND 4.
4. WHEN CONSTRUCTION WAS COMPLETE, STOCKPILES WERE REGRADED TO PROVIDE POSITIVE DRAINAGE ON AND AROUND STOCKPILES.
5. EXISTING SEDIMENT POND RISER PIPE AND EFFLUENT PIPE WAS REMOVED DURING LINER CONSTRUCTION.
6. FULL TONE FEATURES SHOWN FOR PHASE 3 AND 4 REPRESENT AS-CONSTRUCTED FEATURES. FULL TONE CONTOURS SHOWN INSIDE PHASE 3 AND 4 REPRESENT AS-CONSTRUCTED TOP OF PREPARED SUBGRADE LAYER.

HORIZONTAL/VERTICAL CONTROL POINTS

POINT I.D.	NORTH COORDINATE	EAST COORDINATE	COMMENT
PT4	768706.97	2657640.89	IRS CAP - ELEV. 37.28 MSL
PT6	767882.15	2657950.26	IRS CAP - ELEV. 42.10 MSL
01-8	767759.89	2657590.77	ELEV. 59.00 MSL

0 200 400 600 800

SCALE 1" = 200'

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **LANDFILL No. 3 - PHASE 3 & 4**
CONSTRUCTION QUALITY ASSURANCE REPORT
DOMTAR PAPER COMPANY, LLC

SHEET TITLE:
EXISTING CONDITIONS MAP AND SITE LAYOUT PLAN

DRAWN BY: noldenr	SCALE: 1" = 200'	PROJ. NO.	05794.49
CHECKED BY: KDP		FILE NO.	ecp.plt
APPROVED BY: TWM	DATE PRINTED:	SHEET	2 OF 10
DATE: AUGUST 2011			

Domtar

TRC

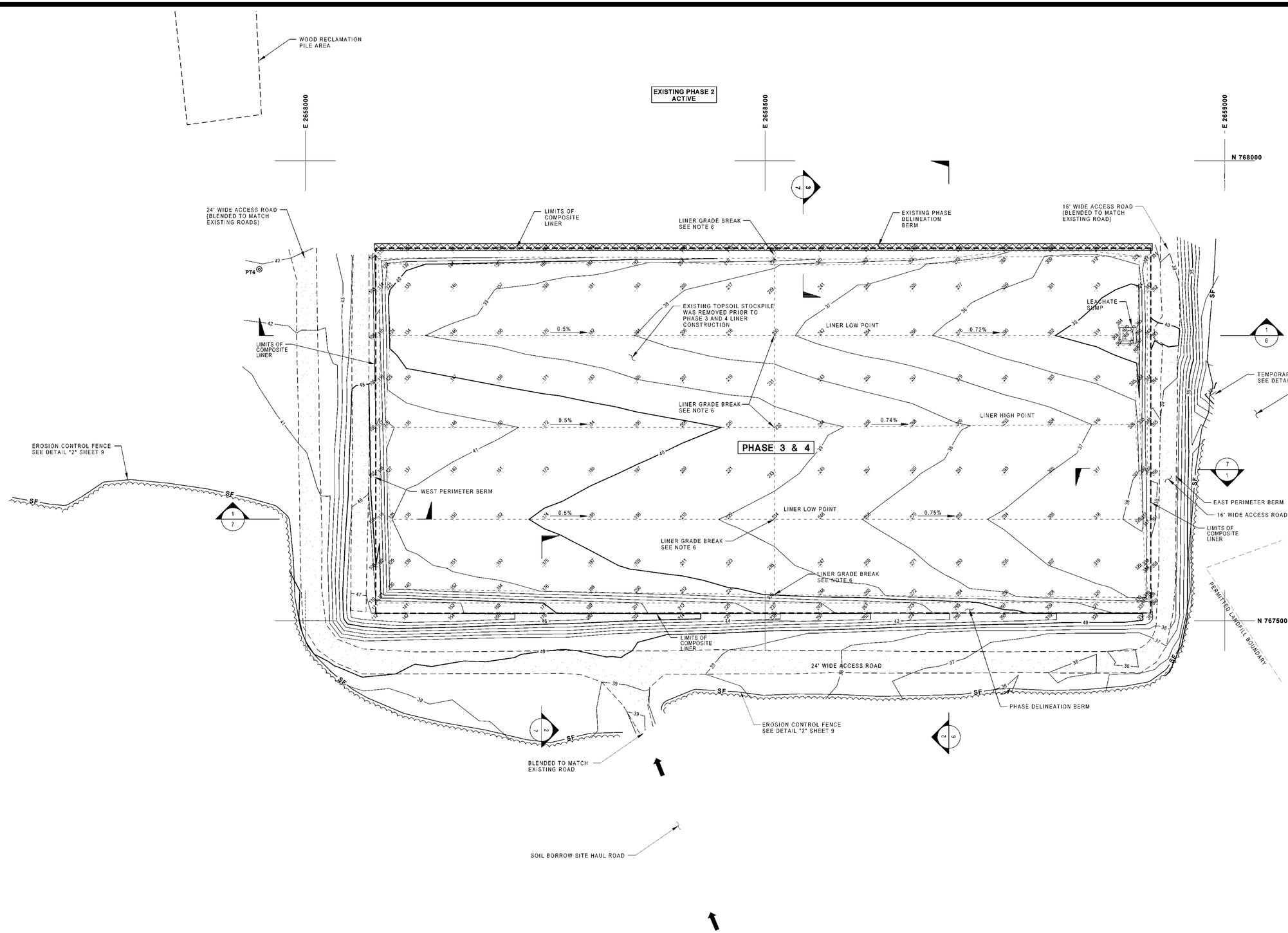
NORTH CAROLINA LICENSE NO. F-0591

Plot Data
Design File: J:\05794.49\civil\ecp.plt
Model: Default
Plot File: J:\05794.49\civil\ecp.plt
Plotted: Aug 08, 2011 - 13:33:54 - by noldenr
Plotter: HP PDF BW 300dpi
Position: Fit
Rotation: 0.000000
Last Saved: Aug 08, 2011 13:33:54 - by noldenr
Levels On: 1-63

Reference Files
Ref File 1 = J:\05794.49\civil\ecp.plt
Ref File 2 = J:\05794.49\civil\wetlands.dgn
Ref File 3 = J:\05794.49\civil\wetlands_dgn.dgn
Ref File 4 = J:\05794.49\civil\ecp04-07bid.dgn
Ref File 5 = J:\05794.49\civil\ecp04-07bid2.dgn
Ref File 6 = J:\05794.49\civil\swale.dgn
Ref File 7 = J:\05794.49\civil\swale2.dgn
Ref File 8 = J:\05794.49\civil\ecp.dgn
Ref File 9 = J:\05794.49\civil\ecp2.dgn
Ref File 10 = J:\05794.49\civil\sketch.dgn

Logical Names
(1): wetlines
(2): wetland
(3): wetland
(4): ecp
(5): ecp2
(6): sed_pond
(7): swale
(8): swale2
(9): PT
(10): sketch

Levels
(1): 1-63
(2): 2,5,7,9,21-23,33,35-39,51-59,61-63
(3): 1-63
(4): 1-4,6-8,10-20,24-32,34,40-50,60
(5): 1,2,5-8,10-12,14-21,23-32,41-63
(6): 1-63
(7): 1-63
(8): 1-63
(9): 1-63
(10): 21,31-46,48-63



NOTES

1. REFER TO SHEET 1 FOR STANDARD LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. FULL TONE CONTOURS INSIDE THE LIMITS OF COMPOSITE LINER ARE AS-CONSTRUCTED TOP OF PREPARED SUBGRADE ELEVATIONS. ALL OTHER FULL TONE CONTOURS OUTSIDE THE LIMITS OF COMPOSITE LINER AS-CONSTRUCTED CONTOURS ARE FINISHED GRADE ELEVATIONS.
3. REFER TO TABLE 3 IN THE DOCUMENTATION REPORT FOR LINER AS-CONSTRUCTED COORDINATES AND ELEVATION FOR BOTTOM OF PREPARED SUBGRADE (SUBBASE), TOP OF PREPARED SUBGRADE (BASE GRADES), AND TOP OF GRADED GRANULAR FILTER LAYER. REFER TO TABLE 4 IN THE DOCUMENTATION REPORT FOR AS-CONSTRUCTED TOP AND BOTTOM OF SELECT CLAY FILL LAYER IN THE LEACHATE SUMP.
4. FOR DETAIL OF LEACHATE SUMP REFER TO DETAIL "G" SHEET 8.
5. DISTURBED AREAS NOT COVERED WITH RIP RAP, CRUSHED STONE SURFACING OR LINER SYSTEM, WERE SEEDED FOLLOWING CONSTRUCTION.
6. THE LINER GRADE BREAKS TO A STEEPER SLOPE AT THE GRADE BREAK TO ALLOW FOR LONG-TERM SETTLEMENT OF THE SUBGRADE. THE GRADES SHOWN WERE ESTABLISHED TO PROVIDE CAMBER FOR THE LEACHATE PIPE TO HAVE A MINIMUM SLOPE OF 0.5% AFTER PREDICTED SETTLEMENT.
7. CONTRACTOR REMOVED EXISTING CRUSHED STONE ON TOP OF THE EXISTING PHASE DELINEATION BERM AS REQUIRED TO TIE-IN TO EXISTING GEOSYNTHETIC LINER LOCATION FOR NEW LINER IN PHASE 3 AND 4. EXISTING LINER WAS CLEAN AND UNDAMAGED FOR TIE-IN. REFER TO DETAIL "B" SHEET 7 AND SECTION "3" SHEET 7.
8. REFER TO DETAILS "A" AND "B" SHEET 7 FOR LINER CONSTRUCTION DETAILS.

HORIZONTAL/VERTICAL CONTROL POINTS

POINT I.D.	NORTH COORDINATE	EAST COORDINATE	COMMENT
PT4	768766.97	2657640.89	IRS CAP - ELEV. 37.28 MSL
PT6	767882.15	2657950.26	IRS CAP - ELEV. 42.10 MSL
01-6	767759.89	2657590.77	ELEV. 59.00 MSL

0 50 100 150 200

SCALE 1"= 50'

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **LANDFILL No. 3 - PHASE 3 & 4**
CONSTRUCTION QUALITY ASSURANCE REPORT
DOMTAR PAPER COMPANY, LLC

SHEET TITLE: **LINER GRADING**

DRAWN BY:	noldenr	SCALE:	PROJ. NO. 05794.49
CHECKED BY:	KDP	1" = 50'	FILE NO. lgp.plt
APPROVED BY:	TWM	DATE PRINTED:	SHEET 3 OF 10
DATE:	AUGUST 2011		

Domtar

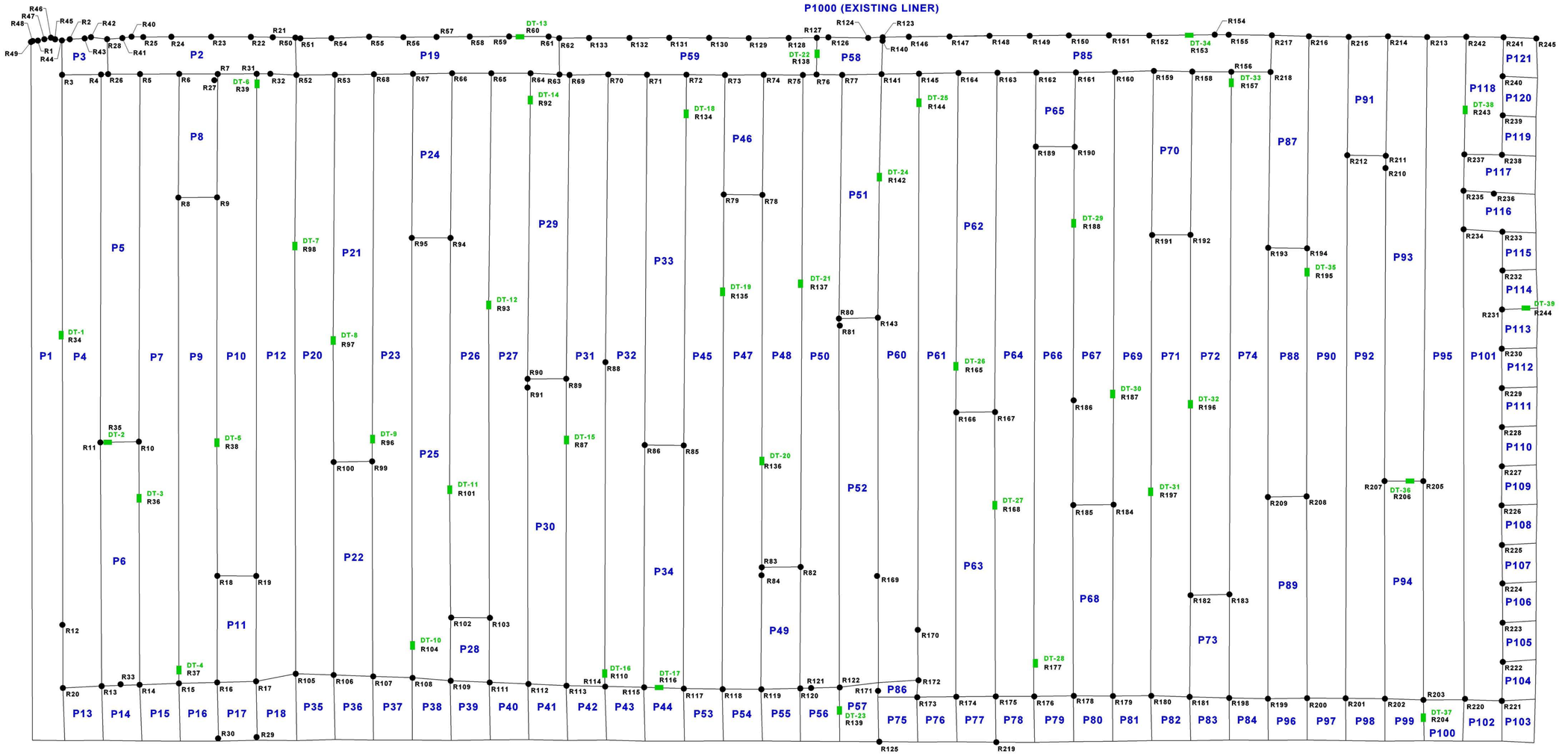
TRC

NORTH CAROLINA LICENSE NO. F-0591

Plot Data
Design File: J:\05794\49\lgp.pl
Model: "Default"
Plot File: J:\05794\49\lgp.prf
Plotter: HP DesignJet 750C+ 42in.HPGL/HP15 - HP PRF IN
Position: MP, PSF, REW, 300dpi
Scale: 1.000000
Division: 0.000000
Plotted: Aug 08 13:15 2011
Levels On: *ALL

Reference Files:
Ref File 1: J:\05794\49\Xref\SHEET.DGN
Ref File 2: J:\05794\49\Xref\Interface1-07to09.dgn
Ref File 3: J:\05794\49\Xref\Interface1-10to12.dgn
Ref File 4: J:\05794\49\Xref\Leachate.dgn
Ref File 5: J:\05794\49\Xref\Liner.dgn
Ref File 6: J:\05794\49\Xref\Liner_Detail.dgn
Ref File 7: J:\05794\49\Xref\Liner_Grading.dgn
Ref File 8: J:\05794\49\Xref\Liner_Grading_Detail.dgn
Ref File 9: J:\05794\49\Xref\Liner_Grading_Detail_Sheet.dgn
Ref File 10: J:\05794\49\Xref\Liner_Grading_Detail_Sheet_Detail.dgn
Ref File 11: J:\05794\49\Xref\Liner_Grading_Detail_Sheet_Detail_Sheet.dgn
Ref File 12: J:\05794\49\Xref\Liner_Grading_Detail_Sheet_Detail_Sheet_Detail.dgn
Ref File 13: J:\05794\49\Xref\Liner_Grading_Detail_Sheet_Detail_Sheet_Detail_Sheet.dgn
Ref File 14: J:\05794\49\Xref\Liner_Grading_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail.dgn
Ref File 15: J:\05794\49\Xref\Liner_Grading_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail_Sheet.dgn
Ref File 16: J:\05794\49\Xref\Liner_Grading_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail.dgn
Ref File 17: J:\05794\49\Xref\Liner_Grading_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail_Sheet.dgn
Ref File 18: J:\05794\49\Xref\Liner_Grading_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail.dgn
Ref File 19: J:\05794\49\Xref\Liner_Grading_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail_Sheet.dgn
Ref File 20: J:\05794\49\Xref\Liner_Grading_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail_Sheet_Detail.dgn

Logical Names:
Levels:
(1) 1-6,8,10-13,34-63
(2) 1-6,8-12,20-33,35-37,44,46-63
(3) 1-6,8
(4) 1-6,8,11,13-16,18,19,23-63
(5) 1-6,8,10-13,15-63
(6) 1-5,8,10-14,21,23-39,44-63
(7) 1-6,8
(8) 1-5,7
(9) 1-5,8,10-12,25-29,31,59,60-63
(10) 1-6,8,37,41,42,45,58,60-62



LEGEND

P48	PANEL NUMBER (TOTAL OF 121 PANELS)
DT-15	PASSING FIELD AND LABORATORY DESTRUCTIVE SAMPLE LOCATION (TOTAL OF 39 PASSING TESTS)
	CAP REPAIR
R101	REPAIR (TOTAL OF 245 REPAIRS)
	SEAM OR END OF PANEL (TOTAL SEAM LENGTH OF 17,781 FEET)

NOTES

1. REFER TO APENDIX G IN THE CONSTRUCTION DOCUMENTATION REPORT FOR A SUMMARY OF GEOMEMBRANE PANEL PLACEMENT.

0 30 60 90 120

SCALE 1" = 30'

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **LANDFILL No. 3 - PHASE 3 & 4**
CONSTRUCTION QUALITY ASSURANCE REPORT
DOMTAR PAPER COMPANY, LLC

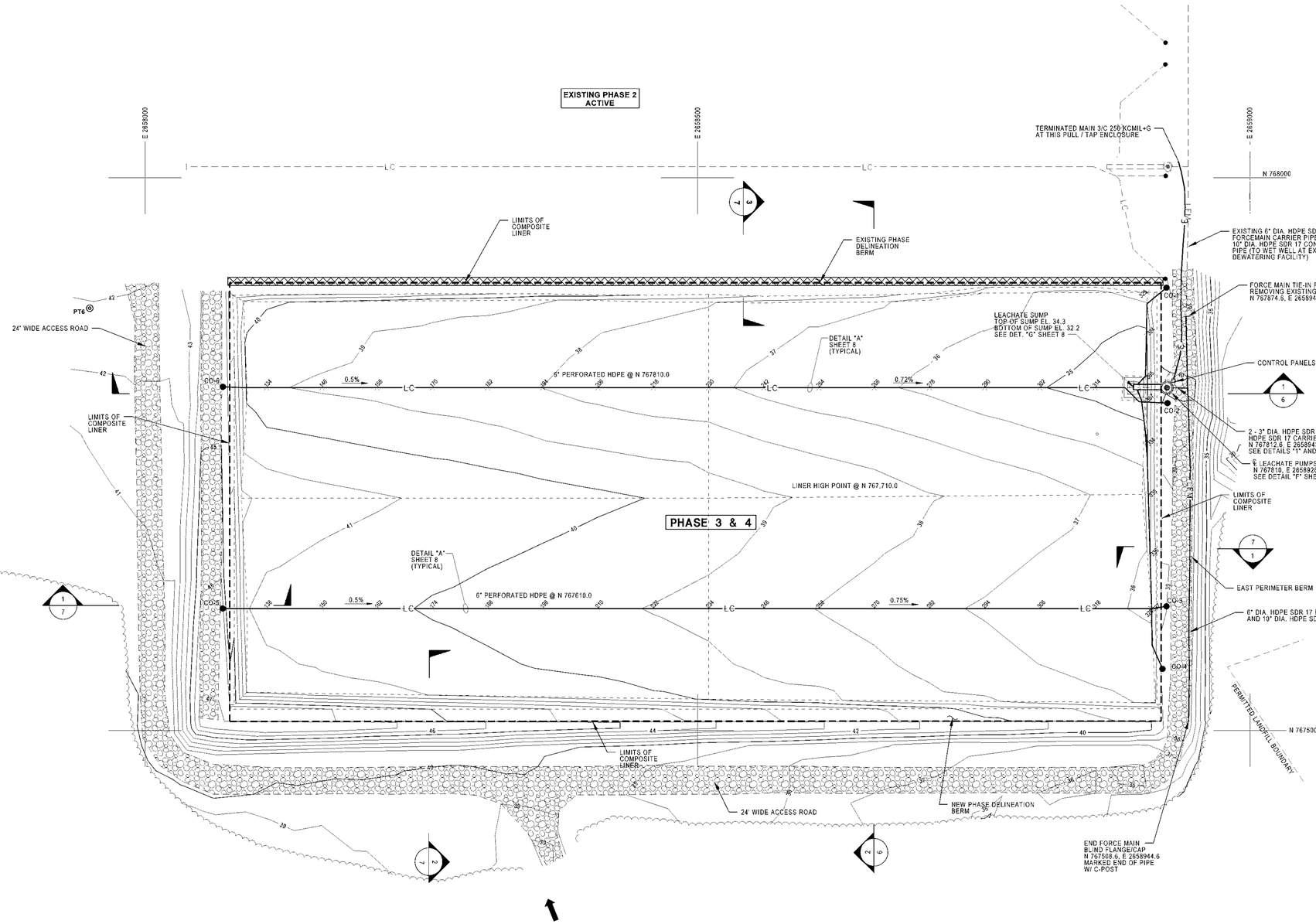
SHEET TITLE: **GEOMEMBRANE PANEL LAYOUT DIAGRAM**

DRAWN BY: noldenr	SCALE:	PROJ. NO.	05794.49
CHECKED BY: KDP	1" = 30'	FILE NO.	panel layout.plt
APPROVED BY: TWM	DATE PRINTED:	SHEET 4 OF 10	
DATE: AUGUST 2011			

Domtar

TRC

NORTH CAROLINA
LICENSE NO. F-0591



NOTES

1. REFER TO SHEET 1 FOR STANDARD LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. THRUST BLOCKS WERE INSTALLED ON FORCE MAIN AT TEES. REFER DETAIL "H" SHEET 8.
3. 6", 10" AND 18" HDPE PIPES ARE SDR 17. 3" PIPES ARE SDR 11.
4. THE LEACHATE COLLECTION SYSTEM/GRADED GRANULAR FILTER CONSISTS OF 12" OF No. 67 STONE AND OVERLAIN BY 6" OF SELECT GRANULAR FILL.
5. REFER TO TABLE 5 IN THE QUALITY ASSURANCE REPORT FOR AS-CONSTRUCTED PIPE COORDINATES AND ELEVATIONS.
6. REFER TO SECTION "I" SHEET 7 FOR CLEANOUT DETAIL.
7. REFER TO DETAIL "A" SHEET 7 FOR LEACHATE COLLECTION AND LINER DETAILS.

HORIZONTAL/VERTICAL CONTROL POINTS

POINT I.D.	NORTH COORDINATE	EAST COORDINATE	COMMENT
PT4	768766.97	2657640.89	IRS CAP - ELEV. 37.28 MSL
PT6	767882.15	2657959.26	IRS CAP - ELEV. 42.10 MSL
01-6	767769.89	2657590.77	ELEV. 59.00 MSL

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT:
LANDFILL No. 3 - PHASE 3 & 4
CONSTRUCTION QUALITY ASSURANCE REPORT
DOMTAR PAPER COMPANY, LLC

SHEET TITLE:
LEACHATE PIPING

DRAWN BY: noldenr	SCALE:	PROJ. NO.	05794.49
CHECKED BY: KDP	1" = 50'	FILE NO.	lpp.plt
APPROVED BY: TWM	DATE PRINTED:	SHEET 5 OF 10	
DATE: AUGUST 2011			

TRC
NORTH CAROLINA
LICENSE NO. F-0591

Domtar

Proj Data
Design File: J:\05794.49\dgn\pt.dgn
Design Model: Default
Plot File: J:\05794.49\dgn\pt.prf
Plot Table: J:\05794.49\dgn\HBLMS15 - HP PDF IN
Plotter: HP PDF Blank 300dpi
Position: MC: PDF Blank
Rotation: 0.00000
Plotted: 08-Aug-2011 08:32:59 from
Levels On: 1-7,9-63

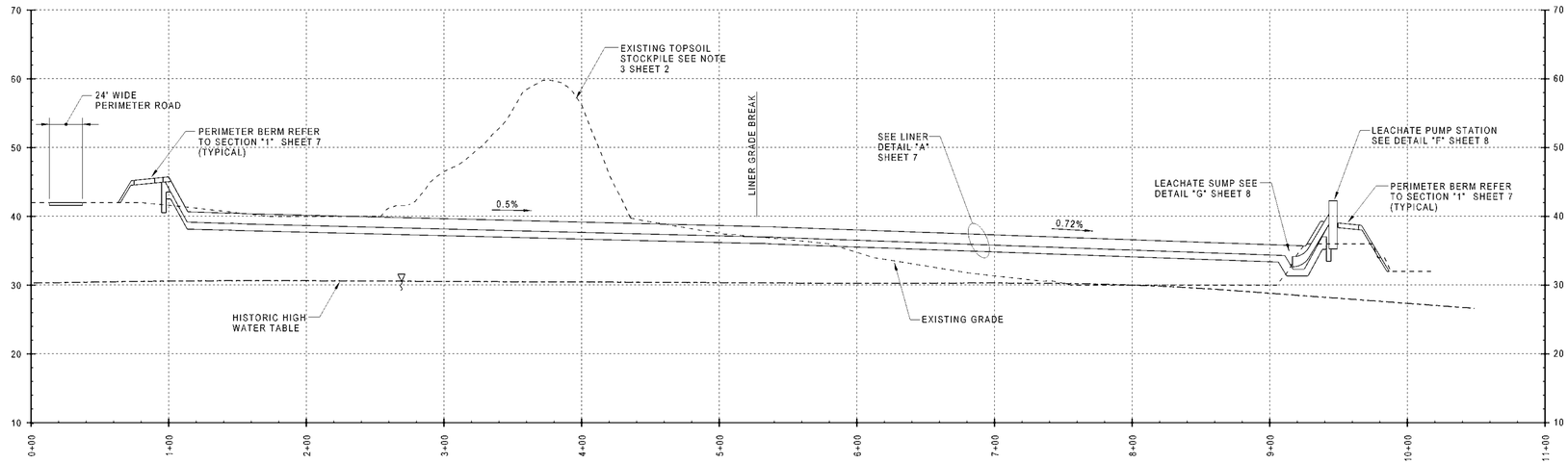
Reference Files:
Ref File 1: J:\05794.49\dgn\LMS15-Pt-01-L3-Title.dgn
Ref File 2: J:\05794.49\dgn\pt4-07to8.dgn
Ref File 3: J:\05794.49\dgn\pt4-08to9.dgn
Ref File 4: J:\05794.49\dgn\swale.dgn
Ref File 5: J:\05794.49\dgn\pt4-09to10.dgn
Ref File 6: J:\05794.49\dgn\wetlnd.dgn
Ref File 7: J:\05794.49\dgn\pt4-10to11.dgn
Ref File 8: J:\05794.49\dgn\leachatepiping.dgn
Ref File 9: J:\05794.49\dgn\pt.dgn
Ref File 10: J:\05794.49\dgn\existdetail.dgn

Logical Names:
(1) L3-Title
(2) pt4-07to8
(3) pt4-08to9
(4) swale
(5) pt4-09to10
(6) wetlnd
(7) pt4-10to11
(8) leachatepiping
(9) pt
(10) existdetail

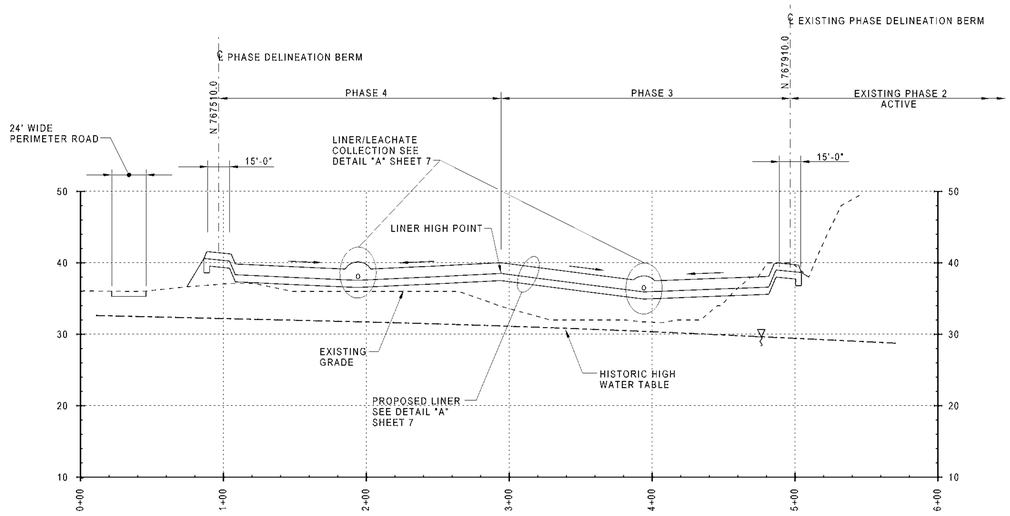
Levels:
(1) L3-Title
(2) pt4-07to8
(3) pt4-08to9
(4) swale
(5) pt4-09to10
(6) wetlnd
(7) pt4-10to11
(8) leachatepiping
(9) pt
(10) existdetail

NOTES

1. CROSS SECTION PREPARED FOR DETAIL REFERENCE AND ILLISTRATIVE PURPOSES. DO NOT SCALE FROM THIS DRAWING OR USE FOR AS-CONSTRUCTED INFORMATION.



1 / 3,4 **SECTION**
1"=50' HORIZ.
1"=10' VERT.



2 / 3,4 **SECTION**
1"=50' HORIZ.
1"=10' VERT.

0 10 20 30 40
APPROXIMATE SCALE: 1"= 10' (VERT.)

0 50 100 150 200
APPROXIMATE SCALE: 1"= 50' (HORIZ.)

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **LANDFILL No. 3 - PHASE 3 & 4**
CONSTRUCTION QUALITY ASSURANCE REPORT
DOMTAR PAPER COMPANY, LLC

SHEET TITLE: **ENGINEERING CROSS SECTIONS**

DRAWN BY:	noldenr	SCALE:	PROJ. NO. 05794.49
CHECKED BY:	KDP	AS SHOWN	FILE NO. SECTIONS.PLT
APPROVED BY:	TWM	DATE PRINTED:	SHEET 6 OF 10
DATE:	AUGUST 2011		

Domtar

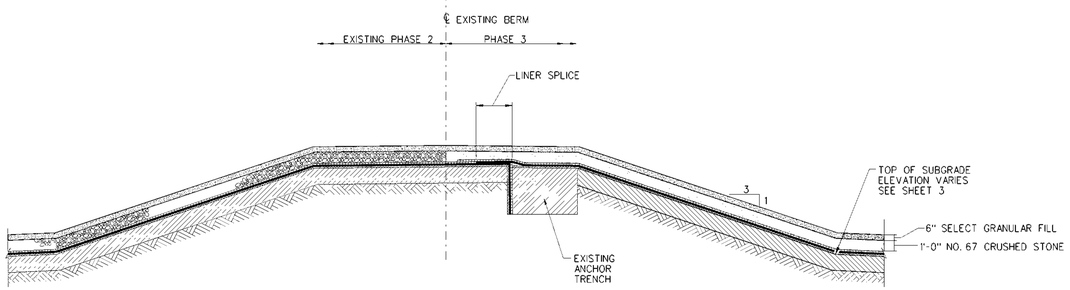
TRC
NORTH CAROLINA
LICENSE NO. F-0591

Plot Data
Design File(s): 05794.49\sections.pdf
GEOPAK Site: ...
Plot File: ...\05794.49\sections.pdf
Plot Scale: 1.000000 Plot Units: MILLIMETERS - HP PDF INT
Plotter: HP PDF Ext. Driver
Paper Size: 558.80 x 431.80 MILLIMETERS
Rotation: 0.000000
Plotted By: noldenr on Aug 08, 2011 at 13:43
Levels On: 1, 63

Reference Files:
Ref File 1: ...\05794.49\xs-3&4.dgn
Ref File 2: *.rno ref name*
Ref File 3: *.rno ref name*
Ref File 4: *.rno ref name*
Ref File 5: *.rno ref name*
Ref File 6: *.rno ref name*
Ref File 7: *.rno ref name*
Ref File 8: *.rno ref name*
Ref File 9: *.rno ref name*
Ref File 10: *.rno ref name*

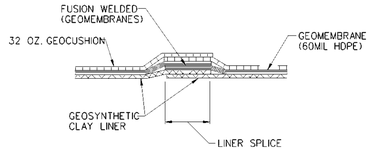
Logical Names:
(1) rno ref logical*
(2) rno ref logical*
(3) rno ref logical*
(4) rno ref logical*
(5) rno ref logical*
(6) rno ref logical*
(7) rno ref logical*
(8) rno ref logical*
(9) rno ref logical*
(10) rno ref logical*

Levels:
(1) 1-63
(2) rno ref levels*
(3) rno ref levels*
(4) rno ref levels*
(5) rno ref levels*
(6) rno ref levels*
(7) rno ref levels*
(8) rno ref levels*
(9) rno ref levels*
(10) rno ref levels*



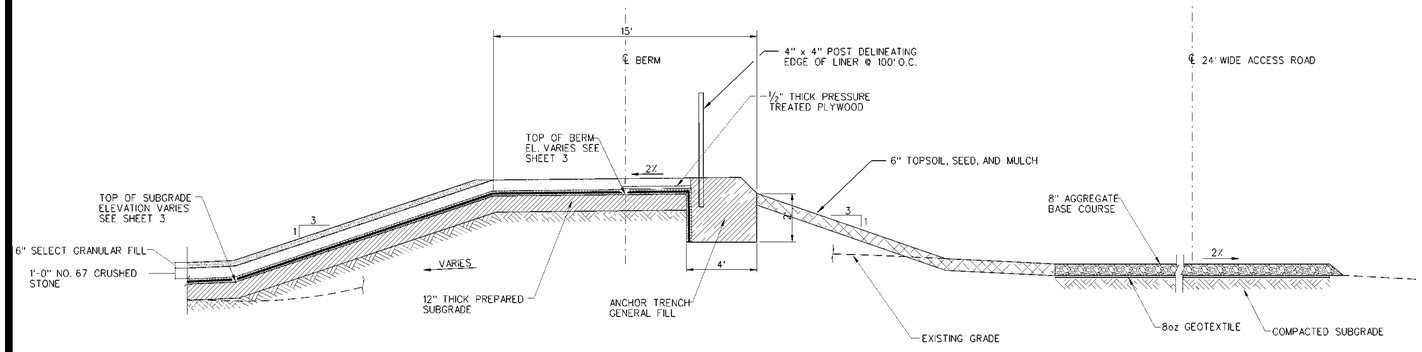
3 / 3,4 **SECTION - PHASE DELINEATION BERM**
NOT TO SCALE

NOTE: ADDED 6" (MIN.) SELECT GRANULAR FILL OVER EXPOSED NO. 67 CRUSHED STONE LAYER WITHIN EXISTING PHASE 2.

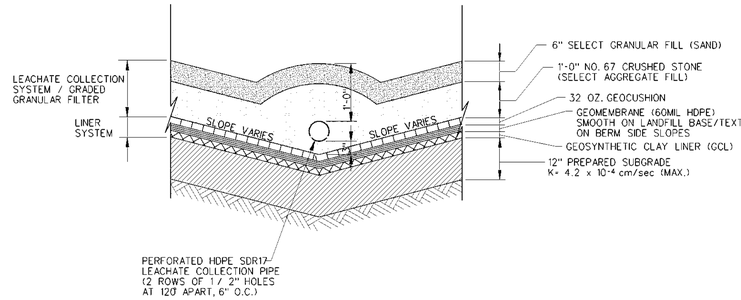


NOTE
VERTICAL SCALE EXAGGERATED FOR CLARITY

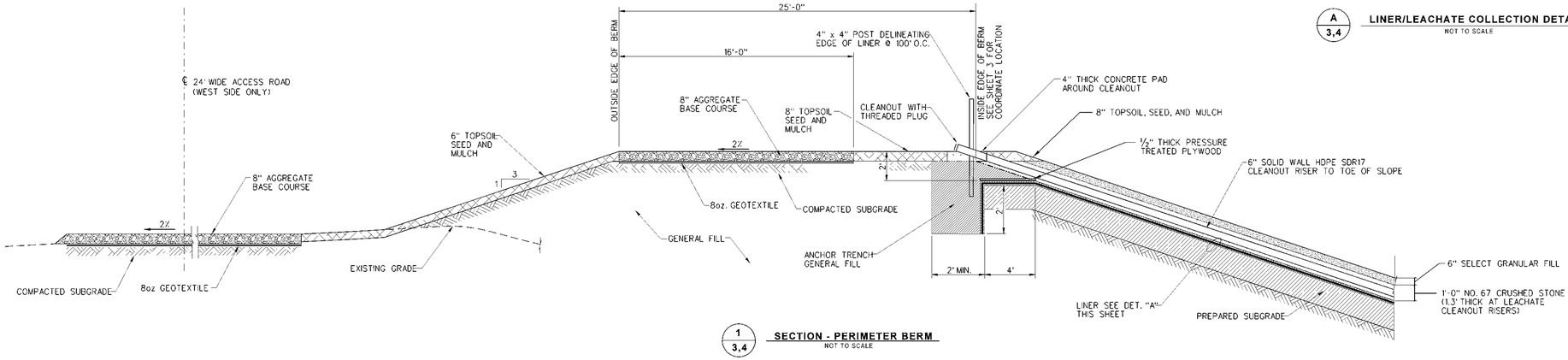
B / 7 **TYPICAL LINER SPLICE DETAIL**
NOT TO SCALE



2 / 3,4 **SECTION - PHASE DELINEATION BERM**
NOT TO SCALE



A / 3,4 **LINER/LEACHATE COLLECTION DETAIL**
NOT TO SCALE



1 / 3,4 **SECTION - PERIMETER BERM**
NOT TO SCALE

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **LANDFILL No. 3 - PHASE 3 & 4**
CONSTRUCTION QUALITY ASSURANCE REPORT
DOMTAR PAPER COMPANY, LLC

SHEET TITLE: **LANDFILL DETAILS**

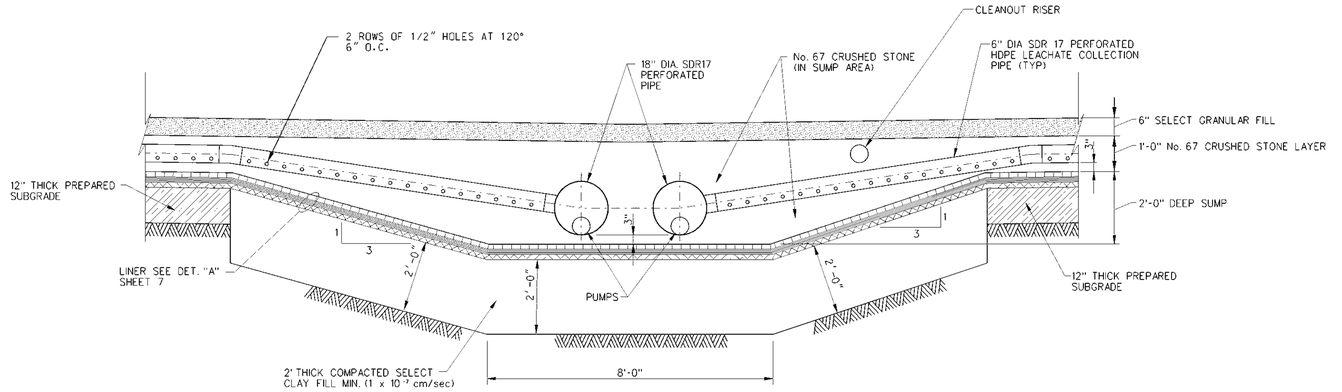
DRAWN BY:	soldear	SCALE:	PROJ. NO. 05794.49
CHECKED BY:	KDP	NOT TO SCALE	FILE NO. landfilldetails.plt
APPROVED BY:	TWM	DATE PRINTED:	SHEET 7 OF 10
DATE:	AUGUST 2011		

TRC

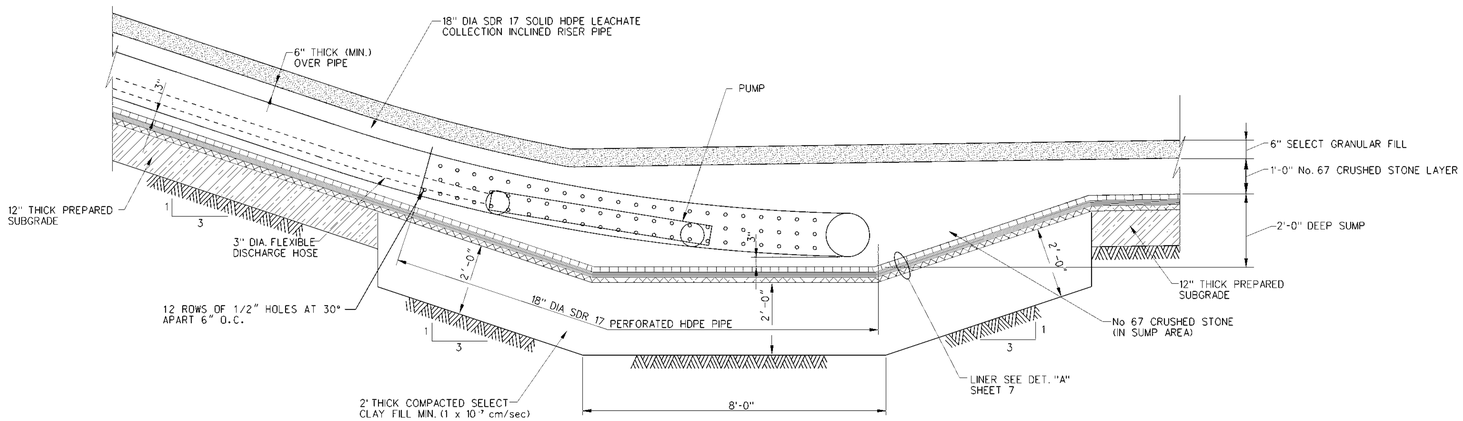
NORTH CAROLINA LICENSE NO. F-0591

Domtar

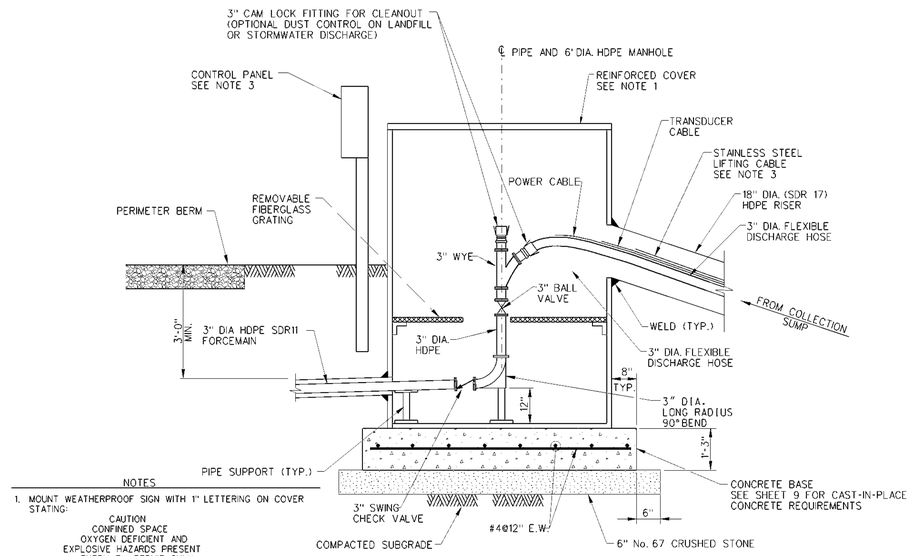
Plot Data
Design File(s): 05794-49\landfilldetails.plt
Plot Date: 2 \05794-49\landfilldetails.plt
Plot File: - 2 \05794-49\landfilldetails.plt
Plotter: - HP DesignJet 4500ps PS3 (3rd Party)
Plotter: - HP PDF BW
Paper: - 11.00x17.00
Rotation: - 0.00000°
Origin: - (1.44, 1.44) 08:33:39 2011
Levels On: - 1 (C) 2011 Bentley Systems, Incorporated
Reference Files:
Ref File 1: - 05794-49\124-30sb.dgn
Ref File 2: - no ref name
Ref File 3: - no ref name
Ref File 4: - no ref name
Ref File 5: - no ref name
Ref File 6: - no ref name
Ref File 7: - no ref name
Ref File 8: - no ref name
Ref File 9: - no ref name
Ref File 10: - no ref name
Logical Names:
(1) no ref logical
(2) no ref logical
(3) no ref logical
(4) no ref logical
(5) no ref logical
(6) no ref logical
(7) no ref logical
(8) no ref logical
(9) no ref logical
(10) no ref logical
Levels:



3/8 SECTION 1/2"=1'-0"



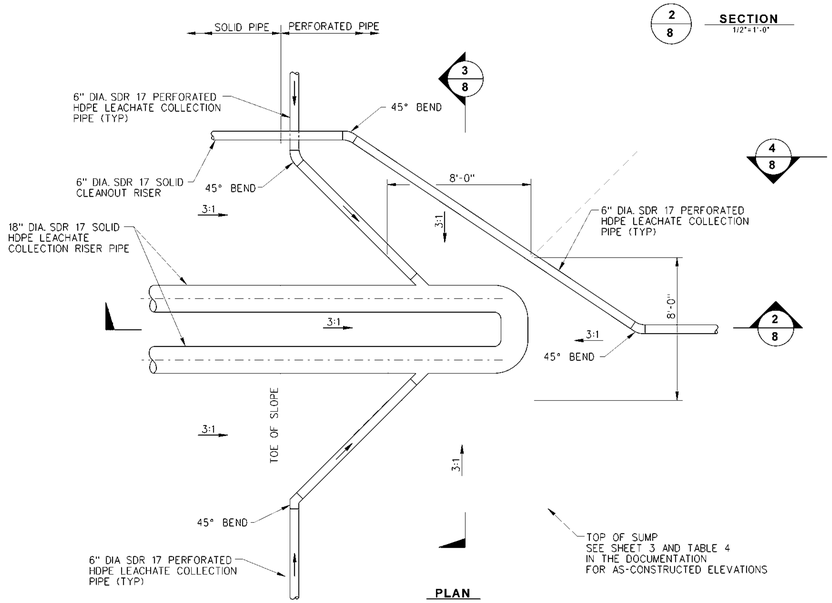
2/8 SECTION 1/2"=1'-0"



NOTES

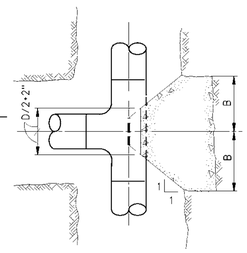
1. MOUNT WEATHERPROOF SIGN WITH 1" LETTERING ON COVER STATING:
   CAUTION
   CONFINED SPACE
   OXYGEN DEFICIENT AND
   EXPLOSIVE HAZARDS PRESENT
   ENTRY BY PERMIT ONLY
2. PUMP LIFT CABLES ARE FASTENED TO INSIDE OF MANHOLE.
3. OWNER FURNISHED THE LEACHATE PUMPS, CONTROL PANELS, TRANSDUCERS, MOTOR/LEADS FROM CONTROL PANEL TO PUMP, TRANSDUCER CABLES, STAINLESS STEEL LIFTING CABLES, AND DISCHARGE HOSES. CONTRACTOR INSTALLED THESE ITEMS AS WELL AS FURNISH AND INSTALL VALVES, FITTINGS, AND OTHER APPURTENANCES.
4. ALL FORCE MAIN PIPING IS DUAL CONTAINMENT PIPING. 3" FORCE MAIN HAS 6" CARRIER PIPE, 6" FORCE MAIN HAS 10" CARRIER PIPE.
5. 3" HDPE PIPE IS SDR 11, 6", 10", & 18" HDPE PIPE IS SDR 17.

1/8 SECTION 1/2"=1'-0"

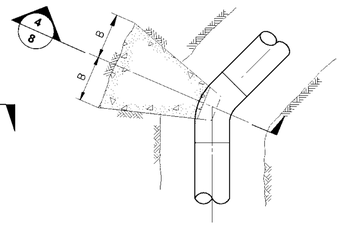


PLAN

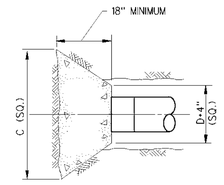
G/4 LEACHATE COLLECTION SUMP DETAIL 1/4"=1'-0"



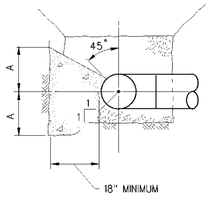
PLAN - TEES



PLAN - BENDS



PLAN & ELEVATION - PLUGS



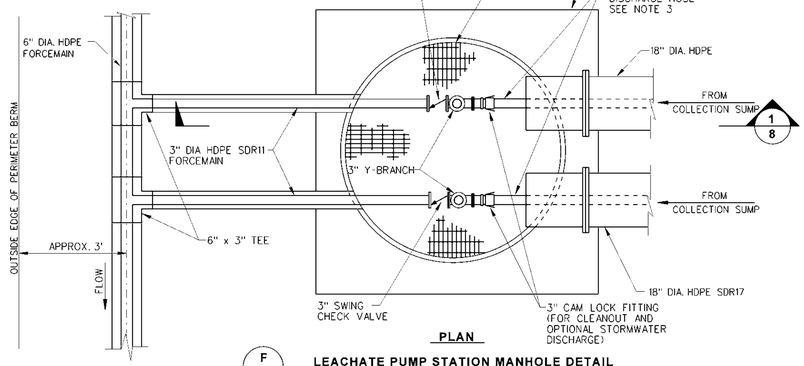
4/8 SECTION NOT TO SCALE

H/8 TYPICAL THRUST BLOCK DETAIL NOT TO SCALE

x THRUST BLOCK DIMENSION TABLE

PIPE SIZE	90° ELLS		45° ELLS		22½° ELLS 11¼° ELLS		TEES		PLUGS
D	A	B	A	B	A	B	A	B	C
3"	0'-9"	1'-0"	0'6"	0'-9"	0'-6"	0'-6"	0'-9"	1'-0"	1'-6"
6"	1'-0"	2'-7"	1'-0"	1'-6"	0'-9"	1'-0"	1'-0"	2'-7"	2'-9"

x DIMENSIONS SHOWN ARE MINIMUM AND ARE BASED ON A TEST PRESSURE OF 225 PSI AND A SOIL BEARING CAPACITY OF 2000 PSF



PLAN

F/4 LEACHATE PUMP STATION MANHOLE DETAIL 1/2"=1'-0"

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **LANDFILL No. 3 - PHASE 3 & 4**
CONSTRUCTION QUALITY ASSURANCE REPORT
DOMTAR PAPER COMPANY, LLC

SHEET TITLE: **LEACHATE COLLECTION AND REMOVAL SYSTEM DETAILS**

DRAWN BY: noldenr	SCALE:	PROJ. NO.	05794.49
CHECKED BY: KDP	AS SHOWN	FILE NO.	leachatedetails.plt
APPROVED BY: TWM	DATE PRINTED:	SHEET	8 OF 10
DATE: AUGUST 2011			

Domtar

TRC NORTH CAROLINA LICENSE NO. F-0591

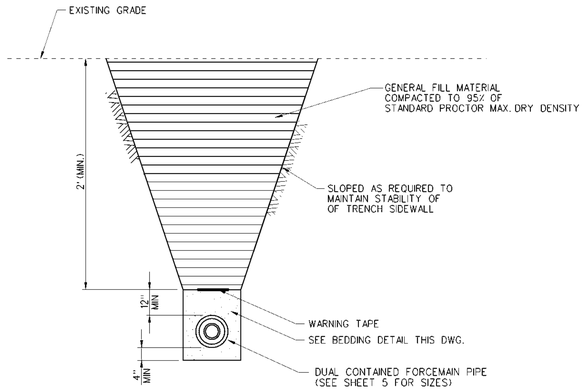
Proj Data
Design File = \05794.49\mxd\leachatedetails.plt
Plot Date = Thursday, August 04, 2011 - 8:33:17 am
Plot File = J:\05794.49\mxd\leachatedetails.plt
Plotter = HP PSF 8500 300dpi Color PS3 (by 05/15 - HP PSF 8500 PS3)
Scale = 1.000000
Rotation = 0.00000
Offset = 0.00, 0.00
Levels On = 1-5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99, 101, 103, 105, 107, 109, 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147, 149, 151, 153, 155, 157, 159, 161, 163, 165, 167, 169, 171, 173, 175, 177, 179, 181, 183, 185, 187, 189, 191, 193, 195, 197, 199, 201, 203, 205, 207, 209, 211, 213, 215, 217, 219, 221, 223, 225, 227, 229, 231, 233, 235, 237, 239, 241, 243, 245, 247, 249, 251, 253, 255
Reference Files
Logical Names
Levels

NOTES

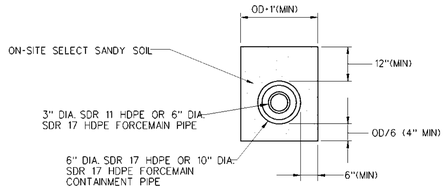
1. REFER TO SHEET 1 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 28 DAYS. SLUMP SHALL BE BETWEEN 2 AND 4 INCHES IN ACCORDANCE WITH ASTM C143.

CAST-IN-PLACE CONCRETE REQUIREMENTS

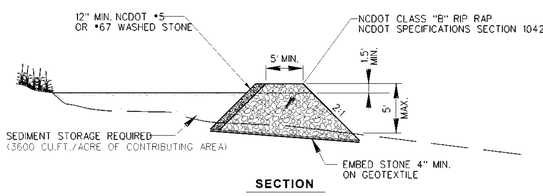
1. ALL REINFORCING STEEL SHALL BE GRADE 60, DEFORMED BARS, CONFORMING TO ASTM A615.
2. ALL DETAILING, FABRICATION, AND PLACING OF REINFORCED STEEL SHALL CONFORM TO THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI-SP-66, LATEST EDITION).
3. DO NOT PLACE CONCRETE WHEN WEATHER CONDITIONS PREVENT PROPER PLACEMENT AND CONSOLIDATION.
4. COLD WEATHER: ACI 306R. PROVIDE AND MAINTAIN 50 DEGREES F MINIMUM CONCRETE TEMPERATURE. DO NOT PLACE CONCRETE WHEN THE AMBIENT TEMPERATURE IS BELOW 40 DEGREES F. COVER CONCRETE AND PROVIDE WITH A SOURCE OF HEAT SUFFICIENT TO MAINTAIN 50 DEGREES F MINIMUM WHILE CURING.
5. HOT WEATHER: ACI 305R. CONCRETE TEMPERATURE FROM INITIAL MIXING THROUGH FINAL CURE SHALL NOT EXCEED 90 DEGREES F. COOL INGREDIENTS BEFORE MIXING, OR SUBSTITUTE CHIP ICE FOR PART OF REQUIRED MIXING WATER OR USE OTHER SUITABLE MEANS TO CONTROL CONCRETE TEMPERATURE TO PREVENT RAPID DRYING OF NEWLY PLACED CONCRETE. SHADE THE FRESH CONCRETE AND START CURING AS SOON AS THE SURFACE OF THE FRESH CONCRETE IS SUFFICIENTLY HARD TO PERMIT CURING WITHOUT DAMAGE.
6. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED $\frac{3}{4}$"x 45°.
7. ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI-318-99.



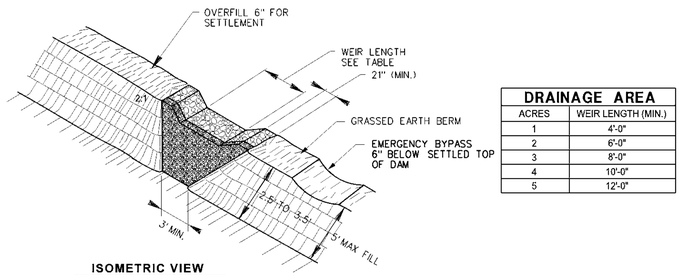
TYPICAL TRENCHING DETAIL
NOT TO SCALE



1/9 **TYPICAL PIPE BEDDING DETAIL**
NOT TO SCALE



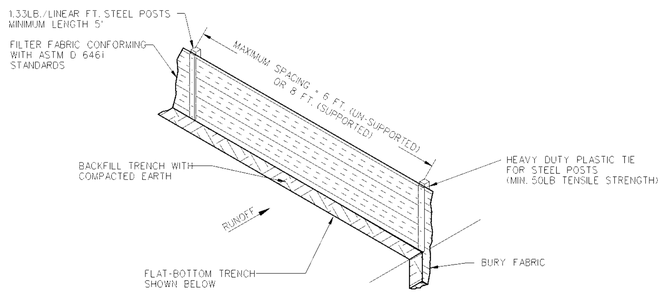
SECTION



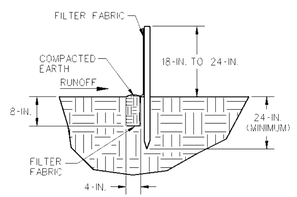
ISOMETRIC VIEW

DRAINAGE AREA	
ACRES	WEIR LENGTH (MIN.)
1	4'-0"
2	6'-0"
3	8'-0"
4	10'-0"
5	12'-0"

3/9 **TEMPORARY SEDIMENT TRAP**
NOT TO SCALE



SILT FENCE INSTALLATION



FLAT-BOTTOM TRENCH DETAIL

2/9 **EROSION CONTROL FENCE**
NOT TO SCALE

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **LANDFILL No. 3 - PHASE 3 & 4**
CONSTRUCTION QUALITY ASSURANCE REPORT
DOMTAR PAPER COMPANY, LLC

SHEET TITLE: **MISCELLANEOUS DETAILS**

DRAWN BY:	seldear	SCALE:	PROJ. NO. 05794.49
CHECKED BY:	KDP	AS SHOWN	FILE NO. miscdetails.plt
APPROVED BY:	TWM	DATE PRINTED:	SHEET 9 OF 10
DATE:	AUGUST 2011		

Domtar

TRC
NORTH CAROLINA LICENSE NO. F-0591

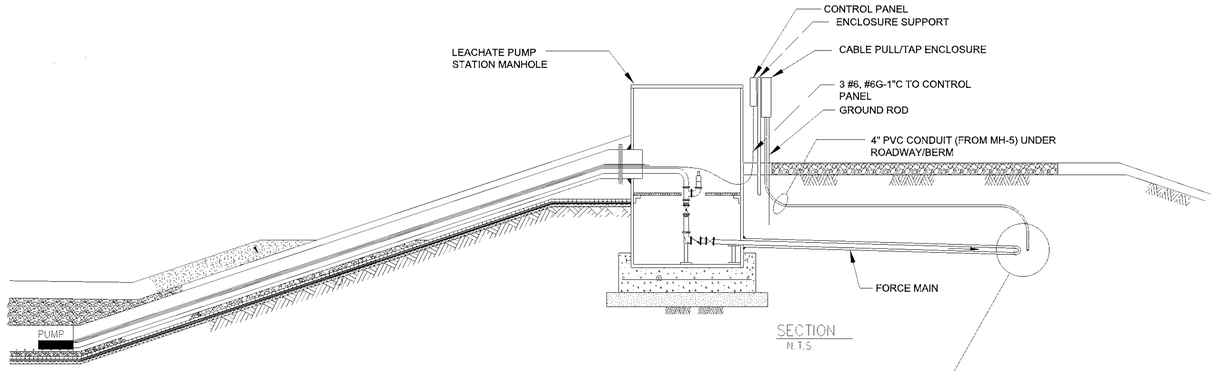
V:\caddmsn\00-71717\ph3&4constr\miscdetails.plt

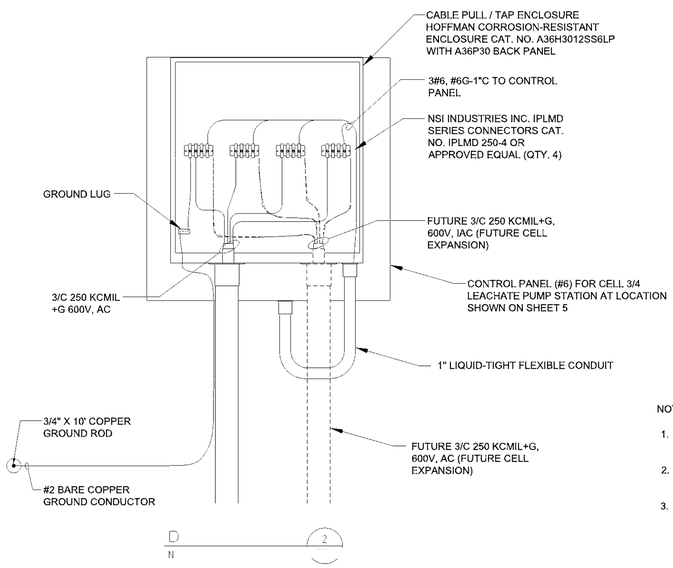
Plot Data
Design File: \05794.49\miscdetails.plt
User Name: seldear
Plot File: J:\05794.49\miscdetails.plt
Plot Scale: 1.000000 x, 1.000000 y
Plotter: MS PSC RGB 300dpi
Rotation: 0.000000
Plotted: Monday, Aug 08, 08:39:07 2011
Levels On: 1,45

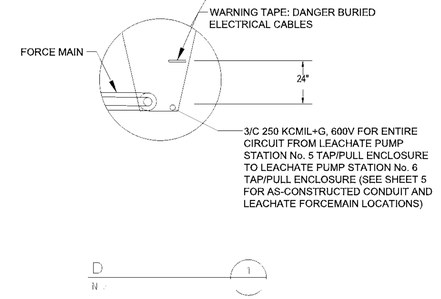
Reference Files
Ref Fle 1: J:\05794.49\Cad\Site Layout\Site Layout.dgn
Ref Fle 2: * no ref name *
Ref Fle 3: * no ref name *
Ref Fle 4: * no ref name *
Ref Fle 5: * no ref name *
Ref Fle 6: * no ref name *
Ref Fle 7: * no ref name *
Ref Fle 8: * no ref name *
Ref Fle 9: * no ref name *
Ref Fle 10: * no ref name *

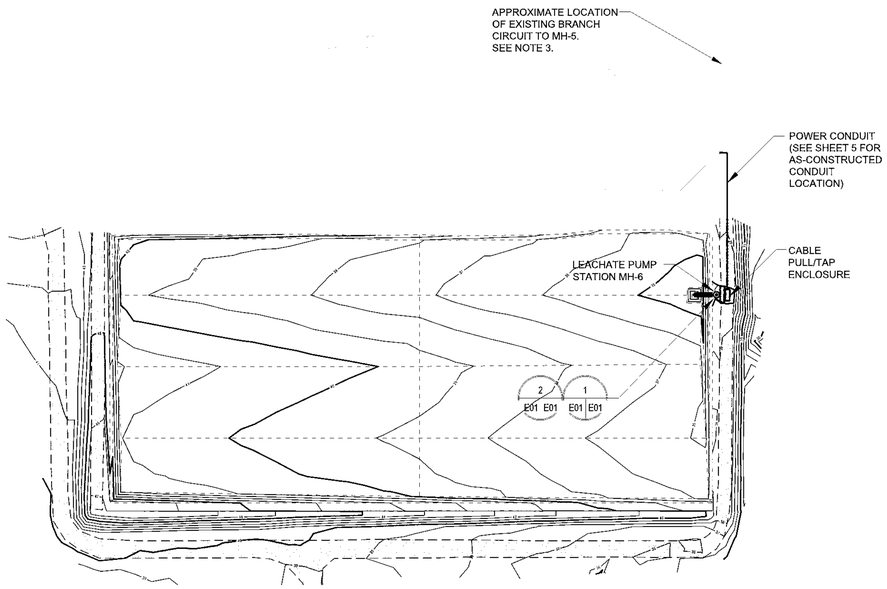
Logical Names
(1) no ref logical
(2) no ref logical
(3) no ref logical
(4) no ref logical
(5) no ref logical
(6) no ref logical
(7) no ref logical
(8) no ref logical
(9) no ref logical
(10) no ref logical

Levels
(1) 1
(2) no ref levels
(3) no ref levels
(4) no ref levels
(5) no ref levels
(6) no ref levels
(7) no ref levels
(8) no ref levels
(9) no ref levels
(10) no ref levels



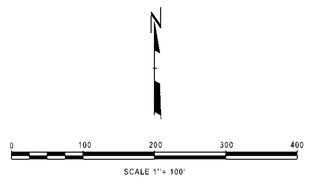






NOTES:

1. PROVIDED WORK IN ACCORDANCE WITH THE 2008 NEC, AND ALL APPLICABLE SPECIFIED BY OWNER, STATE AND LOCAL CODE REQUIREMENTS.
2. ELECTRICAL CONTRACTOR PROVIDED ALL LABOR, MATERIALS, AND AS REQUIRED TO COMPLETE THE ENTIRE ELECTRICAL PORTION OF THIS PROJECT.
3. OWNER PROVIDED TWO NEW LEACHATE PUMPS (EPG), MODEL 12-8 WITH 8 IMPELLER STAGES, 5.0 H.P., 460V/60Hz WITH POWER & SS LIFTING CABLE CAPABLE OF PRODUCING 60GPM @ 172 TDH, PUMP CONTROL PANEL, TRANSDUCERS AND TRANSDUCER CABLES FOR CONNECTION TO THE CONTROL PANEL. ELECTRICAL CONTRACTOR INSTALLED THESE ITEMS.
4. MULTICONDUCTOR CABLES WERE TYPE MC XHHW WITH COPPER CONDUCTORS OKONITE CLX OR EQUAL.
5. PROVIDED NEW 250 kCMIL CONDUCTOR AS SPECIFIED, FROM EXISTING PULL/TAP ENCLOSURE AT MH-5 LEACHATE PUMP STATION, TO NEW PULL/TAP ENCLOSURE AT NEW MH-6 LEACHATE PUMP STATION.



Domtar

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **LANDFILL No. 3 - PHASE 3 & 4**
CONSTRUCTION QUALITY ASSURANCE REPORT
DOMTAR PAPER COMPANY, LLC

SHEET TITLE:
ELECTRICAL PLAN

DRAWN BY:	soldenr	SCALE:	PROJ. NO. 05794.49
CHECKED BY:	KDP	AS SHOWN	FILE NO. electricalplan.plt
APPROVED BY:	TWM	DATE PRINTED:	SHEET 10 OF 10
DATE:	AUGUST 2011		

TRC

NORTH CAROLINA LICENSE NO. F-0591

Proj Data
Design Files (V8i SS4): ...\05794\49\electrical\plan\
Dgn Model: Default
Plot Title: ...\05794\49\electrical\SHEET.dgn
Plot Date: 31 Aug 2011 10:45:58
Plotter: HP DesignJet 500ps
Plotter: HP DesignJet 500ps
Plotter: HP DesignJet 500ps
Plotter: HP DesignJet 500ps
Plotter: HP DesignJet 500ps
Plotter: HP DesignJet 500ps
Plotter: HP DesignJet 500ps
Plotter: HP DesignJet 500ps
Plotter: HP DesignJet 500ps
Plotter: HP DesignJet 500ps
Rotation: 0.000000
Rotation: 0.000000
Levels On: 1 143 Avg 18 Total 236
Reference Files
Ref File 1: ...\05794\49\electrical\plan\SHEET.dgn
Ref File 2: ...\05794\49\electrical\plan\SHEET.dgn
Ref File 3: ...\05794\49\electrical\plan\SHEET.dgn
Ref File 4: ...\05794\49\electrical\plan\new 330.dgn
Ref File 5: ...\05794\49\electrical\plan\new 330.dgn
Ref File 6: *no ref name*
Ref File 7: *no ref name*
Ref File 8: *no ref name*
Ref File 9: *no ref name*
Ref File 10: *no ref name*
Logical Names
Ref File 1: topo
Ref File 2: topo
Ref File 3: topo
Ref File 4: topo
Ref File 5: topo
Ref File 6: topo
Ref File 7: topo
Ref File 8: topo
Ref File 9: topo
Ref File 10: topo
Levels
Ref File 1: (21-24,-20,22-31,-40,42-45,48,50-52)
Ref File 2: (1-20)
Ref File 3: (1-28)
Ref File 4: (1) *no ref levels*
Ref File 5: (1) *no ref levels*
Ref File 6: (1) *no ref levels*
Ref File 7: (1) *no ref levels*
Ref File 8: (1) *no ref levels*
Ref File 9: (1) *no ref levels*
Ref File 10: (1) *no ref levels*

Appendix A
Regulatory Correspondence

Table of Contents

- November 10, 2010, Permit-to-Construct (revised May 17, 2011), Landfill No. 3 Phases 3 and 4
- Well Abandonment Forms for MW-07 and OW-14

November 10, 2010, Permit-to-Construct (revised May 17, 2011), Landfill No. 3 Phases 3 and 4

COPY

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Waste Management
Dexter R. Matthews
Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

SOLID WASTE SECTION
May 19, 2011

Mr. Bill Morris, Environmental Manager
Domtar Paper Company, LLC
Post Office Box 747
Plymouth, North Carolina 27962

Subject: Permit to Construct (PTC), Phases 3 and 4 – Revised
Domtar Paper Company Landfill 3, Industrial Solid Waste Landfill, Permit No. 9401
Washington County, DIN 13951

Dear Mr. Morris:

Enclosed you will find a copy of Permit No. 9401, dated November 10, 2010 and revised May 17, 2011 (DIN 11729). The Permit to Construct for Phases 3 and 4, of the Domtar Paper Company Landfill 3, Industrial Solid Waste Landfill, located in Washington County, has been revised to reflect the requested Permit Condition changes. Make note of the following items;

- Read your permit carefully and should you have any questions contact me immediately.
- The approved documents related to this permit may be found on the Section's website at http://portal.ncdenr.org/web/wm/sw, see the link labeled **Documents (Tracker)**.
- Attachment 3, Part I, Condition 5. a., the language has been revised, as agreed upon by Domtar and the Division.
- Copies of this permit, the approved plans, and all records, are required to be maintained by the permittee at the facility and made available to the Section upon request during normal business hours.

Should you have any questions regarding this matter contact me at (828) 296-4704 or larry.frost@ncdenr.gov.

Sincerely,

Larry Frost
Environmental Engineer

cc: Mike Parker – RMT
Todd Martin – RMT
Ray Williams – SWS/WiRO

3

2090 US Highway 70, Swannanoa, North Carolina 28778
Phone: 828-296-4500 \ FAX: 828-299-7043 \ Internet: www.wastenotnc.org/swhome

An Equal Opportunity \ Affirmative Action Employer

One NorthCarolina Naturally

North Carolina Department of Environment and Natural Resources
Division of Waste Management

Beverly Eaves Perdue
Governor

Dexter R. Matthews
Director

Dee Freeman
Secretary

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT
SOLID WASTE SECTION

INDUSTRIAL SOLID WASTE LANDFILL FACILITY
Permit No. 94-01

Domtar Paper Company, LLC
A Subsidiary of Domtar Corporation
is hereby issued a

PERMIT TO OPERATE
DOMTAR PAPER COMPANY LANDFILL 3 – PHASES 1A, 1B, AND 2

PERMIT TO CONSTRUCT
DOMTAR PAPER COMPANY LANDFILL 3 – PHASES 3 AND 4

Located *west of Ken Trowbridge Road and north of Highway 64, west of the Town of Plymouth, Washington County*, North Carolina, in accordance with Article 9, Chapter 130A, of the General Statutes of North Carolina and all rules promulgated thereunder and subject to the conditions set forth in this permit. The legal description of the site is identified on the deeds recorded for this property listed in Attachment No. 1 of this permit.

cn=Edward F. Mussler III P. E., o=Division of Waste Mngt, ou=Solid Waste Section, email=ed.mussler@ncdenr.gov, c=US
2011.05.17 14:53:47 -04'00'

Edward F. Mussler, III, P.E.,
Permitting Branch Supervisor
Solid Waste Section

ATTACHMENT 1

PART I: PERMITTING HISTORY

1. In the 1950s through the 1970s, Weyerhaeuser Company operated Landfill No. 1 on a separate area from this facility, at the northwest corner of the Weyerhaeuser property in Martin County.
2. In 1978, Weyerhaeuser Landfill No. 2 was approved to operate on Tract 4 of this facility property. The landfill was later extended south to be also located on Tract 13 property. The landfill received industrial waste through 2002. See Part III below for a description of the Tracts.
3. In 1991, Weyerhaeuser Company was permitted to operate an asbestos landfill on the facility property. The asbestos landfill is located east of Landfill No. 2 and west of Landfill No. 3.
4. In 2000 and 2003, Permits to Construct and Permits to Operate were issued to Weyerhaeuser Company for Landfill No. 3, Phase 1A, 1B, and 2. The landfill is located on Tract 4 and Track 13 property.
5. In 2006, Weyerhaeuser Company was combined with Domtar Paper Corporation.
6. In 2007, the landfill facility property was sold from Weyerhaeuser Company to Domtar Paper Company, LLC.
7. Subsequent to the purchase of the facility, Domtar has submitted information and documentation to the Solid Waste Section to apply for the permit to operate the facility to be re-issued to Domtar Paper Company, LLC and Domtar Corporation. Prior to the issuance of this permit, Domtar has continued to operate the landfill facility as previously permitted to Weyerhaeuser Company.
8. Permit to Construct Phases 3 and 4 of Landfill No. 3. October 2010. DIN 11729

Permit Type	Date Issued
Site Approval Letter, Landfill No. 2	May 4, 1978
Order of Approval, Landfill No. 2	June 16, 1978
Solid Waste Management Permit, Landfill No. 2	May 2, 1980
Solid Waste Management Permit Amendment, Landfill No. 2	January 19, 1990
Solid Waste Management Permit Amendment – asbestos landfill	January 14, 1991
Permit to Construct Landfill No. 3 Phase 1A	May 16, 2000

Permit to Operate Landfill No. 3 Phase 1A	December 14, 2000
Permit to Operate Modification – alternate daily cover	July 3, 2001
Permit to Construct Landfill No. 3 Phases 1B and 2	November 25, 2002
Permit to Construct Modification – LCID and asbestos units	April 8, 2003
Permit to Operate Landfill No. 3 Phases 1A, 1B, and 2	October 14, 2003
Permit to Operate Landfill No.3, Amended – Ownership/name change. DIN 4518.	May 22, 2008
Permit to Construct, Landfill No. 3 – Phases 3 and 4.	November 10, 2010
Modification to Condition 5, Attachment 3, Part I	May 17, 2011

PART II: LIST OF DOCUMENTS FOR THE APPROVED PLAN

1. Groundwater Modeling Data and Results for Weyerhaeuser Paper Company, RMT, Inc. September 1998.
2. Proposed No. 3 Landfill, Alternate Liner Design. Revised Memorandum, RMT, Inc. January 1999.
3. Application for Permit to Construct Landfill No. 3, Weyerhaeuser Company, Plymouth, NC, Volumes I and II, RMT, Inc. October 21, 1999, revised through May 15, 2000.
4. Construction Plan Application Drawings, Landfill No. 3. RMT, Inc. October 1999, revised through May 2000.
5. Construction Documentation Report for New Landfill No. 3, Phase 1A, Module 1 (Sections 1 through 8) and Module 2 (Sections 9 and 10) dated November 2000.
6. Construction Documentation Report for New Landfill No. 3, Phase 1A, Appendices A – U, dated November 2000.
7. Addendum Dated December 1, 2000 containing Report that documents the construction of the leachate collection system and remaining elements (Sections 9 and 10) and Record Drawings.
8. Operation Plan and Documentation of demonstration period for use of process silica as alternate daily cover, submitted October 2000 and May 2001.
9. Letter dated December 12, 2000, Kent Nilsson to Jim Barber, Response to Review Comments.
10. Construction Plan Application, Phase 1B and 2, Landfill No. 3, Volumes 1 and 2, RMT, Inc. July 16, 2002, revised through November 11, 2002.

6

11. Construction Plan Application Drawings, Phases 1B and 2, Landfill No. 3, RMT, Inc. July 16, 2002, revised through November 11, 2002.

12. Permit Application Land Clearing and Inert Debris Landfill and Asbestos Landfill. Prepared by RMT, Inc. dated August 22, 2002, revised February 14, 2003 and April 4, 2003.

13. LCID Landfill and Asbestos Landfill Permit Application Drawings. Prepared by RMT, Inc. dated August 22, 2002, revised February 14, 2003.

14. Construction Quality Assurance Report for Landfill No. 3, Phase 1B and 2, Volumes 1 and 2. August 8, 2003 revised through October 6, 2003.

15. Letter dated October 11, 2003, Kent Nilsson to Sherri Coghill, Responding to Review Comments and Transmitting Revisions/Addenda to CQA Report.

16. Closure Letter of Unlined Landfill Unit, Landfill No. 2. Issued February 21, 2005.

17. Request for Permit Transfer from Weyerhaeuser Company to Domtar Paper Company, LLC. Letters and additional information dated February 6, 2007, February 15, 2007, March 8, 2007, and May 5, 2008.

18. *Two Design Variances Requested, Domtar Landfill No. 3, Plymouth, North Carolina, Regards to the Closure of Phase 1a and 1b*. Prepared for Domtar. Prepared by RMT. August 2010. DIN 11480.

19. *Domtar Paper Company Landfill No. 3, Permit to Construct (PTC) Phase 3 and Phase 4 – Variance*. Prepared for Domtar. Prepared by RMT. August 2010. DIN 11648.

20. *Phase 3 and Phase 4 Construction Plan Application, On-Site Industrial Waste Landfill No. 3, Domtar Paper Company, LLC (Formerly Weyerhaeuser Company), Plymouth, North Carolina, June 2008, Revised August 2009, August 2010, Revised November 2010.* Prepared for Domtar. Prepared by RMT. November 3, 2010. DIN 12123.

PART III: PROPERTIES APPROVED FOR THE SOLID WASTE FACILITY

Washington County, N.C. Register of Deeds					
Book	Page	Grantee	Grantor	Tract	Acres
443	592	Domtar Paper Company, LLC	Weyerhaeuser Company	3	114
443	592	Domtar Paper Company, LLC	Weyerhaeuser Company	4	188.8
443	592	Domtar Paper Company, LLC	Weyerhaeuser Company	13	47.69
				Total Site Acreage	350.49

PART IV: GENERAL PERMIT CONDITIONS

1. This permit is issued by the North Carolina Department of Environment and Natural Resources, Division of Waste Management, Solid Waste Section (Section). In accordance with North Carolina Solid Waste Management Rule 15A NCAC 13B .0201(d), a solid waste management facility permit shall have two parts: a Permit to Construct and a Permit to Operate. The Permit to Construct must be implemented in accordance with Attachment 2 of this permit. The Permit to Operate must be implemented in accordance with Attachment 3 of this permit.

2. The persons to whom this permit is issued ("permittee") are the owners and operators of the solid waste management facility.

3. (Intentionally blank)

4. (Intentionally blank)

5. By receiving waste at this facility the permittee shall be considered to have accepted the terms and conditions of this permit.

6. Operation of this solid waste management facility must be in accordance with the Solid Waste Management Rules, 15A NCAC 13B, Article 9 of the Chapter 130A of the North Carolina General Statutes (NCGS 130A-290, et seq.), the conditions contained in this permit; and the approved plan. Should the approved plan and the rules conflict, the Solid Waste Management Rules shall take precedence unless specifically addressed by permit condition.

7. This permit is issued based on the documents submitted in support of the application for permitting the facility including those identified in Attachment 1, "List of Documents for Approved Plan," and which constitute the approved plan for the facility. Where discrepancies exist, the most recent submittals and the Conditions of Permit shall govern.

8. This permit may be transferred only with the approval of the Section, through the issuance of a new or substantially amended permit in accordance with applicable statutes and rules. In accordance with NCGS 130A-295.2(g) the permittee must notify the Section thirty (30) days prior to any significant change in the identity or business structure of either the owner or the operator, including but not limited to a proposed transfer of ownership of the facility or a change in the parent company of the owner or operator of the facility.

9. The permittee is responsible for obtaining all permits and approvals necessary for the development of this project including approval from appropriate agencies for a General or Individual NPDES Stormwater Discharge Permit. Issuance of this permit does not

remove the permittee's responsibilities for compliance with any other local, state or federal rule, regulation or statute.

- End of Section -

ATTACHMENT 2

CONDITIONS OF PERMIT TO CONSTRUCT

1. The Permit to Construct was issued on November 10, 2010 and the permit shall expire November 10, 2015. Pursuant to the NC Solid Waste Management Rules (Rule) 15A NCAC 13B .0201(c) and (d)(1).

2. The initial, substantial, construction authorized by this Permit to Construct must commence within 18 months from the issuance date of this permit. If substantial construction does not begin within 18 months from the issuance date of this permit, then the permit to construct shall expire. Substantial construction includes, but is not limited to, issuance of construction contracts, mobilization of equipment on site, and construction activities including installation of sedimentation and erosion control structures. The permittee may reapply for the permit to construct prior to the expiration date. The re-application will be subject to the statutes and rules in effect on that date and may be subject to additional fees.

3. Construction of all solid waste management units within this facility must be in accordance with the pertinent approved plans and only for those phases of development approved for construction as described in Attachment I, Part II List of Documents for the Approved Plan.

4. The permittee must conduct a preconstruction meeting at the facility prior to initiating construction of any unit/cell and must notify the Section at least 10 days prior to the meeting.

5. Modifications or revisions of the approved documents or changes during construction of any landfill unit/cell require approval by the Section, and may constitute a permit modification and be subject to a permitting fee.

6. The following conditions must be met prior to operation of the Phase 3 or 4:
   a. The Permittee must obtain a Permit to Operate for Phases 3 or 4 from the Section in accordance with 15A NCAC 13B .0201(d).
   b. Construction Quality Assurance (CQA) documentation as well as a certification by the project engineer that the landfill was built in accordance with approved plans and the conditions of the permit must be submitted to the Section for review and approval.

9

c. The Permittee must contact the appropriate regional environmental specialist and permitting engineer to determine whether the Section chooses to hold a pre-operative meeting with key landfill personnel and representatives of the Section.

d. The edge of the waste footprint must be identified with permanent physical markers.

Geologic, Ground Water and Monitoring Requirements

5. Prior to issuing the Permit to Operate, samples from new ground water monitoring wells and surface water stations shall be sampled for the Appendix I constituent list.

6. Prior to construction of the phase or cell(s) within the phase, all piezometers, borings, and groundwater monitoring wells within the footprint must be properly abandoned in accordance with 15A NCAC 2C .0113 (b)(1), entitled "Abandonment of Wells."

7. In areas where soil is to be undercut, abandoned piezometers, monitoring wells and borings must not be grouted to pre-grade land surface, but to the proposed base grade surface to prevent having to cut excess grout and possibly damage the wells.

8. A Licensed Geologist must report any pertinent geological feature(s) exposed during phase or cell excavation. Prior to placing any landfill liner, the geologist must submit to the Section hydrogeologist a written report that includes an accurate description of the exposed geological feature(s) and effect of the geological feature(s) on the design, construction, and operation of the cell, phase, or unit.

9. A Licensed Geologist must supervise installation of groundwater monitoring wells and surface water sampling stations.

10. Any modification to the approved water quality monitoring, sampling, and analysis plan must be submitted to the Section Hydrogeologist for review.

11. Within 30 days of completed construction of each new groundwater monitoring well, a well construction record (GW-1 form), typical well schematic, boring log, field log and notes, and description of well development activities must be submitted to the Section.

12. The permittee must provide a plan sheet-sized, scaled topographical map, showing the location and identification of new, existing, and abandoned wells and piezometers after installation of groundwater monitoring wells.

13. Within thirty (30) days of the completed permanent abandonment of a ground-water monitoring well, the well abandonment record (GW-30 form) and any additional information included in the abandonment record) must be submitted to the Section. The well abandonment records must be submitted to the Solid Waste Section in accordance with 15A NCAC 2C .0114(b) and be certified by a Licensed Geologist.

Erosion and Sedimentation Control Requirements

14. All required sedimentation and erosion control measures must be installed and operable to mitigate excessive on-site erosion and to prevent silt from leaving the area of the landfill unit during the service life of the facility.

15. All earth disturbing activities must be conducted in accordance with the Sedimentation Pollution Control Act of 1973 (15 NCAC 4) and consistent with any other local, state or federal requirements.

16. Facility construction, operations or practices must not cause or result in a discharge of pollution, dredged material, and/or fill material into waters of the state in violation of the requirements under Sections 401 and 404 of the Clean Water Act, as amended.

17. Modifications to the approved sedimentation and erosion control activities require approval by the North Carolina Land Quality Section. The Section must be notified of any sedimentation and erosion control plan modifications.

PART II: INDUSTRIAL SOLID WASTE LANDFILL UNIT SPECIFIC CONDITIONS

18. Pursuant to the NC Solid Waste Management Rules (Rule) 15A NCAC 13B .0201(c) and (d)(1), this permit approves construction for the Landfill No. 3 – Phases 3 and 4 consisting of a projected operating capacity of 1,461,000 cubic yards of airspace.

PART III: MISCELLANEOUS SOLID WASTE MANAGEMENT SPECIFIC CONDITIONS
Not Applicable

- End of Section -

ATTACHMENT 3

CONDITIONS OF OPERATING PERMIT

PART I: GENERAL FACILITY CONDITIONS

1. The Permit to Operate shall expire May 22, 2013. Pursuant to 15A NCAC 13B .0201(e), no later than November 22, 2012, the owner or operator must submit a request to the Section for permit review and must update pertinent facility plans including, but not limited to, the facility operation and waste screening plans.

2. All sedimentation and erosion control activities must be conducted in accordance with the Sedimentation Control Act N.C.G.S. 113A-50, et seq., and rules promulgated under 15A NCAC 4.

3. The edge of the waste footprint for all disposal units must be identified and maintained with permanent physical markers.

Operational Requirements

4. This facility is permitted to receive solid waste generated by Domtar Paper Company, LLC. as described in Attachment 1, Part II; List of Documents for the Approved Plan and as defined in G.S. 130-290 (a)(2b), except where prohibited by the N. C. General Statues Article 9 of Chapter 130A, and the rules adopted by the Commission for Health Services.

5. The facility operator must complete an approved operator training course in compliance with G.S. 130A-309.25.
   a. A responsible individual certified in landfill operations must be available to the landfill-operating personnel, either on-site or by phone, during all operating hours of the facility to ensure compliance with operational requirements.
   b. All pertinent landfill-operating personnel must receive training and supervision necessary to properly operate the landfill units in accordance with G.S. 130A-309.25 and addressed by memorandum dated November 29, 2000. This may be accomplished through regular (daily) communication with those performing the landfill operations concerning: landfill plans and specifications, locations for waste deposition, cover and slope criteria expected waste streams and special projects.

6. The use of different alternative cover materials requires approval, prior to implementation, by the Solid Waste Section. Requests for alternative cover material approval must include a plan detailing the comprehensive use and a demonstration of the effectiveness of the alternative cover material. The plan must be developed according to Section guidelines. Plans which are approved by the Section will be incorporated into, and made a part of, the approved documents listed in Attachment 1, Part II; List of Documents for the Approved Plan.

7. (Intentionally blank)

Monitoring and Reporting Requirements

8. Groundwater locations must be established and monitored as identified in Attachment 1, Part II; List of Documents for the Approved Plan.

9. A licensed geologist must be present to supervise the installation of groundwater monitoring wells. The exact locations, screened intervals, and nesting of the wells must be established after consultation with the SWS Hydrogeologist at the time of well installation.

10. Groundwater monitoring wells must be sampled for the constituents in the approved monitoring plan, at least semi-annually, according to the specifications outlined in the approved water quality monitoring plan and the current policies and guidelines of the Section in effect at the time of sampling.

11. Reports of the analytical data for each monitoring event must be submitted to the Section within 120 days of the respective sampling event. Analytical data must be submitted in a manner prescribed by the Section. Records of all groundwater and leachate analytical data must be kept as part of the permanent facility record.

12. One sample which will comprise the initial baseline sampling event must be collected from each groundwater monitoring well. Each sample must be analyzed for Appendix I constituents, the report must be submitted to the Section within six months after issuance of the Permit to Operate.

13. Untreated leachate must be sampled and analyzed at least semi-annually concurrently with the groundwater water sampling, one sample per event. The leachate must be analyzed for the same constituents that the groundwater monitoring wells are the constituents in the approved monitoring plan. Test results must be submitted to the Section along with groundwater test results. In the event leachate is recirculated, additional leachate sampling may be required.

14. A readily accessible unobstructed path must be cleared and maintained so that four-wheel vehicles may access monitoring well locations at all times.

15. A log which details all development, sampling, repair, and all other pertinent activities associated with each monitoring well and all sampling activities associated with each surface water and leachate sampling location must be kept as part of the permanent facility record.

16. All well construction records and soil boring logs for new wells must be submitted to the Solid Waste Section Hydrogeologist for review within 30 days of completion.

17. Copies of this permit, the approved plans, and all records required to be maintained by the permittee must be maintained at the facility and made available to the Section upon request during normal business hours.

18. The owner or operator must maintain a record of the amount of solid waste received at the landfill unit, compiled on a monthly basis. Scales must be used to establish and record an average weight of waste per truck load, once the average weight is established the Facility shall maintain a record of truck loads received.

19. On or before August 1 annually, the Permittee must submit an annual facility report to the Solid Waste Section, on forms prescribed by the Section.
    a. The reporting period shall be for the previous year beginning July 1 and ending June 30.
    b. The annual facility report must list the amount of waste received and landfilled in tons and be compiled:
        i) On a monthly basis.

ii) By specific waste type.
iii) By disposal location within the facility.

c. A measurement of volume utilized in the landfill cells must be performed once during the calendar year. The date and volumes, in cubic yards, must be included in the report.

d. The amount of waste, in tons from records, disposed in landfill cells from December 14, 2000 through the date of the annual volume survey must be included in the report.

e. The completed report must be forwarded to the Regional Waste Management Environmental Senior Specialist for the facility by the date due on the prescribed annual facility report form.

f. A copy of the completed report must be forwarded to each county manager for each county from which waste was received at the facility. Documentation that a copy of the report has been forwarded to the county managers must be sent to the Regional Waste Management Specialist by the date due on the prescribed annual facility report form.

20. The following, at a minimum, must not be accepted for disposal at the facility: hazardous waste, yard trash, liquid wastes, regulated medical waste, sharps not properly packaged, PCB waste as defined in 40 CFR 761, and wastes banned from disposal in North Carolina by G.S. 130A-309.10(f).

21. Closure or partial closure of any landfill unit must be in accordance with the Closure Plans described in the approved plans. Final Closure Plans must be submitted to the Division at least 90 days prior to implementation.

22. Financial assurance as required by state rules and statutes must be continuously maintained for the duration of the facility in accordance with applicable rules and statutes. Closure and Post-Closure cost estimates and financial instruments must be updated annually.

PART II: INDUSTRIAL SOLID WASTE LANDFILL UNIT SPECIFIC CONDITIONS

23. This permit approves the continued operation of Landfill No. 3 – Phases 1A, 1B and 2, as well as the onsite environmental management and protection facilities as described in the approved plans.

24. The following table lists the estimated gross capacity and status details for the landfill phases. Gross capacity is defined as the calculated volume from the elevation of initial waste placement to the top of the final cover.

Phase	Capacity (cubic yards)	Anticipated Life (years)	Status
1A, 1B	548,103	4.4	Constructed
2	682,960	3.9	Constructed
3	597,000	3.4	Proposed
4	864,000	7.1	Proposed
5	782,000	7.8	Proposed
6	810,000	8.1	Proposed
7	757,000	7.6	Proposed
8	773,000	7.7	Proposed
9	618,000	6.2	Proposed
10	499,000	5.0	Proposed
11	589,000	5.9	Proposed
12	368,000	3.7	Proposed
13	432,000	4.3	Proposed
14	458,000	4.6	Proposed
15	514,000	5.1	Proposed
16	562,000	5.6	Proposed
17	367,000	3.7	Proposed
18	528,000	5.3	Proposed
			Proposed

-End of Conditions-

Well Abandonment Forms for MW-07 and OW-14

WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 2480

1. WELL CONTRACTOR:

Lewis LeFever
Well Contractor (Individual) Name

Parratt-Wolff, Inc.
Well Contractor Company Name

501 Millstone Drive
Street Address

Hillsborough | NC | 27278
City or Town | State | Zip Code

(919) 644-2814
Area code Phone number

2. WELL INFORMATION:

SITE WELL ID # (if applicable) MW-07

STATE WELL PERMIT # (if applicable)

COUNTY WELL PERMIT # (if applicable)

DWQ or OTHER PERMIT # (if applicable)

WELL USE (Check applicable use): ☑ **Monitoring** ☐ **Residential**
☐ **Municipal/Public** ☐ **Industrial/Commercial** ☐ **Agricultural**
☐ **Recovery** ☐ **Injection** ☐ **Irrigation**
☐ Other (list use)

3. WELL LOCATION:

COUNTY Washington QUADRANGLE NAME

NEAREST TOWN: Plymouth

Ken Trowbridge Road
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)

TOPOGRAPHIC / LAND SETTING:
☐ Slope ☐ Valley ☑ Flat ☐ Ridge ☐ Other
(Check appropriate setting)

LATITUDE 35 ° 50 ' 18.0000 " DMS OR 3X.XXXXXXXXDD

LONGITUDE 76 ° 45 ' 9.0000 " DMS OR 7X.XXXXXXXXDD

Latitude/longitude source: ☐ GPS ☑ Topographic map
(location of well must be shown on a USGS topo map endattached to this form if not using GPS)

4a. FACILITY - The name of the business where the well is located. Complete 4a. (If a residential well, skip 4a; complete 4b, well owner information only.)

FACILITY ID # (if applicable)

NAME OF FACILITY Domtar Paper Co.

STREET ADDRESS Ken Trowbridge Road

Plymouth | NC | 27962
City or Town | State | Zip Code

4b. CONTACT PERSON/WELL OWNER:

NAME

STREET ADDRESS

5. WELL DETAILS:

a. Total Depth 20.0 ft. Diameter: 2 in.
b. Water Level (Below Measuring Point): 11.0 ft.
Measuring point is 0 ft. above land surface.

6. CASING:

	Length		Diameter	
a. Casing Depth (if known):	10.0	ft.	2	in.
b. Casing Removed:	10.0	ft.	2	in.

7. DISINFECTION:

(Amount of 65%75% calcium hypochlorite used)

8. SEALING MATERIAL:

Neat Cement
Cement lb.
Water gal.

Sand Cement
Cement lb.
Water gal.

Bentonite
Bentonite lb.
Type: ☐ Slurry ☐ Pellets
Water gal.

Other
Type material 5% Bentonite/Cement Grout
Amount 2 bags

9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

Well removed; grouted hole

10. WELL DIAGRAM : Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used

11. DATE WELL ABANDONED 3/4/11

I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CERTIFIED WELL CONTRACTOR — DATE 3/9/11

SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL — DATE
(The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.)

Lewis LeFever
PRINTED NAME OF PERSON ABANDONING THE WELL

Submit a copy to the owner and the original to: Division of Water Quality - Information Processing, 1617 Mail Service Center, Raleigh, NC 27699-1617, Phone : (919) 807-6300

Form GW-30
Rev. 5/10

19

WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 2480

1. WELL CONTRACTOR:

Lewis LeFever
Well Contractor (Individual) Name

Parratt-Wolff, Inc.
Well Contractor Company Name

501 Millstone Drive
Street Address

Hillsborough NC 27278
City or Town State Zip Code

(919) 644-2814
Area code Phone number

2. WELL INFORMATION:

SITE WELL ID # (if applicable) OW-14

STATE WELL PERMIT # (if applicable)

COUNTY WELL PERMIT # (if applicable)

DWQ or OTHER PERMIT # (if applicable)

WELL USE (Check applicable use) ☑ **Monitoring** ☐ **Residential**

☐ **Municipal/Public** ☐ **Industrial/Commercial** ☐ **Agricultural**

☐ **Recovery** ☐ **Injection** ☐ **Irrigation**

☐ Other (list use)

3. WELL LOCATION:

COUNTY Washington QUADRANGLE NAME

NEAREST TOWN: Plymouth

Ken Trowbridge Road
(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)

TOPOGRAPHIC / LAND SETTING:

☐ Slope ☐ Valley ☑ Flat ☐ Ridge ☐ Other
(Check appropriate setting)

LATITUDE 35 ° 50 ' 18.0000 " DMS OR 3X.XXXXXXXXDD

LONGITUDE 76 ° 45 ' 9.0000 " DMS OR 7X.XXXXXXXXDD

Latitude/longitude source: ☐ GPS ☑ Topographic map
(location of well must be shown on a USGS topo map andattached to this form if not using GPS)

4a. FACILITY - The name of the business where the well is located. Complete 4a : (If a residential well, skip 4a; complete 4b, well owner information only.)

FACILITY ID # (if applicable)

NAME OF FACILITY Domtar Paper Co.

STREET ADDRESS Ken Trowbridge Road

Plymouth NC 27962
City or Town State Zip Code

4b. CONTACT PERSON/WELL OWNER:

NAME

STREET ADDRESS

5. WELL DETAILS:

a. Total Depth 16.0 ft. Diameter: 2 in.

b. Water Level (Below Measuring Point): 7.0 ft.

Measuring point is 0 ft. above land surface.

6. CASING:

	Length		Diameter	
a. Casing Depth (if known):	6.0	ft.	2	in.
b. Casing Removed:	6.0	ft.	2	in.

7. DISINFECTION:

(Amount of 65%75% calcium hypochlorite used)

8. SEALING MATERIAL:

Neat Cement

Cement lb.
Water gal.

Sand Cement

Cement lb.
Water gal.

Bentonite

Bentonite lb.

Type: ☐ Slurry ☐ Pellets

Water gal

Other

Type material 5% Bentonite/Cement Grout

Amount 1-1/2 bags

9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

~~Well removed; grouted hole~~

10. WELL DIAGRAM : Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materialsused

11. DATE WELL ABANDONED 3/4/11

I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CERTIFIED WELL CONTRACTOR — DATE 3/9/11

SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL — DATE
(The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.)

Lewis LeFever
PRINTED NAME OF PERSON ABANDONING THE WELL

Submit a copy to the owner and the original to: Division of Water Quality - Information Processing, 1617 Mail Service Center, Raleigh, NC 27699-1617, Phone : (919) 807-6300

Form GW-30
Rev. 5/10

20/20

Appendix B
Daily Construction Reports

DAILY CONSTRUCTION REPORT

Report No. 1

Project No.: 05794.49.001	**Day:** ☐S ☐M ☒T ☐W ☐Th ☐F ☐S	**Date:** 03 / 02 / 11

Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction

RMT Project Manager: Mike Parker | **Office Contact:** Todd Martin/ Nathan Braun

RMT Representatives: Kim Pawlisch

Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 5:30 p.m.	**Hrs:** 10.5

Client Representative(s): Bill Morris

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 1 Engineer.

Subcontractors: None

Equipment/Materials Delivered: None

Weather: Clear				**Temp.:** 35 -45
Humidity: low%	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** NE	@ 5 - 10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐	☐
☐	☐

Report No. 1

Time	Description of Work in Progress:
7:00 a.m.	Arrived on-site. Trees were cleared and stumps were grubbed. Most of the trees and stumps were chipped. Some trees west of Phase 3 & 4 remained to be chipped.
8:00 a.m.	I drove and looked over the site. Ryan was removing the plywood from the Phase 2/3 delineation tie-in and hand shoveling the stone to expose the tie-in.
10:00 a.m.	Ryan began using a dozer to push/strip topsoil into stockpiles in the areas that were clear and grubbed. A chipper was on-site chipping the cleared trees. The chips were stockpiled for removal later.
noon	Ryan took lunch.
12:30 p.m.	Ryan resumed stripping topsoil. Ryan completed exposing the Phase 2 geomembrane tie-in.
3:30 p.m	Ryan began to haul out the topsoil stockpiles pushed up with the dozer. The topsoil was hauled and stockpiled along the haul road to the borrow area south of the site.
5:30 p.m.	Ryan and I left the site for the day.

Quantities of Pay Items Placed:

Item: Topsoil stripping	**Quantity:**
Item: Clearing and grubbing	**Quantity:**
Item:	**Quantity:**

Report No. 1

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

None

Work Decisions:

None

Report No. 1

Daily Communications:

Name/Representing: Nate Braun	**Time:**
Subject/Comments: Update Nate on Project progress	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing: Todd Martin	**Time:**
Subject/Comments: Update Todd on project progress	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 2

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☒W ☐Th ☐F ☐S	**Date:** 03 / 03 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 5:30 p.m.	**Hrs:** 10.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: None

Equipment/Materials Delivered: None

Weather: Clear				**Temp.:** 35 -45 F
Humidity: low%	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** E	@ 5 -15 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐	☐
☐	☐

Report No. 2

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Ryan will load and haul the wood chip stockpiles that are in the limits of the Phase 3&4 liner. They will relocate the wood chips west of the cell out of the way of cell construction. Chipping of the cleared and grubbed material is complete, but stockpiles of wood chips remain.
7:30 a.m.	Ryan moving the wood chips out of the cell limits so Ryan can cut and fill within the liner limits.
8:00 a.m.	Ryan completed relocating the wood chip stockpiles. Ryan was cutting and filling within the cell limits.
10:00 am.	Ryan using a dozer to stockpile and strip topsoil. Ryan also cutting and filling within the liner area. Ryan was spreading some stockpiles of soil that were saturated to dry the material.
noon	Ryan took lunch.
12:30 p.m.	Ryan resumed with grading the liner area and stripping topsoil. The wood chip stockpiles were being hauled to the plant.
3:30 p.m.	Ryan started to haul and stockpile topsoil adjacent to the haul road to the borrow area south of the phase 3&4 liner area.
5:30 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Stripped topsoil	**Quantity:**
Item: Subbase development	**Quantity:**
Item:	**Quantity:**

Report No. 2

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

Work Decisions:

None

Report No. 2

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: Update Nate on Project progress

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 3

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☒F ☐S	**Date:** 03 / 04 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 5:30 p.m.	**Hrs:** 10.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 1 Laborers, 1 Engineer.

Subcontractors: Parratt Wolff, Inc. (drillers subcontracted by RMT)

Equipment/Materials Delivered: None

Weather: Clear				**Temp.:** 35 -55 F
Humidity: low%	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** SE	@ 5 -10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐	☐
☐	☐

Report No. 3

Time	Description of Work in Progress:
7:00 a.m.	Arrived onsite with well driller and helper from Parratt Wolff, Inc.
7:45 a.m.	Went through Appendix "Y" (safety orientation) with the driller and helper.
8:00 a.m.	Drill rig set up on MW-07. The drillers were able to pull the entire PVC casing and screen without over-drilling the well. The hole stayed open and the drillers were able to extend a tremmie tube to the bottom of the hole and grout the hole from the bottom to the top. MW-7 was 20 feet deep.
8:30 a.m	Drill rig set up on OW-14. The drillers were able to pull the entire PVC casing and 10 foot well screen without over-drilling the well. The hole stayed open and the drillers were able to extend a tremmie tube to the bottom of the hole and grout the hole from the bottom to the top. OW-14 was 16 feet deep.
9:30 a.m.	Parratt Wolff finished abandoning MW-07 and OW-14. The Parratt Wolff driller will get his paper work to his office and they will get the State Abondonment Form to the State. Ryan was having GRI installing silt fence east, south, and west of the Phase 3 & 4 area adjacent to the clear and grub limits.
10:00 a.m.	Ryan was cutting and grading the Phase 3 & 4 base area with dozers and constructing the western perimeter berm of Phase 3 & 4. Fill material is being obtained from the Borrow Area.
Noon	Ryan took lunch.
12:30 p.m.	Ryan continued to construct the western berm and the western portion of the southern delineation berm.
5:00 p.m.	I left the site for the day. Ryan shut down the haul trucks and was only running the dozers and compactors to button-up the construction areas for the weekend. Rain is predicted for Sunday.

Quantities of Pay Items Placed:

Item: Silt Fence	**Quantity:** 2,100 LF
Item: Abandoned OW-14 and MW-7	**Quantity:** OW14 (16 ft), MW7(20 ft)
Item:	**Quantity:**

Report No. 3

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

Ryan will not be working this weekend

Work Decisions:

None

Report No. 3

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: Update Nate on Project progress

Name/Representing: John Hanson **Time:**

Subject/Comments: John will be shipping out the gauge today. It should arrive on-site Monday.

Name/Representing: Todd Martin **Time:**

Subject/Comments: Update Todd on project progress

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 4

Project No.: 05794.49.001	**Day:** ☐S ☒M ☐T ☐W ☐Th ☐F ☐S	**Date:** 03 / 07 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 3:00 p.m.	**Hrs:** 8
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 2 Operators, 0 Laborers, _____ Engineer.

Subcontractors: None

Equipment/Materials Delivered: None

Weather: Cloudy				**Temp.:** 35 -55 F
Humidity: low%	**Rain:** .5 in.	**Pressure:** N/A	**Wind:** SE	@ 5-10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☐ Cat Dozer D6
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☐ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☐ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☐	☐
☐	☐

Report No. 4

Time	Description of Work in Progress:
7:00 a.m.	Arrived onsite. Ryan will only be running dozers today because of rain over the weekend. One operator will remain and suppervisor will remain on-site to drain puddles and grade areas to drain. The dozers will work the Phase 3& 4 areas, the borrow area and the haul roads.
8:00 a.m.	I drove the site. Areas were wet, but today's weather should dry things out quickly.
9:00 a.m.	I remained on site and reviewed submittals and worked on paper work.
3:00 p.m	I left the site for the day.

Quantities of Pay Items Placed:

Item: None. Drained areas using dozers	**Quantity:**
Item:	**Quantity:**
Item:	**Quantity:**

Report No. 4

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

Too wet to work today because of rain yesterday (Sunday).

Notices To/From Contractors:

From Ryan- Will not be working today because of rain. Dozers will drain and grade areas to dry.

Work Decisions:

None

Report No. 4

Daily Communications:

Name/Representing: Nate Braun	**Time:**
Subject/Comments: Update Nate on Project progress	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 5

Project No.: 05794.49.001	**Day:** ☐S ☐M ☒T ☐W ☐Th ☐F ☐S	**Date:** 03 / 08 / 11

Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction

RMT Project Manager: Mike Parker | **Office Contact:** Todd Martin/ Nathan Braun

RMT Representatives: Kim Pawlisch

Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 5:30 p.m.	**Hrs:** 10.5

Client Representative(s): Bill Morris

Status of Project in Relation to Schedule: ____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 1 Engineer.

Subcontractors: Landsaver Enviromental (subcontractor for Ryan to install erosion matting and revegetation matting on the final cover).

Equipment/Materials Delivered: None

Weather: Clear				**Temp.:** 35 -55 F
Humidity: low%	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** E	@ 5 - 15 mph

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐	☐
☐	☐

Report No. 5

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Conditions were still a little wet from the rain a couple of days ago. Ryan will cut and fill the subgrade and will do some work on the Phase 1A and 1B final cover.
9:00 a.m.	Ryan is cutting and filling the subbase grades and building the perimeter berms. Landsaver Environmental was on-site. Landsaver will be installing erosion and revegetation matting on the Phase 1A & 1B final cover.
11:00 a.m.	Ryan was cutting and filling on the Phase 3 & 4 subgrade and perimeter berms. Landsaver was installing the erosion control matting on the final cover.
Noon	Ryan took lunch.
12:30 p.m.	Ryan continued to develop the Phase 3 & 4 liner subbase.
5:30 p.m.	I left the site for the day. Ryan was preparing to shut down for the day.

Quantities of Pay Items Placed:

Item: Subbase Development	**Quantity:**
Item: Erosion matting installation ofn the final cover	**Quantity:**
Item:	**Quantity:**

Report No. 5

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

None

Work Decisions:

None

Report No. 5

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: Update Nate on Project progress

Name/Representing: Todd Martin **Time:**

Subject/Comments: Update Todd on project progress

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 6

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☒W ☐Th ☐F ☐S	**Date:** 03 / 09 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 5:30 p.m.	**Hrs:** 10.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 1 Engineer.

Subcontractors: Landsaver Environmental - Placing erosion control matting on the Phase 1A and 1B final cover

Equipment/Materials Delivered: None

Weather: Clear				**Temp.:** 40 -60 F
Humidity: low%	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** E	@ 10 - 15 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐	☐
☐	☐

Report No. 6

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Ryan will be developing the bottom of prepared subbase today. Landsaver will be installing erosion matting on the Phase 1A & 1B final cover.
8:00 a.m.	Ryan constructing the the perimeter berms and cutting and filling to develop subbase grades (bottom of prepared subgrade layer) Landsaver is installing erosion control matting on the final cover.
11:00 a.m.	Ryan continued to develop subbase grades.
noon	Ryan took lunch.
12:30 p.m.	Ryan continued to develop subbase grades and Landsaver continued to install erosion control matting on the final cover
5:30 p.m.	I left the site for the day. Ryan was preparing to leave the site for the day.

Quantities of Pay Items Placed:

Item: Subbase development	**Quantity:**
Item: Erosion control mat installation	**Quantity:**
Item:	**Quantity:**

Report No. 6

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

None

Work Decisions:

None

Report No. 6

Daily Communications:

Name/Representing: Nate Braun	**Time:**
Subject/Comments: Update Nate on Project progress	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 7

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☒Th ☐F ☐S	**Date:** 03 / 10 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 4:00 p.m.	**Hrs:** 9
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 2 Operators, 2 Laborers, 1 Engineer.

Subcontractors: Landsaver Environmental - Placing erosion control matting on the Phase 1A and 1B final cover

Equipment/Materials Delivered: None

Weather: Clear				**Temp.:** 35 -55 F
Humidity: low%	**Rain:** 0.2 in.	**Pressure:** N/A	**Wind:**	@ mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☐ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☐ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	Arrived onsite. Off and on Rain early this morning.
7:45 a.m.	Load of geomembrane arrived on-site. Ryan using a forklift to unload. It is anticipated that another load of geomembrane will arrive later this morning.
8:00 a.m.	Ryan completed unloading the load of geomembrane.
9:30 a.m	Rain had stopped and site was starting to dry out.
10:00 a.m.	Landsaver on-site and was installing straw revegetation mat in the ditching and benches of the Phase 1A and 1B final cover.
10:00 a.m.	A second load of geomembrane arrived on-site. Ryan unloaded the geomembrane.
Noon	Ryan took lunch.
1:00 p.m.	Ryan cutting and shaping the tie-in to the existing Phase 2 liner to achieve bottom of prepared subbgrade layer.
3:00 p.m.	Ryan was grading and cutting excess material in the northwestern portion of the Phase 3 & 4 cell to establish the bottom of prepared subbase fill.
3:45 p.m.	It began to rain. Landsaver Environmental was close to finishing installing the straw matting on the final cover.
4:00 p.m.	I left the site for the day and Ryan was preparing to leave the site for the day.

Quantities of Pay Items Placed:

Item: Straw revegetation matting	**Quantity:**
Item: Preparing bottom of prepared subgrade	**Quantity:**
Item:	**Quantity:**

Report No. 7

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

Rain made working slow. Ryan didn't haul any fill from the borrow area because of wet conditions.

Notices To/From Contractors:

Ryan will be working this weekend

Ryan was going to have Landsaver install the additional straw matting left over from the job on the top break of the final cover. Ryan said that they had that quantity bid for the project so they should use it all up.

If Joe Chance doesn't make it today because of rain, he will come to document the bottom of prepared subbase grades tomorrow.

Work Decisions:

None

Report No. 7

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: Update Nate on Project progress

Nate was going to call TRI to find out the status of the geomembrane conformance testing.

Name/Representing: RMT soils lab **Time:**

Subject/Comments: I will probably be sending in shelby tube samples for testing next week.

Name/Representing: Todd Martin **Time:**

Subject/Comments: Update Todd on project progress

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 8

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☒F ☐S	**Date:** 03 / 11 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 5:30 p.m.	**Hrs:** 10.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 2 Operators, 2 Laborers, 1 Engineer.

Subcontractors: Landsaver Environmental - Placing erosion control matting on the Phase 1A and 1B final cover

Equipment/Materials Delivered: Smooth geomembrane and GCL

Weather: Mostly Clear				**Temp.:** 45 -60 F
Humidity: low%	**Rain:** 0.2 in.	**Pressure:** N/A	**Wind:** SW	@ 5 - 10 mph

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☐ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☐ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	Arrived onsite. Rain yesterday evening has made things wet. Today is predicted to be mostly clear. Ryan will start working on the western berm to cut it to bottom of prepared subgrade.
8:00 a.m.	Load of geomembrane arrived on-site. Ryan using a forklift to unload. Loads of GCL will also be arriving on-site today. Land Saver on-site to complete the installation of the straw revegetation matting.
9:00 a.m.	Ryan completed unloading the load of GCL that arrived on-site.
9:30 a.m	Ryan completed unloading the load of GCL that arrived on-site.
10:00 a.m.	Landsaver on-site and was installing straw revegetation mat on Phase 1A and 1B final cover.
10:30 a.m.	Joe Chance on-site shooting final cover points requested by Nate Braun. Landsaver completed installing revegetation matting on the final cover and left the site.
Noon	Ryan took lunch. Joe Chance bean shooting Phase 3 & 4 bottom of prepared subgrade.
1:00 p.m.	Ryan cutting and shaping the southern delineation berm.
3:00 p.m.	Joe Chance documenting the bottom of the prepared subgrade on the western half of Phase 3 & 4.
3:45 p.m.	Ryan is grading the eastern half of Phase 3 & 4 to establish bottom of prepared subgrade.
5:00 p.m.	Joe Chance finished documenting the bottom of prepared subgrade on the western half of the cell (from the breakline in the center of the cell west. Joe Chance will run a level loop on the latest benchmarks that he set and then he will leave the site for the day.
5:30 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Straw revegetation matting	**Quantity:**
Item: Preparing bottom of prepared subgrade	**Quantity:**
Item:	**Quantity:**

Report No. 8

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

Rain made working slow. Ryan didn't haul any fill from the borrow area because of wet conditions.

Notices To/From Contractors:

Ryan will be working this weekend

Ryan will work on consrtucting the access road to the west of Phase 3 & 4 tomorrow (Saturday). John wants to construct the road so he good access for the stone trucks that will begin hauling in and stockpiling stone (No. 67 stone) next week.

Work Decisions:

None

Report No. 8

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: Update Nate on Project progress

Nate reviewed GCL and smooth geoembrane conformance test results. Everything was fine with the conformance testing results.

I told Nate that textured geomembrane conformance test results should be avaliable tomorrow

Name/Representing: RMT soils lab **Time:**

Subject/Comments: I will probably be sending in shelby tube samples for testing next week.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 9

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☐F ☒S	**Date:** 03 / 12 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 8:00 a.m.	**Time Left Site:** 3:30 p.m.	**Hrs:** 7.0
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 5 Operators, 1 Laborers, 0 Engineer.

Subcontractors: None

Equipment/Materials Delivered: None

Weather: Clear				**Temp.:** 45 -60 F
Humidity: low%	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** SW	@ 5 -10 mph

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☐ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☐ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☐ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☐	☐
☐	☐

Report No. 9

Time	Description of Work in Progress:
8:00 a.m.	Arrived onsite. Ryan was placing fill to elevate the outer access road on the west side of the cell. Clearing, grubbing and topsoil stripping left the area low and where the road was to be constructed and was holding rain water. Ryan was filling to elevate the road to keep it dry. I began doing paper work.
3:30 p.m.	Ryan continued to haul in fill for the western road and compacting the fill. I left the site for the day.

Quantities of Pay Items Placed:

Item: Fill to construct the western outer road.	**Quantity:**
Item:	**Quantity:**
Item:	**Quantity:**

Report No. 9

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

Ryan will continue to work until about 4:30 p.m. Ryan may have one person come in on Sunday and rip up the placed fill to allow it to dry.

Work Decisions:

None

Report No. 9

Daily Communications:

Name/Representing: None	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 10

Project No.: 05794.49.001	**Day:** ☐S ☒M ☐T ☐W ☐Th ☐F ☐S	**Date:** 03 / 14 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 6:30 p.m.	**Hrs:** 11
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: ____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 1 Laborers, 1 Engineer.

Subcontractors: GRI - Seeding on the Phase 1A and 1B final cover. Chesapeake Containment Systems, Inc. unloading geocushion and GCL.

Equipment/Materials Delivered: 32 ounce geocomposite rolls and GCL

Weather: Mostly Clear				**Temp.:** 35 -55 F
Humidity: low%	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** west	@ 10-15 mph

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐	☐
☐	☐

Report No. 10

Time	Description of Work in Progress:
7:00 a.m.	Arrived onsite. Ryan was going to begin placing prepared subgrade fill this morning on the western half of the cell.
8:00 a.m.	Ryan placing prepared subgrade fill on the western half of the cell (first 6" lift). Chesapeake Containment Systems, Inc. arrived on-site and began unloading GCL and geocushion loads that arrived on-site.
10:00 p.m.	Ryan began compacting the prepared subgrade fill (first 6" lift)
10:30p.m.	I began taking density tests on the compacted prepared subgrade fill. Results indicated that compaction and moisture met project specifications (minimum 95% of the maximum dry density at a minimum of 2% wet of optimum moisture content as determined by the Standard Proctor test). GRI is seeding the final cover.
Noon	Ryan took lunch
5:00 p.m.	Ryan completed placing prepared subgrade fill and was compacting the fill with the Cat 815 compactor and sealing the compacted prepared subgrade fill using a smooth-drum roller. Chesapeake completed unloading the loads of GCL and goecushion. Not all the geocushion loads have arrived. The last few loads of geocushion will arrive tomorrow. Chesapeake will not travel back tonight, but will stay in town to unload the shipments arriving tomorrow.
6:30 p.m.	I completed taking density tests and collecting shelby tubes on the perpared subgrade fill. I left the site for the day with Ryan.

Quantities of Pay Items Placed:

Item: Seed	**Quantity:**
Item: Prepared Subgrade Fill	**Quantity:**
Item:	**Quantity:**

Report No. 10

Testing Performed/Samples Collected:

Prepared subgrade shelby tubes at pt. 132- lift 1, pt. 204-lift 1, pt. 160-lift 1, and pt. 186-lift 1.

Prepared subgrade neclear gauge density/moisture testing.

Field Problems and Nonconforming Materials or Work:

none

Notices To/From Contractors:

Ryan will begin compacting the prepared subgrade at about 10:00 a.m. Ryan would like me to begin neclear density testing shorty after the start of compaction so they have an idea on the moisture content and the compactive effort required.

Work Decisions:

None

Report No. 10

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: Update Nate on Project progress

I got a call from TRI and they had questions on geocushion conformance testing. Nate will give them a call to answer their questions.

Name/Representing: RMT soils lab **Time:**

Subject/Comments: Shelby tube samples

I collected four shelby tube samples. I will send them out tomorrow, so the lab should get them Wednesday.

Name/Representing: Todd Martin **Time:**

Subject/Comments: updated Todd on project progress.

Todd will be my office contact when Nate is out of the officee. I should keep Todd informed on the project.

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 11

Project No.: 05794.49.001	**Day:** ☐S ☐M ☒T ☐W ☐Th ☐F ☐S	**Date:** 03 / 15 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 6:15 p.m.	**Hrs:** 10.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 2 Engineer.

Subcontractors: GRI - Seeding and mulching on the Phase 1A and 1B final cover. Chesapeake Containment Systems, Inc. unloading geocushion.

Equipment/Materials Delivered: 32 ounce geocomposite rolls, No. 67 stone

Weather: Mostly Clear				**Temp.:** 35 -55 F
Humidity: low%	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** East	@ 10-15 mph

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐	☐
☐	☐

Report No. 11

Time	Description of Work in Progress:
7:00 a.m.	Arrived onsite. Ryan was going to begin the day by placing general fill on the eastern half of the cell to achieve bottom of prepared subgrade grades.
8:00 a.m.	Ryan placing general fill on the eastern half of the cell in fill areas. Chesapeake Containment Systems, Inc.on-site unloading geocushion. GRI seeding the final cover top slope.
9:00 a.m.	Ryan continuing to place general fill in the eastern half of the cell. Trucks hauling in No.67 stone and stockpiling it west of the Phase 3 & 4 liner area. I sent out the shelby tube samples that I collected yesterday.
Noon	Ryan took lunch. Still hauling in No. 67 stone. Chesapeake was taking lunch. The last truck of geocushion was to arrive about 2:00 p.m. and Chesapeake will unload it when it arrives.
1:00 p.m.	Ryan began placing prepared subgrade fill (first 6" lift) on the eastern side of the western half.
3:30 p.m.	Ryan completed placing prepared subgrade fill and began to compact the fill with the Cat 815 compactor and smooth-drum rolling the subgrade to seal and promote run-off. Ryan also smooth-drum rolling other rough areas to seal them. Chesapeake left the site after unloading the last load geocushion. GRI was mulching the final cover.
4:00 p.m.	I began taking density tests on the compacted subgrade fill and collected a shelby tube sample.
5:00 p.m.	Ryan using excavator to stack/stockpile No. 67 stone loads.
6:15 p.m.	I left the site for the day. Ryan was also leaving the site shortly.

Quantities of Pay Items Placed:

Item: Seed and mulch	**Quantity:**
Item: Preparing bottom of prepared subgrade	**Quantity:**
Item: Prepared Subgrade Fill	**Quantity:**

Report No. 11

Testing Performed/Samples Collected:

Prepared subgrade shelby tube at pt. 232, lift 1.

Prepared subgrade neclear gauge density/moisture testing.

Field Problems and Nonconforming Materials or Work:

none

Notices To/From Contractors:

Bill would like to have a progress meeting on Thursdays about 10:00 a.m.

Ryan will wait until I get preliminary test results on the prepared subgrade shelby tube samples prior to placing the second lift of prepared subgrade over the first lift.

Work Decisions:

None

Report No. 11

Daily Communications:

Name/Representing: Nate Braun and Todd Martin **Time:**

Subject/Comments: Update Nate on Project progress

There will not be a future proposed expansion west of Phase 3 & 4. The west perimeter berm design is correct for the Phase 3 & 4 cell. The western berm should not be a delineation berm like constructed in Phase 2 to the north of the Phase 3 & 4 cell.

Name/Representing: RMT soils lab **Time:**

Subject/Comments: I sent in 4 shelby tube samples today. The lab should receive them tomorrow.

Name/Representing: Bill Morris **Time:**

Subject/Comments: Western Perimeter Berm

Verified with Bill that there is not a proposed expansion to the west of Phase 3 & 4. During Phase 2 construction, an expansion was anticipated to the west of Phase 2. The western berm of Phase 2 was constructed as a delineation berm. Because there is no expansion to the west, the western Phase 3 &4 berm will be constructed as a perimeter berm. I showed Bill the differences in the berm construction and indicated to him that the berms will not tie-in perfectly. The Phase 2 geomembrane will extend farther to the west than the Phase 3 & 4 geoembrane.

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 12

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☒W ☐Th ☐F ☐S	**Date:** 03 / 16 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 4:30 p.m.	**Hrs:** 9
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 2 Operators, 0 Laborers, 2 Engineer.

Subcontractors: None

Equipment/Materials Delivered: No. 67 stone

Weather: Mostly Clear				**Temp.:** 60- 70 F
Humidity: High%	**Rain:** 0.5 in.	**Pressure:** N/A	**Wind:** East	@ 5 mph

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☒ Cat Dozer D6	☐ Cat Dozer D6
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☐ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐	☐
☐	☐

Report No. 12

Time	Description of Work in Progress:
7:00 a.m.	Arrived onsite. It rained fairly hard a couple of hours earlier and was raining lightly as I arrived. Ryan will keep a couple of operators on-site today to help unload stone trucks (stockpiling of No. 67 stone). Ryan developed a new GPS chip that they will be checking out. Ryan sent the rest of their operators home for the day because of the rain and wet conditions.
8:00 a.m.	Stone truck began arriving on-site. I remained on-site to do paper work. I sent out shelby tube sample that I collected yesterdy.
Noon	Ryan took lunch.
12:30 p.m.	Ryan continued to assist stone trucks to unload and used Cat 315 excavator to stockpile the stone loads.
2:30 p.m.	Ryan started to cut out the 4-feet-wide bottom of prepared subgrade bench on the west berm.
4:30 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item:	Quantity:
Item:	Quantity:
Item:	Quantity:

46

Report No. 12

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

Too wet to work today because of rain early this a.m. Weather is predicted to be good the rest of the week and early next week.

Notices To/From Contractors:

Bill will have a progress meeting tomorrow at 10:00 a.m. We should meet up at his office.

I hopefully will have some preliminary shelby tube sample results late this afternoon.

Gave Ryan the preliminary hydraulic conductivity test results.

Ryan will probably leave the site for the day around 4:30 p.m.

Work Decisions:

None

Report No. 12

Daily Communications:

Name/Representing: Nate Braun and Todd Martin **Time:**

Subject/Comments: Update Nate on Project progress

Todd received a final pay request from Ryan for the completion of final cover construction.

Name/Representing: RMT soils lab **Time:**

Subject/Comments: I sent in 1 shelby tube samples today. The lab should receive it tomorrow.

The lab got the samples that I sent in yesterday and will hopefully have some preliminary results by the end of the day.

The lab gave me preminimary hydraulic conductivity results on the four shelby tube samples they received today. All four perms were passing. The fastest perm was 1 x 10-4 cm/sec and the slowest perm was 9 x 10-9 cm/sec.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 13

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☒Th ☐F ☐S	**Date:** 3 / 17 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 5:30 p.m.	**Hrs:** 10.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: None

Equipment/Materials Delivered: No. 67 stone

Weather: Clear				**Temp.:** 45 -80 F
Humidity: med %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** S	@ 0 - 5 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Ryan will try to fine grade the subgrade the southeastern quarter of the cell so it can be documented by the surveyor tomorrow. Ryan will place the 2nd 6-inch lift of prepared subgrade in the northwestern side of the cell. Ryan didn't want to advance with the 2nd lift until more preliminary hydraulic conductivity tests results on the first lift are received.
8:00 a.m.	Ryan developing subbase grades in the southeastern quarter of the cell. Ryan is holding down the grades slightly from the design grades. Ryan placing prepared subgrade (2nd 6-inch lift) in the northwestern portion of the cell
10:00 p.m.	Held a progress meeting at the Domtar office.
11:00 a.m.	Ryan finish grading and smooth-drum rolling subbase grades in the southeastern quarter of the cell. Ryan placing prepared subgrade (2nd 6-inch lift) in the northwestern portion of the cell.
Noon	Ryan took lunch.
12:30 p.m.	Ryan placing 2nd lift of prepared subgrade in the northwestern portion of the cell.
2:00 p.m.	Ryan compacting the placed prepared subgrade with Cat 815 compactor and smooth drum-rolling. Ryan shut down trucks for the day and will grade haul roads and disturbed areas.
3:30 p.m.	Began nuclear density testing the top lift of prepared subgrade in the northwest quarter of the cell and collecting Shelby tube samples.
5:30 p.m.	Completed density testing and prepared Shelby tube samples for shipping. I left the site for the day.

Quantities of Pay Items Placed:

Item: Subgrade development	**Quantity:**
Item: Placed prepared subgrade	**Quantity:**
Item:	**Quantity:**

Report No. 13

Testing Performed/Samples Collected:

Nuclear density tests on the second 6-inch lift of prepared subgrade in the northwestern side of the cell.

Shelby tube sample on the 2nd lift of prepared subgrade at survey point pt. 145 and pt. 217.

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

Ryan will try to fine grade the subgrade of the southeastern quarter of the cell so the bottom of prepared subgrade can be documented by the surveyor tomorrow.

Prepared subgrade moisture content and compaction is meeting or exceeding the project specifications.

Work Decisions:

None

Report No. 13

Daily Communications:

Name/Representing: Nate Braun and Todd Martin **Time:**

Subject/Comments: Updated Todd and Nate on project progress. Both Todd and Nate joined the progress meeting via conference call.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 14

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☒F ☐S	**Date:** 3 / 18 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 6:30 p.m.	**Hrs:** 11.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: ____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 1 Laborers, 1 Engineer.

Subcontractors: Chance and Associates – surveyor subcontracted by RMT

Equipment/Materials Delivered: No. 67 stone

Weather: Clear				**Temp.:** 45 -75 F
Humidity: med. %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** NW	@ 5 - 10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Ryan will place the remaining 2nd lift of prepared subgrade on the western half of the cell.
9:00 a.m.	Joe Chance arrived on-site and will start documenting the southeastern portion of the subgrade, the subgrade on top of the western perimeter berm and the southern delineation berm. Ryan placing the 2nd lift of prepared subgrade in the western half of the cell.
9:30 a.m.	Joe chance began documenting subbase grades (bottom of prepared subgrade layer). The subbase elevations were generally running 0.1 to 0.25-feet below design grade. Low subgrade elevations result in prepared subgrade thicknesses greater than design thicknesses if design grades are achieved on the top of the prepared subgrade (base grades).
Noon	Ryan took lunch.
12:30 p.m.	Ryan placing the 2nd lift of prepared subgrade in the western half of the cell. Joe Chance set additional benchmarks around the cell for Ryan to restandardize their GPS.
2:00 p.m.	Joe Chance documenting subbase grades. Ryan placing the 2nd lift of prepared subgrade in the western half of the cell.
3:00 p.m	Joe Chance completed documenting subgrade elevations and left the site for the day. Ryan shut off the haul trucks for the day. Ryan will grade haul roads and compact and smooth drum-roll the prepared subgrade surface.
4:00 p.m.	Began nuclear density testing the placed prepared subgrade in the southwestern side of the cell and collecting Shelby tube samples.
6:30 p.m.	I completed testing and sampling of the prepared subgrade. Ryan's engineer was working on developing an updated design model for their GPS. I left the site for the day.

Quantities of Pay Items Placed:

Item: Prepared sugrade placement	**Quantity:**
Item:	**Quantity:**
Item:	**Quantity:**

Report No. 14

Testing Performed/Samples Collected:

Nuclear density tests on the prepared subgrade (2nd lift on the southwest side of the cell).

Collected Shelby tube samples at survey point locations pt. 197 and pt. 175.

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

Ryan would like Joe Chance to document subbase on the top of the western perimeter berm, southern delineation berm, and in the southeast quarter of the cell to the high point south of the sump. The eastern berm is not ready to document yet.

John Knoth will leave the site this morning for the weekend. John will be back Monday morning. If I have any questions, I should ask Steve Vorpahl. Ryan will work tomorrow (Saturday). They plan on placing the first lift of prepared subgrade on the western perimeter berm and southern delineation berm. After that they plan on placing prepared subgrade on the southeast area of the cell.

All the Shelby tube samples in the lab to date are passing Hydraulic Conductivity testing.

Work Decisions:

None

Report No. 14

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: Updated Nate on project progress.

Name/Representing: Todd Martin **Time:**

Subject/Comments: Updated Todd on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 15

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☐F ☒S	**Date:** 03 / 19 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 9:30 a.m.	**Time Left Site:** 2:30 p.m.	**Hrs:** 5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 5 Operators, 0 Laborers, 1 Engineer.

Subcontractors: None

Equipment/Materials Delivered: None

Weather: Clear				**Temp.:** 50 -70 F
Humidity: med. %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** N	@ 10 - 20 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☐ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☐ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:30 a.m.	Left the motel in Williamston to drive Shelby tube samples collected yesterday to Greenville, NC for shipping UPS. I drove them to Greenville so they would arrive at the lab on Monday.
8:30 a.m.	Shipped the Shelby tube samples out for delivery to the lab Monday morning.
9:30 p.m.	Arrived onsite. Ryan was placing the first 6-inch lift of prepared subgrade on the southern delineation berm. They had completed placing the first 6-inch lift of prepared subgrade on the western perimeter berm prior to my arrival on-site. After placing and leveling the prepared subgrade lift, the Cat 815 compactor was used to compact the lift. After compacting the lift with the 815, it was smooth drum-rolled to seal in the moisture and promote drainage off the prepared subgrade. This was typical practice used by Ryan throughout prepared subgrade placement. Prior to placing another lift of prepared subgrade, dozers ran over the lower lift of prepared subgrade and used their tracks to scarify the top surface of the lower lift to provide bonding between the lifts.
11:00 p.m.	Ryan began placing the first lift of prepared subgrade on the southeastern corner of the cell. I began density testing prepared subgrade on the southern delineation berm.
2:00 p.m.	Ryan shut down the two haul trucks that they were using and began to grade and smooth drum-roll the haul and access roads.
2:30 p.m.	I left the site for the day after density testing and collecting Shelby tube samples on the first lift of prepared subgrade in the southeastern coner of the cell. Ryan will grade and roll the disturbed areas before they leave the site.

Quantities of Pay Items Placed:

Item: Prepared subgrade on delineation berm and SE corner of cell	**Quantity:**
Item:	**Quantity:**
Item:	**Quantity:**

Report No. 15

Testing Performed/Samples Collected:

Nuclear Density Testing on the first lift of prepared subgrade in the southern quarter of the cell and on the southern termination berm.

Took Shelby tube sample on the first lift of prepared subgrade at survey location pt. 310

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

I sent in two Shelby tube samples this morning that should arrive at the lab Monday morning. We may get preliminary results on the Hydraulic Conductivities late Monday.

Work Decisions:

None

Report No. 15

Daily Communications:

Name/Representing: No communications today (Saturday) with the office.	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 16

Project No.: 05794.49.001	**Day:** ☐S ☒M ☐T ☐W ☐Th ☐F ☐S	**Date:** 3 / 21 / 2011
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 600 p.m.	**Hrs:** 11
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: ____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 1 Laborers, 1 Engineer.

Subcontractors: GMI – mulching the final cover

Equipment/Materials Delivered: No. 67 Stone, Straw for mulching the final cover

Weather: Cloudy				**Temp.:** 45-65 F
Humidity: med.%	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** west	@ 15 -20 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☐	☐
☐	☐

Report No. 16

Time	Description of Work in Progress:
7:00 a.m.	Arrived onsite. Ryan was preparing to place the remaining first 6-inch lift of prepared subgrade in the southeastern portion of the cell. After completing that lift, they plan on placing place the 2nd 6-inch lift of prepared subgrade on the western perimeter berm and southern delineation berm.
10:00 a.m.	Ryan still placing the first lift of prepared subgrade fill on the southeastern portion of the cell. Ryan is compacting the 6-inch lift with the Cat 815 Compactor after leveling with a D6 dozer. GMI mulching the eastern side of the Phase 1A and 1B final cover.
Noon	Ryan took lunch.
1:00 p.m.	Ryan beginning to place the second 6-inch lift of prepared subgrade on the western berm.
4:00 p.m.	Ryan stopped hauling prepared subgrade material and began leveling haul roads and traveled areas, and began smooth drum rolling the prepared subgrade to seal in the moisture and promote drainage in the event of rain.
5:30 p.m.	I measured soil thicknesses above the geomembrane at 9 locations where the cover had settled slightly. All thicknesses measured ranged from 1.6 feet to 1.9 feet which is above the minimum design thickness of 1.5 feet.
6:00 p.m	I left the site for the day.

Quantities of Pay Items Placed:

Item: Prepared Subgrade Fill - first lift in the southeast corner, 2nd lift berms	**Quantity:**
Item: GRI mulched Phase 1A & 1B final cover	**Quantity:**
Item:	**Quantity:**

Report No. 16

Testing Performed/Samples Collected:

Nuclear density tests on the first lift of prepared subgrade.

Collected Shelby tube samples of the prepared subgrade (pt. 304 and pt. 282)

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

Ryan checked their GPS grades with the grades set by Joe Chance. The grades matched.

Work Decisions:

None

Report No. 16

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: Updated Nate on project progress

Mike Parker e-mailed me a call in number for the weekly meeting. I will forward it to Nate.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 17

Project No.: 05794.49.001	**Day:** ☐S ☐M ☒T ☐W ☐Th ☐F ☐S	**Date:** 3 / 22 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 6:00 p.m.	**Hrs:** 11
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 1 Engineer.

Subcontractors: GMI – Mulching the final cover

Equipment/Materials Delivered: No. 67 Stone

Weather: Partly cloudy				**Temp.:** 45 -70 F
Humidity: med. %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** NW	@ 5 - 10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☐	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	Arrived on-site. Ryan is planning on removing the basin outlet structure located in the northeast corner of the cell, filling to subbase grades in the northeastern portion of the cell, and fine grading the top of prepared subgrade on the western half of the cell.
8:00 a.m.	Ryan removing the outlet structure in the northeastern corner of the cell. I sent out Shelby tube samples collected yesterday.
10:30 a.m.	Ryan completed removing the sedimentation basin outlet structure. Ryan was finish grading the western top of prepared subgrade and grading the subgrade in the northeast corner of the cell.
Noon	Ryan took lunch.
12:30 p.m.	Ryan continued to finish grade top of prepared subgrade in the western half of the cell and establishing subbase grades in the northeastern portion of the cell.
4:30 p.m.	Ryan shut down the three haul trucks and started to grade and smooth-drum roll the surfaces of disturbed areas to promote drainage. Ryan was using the smaller backhoe to stockpile the stone loads that arrived today.
6:00 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Subbase development	**Quantity:**
Item: Removal of sedimentation basin outlet structure	**Quantity:**
Item: finish grading prepared subgrade layer	**Quantity:**

Report No. 17

Testing Performed/Samples Collected:

Collected No. 67 stone sample

Field Problems and Nonconforming Materials or Work:

Areas were getting dry and dusty. GMI was running a water truck on haul roads to control dust.

Ryan is finish grading the top of prepared subgrade approximately 0.10 feet high.

Bill Morris will not be able to make the progress meeting this Thursday and would like to cancel the meeting for this week.

Notices To/From Contractors:

Ryan will have GMI water the haul roads to control dust.

Ryan is still planning on having Chesapeake here next Monday to begin placing geosynthetics.

Work Decisions:

None

Report No. 17

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: Updated Nate on project progress

Nate asked me for some dimensions on the existing manholes. Ryan had some questions on these dimensions for fabricating the new manhole. I later got back with Nate on the dimensions. I also went through where the new manhole should be located in relationship to the slope.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 18

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☒W ☐Th ☐F ☐S	**Date:** 3 / 23 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 6:00 p.m.	**Hrs:** 11
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 1 Engineer.

Subcontractors: GMI – watering haul roads and mulching the final cover

Equipment/Materials Delivered: No. 67 stone

Weather: Partly cloudy				**Temp.:** 50 – 70 F
Humidity: med. %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** NW	@ 5-10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	Arrived on-site. Ryan will fine grade the top of prepared subgrade on the western half of the cell and place the 2nd lift of prepared subgrade in the southeastern corner of the cell.
8:30 a.m.	No. 67 stone arriving on-site. GMI watering haul roads to control dust. Ryan placing 2nd lift of prepared subgrade in the southeastern quarter of the cell and finish grading the western half of the cell. Ryan is hoping to have the prepared subgrade layer completed in the southeastern quarter of the cell and ready for the surveyor to document the top of the layer when he is here tomorrow. GMI is mulching the top portion of the final cover.
11:30 a.m.	Ryan placing 2nd lift of prepared subgrade in the southeastern quarter of the cell and finish grading the western half of the cell.
Noon	Ryan took lunch.
12:30 p.m.	Ryan placing 2nd lift of prepared subgrade in the southeastern quarter of the cell and finish grading the western half of the cell. Ryan also developing subbase grades in the northeast side of the cell for record survey documentation tomorrow.
4:00 p.m.	Ryan shut down the last two haul trucks hauling prepared subgrade fill and began grading disturbed areas and haul roads. I started taking nuclear density tests on the prepared subgrade placed in the southeast quarter of the cell. I also collected a Shelby tube sample.
6:00 p.m.	I left the site for the day after packing up the Shelby tube samples for shipping to the laboratory tomorrow.

Quantities of Pay Items Placed:

Item: Prepared subgrade placement	**Quantity:**
Item: Fine grading top of prepared subgrade layer	**Quantity:**
Item: Completed mulching the final cover	**Quantity:**

Report No. 18

Testing Performed/Samples Collected:

Nuclear density testing in the southeastern quarter of the cell on the 2nd/final lift of prepared subgrade.

Shelby tube sample on the 2nd 6-inch lift of prepared subgrade at survey point location pt. 295

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

Ryan is hoping to have the prepared subgrade layer completed in the southeastern quarter of the cell and ready for the surveyor to document the top of prepared subgrade when the surveyor is here tomorrow.

GMI will complete mulching the final cover today. After they mulch the area, they will water the mulch down and crimp in the straw mulch.

Work Decisions:

None

Report No. 18

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: Updated Nate on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 19

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☒Th ☐F ☐S	**Date:** 3 / 24 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 6:00 p.m.	**Hrs:** 11
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 1 Engineer.

Subcontractors: Chance & Associates, Inc. – Registered surveyor subcontracted by RMT

Equipment/Materials Delivered: No. 67 Stone, Leachate system pipe (HDPE 10", 6", & 18" perf. and non-perf.)

Weather: Mostly clear				**Temp.:** 45 -55 F
Humidity: med. %	**Rain:** .4 in. yesterday	**Pressure:** N/A	**Wind:** NW	@ 10 - 15 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. We received rain last night and early in the morning, but skies were clear and there is a very slight chance of rain for the remainder of the day. Ryan planned on hauling in some dry soil from the borrow area and placing the material on their haul roads south and west of the cell to give them better access to the cell. Ryan planned to work on the haul roads until the cell dried and the surveyor, Joe Chance, had time to document subgrade elevations on the northeastern side of the cell. After the subgrade elevations were documented by Chance & Associates, Inc. (Chance), Ryan planned to place the first lift of prepared subgrade in that area.
9:30 a.m.	Chance arrived on-site and began setting up their survey equipment. Ryan continuing to grade and work on the haul road.
10:00 a.m.	Chance is documenting subgrade elevations in northeastern portion of the cell.
10:30 a.m.	Chance completed documenting subgrade elevation in the area that Ryan had prepared for subgrade documentation. Documented subbase elevations were at or below design subbase elevations.
11:00 a.m.	Ryan began placing the first lift of prepared subgrade soil in the area that Chance had just completed subbase documentation. Chance was documenting base grades (top of prepared subgrade layer) on the western portion of the cell. Chance started at the west end and was documenting the cell working east.
Noon	Ryan took lunch. Chance continued to document base grades (top of prepared subgrade layer elevations)
12:30 p.m.	Ryan continued with prepared subgrade placement in the northeastern quarter of the cell.
3:30 p.m.	Chance completed survey documentation of the base grades in all the areas Ryan had finished to date. Chance left the site.
4:00 p.m.	Ryan finished hauling and leveling the first lift of prepared subgrade in the northeastern portion of the cell and was compacting and smooth drum-rolling the lift.
4:30 p.m.	I began taking nuclear density tests on the first lift of prepared subgrade placed today. Ryan was draining puddles from the rain last night, and grading haul roads.
6:00 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Prepared subgrade in northeastern corner	**Quantity:**
Item: Documentation of prepared subgrade layer	**Quantity:**
Item:	**Quantity:**

Report No. 19

Testing Performed/Samples Collected:

Nuclear density testing of the first lift of prepared subgrade in the northwestern portion of the cell.

Field Problems and Nonconforming Materials or Work:

Areas were wet and muddy in the morning which slowed production. The areas continued to dry during the day.

Notices To/From Contractors:

Ryan will be ready for additional survey documentation on Thursday. I scheduled Chance to be here Thursday next week for additional record documentation.

I tested the prepared subgrade that was placed today and the moisture/density test passed. Ryan can place another lift over the area.

Work Decisions:

Report No. 19

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: I updated Nate on project progress.

Name/Representing: Todd Martin **Time:**

Subject/Comments: I updated Todd on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 20

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☒F ☐S	**Date:** 3 / 25 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 5:00 p.m.	**Hrs:** 10
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 1 Engineer.

Subcontractors: GMI – Watering for dust control

Equipment/Materials Delivered: No. 67 stone

Weather: Partly cloudy				**Temp.:** 45 -70 F
Humidity: med. %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** S	@ 5 -15 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Ryan plans to place the last lift of prepared subbase material in the northeastern corner of the cell to the limits of subbase documented yesterday. After completing the last lift of prepared subgrade in the northeastern corner of the cell, Ryan plan to start filling to subbase grades in the sump vicinity. Ryan will shut down the trucks around 3:00 p.m. and grade, compact, and smooth drum roll the disturbed areas.
11:30 p.m.	Ryan completed placing the second lift of prepared subgrade in the northeastern portion of the cell. Ryan started filling in the northeast corner to bring the grades up to subbase grades.
Noon	Ryan took lunch.
12:30 p.m.	Ryan compacted fill in the northeastern corner of the cell.
1:30 p.m.	I began taking nuclear density tests on the fill and prepared subgrade in the northeastern quarter of the cell.
2:00 p.m.	Ryan began placing another lift of general fill in the northeastern corner of the cell. GMI watering haul roads for dust control.
3:00 p.m.	Ryan shut down the haul trucks and started to prepare the site (grade and smooth drum-roll) for the weekend. Rain is predicted for the weekend.
5:00 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Prepared subgrade	**Quantity:**
Item: subgrade development	**Quantity:**
Item:	**Quantity:**

Report No. 20

Testing Performed/Samples Collected:

Nuclear density testing on the second lift of prepared subgrade in the northeast side of the cell.

Shelby tube sample at survey point locations pt. 265 and pt. 267.

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

Ryan was not planning on working tomorrow.

Work Decisions:

None

Report No. 20

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: I updated Nate on project progress.

Name/Representing: Todd Martin **Time:**

Subject/Comments: I update Todd on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 21

Project No.: 05794.49.001	**Day:** ☐S ☒M ☐T ☐W ☐Th ☐F ☐S	**Date:** 3 / 28 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 2:00 p.m.	**Hrs:** 7
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 3 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Chesapeake Lining Systems– 9 labors/welders, 1 superviser, 1 QC

Equipment/Materials Delivered: No. 67 stone

Weather: Cloudy				**Temp.:** 35 -50 F
Humidity: high %	**Rain:** trace in.	**Pressure:** N/A	**Wind:** NW	@ 5 -10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☐ Cat Dozer D6
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☐ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☒ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. It rained over the weekend and the site was very wet. Ryan will have a small crew welding pipe and taking care of the stone trucks arriving with No. 67 stone. Ryan worked on Saturday and dug the anchor trench in the west perimeter berm.
8:00 p.m.	Dave Ventress (supervisor from Chesapeake) arrived on-site. A crew of about 12 people should be arriving here this afternoon or tomorrow. Dave will leave the site to eat breakfast and come back later today. Ryan preparing to weld leachate collection pipe. Stone trucks are beginning to arrive on-site.
10:00 p.m.	Ryan is welding pipe.
Noon	Nine Chesapeake employees arrived on-site. They will fill sandbags, but will not be able to deploy today because of the wet conditions. Ryan and I took lunch.
12:30 p.m.	Chesapeake was filling sand bags and Ryan was welding leachate collection pipe. Dave Ventress and his QC person were on-site. Chesapeake will fill sandbags until the sand pile is used up and then they will leave for the day.
2:00 p.m.	I was notified by my supervisor that I have been selected for random drug testing. The drug test will be in Washington, NC. I left the site for the day to take a random drug test. Ryan will continue welding pipe and Chesapeake will continue filling sand bags.

Quantities of Pay Items Placed:

Item: Welded leachate collection pipe	**Quantity:**
Item: Filled sandbags	**Quantity:**
Item:	**Quantity:**

Report No. 21

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

Too wet/muddy to do any work in the cell.

Notices To/From Contractors:

Chesapeake will have a crew of approximately 10 additional employees arrive either today or tomorrow.

Ryan will be adding the stone trucks and welding pipe today. They do not plan on doing any work in the cell because of the wet/muddy conditions.

I told Ryan and Chesapeake that I was leaving for the day at 2:00 p.m. to take a random drug. I can be reached by cell phone if needed.

Work Decisions:

None

Report No. 21

Daily Communications:

Name/Representing: Todd Martin **Time:**

Subject/Comments: I updated Todd on project progress.

Name/Representing: Nate Braun **Time:**

Subject/Comments: I updated Nate on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 22

Project No.: 05794.49.001	**Day:** ☐S ☐M ☒T ☐W ☐Th ☐F ☐S	**Date:** 3 / 29 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 6:00 p.m.	**Hrs:** 10.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: ____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Chesapeake – 9 labors/welders, 1 QC, and 1 Supervisor

Equipment/Materials Delivered: No. 67 stone

Weather: Clear				**Temp.:** 32 -60 F
Humidity: med. %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** S	@ 0-5 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☒ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Site was still very wet from rain over the weekend and cloudy/cold conditions yesterday. Because of the wet/muddy conditions, Ryan will probably not work in the cell today. Ryan will grade and fill in the borrow area in areas where they have completed excavation. Ryan will weld leachate collection pipe and possibly excavate anchor trench on a portion of the south delineation berm. Chesapeake is on-site and will probably only fill sandbags today because of the wet conditions.
8:00 a.m.	Stone trucks are arriving on-site and unloading No. 67 stone. Ryan working to restore/grade portions of the borrow area and welding leachate collection pipe. Chesapeake filling sandbags.
11:30 p.m.	Mike Parker, the certifying engineer from RMT is on-site. Mike looked over the Phase 1A & 1B final cover construction and Phase 3 & 4 construction to date.
Noon	Ryan, Chesapeake, and RMT took lunch.
12:30 p.m.	Ryan finished welding collection pipe and was starting to dig the anchor trench in the southern delineation berm. Ryan continued to restore/grade portions of the borrow area where excavation was complete. Chesapeake was placing the filled sandbags on pallets and was going to have the forklift place the pallets of sandbags around the cell for use during geosynthetics installation. After Chesapeake placed the pallets around the cell, Chesapeake was going to leave the site for the day.
1:30 p.m.	Chesapeake placed the pallets around the cell and left the site for the day. The sun was out and areas on the sideslopes of the cell were starting to dry. Ryan began to smooth drum-roll the sideslope using a skid loader with a smooth drum-roller attachment.
3:00 p.m.	Ryan continued grading the borrow site and excavating the south anchor trench. Ryan completed rolling the interior berm sideslopes to prepare the surface for geosynthetics installation.
5:30 p.m.	Ryan stopped excavating the south anchor trench and used the Cat 315 excavator to stockpile the stone truck loads that were delivered.
6:00 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: graded portions of the borrow area	**Quantity:**
Item: Excavated a portion of the south anchor trench	**Quantity:**
Item: Welded leachate collection pipe.	**Quantity:**

Report No. 22

Testing Performed/Samples Collected:

Collected a stone sample

Field Problems and Nonconforming Materials or Work:

Too wet/muddy to work in the cell and deploy geosynthetics

Notices To/From Contractors:

The weather forecast for the remainder of the week indicates rain and cold temperatures. There is currently a 90 percent chance of rain tomorrow and an 80 percent chance of rain Thursday.

Work Decisions:

None

Report No. 22

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: Updated Nate on project progress

Name/Representing: Todd Martin **Time:**

Subject/Comments: Updated Todd on project progress

Name/Representing: Mike Parker **Time:**

Subject/Comments: Gave Mike a tour of the site.

We will have a progress meeting on Thursday. We will use the call-in number that Mike emailed us.

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 23

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☒W ☐Th ☐F ☐S	**Date:** 3 / 30 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 4:30 p.m.	**Hrs:** 9
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Chesapeake Containment Systems, Inc. 9- labors/welders, 1-supervisor, 1- CQ

Equipment/Materials Delivered: Select Granular Fill and No. 67 Stone.

Weather: Cloudy with mist and rain				**Temp.:** 40 -45 F
Humidity: High %	**Rain:** 0.9 **in.**	**Pressure:** N/A	**Wind:** 0 - 5	@ NE **mph**

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Report No. 23

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Chesapeake was on-site and unpacking their trailer hoping to deploy GCL and one roll lengthwise of geomembrane on the western berm/slope before it started to rain. It was currently misting and a 90 percent chance of rain was predicted for the day. If it rains, Ryan will only be cleaning up areas, smooth drum rolling disturbed areas to promote runoff, and assisting the stone and sand trucks delivering stone and sand to the site. Ryan will do some grading in the borrow area to restore a portion of the borrow area. If the rain doesn't come they will work on the eastern side and perimeter berm of the cell.
7:15 a.m.	It began to rain. Chesapeake began packing their equipment back in the trailer waiting to see what the weather will do.
7:30 p.m.	It began raining harder and Chesapeake determined that it was too wet to work this morning. They will leave the site and possibly come back this afternoon if the weather breaks. Ryan assisting stone and sand truck; placing road gravel with the skid loader on the gravel road that the stone and sand trucks are using to exit; dozing areas to drain; and restoring a portion of the borrow area.
11:00 a.m.	It is misting lightly. Ryan continuing to assist stone and sand trucks delivering select aggregate and select granular fill.
Noon	Ryan took lunch.
12:30 p.m.	Ryan continuing to assist stone and sand trucks and grading areas to drain/promote runoff.
3:30 p.m.	It began to rain hard. Ryan continuing to assist stone and sand trucks.
4:30 p.m.	It was still raining and I left the site for the day.

Quantities of Pay Items Placed:

Item: Delivered select granular and select aggregate fill to the site	**Quantity:**
Item: graded a small portion of the borrow area	**Quantity:**
Item:	**Quantity:**

Report No. 23

Testing Performed/Samples Collected:

One Select Granular Fill sample (sample 4-30-11).

One Select Aggregate Fill sample (sample 3-30-11).

Field Problems and Nonconforming Materials or Work:

Rain and mist made it too wet to deploy GCL and geomembrane.

Rain and mist made it too wet to do any earthwork on the cell today

Notices To/From Contractors:

Chesapeake will be leaving the site because of the rain and head back to their motel. Dave Ventress will possibly come back in the afternoon to check conditions of the site.

Ryan requested that I reschedule cancel Joe Chances' survey visit from tomorrow until next Monday.

Because of the weather, not much construction progress has been made in the last week so we will cancel the progress meeting scheduled for tomorrow.

Work Decisions:

None

Report No. 23

Daily Communications:

Name/Representing: Todd Martin/Nate Braun **Time:**

Subject/Comments: I updated Nate and Todd on project progress

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 24

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☒Th ☐F ☐S	**Date:** 3 / 31 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 3:00 p.m.	**Hrs:** 8
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: None

Equipment/Materials Delivered: Select Aggregate Fill and Select Granular Fill

Weather: Cloudy with occasional light mist				**Temp.:** 45 – 50 F
Humidity: High %	**Rain:** trace **in.**	**Pressure:** N/A	**Wind:** N	@ 5-10 **mph**

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☒ Cat Dozer D6	☐ Cat Dozer D6
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Report No. 24

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. The site was very wet/muddy from rain yesterday and last night. Ryan will only assist stone and sand truck by stockpiling the sand and stone loads.
8:00 a.m.	Dave Ventress of Chesapeake arrived on-site. The rest of his crew will not show up on-site today because of the wet conditions. Dave is expecting another supervisor from Chesapeake to come to the site today to drop off an ATV. Dave looked over the site and left. He will be back when the other supervisor arrives. Ryan assisting trucks and stockpiling sand and gravel loads using the two excavators.
11:00 p.m.	Dave Ventress arrived on-site with the other supervisor and his QC person. They looked over the wet site. The other supervisor may have another job to send the geomembrane crew while the site is drying out.
11:30p.m.	Chesapeake left the site for the day. Ryan continued to assist the stone and sand trucks.
Noon	Ryan took lunch.
12:30 p.m.	Ryan continued to assist the stone and sand trucks.
3:00 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Delivered select granular and aggregate fill to the site.	**Quantity:**
Item:	**Quantity:**
Item:	**Quantity:**

Report No. 24

Testing Performed/Samples Collected:

One Select Granular Fill sample (sample 3-31-11).

One Select Aggregate Fill sample (sample 3-31-11).

Field Problems and Nonconforming Materials or Work:

Too wet/muddy to deploy GCL and geomembrane, and too wet/muddy to do any earthwork on the cell.

Notices To/From Contractors:

Chesapeake's crew will not come to the site today because of the wet/muddy conditions.

Work Decisions:

None

Report No. 24

Daily Communications:

Name/Representing: Todd Martin and Nate Braun **Time:**

Subject/Comments: I updated Todd and Nate on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 25

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☒F ☐S	**Date:** 4 / 1 / 11

Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction

RMT Project Manager: Mike Parker | **Office Contact:** Todd Martin/ Nathan Braun

RMT Representatives: Kim Pawlisch

Time Arrived On-Site: 7:30 a.m. | **Time Left Site:** 3:30 p.m. | **Hrs:** 8

Client Representative(s): Bill Morris

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 5 Operators, 0 Laborers, 0 Engineer.

Subcontractors: None

Equipment/Materials Delivered: Select Granular Fill and No. 67 Stone.

Weather: Cloudy with periods of light mist | **Temp.:**

Humidity: High % | **Rain:** Trace | **Pressure:** N/A | **Wind:** NE @ 5 -15 **mph**

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☐ Cat Dozer D6
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Report No. 25

Time	Description of Work in Progress:
7:30 a.m.	I arrived on-site. Sand trucks were arriving on-site. It is very wet/muddy form the rain over the week and last night. Ryan will assist the haul trucks and stockpile the sand and stone loads as they arrive using excavators to cast the sand and stone loads on top of the stockpiles.
8:30 a.m.	I collected samples of the No. 67 stone (select aggregate fill) and sand (select granular fill).
9:30 a.m.	I sent out the stone and sand samples to RTM's soil laboratory.
Noon	Ryan took lunch.
12:30 p.m.	Ryan continued to assist stone and sand trucks, and stack the sand and stone loads into stockpiles.
3:30 p.m.	I left the site for the day. Ryan remained on-site assisting stone and sand trucks.

Quantities of Pay Items Placed:

Item: Delivered select granular and aggregate fill to the site	**Quantity:**
Item:	**Quantity:**
Item:	**Quantity:**

Report No. 25

Testing Performed/Samples Collected:

One Select Granular Fill sample (sample 4-1-11).

One Select Aggregate Fill sample (sample 4-1-11).

Field Problems and Nonconforming Materials or Work:

Too wet to do any earthwork or deploy GCL and geomembrane.

Notices To/From Contractors:

Upon Ryan's request, I rescheduled Joe Chance for documentation surveying from Monday to Tuesday next week.

Ryan indicated that the Chesapeake goesynthetic installation crew went to another job about an hour north of the site to install a small rain cover. Ryan thought that they will probably not be back on-site until Monday.

Work Decisions:

None

Report No. 25

Daily Communications:

Name/Representing: Todd Martin and Nate Braun **Time:**

Subject/Comments: I updated Todd and Nate on project progress.

Todd sent me Ryan's recent pay request for my review of the quantities. I reviewed the pay request and agreed with Ryan's completed quantities.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 26

Project No.: 05794.49.001	**Day:** ☐S ☒M ☐T ☐W ☐Th ☐F ☐S	**Date:** 4 / 4 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 7:30 p.m.	**Hrs:** 12
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☐ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Chesapeake Containment Systems, 9-labors/seamers, 1-QC, 1 supervisor

Equipment/Materials Delivered: No 67 stone and Select Granular Fill

Weather: Clear				**Temp.:** 50 -80 F
Humidity: Med %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** S & W	@ 20 -25 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☒ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Chesapeake was preparing to deploy GCL. Chesapeake will deploy GCL rolls west to east starting at the west anchor trench. They will only deploy one roll length (150 feet) to the east. They will then deploy geomembrane in a north-south direction over the GCL. After covering the western approximate 150 feet of the cell with geomembrane, they will deploy GCL and geomembrane in a north-south direction and cover the cell from west to east. Ryan will finish grade the top of the prepared subgrade layer in the eastern portion of the cell and develop the subbase grades (bottom of the prepared subgrade layer) on the eastern berm and in the northwest corner of the cell. The top of the prepared subgrade was allowed to dry over the weekend from the rain last week. Areas on the eastern end were still a little damp. Ryan will back drag these areas with a skid loader to aid the drying of these areas.
7:30 a.m.	Chesapeake began deploying GCL on the western side of the cell. The area where deployment was to occur, was walked by RMT and Chesapeake. The GCL subgrade was determined to be acceptable for CGL deployment. Ryan was grading and developing subbase grades on the east end of the cell.
10:30 p.m.	Chesapeake completed deploying 45 rolls/panels of GCL and were preparing to deploy textured geomembrane on the western and northern berm slopes.
11:30 a.m.	Chesapeake completed deploying the textured geomembrane on the western and northern berm slopes. Chesapeake will take lunch and deploy the smooth geomembrane on the base and began seaming the geomembrane after lunch. Ryan also took lunch.
12:30 p.m.	Chesapeake deploying smooth geomembrane on the base of the cell and preparing to run trail seams. The wind is out of the south and east at 20 to 25 mph, with gusts up to 30 mph. Ryan working on the eastern berm and developing the sump subbase grades.
1:30 p.m.	Chesapeake deployed 6 panels of smooth geombrane. Because of the high winds, Chesapeake will not deploy anymore geomembrane panel until the deployed panels are seamed and secured. Chesapeake began seaming the panels. I collected a stone and sand sample.
2:45 p.m.	Chesapeake began air testing the fusion seams.
4:00 p.m.	Chesapeake completed deploying the last panel of the day. There is an 80 percent chance of rain tomorrow, so Chesapeake will spend the rest of the day sealing the geomembrane so rain doesn't get under the geomembrane and hydrate the GCL.
6:00 p.m.	Chesapeake sandbagging the perimeter of the installed geomembrane and placing rolls of geocushion on the geomembrane in the anchor trenches to secure the geomembrane.
7:00 p.m.	Chesapeake completed the tie-in seam and was packing their equipment away for the day.
7:30 p.m	Chesapeake, Ryan, and I left the site for the day.

Quantities of Pay Items Placed:

Item: Subbase grade development	**Quantity:**
Item: GCL and geomembrane installation.	**Quantity:**
Item: Delivered Select Aggregate Fill (No. 67 stone) and Select Granular Fill	**Quantity:**

Report No. 26

Testing Performed/Samples Collected:

One Select Granular Fill sample (sample 4-4-11).

One Select Aggregate Fill sample (sample 4-4-11).

Field Problems and Nonconforming Materials or Work:

Very strong winds made geomembrane deployment difficult.

Notices To/From Contractors:

Chesapeake will only deploy GCL and geomembrane over approximately 150 feet of the west end today. They want to make sure that all the GCL deployed today is covered and sealed by the geomembrane because of an 80 percent chance of rain tomorrow morning. They also want to secure all the deployed geomembrane because of the high winds.

Rain is predicted at 80 percent tomorrow morning with possible 50 mph-plus straight line winds.

Ryan is ready to have Joe Chance come tomorrow and document top and bottom of the prepared subgrade layer at the eastern end of the site.

Work Decisions:

None

Report No. 26

Daily Communications:

Name/Representing: Todd Martin and Nate Braun **Time:**

Subject/Comments: I updated Todd and Nate on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 27

Project No.: 05794.49.001	**Day:** ☐S ☐M ☒T ☐W ☐Th ☐F ☐S	**Date:** 4 / 5 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 11:00 a.m.	**Hrs:** 4
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 1 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Chesapeake 1- supervisor

Equipment/Materials Delivered: No.67 stone and sand (Select Granular Fill)

Weather: Rain in the morning and clear in the afternoon				**Temp.:** 55 – 60 F
Humidity: High %	**Rain:** 0.5 **in.**	**Pressure:** N/A	**Wind:** W	@ 20 - 30 **mph**

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☐ Cat Dozer D6	☐ Cat Dozer D6
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☐ Cat 315L Trackhoe	☐ John Deere 650 Dozer
☐ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Thunderstorms and heavy rain was moving through the area. The storms were predicted to clear out by afternoon. Because of the heavy rain, Ryan will take one round of sand and stone trucks and shut the trucks down for the day. Ryan will have one person stay on-site until the last stone/sand truck arrives. Ryan sent the rest of the crew home because of the rain. Dave Ventress (supervisor for Chesapeake) was on-site. They will not work today because of the rain/muddy conditions.
7:30 p.m.	Dave Ventress left the site for the day.
9:00 p.m.	I collected a stone sample for sieve analysis.
9:30 p.m.	I sent out the stone and sand samples to the RMT's laboratory.
10:00 p.m.	The last truck of stone arrived and Ryan left for the day.
11:00 a.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Delivered select aggregate and granular fill to the site	**Quantity:**
Item:	**Quantity:**
Item:	**Quantity:**

Report No. 27

Testing Performed/Samples Collected:

One Select Aggregate Fill sample (sample 4-5-11)

Field Problems and Nonconforming Materials or Work:

Too wet/muddy to deploy geosynthetic or do any earthwork today.

Notices To/From Contractors:

I canceled Joe Chance to come and document subbase and base grades today because of rain today. I rescheduled Joe for Thursday.

Work Decisions:

Too wet to work today.

Report No. 27

Daily Communications:

Name/Representing: Nate Braun	**Time:**
Subject/Comments: I updated Nate on project progress.	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 28

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☒W ☐Th ☐F ☐S	**Date:** 4 / 6 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 6:30 p.m.	**Hrs:** 11
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Chesapeake: 9-labors/seamers, 1- QC, 1 - supervisor

Equipment/Materials Delivered: No. 67 stone and Select Granular Fill

Weather: Clear				**Temp.:** 40 - 60 F
Humidity: Med. %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** SW	@ 5 - 10 mph

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☒ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. The GCL/geomembrane subgrade is wet/muddy from the rain yesterday. Chesapeake will detail the geomembrane that was installed Monday. After they complete the detailing, they will take the remainder of the day off to allow the subgrade to dry before deploying more GCL and geomembrane.
7:30 a.m.	Chesapeake running trial welds, air pressure testing the remaining fusion seams, and removing water on top of the geomembrane. Ryan assisting stone and sand truck deliveries/stockpiling the loads. Ryan also welding dual containment pipe.
8:00 a.m.	Chesapeake extrusion welding patches and air pressure testing seams.
10:00 a.m.	Chesapeake began vacuum box testing the repair welds.
11:00 a.m.	Chesapeake completed detailing the installed geomembrane and was packing up equipment for the day.
11:30 a.m.	Chesapeake left the site for the day. They will be back tomorrow morning to deploy GCL after the subbase has dried.
Noon	Ryan took lunch.
12:30 p.m.	Ryan resumed welding pipe and assisting stone and sand trucks.
2:30 p.m.	Ryan adding geotextile and No. 67 stone to the temporary sediment trap east of the cell. Ryan also excavating a larger storage area up gradient of the temporary sediment trap.
3:00 p.m.	Ryan excavating the leachate sump to subbase grades.
6:30 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Detailed the installed geomembrane	**Quantity:**
Item: Delivered select granular and aggregate fill to the site	**Quantity:**
Item:	**Quantity:**

Report No. 28

Testing Performed/Samples Collected:

Collected six field and laboratory destructive seam samples.

Field trial seam and destructive seam testing.

Air pressure testing of fusion seams

Vacuum box testing of extrusion welded seams

Field Problems and Nonconforming Materials or Work:

GCL/Geomembrane subgrade was too wet to deploy GCL and geomembrane.

Notices To/From Contractors:

Ryan will add some geotextile and No. 67 stone to the sediment trap on the east side of the cell. It should help to slow down the runoff to dropout additional silt. Ryan will also dig a larger hole in front of the sediment trap to add additional settling capacity.

Work Decisions:

None

Report No. 28

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: I updated Nate on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 29

Project No.: 05794.49.001	**Day:** ☐S ☐M ☒T ☐W ☐Th ☐F ☐S	**Date:** 4 / 7 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 6:30 a.m.	**Time Left Site:** 8:00 p.m.	**Hrs:** 13.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☐ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Chesapeake: 9-labors/seamers, 1- QC, 1 - supervisor

Equipment/Materials Delivered: No. 67 stone and Select Granular Fill

Weather: Mostly Clear				**Temp.:** 50 – 75 F
Humidity: Med %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** SW	@ 5 - 10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ John Deere CT 322 Skid steer
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ Cat 815 Compactor
☒ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
6:30 a.m.	I arrived on-site. Chesapeake was on-site. Chesapeake will deploy GCL and geomembrane today. Chesapeake was preparing to start deploying GCL. Chesapeake will deploy rolls in the east-west direction on the base of the cell. They will deploy the rolls the full length to the east so they will have an area of approximately 150 long (rolls are 150' long) by the width of the cell (approximately 360 feet wide at the base) to deploy geomembrane over. After covering the initial GCL with the geomembrane, Chesapeake will deploy the GCL rolls in a north-south direction advancing GCL deployment just in advace of geomembrane deployment. Chesapeake and I walked the subgrade and it was determined that the subgrade was acceptable for deployment of the GCL and geomembrane.
7:00 a.m.	Ryan will be filling/grading to establish the bottom of prepared subgrade layer on the eastern end of the cell. Chesapeake was deploying GCL on the base of the cell.
10:00 a.m.	Joe Chance was onsite to document bottom of the prepared subgrade layer on the eastern end of the site and top of prepared subgrade layer where it had been completed on the eastern side of the cell.
10:30 p.m.	Chesapeake stopped deploying GCL and was deploying geomembrane over the placed GCL. Chesapeake was also running trail seams.
11:00 a.m.	Chesapeake began seaming the geomembrane panels.
Noon	Chesapeake and Ryan took lunch. One seamer remained to complete the seam he was seaming.
1:00 p.m.	Chesapeake alternating between GCL and geomembrane deployment. Joe Chance documenting bottom of prepared subgrade as Ryan completes the grading.
3:30 p.m.	Chesapeake began deploying textured panel on the southern delineation berm. Chesapeake seaming the deployed panels.
4:00 p.m.	Joe Chance completed survey documentation for the day and left the site. Chesapeake deployed the last geomembrane panel for the day. They will complete seaming the deployed panels and the tie-in to the Phase 2 liner before leaving the site for the day.
6:00 p.m.	Chesapeake completed their last seam (tie-in seam) and were cleaning the site and preparing to leave for the day.
6:30 p.m.	Ryan left for the day.
7:00 p.m.	Chesapeake left the site for the day.
8:00 p.m.	I left the site for the day after inputting data.

Quantities of Pay Items Placed:

Item: GCL installation	**Quantity:**
Item: Geomembrane installation	**Quantity:**
Item: Completed subgrade development including the sump.	**Quantity:**

Report No. 29

Testing Performed/Samples Collected:

Marked destructive test locations DT-7 thru DT-17

Trial Seam testing

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

None

Work Decisions:

None

Report No. 29

Daily Communications:

Name/Representing: Todd Martin	**Time:**
Subject/Comments: I updated Todd on project progress.	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 30

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☒F ☐S	**Date:** 4 / 8 / 11

Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction

RMT Project Manager: Mike Parker | **Office Contact:** Todd Martin/ Nathan Braun

RMT Representatives: Kim Pawlisch

Time Arrived On-Site: 6:30 p.m. | **Time Left Site:** 7:00 p.m. | **Hrs:** 12

Client Representative(s): Bill Morris

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors:

Equipment/Materials Delivered: None

Weather: Clear most of the day - Cloudy in the p.m. | **Temp.:** 60 – 75 F

Humidity: med. % | **Rain:** 0 in. | **Pressure:** N/A | **Wind:** SW @ 5 - 10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Cat CS 563E Smooth Drum Roller	☐ John Deere CT 322 Skid steer
☐ Cat 315L Trackhoe	☐ John Deere 650 Dozer
☐ John Deere 450D Trackhoe	☐
☐ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
6:30 a.m.	I arrived on-site. Chesapeake was on-site. Chesapeake will deploy GCL and geomembrane today. They then want to nondestructively test all the seams completed the last couple of days and heat tack repairs on the geomembrane. Storms and rain are likely tonight and they want to have everything sealed and secured for the rains that are likely arriving. I walked the GCL subgrade with Chesapeake and Chesapeake determined that the subgrade was acceptable for GCL and geomembrane deployment.
7:00 a.m.	Ryan is on-site. Ryan will place prepared subgrade soil on the eastern side of the cell and place and compact select clay fill in the sump. Chesapeake began deploying GCL.
8:30 p.m.	Chesapeake deploying the first panel of geomembrane (panel 45). Chesapeake running trial welds on their fusion welding machines. Ryan placing and compacting prepared subgrade material.
10:00 p.m.	Chesapeake deploying and seaming geomembrane.
11:30 a.m.	Ryan placing select clay fill in the sump in 6-inch-thick lifts and mixing in bentonite into the select clay fill. I will collect Shelby tube samples today on each of the four lifts of clay placed in the sump.
Noon	Chesapeake and Ryan took lunch.
1:00 p.m.	Ryan completed placing select clay fill in the sump and I completed taking Shelby tube samples on the clay. Chesapeake deployed the last geomembrane panel (panel 59) of the day and continued to seam the panels.
1:30 p.m.	Chesapeake was nondestructive testing (air pressure testing) the fusion seams.
3:30 p.m.	Chesapeake completed the tie-in seam with panel 59. Chesapeake continued to nondestructive test the geomembrane seams.
6:00 p.m.	Chesapeake was completing the last of the air pressure testing and began to pack up equipment for the day.
6:30 p.m.	Chesapeake left for the day
7:00 p.m.	Ryan and I left for the day.

Quantities of Pay Items Placed:

Item: GCL and geomembrane installation	**Quantity:**
Item: Select clay fill and prepared subgrade fill placement	**Quantity:**
Item:	**Quantity:**

Report No. 30

Testing Performed/Samples Collected:

Nuclear density testing on the prepared subgrade layer on the east side of the cell.

Nuclear density testing on the select clay fill in the sump.

Shelby tube samples on each 6-inch thick lift placed in the sump

Collected destructive seam samples.

Air pressure testing of the fusion seams and trial seam testing

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

Ryan has extra granular bentonite clay left over from final cover construction and would like to incorporate it into the select clay fill placed in the sump. Ryan has approximately 40 extra 50 pound bags and would like to use it to achieve higher hydraulic conductivity results. Adding bentonite is acceptable with RMT.

Work Decisions:

Allow Ryan to add bentonite to the select clay fill in the sump.

Report No. 30

Daily Communications:

Name/Representing: Todd Martin	**Time:**
Subject/Comments: I updated Todd on project progress	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 31

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☐F ☒S	**Date:** 4 / 9 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 6:30 a.m.	**Time Left Site:** 4:30 p.m.	**Hrs:** 10
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 1 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Chesapeake: 9-labors/seamers, 1- QC, 1 - supervisor

Equipment/Materials Delivered: None

Weather: Cloudy with some light mist in the a.m. and clear in the later p.m.				**Temp.:** 31
Humidity: high %	**Rain:** 0.7 **in. last night**	**Pressure:** N/A	**Wind:** NE	@ 5 - 10 **mph**

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☐ Cat Dozer D6	☐ Cat Dozer D6
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☐ Cat 315L Trackhoe	☐ John Deere 650 Dozer
☐ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☒ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
6:30 a.m.	I arrived on-site. Chesapeake's supervisor was on-site. It had rained approximately 0.7 inches last night and the site was very wet. Ryan will not work today and Chesapeake will not deploy any GCL or geomembrane today because of the very wet conditions. Chesapeake's crew is on their way and will finish detailing (nondestructively testing, making repairs, cutting destructive seam samples, etc.) the geomembrane which has been deployed.
7:00 a.m.	Chesapeake's crew arrived on-site and began removing the water on top of the geomembrane so they can start doing the repairs. Ryan had one person on-site to assist Chesapeake if required.
7:30 a.m.	Chesapeake was still removing water from the geomembrane and started running trial seam on two extrusion welding machines.
8:00 a.m.	Chesapeake was removing the heat- tacked patches that were installed yesterday to seal the liner. After removing a heat-tacked patch, Chesapeake dried the patch and patch area before reheat-tacking the patch, grinding, and welding the patch to complete the repair.
10:00 a.m.	It was misting very lightly. The repair welds were not affected by the mist, but Chesapeake was sheltering the mist from the repair operation. Chesapeake's supervisor and I were trying to determine if we should shut down or wait a while to see if the mist stops. We decided to wait and see if the mist continued.
10:15 a.m.	The mist stopped and Chesapeake proceeded with detailing the geomembrane. Chesapeake began vacuum box testing the repair welds.
Noon	Chesapeake took lunch
12:30 p.m.	Chesapeake returned from lunch and began welding trial welds on the extrusion welding machines.
1:00 p.m.	Chesapeake continued with detailing the geomembrane and vacuum box testing the repairs.
2:30 p.m.	Chesapeake completed detailing the deployed geomembrane and vacuum box testing the repairs. Chesapeake began packing up equipment for the day.
3:00 p.m.	Chesapeake left the site for the day. I remained on-site to continue documenting the geomembrane liner.
4:30 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Detailing the deployed geomembrane and vacuum box tested the repairs.	**Quantity:**
Item:	**Quantity:**
Item:	**Quantity:**

Report No. 31

Testing Performed/Samples Collected:

Trial seam testing

Collected destructive seam samples

Vacuum box testing of extrusion welded repairs.

Field Problems and Nonconforming Materials or Work:

A light mist in the morning threatened shutdown of the detailing operation, but the mist stopped shortly after it started and detailing was able to continue.

Notices To/From Contractors:

Chesapeake will not be working tomorrow.

Chesapeake will need to pull all the heat-tacked patches that were installed yesterday, dry the patch and the patch area, and reheat-tack the patch before proceeding with grinding or welding the repair.

I will be on-site tomorrow to check out the condition of the subgrade and to complete logging repairs.

Work Decisions:

Chesapeake can continue with detailing the liner because the mist had stopped.

Report No. 31

Daily Communications:

Name/Representing: None	**Time:**
Subject/Comments: None	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 32

Project No.: 05794.49.001	**Day:** ☐S ☒M ☐T ☐W ☐Th ☐F ☐S	**Date:** 4 / 11 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 7:00 a.m.	**Hrs:** 12
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Chesapeake: 9-labors/seamers, 1- QC, 1 - supervisor

Equipment/Materials Delivered: No. 67 stone and Select Granular Fill

Weather: Cloudy to Partly Cloudy				**Temp.:** 60 -80 F
Humidity: high %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** SW	@ 8-15 mph

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☒ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Chesapeake was on-site clearing water from the geomembrane. They planned on deploying geocushion over the liner today and needed to remove the water so it didn't soak into the geocushion during deployment and interfere with heat-fusing (seaming) of the geocushion panels. Saturday night the site received over 0.5 inches of rain and the geomembrane subgrade (top of prepared subgrade) is saturated and muddy. Chesapeake will not deploy any geomembrane today because of the wet conditions. Ryan will stockpile sand and aggregate loads, drain puddles outside the cell perimeter, and backfill the anchor trench behind geocushion deployment.
8:00 a.m.	Chesapeake began deploying geocushion on the western sideslope. Chesapeake was using their fusion welders to heat-fuse the geocushion panels. Ryan was grading/draining areas.
9:00 a.m.	Joe Chance arrived on-site to begin surveying/documenting geomembrane panel and repair locations. I sent out 17 destructive samples to RMTs' laboratory.
10:30 a.m.	Joe Chance completed surveying the geomembrane panels and repairs and started surveying/documenting the top of prepared subgrade layer on the eastern side of the cell. Ryan backfilling and compacting the western anchor trench. Chesapeake continued deploying geocushion.
Noon	Ryan and Chesapeake took lunch. Joe Chance completed surveying for the day and left the site.
1:00 p.m.	Ryan began excavating anchor trench on the southern delineation berm on the eastern end of the cell. Chesapeake continued to deploy and fuse geocushion.
3:30 p.m.	Ryan completed digging the anchor trench on the south delineation berm as far to the east as the top of prepared subgrade layer was surveyed/documented. Chesapeake continued to deploy geocushion and fuse geocushion panels.
6:30 p.m.	Chesapeake completed deploying 46 geocushion rolls and began picking up and preparing to leave the site for the day.
6:45 p.m.	Ryan and Chesapeake left the site for the day.
7:00 p.m.	I letf the site for the day.

Quantities of Pay Items Placed:

Item: First day (start) of Geocushion installation	**Quantity:** 46 rolls
Item: Excavated and backfilled anchor trench	**Quantity:**
Item: Delivered select aggregate and select granular fill	**Quantity:**

Report No. 32

Testing Performed/Samples Collected:

One Select Aggregate Fill sample (sample 4-11-11) for sieve and hydraulic conductivity analysis.

One Select Granular Fill sample (sample 4-11-11) for sieve and hydraulic conductivity analysis.

Field Problems and Nonconforming Materials or Work:

GCL/geomembrane subgrade was too wet to deploy GCL and geomembrane.

Notices To/From Contractors:

Surveyors have documented all the top of prepared subgrade layer located west of the sump. The sump and all the survey points east of the sump have not been surveyed/documented.

Surveyor have surveyed the panels and repairs installed to date (panels 1 thru 59 and associated repairs)

Chesapeake will be allowed to run their balloon tired ATV on the liner to deploy geocushion. If any indication is observed that the geomembrane is being damaged by the ATV, the damage will be repaired and the ATV will no longer be allowed to travel over the geomembrane. Chesapeake will minimize travel on the geomembrane and will not travel over the geomembrane if temperatures cause excessive wrinkles. No damage to the geomembrane was observed as a result of the ATV running on the geoemembrane.

Work Decisions:

Chesapeake's balloon tired ATV will be allowed to travel over the geomembrane to help deploy the geocushion. If damage is observed to the geomembrane from the ATV, Chesapeake will cease traveling over the geomembane until conditions change or corrective action is made.

Report No. 32

Daily Communications:

Name/Representing: Todd Martin **Time:**

Subject/Comments: I updated Todd on project progress.

Chesapeake will be allowed use their balloon tired ATV to travel over the geomembrane to deploy geocushion.

We may not be finished with GCL and geomembrane installation because of the wet weather conditions before I go on vacation April 19. My replacement for the week may need to have geomembrane installation experience if geomembrane installation is not complete by April 19.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 33

Project No.: 05794.49.001	**Day:** ☐S ☐M ☒T ☐W ☐Th ☐F ☐S	**Date:** 4 / 12 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 6:30 a.m.	**Time Left Site:** 4:30 p.m.	**Hrs:** 10
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: ____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Chesapeake: 9-labors/seamers, 1- QC, 1 - supervisor

Equipment/Materials Delivered: Select Granular Fill

Weather: Partly cloudy				**Temp.:** 70 - 80 F
Humidity: high %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** S	@ 10 -20 mph

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☒ Cat Dozer D6	☒ Cat Dozer D6
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☒ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
6:30 a.m.	I arrived on-site. Chesapeake will deploy geocushion over the remainder of the installed geomembrane. Chesapeake will remove the majority of water from the top of the geomembrane liner prior to deploying the geocushion. Chesapeake will remove the water so the water doesn't soak into the geochusion hindering the heat-fusing of the geocushion seams. The geomembrane subgrade is still too wet to deploy GCL and geomembrane.
7:00 a.m.	Ryan will complete punch list items on the Phase 1A and 1B final cover construction. Ryan will fix the riprap on the west side of the energy dissipater, place some landloc erosion reinforcement matting around the energy dissipater, and seed disturbed areas around the dissipater. Ryan will also grade areas in the borrow area.
7:30 a.m.	Ryan is working on the punch list items for final cover construction. Chesapeake is deploying and heat-fusion seaming geocushion. Ryan grading areas of the borrow area.
10:00 a.m.	Ryan completed the punch list items around the energy dissipater. Ryan began backfilling the southern anchor trench. Chesapeake continuing to deploy and seam geocushion.
11:30 a.m.	Chesapeake completed deploying the geocushion over the installed geomembrane and was cleaning up the site prior to leaving the site for the day.
11:45 a.m.	Chesapeake left the site for the day. Ryan continued to work on the borrow area and backfill the southern anchor trench.
Noon	Ryan took lunch.
12:30 p.m.	Ryan continued to work on the borrow area and backfill the southern anchor trench. Ryan also stockpiling the truck loads of select granular fill arriving at the site and fusing dual containment pipe.
3:30 p.m.	Ryan fusing dual containment pipe, backfilling the southern anchor trench, and grading areas in the borrow area.
4:30 p.m.	Ryan fusing dual containment pipe and grading areas in the borrow area. I left the site for the day.

Quantities of Pay Items Placed:

Item: Geocushion	**Quantity:**
Item: Delivered select granular fill to the site	**Quantity:**
Item:	**Quantity:**

Report No. 33

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

The GCL subgrade is still too wet from rain over the weekend to deploy GCL or geomembrane.

Notices To/From Contractors:

Chesapeake will have TRI collect a conformance sample from the new roll of textured geomembrane ordered from GSE.

Chesapeake thinks that the roll should arrive later this week.

Work Decisions:

None

Report No. 33

Daily Communications:

Name/Representing: RMT's laboratory **Time:**

Subject/Comments: The preliminary hydraulic conductivity results on the select clay fill Shelby tube samples collected in the sump currently indicate 3 of the 4 samples are passing. The sample collected on lift four is currently at 1.1×10^{-7} cm/sec and is still slowing. The sample should be passing (less than or equal to 1.0×10^{-7} cm/sec) by tomorrow.

The lab has completed testing the first 8 of 17 seam samples received by the lab today. The first 8 samples have passed.

Name/Representing: Todd Martin **Time:**

Subject/Comments: I updated Todd on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 34

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☒W ☐Th ☐F ☐S	**Date:** 4 / 13 / 11

Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction

RMT Project Manager: Mike Parker | **Office Contact:** Todd Martin/ Nathan Braun

RMT Representatives: Kim Pawlisch

Time Arrived On-Site: 6:30 a.m. | **Time Left Site:** 7:00 p.m. | **Hrs:** 12.5

Client Representative(s): Bill Morris

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Chesapeake: 9-labors/seamers, 1- QC, 1 - supervisor

Equipment/Materials Delivered: Select Granular Fill

Weather: Clear				**Temp.:** 55 - 70 F
Humidity: med. %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** W	@ 5 - 10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☐ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
6:30 a.m.	I arrived on-site. Chesapeake and I walked the subgrade for the geomembrane and it had dried from the rains over the weekend. Chesapeake accepted the subgrade for GCL and geomembrane deployment and began preparation for GLC and geomembrane deployment.
7:00 a.m.	Ryan will back drag and smooth-drum roll areas of the subgrade as needed during GCL and geomembrane deployment by Chesapeake. Ryan will also do some hand work at the tie-in to remove drainage blanket stone that spilled over from the Phase 2 liner splice area.
8:00 a.m.	Chesapeake deploying GCL while Ryan back dragged and smooth-drum rolled in front of deployment to maintain the subgrade.
11:45 a.m.	Chesapeake completed deploying GCL and will take lunch and start deploying geomembrane after lunch.
Noon	Ryan took lunch.
12:30 p.m.	Chesapeake began deploying geomembrane (panel 60) and conducting trial welds. Ryan placed the leachate collection pipe on the geocushion in the western part of the cell. The pipe was placed in the in the correct pipe location. During the placement of stone, Ryan will place bedding material below the pipe to get a minimum or three inches of bedding stone under the pipe. Ryan is grading the eastern perimeter berm.
2:00 p.m.	Chesapeake was deploying geomembrane and seaming the deployed panels.
4:00 p.m.	Chesapeake deployed the last panel (panel 85) of the day. Chesapeake continued to seam the panels.
6:00 p.m.	Chesapeake completed seaming for the day and began cleaning up the site, securing the geomembrane with sandbags, and packing up equipment.
7:00 p.m.	I completed documenting the geomembrane panels deployed today and I left the site for the day. Ryan and Chesapeake also left the site for the day.

Quantities of Pay Items Placed:

Item: Delivered Select Granular fill to the site	**Quantity:**
Item: GCL and goemembrane installation	**Quantity:**
Item:	**Quantity:**

Report No. 34

Testing Performed/Samples Collected:

Marked destructive test locations on the geomembrane deployed today.

Trial seam testing

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

Ryan should continue to smooth-drum roll and back-drag with the skid loader to remove ruts in the subbase that occur during deployment of the GCL and Geomembrane. Ryan did smooth-drum roll and back-drag to remove ruts during deployment.

Chesapeake should avoid sharp turns with their deployment skid loader on the subbase to minimize rutting. Chesapeake did avoid sharp turns during geosynthetics deployment.

Work Decisions:

None

Report No. 34

Daily Communications:

Name/Representing: Todd Martin	**Time:**
Subject/Comments: I updated Todd on project progress	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 35

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☒Th ☐F ☐S	**Date:** 4 / 14 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 6:30 a.m.	**Time Left Site:** 8:00 p.m.	**Hrs:** 12.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: _6_ Operators, _0_ Laborers, _0_ Engineer.

Subcontractors: Chesapeake: 9-labors/seamers, 1- QC, 1 - supervisor

Equipment/Materials Delivered: No. 67 stone and Select Granular Fill

Weather: Clear				**Temp.:** 50 -72 F
Humidity: med %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** N	@ 0 - 12 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☒ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☒ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
6:30 a.m.	I arrived on-site. Chesapeake was on-site preparing to deploy GCL. Chesapeake and I walked the proposed GCL and geomembrane subgrade. The subgrade was determined to be acceptable for deployment.
7:00 a.m.	Ryan arrived on-site. Ryan will finish the prepared subgrade layer on the eastern side of the cell. Ryan will also smooth-drum roll and back-drag the subgrade with a tracked skid loader in front of GCL deployment as needed. Chesapeake began deploying GCL panels.
9:00 a.m.	Chesapeake began deploying geomembrane panels (panel 87) over the deployed GCL. Chesapeake also preparing to conduct trail seams. Ryan working on finishing the eastern end of the cell.
10:00 a.m.	Chesapeake seaming geomembrane panels and alternating deployment of GCL and geomembrane.
11:15 a.m.	Chesapeake deployed the last geomembrane panel (panel 100) of the day. Chesapeake cannot deploy any panels farther east until Ryan completes the eastern side and sump area. Ryan continuing to work on the eastern end of the cell and in the sump area. Chesapeake began air pressure testing the fusion seams.
12:10 a.m.	Chesapeake completed seaming the deployed panels and took lunch. Ryan was on lunch.
12:30 p.m.	Ryan resumed working on finish grading the eastern portion of the cell and finishing the sump area. I took Moisture density tests on the east and west berms.
1:00 p.m.	Chesapeake was back on-site air-pressure testing the fusion seams and preparing to start welding trial seams on their extrusion welding machines they will use.
2:00 p.m.	Chesapeake extrusion welding repairs, air pressure testing the fusion seams, and cutting destructive samples at the locations I marked.
5:00 p.m.	Chesapeake was vacuum-box testing the extrusion welded repairs.
7:00 p.m.	Chesapeake completed repairing and non-destructive testing the seams and repairs on the geomembrane installed to date. Chesapeake and Ryan left the site for the day. Ryan had not fully completed the eastern end of the cell. They will finish it in the morning prior to arrival of the surveyor.
8:00 p.m.	I completed documenting the repairs and the geomembrane deployed today and I left the site for the day.

Quantities of Pay Items Placed:

Item: Delivered No. 67 stone and Select Granular Fill to the site.	**Quantity:**
Item: GCL and geomembrane installation	**Quantity:**
Item: Prepared subgrade layer on the eastern end of the site	**Quantity:**

Report No. 35

Testing Performed/Samples Collected:

Select Aggregate Fill sample (Sample 4/14/11) for sieve and hydraulic conductivity analysis. NDG testing on the east and west berms.

Trial seam testing on fusion and extrusion welding machines.

Vacuum box testing of extrusion welded repairs.

Collected destructive seam samples.

Air-pressure testing of fusion welded seams.

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

The surveyors will be here tomorrow late morning to document the top of prepared subgrade layer on the eastern side of the cell and the geomembrane panels, repairs, and destructive test locations.

Work Decisions:

None

Report No. 35

Daily Communications:

Name/Representing: Todd Martin	**Time:**
Subject/Comments: I updated Todd on project progress	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 36

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☒F ☐S	**Date:** 4 / 15 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 6:30 a.m.	**Time Left Site:** 8:00 p.m.	**Hrs:** 13.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Chesapeake: 9-labors/seamers, 1- QC, 1 - supervisor

Equipment/Materials Delivered: No. 67 stone and Select Granular Fill

Weather: Clear				**Temp.:** 50 – 65 F
Humidity: med %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** E	@ 5 - 15 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☒ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
6:30 a.m.	I arrived on-site. Chesapeake's supervisor was on-site. He said that Chesapeake's crew will be on-site later this morning because they had finished the repairs to the geomembrane and would not be able to deploy any geosynthetics until Ryan completes the eastern side of the cell. Chesapeake wanted to wait until the geomembrane panels were surveyed prior to deploying geocushion over the geomembrane.
7:00 a.m.	Ryan was on-site. Ryan will be completing the finish grading of the top of prepared subgrade layer and top of clay in the sump at the far eastern side of the cell for documentation by the surveyors. The surveyors are scheduled to be here late morning.
7:30 a.m.	Ryan was finish grading the eastern side of the cell to prepare it for survey documentation and prepare it for GCL and geomembrane deployment.
8:00 a.m.	Chesapeake's crew arrived on-site. They began staging GCL, geomembrane, and geocushion rolls in preparation for deployment.
11:00 a.m.	Joe Chance arrived on-site to begin surveying. Chance and Associates began to survey the geomembrane panels and repairs because Ryan was not completely finished with finish grading the eastern side of the cell.
11:30 a.m.	Chesapeake took an early lunch.
noon	Ryan completed finish grading the eastern side of the prepared subgrade layer and it was ready for survey documentation. Joe Chance switched from surveying the panels and repairs to surveying the top of prepared subgrade layer and top of select clay in the sump.
12:30 p.m.	Ryan began excavating the anchor trench on the eastern perimeter berm and backfilling the southern anchor trench.
1:00 p.m.	I walked the proposed subgrade for the GCL deployment with Chesapeake. It was determined that the subgrade was acceptable for GCL and geomembrane deployment. Joe Chance completed survey documentation on the eastern side of the cell. Chesapeake began deploying GCL.
1:45 p.m.	Chesapeake began deploying geomembrane (panel 101). Joe Chance went back to surveying/documenting geomembrane panels and repairs. Chesapeake completed running and testing fusion trail seams.
2:00 p.m.	Chesapeake began air pressure testing the fusion seams.
3:00 p.m.	Chesapeake continued to deploy and seam GCL and geomembrane panels.
4:15 p.m.	Chesapeake deployed the last geomembrane panel on the job (panel 121).
5:30 p.m.	Chesapeake completed seaming the panels and tie-in seam to Phase 2. Chesapeake had begun exctrusion welding the repairs. I marked all the destructive seam sample locations and numbered repair locations. Joe Chance began surveying the panels and repairs on the geomembrane installed today. Chesapeake completed air testing the fusion seams.
6:00 p.m.	Joe Chance completed surveying the geomembrane and left the site. Chesapeake was welding repairs, vacuum box testing the repairs, cleaning up the geosynthetic material scraps around the site and sandbagging the geomembrane perimeter and toe of the slopes to keep the geomembrane from trampolining. Chesapeake completed the repairs and cleaning up the site. Chesapeake left for the day at 7:30 p.m.
8:00 p.m.	I completed documenting the geomembrane deployed today and completed a final walk-through of the geomembrane. No deficiencies/punch list items were identified for the geomembrane during the walk-through. I left the site for the day.

Report No. 36

Quantities of Pay Items Placed:	
Item: Completed GCL and geomembrane installation	**Quantity:**
Item: Completed prepared subbase layer construction	**Quantity:**
Item: Delivered sand and No. 67 stone on-site.	**Quantity:**

Report No. 36

Testing Performed/Samples Collected:

Collected destructive samples on the geomembrane.

Trail seam testing (fusion and extrusion welds)

Vacuum box testing of the extrusion welded repairs

Air pressure testing of the fusion welded seams.

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

I did a final walk through of the geomembrane liner and did not identify any punch list item on the geomembrane. Chesapeake also walked the installed geomebrane and did identify any issues. Documentation is complete on the geomembrane and Chesapeake can deploy the geocushion over the remaining geomembrane.

All the destructive tests to date have passed laboratory testing.

I will send in the destructive samples that we collected today to the laboratory for Monday delivery. We should get the laboratory test results by the end of the day Monday.

Work Decisions:

None

Report No. 36

Daily Communications:

Name/Representing: Todd Martin **Time:**

Subject/Comments: I updated Todd on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 37

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☐F ☒S	**Date:** 4 / 16 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 10:00 a.m.	**Time Left Site:** 5:30 p.m.	**Hrs:** 7.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 1 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Chesapeake: 9-labors/seamers, 1- QC, 1 - supervisor

Equipment/Materials Delivered: None

Weather: Very windy and clear in the a.m. Overcast and very windy in the p.m.				**Temp.:** 60 – 70 F
Humidity: med %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** S	@ 15 -35 mph

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☐ Cat Dozer D6	☐ Cat Dozer D6
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☐ Cat 315L Trackhoe	☐ John Deere 650 Dozer
☐ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☒ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
6:30 a.m.	Chesapeake arrived on-site. I completed a final walk through of the liner yesterday and indicated to Chesapeake that they could place geocushion over the geomembrane. Chesapeake will deploy the geocushion from the low end to the high end (east to west) so they will be out of the water at the low end if it starts to rain during deployment. I was taking the last of the destructive samples to UPS in Greenville, NC to get them shipped to the laboratory for testing Monday.
6:45 a.m.	Chesapeake began deploying and fusion welding the geocushion panels.
10:00 a.m.	I arrived on-site after shipping the last of the destructive samples to the laboratory for testing. The samples should arrive Monday and we should get the results by the end of day on Monday. Chesapeake was deploying and fusion welding the geocushion panels.
noon	Chesapeake will work through lunch to try to complete geocushion installation prior to the strong thunder storms that were approaching.
5:00 p.m.	Chesapeake completed deploying and fusion seaming the geocushion in the cell. Chesapeake was picking up the site, moving the excess materials (geocushion rolls, geomembrane, GCL, etc.) back to the storage area, and sandbagging at the perimeter and toes of the cell to prevent potential trampolining to secure the geomemebrane.
5:30 p.m.	Chesapeake completed picking up the site and was preparing to leave after they packed up their trailer. Chesapeake will leave the trailer here tonight and pick it up in the morning. I left the site for the day after walking the site to see if all Chesapeake's trash was picked up and their work on the liner was complete.

Quantities of Pay Items Placed:

Item: Completed geocushion installation	**Quantity:**
Item:	**Quantity:**
Item:	**Quantity:**

Report No. 37

Testing Performed/Samples Collected:

No samples collected today, but I sent the last of the destructive samples to the laboratory.

Field Problems and Nonconforming Materials or Work:

It was very windy slowing the deployment of the geochshion. Wind gusts were over 40 mph.

Notices To/From Contractors:

Chesapeake will deploy geocushion from the low end to the high end (east to west) so they will be out of the water if it begins to rain before deployment is complete. Large thunderstorms with high winds are predicted for today.

I shipped out the last of the destructive samples this morning and the samples should arrive in the laboratory Monday. We should get the test results on these samples by the end of Monday.

I will give Chesapeake a call on the laboratory destructive test results as soon as I receive them Monday.

Work Decisions:

None

Report No. 37

Daily Communications:

Name/Representing: None	**Time:**
Subject/Comments: None	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 38

Project No.: 05794.49.001	**Day:** ☐S ☒M ☐T ☐W ☐Th ☐F ☐S	**Date:** 4 / 18 / 11

Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction

RMT Project Manager: Mike Parker | **Office Contact:** Todd Martin/ Nathan Braun

RMT Representatives: Alex McCune

Time Arrived On-Site: 7:00 a.m. | **Time Left Site:** 6:30 p.m. | **Hrs:** 11

Client Representative(s): Bill Morris

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: None

Equipment/Materials Delivered: Select Aggregate Fill, Select Granular Fill

Weather: Clear | **Temp.:** 55-75

Humidity: Med% | **Rain:** 0 in. | **Pressure:** N/A | **Wind:** S @ 0-10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☐ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☐ Cat 315L Trackhoe	☐ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Report No. 38

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site with Kim. I will be overlapping a day with Kim to transition me into the project while Kim is on vacation.
7:15 a.m.	Ryan preparing to place No. 67 stone (select aggregate fill) over the geosynthetic liner.
7:30 a.m.	Ryan building 3-foot-thick stone access roads over west quarter of phase 3 and 4 using off-raod haul trucks and dozers. RMT verified that the leachate collection pipes had a minimum of 3-inches of pipe bedding stone under the pipe and checked elevations on the top of pipe at the design grade points.
Noon	Ryan took lunch.
12:45 p.m.	Ryan continues to place No. 67 stone over west quarter of Phase 3 and 4. RMT verified that the leachate collection pipes had a minimum of 3-inches of pipe bedding stone under the pipe RMT also checked elevations of the top of pipe at the design grade points.
6:30 p.m.	Ryan stopped work and shut down equipment for the day.

Quantities of Pay Items Placed:

Item: Select aggregate fill	**Quantity:** 2,250 CY (approx.)
Item:	**Quantity:**
Item:	**Quantity:**

Report No. 38

Testing Performed/Samples Collected:

Collected a select granular fill sample 4-18-11 and a select aggregate fill sample 4-18-11.

Collected two pipe bedding stone samples.

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

Kim Pawlisch (RMT's on-site representative) is leaving for vacation tomorrow and will be back on-site Tuesday morning April 26th. I (Alex McCune also from RMT) will be replacing Kim while he is gone. Kim will still available for questions during his vacation if they occur.

Work Decisions:

None

Report No. 38

Daily Communications:

Name/Representing: Todd Martin, RMT **Time:** 10:00

Subject/Comments: Updated Todd on construction activities, sampling, and change over from Kim to Alex

Name/Representing: Todd Martin, RMT **Time:** 6:00

Subject/Comments: Updated Todd on construction activities, checklist for Alex, elevations for select aggregate and granular fill, top of pipe, depth of bedding under pipe.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 39

Project No.: 05794.49.001	**Day:** ☐S ☐M ☒T ☐W ☐Th ☐F ☐S	**Date:** 4 / 19 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Alex McCune		
Time Arrived On-Site: 7:00 am	**Time Left Site:** 6:30	**Hrs:** 11
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: None

Equipment/Materials Delivered: Select Aggregate Fill and Select Granular Fill

Weather: Clear				**Temp.:** 65-85
Humidity: Med%	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** NE	@ 0-15 mph

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☒ Cat Dozer D6	☐ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☐ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site.
7:15 a.m.	Ryan continues placing stone on the west quarter of Phase 3 and 4 using a track hoe, off-road haul trucks, and dozers. RMT verified that the leachate collection pipes had a minimum of 3 inches of pipe bedding stone under the pipe and recorded elevations of the top of pipe at the design grade points as a backup if the pipe got covered prior to surveying by Chance and Associates. Ryan also put PVC stand pipes on top of the leachate collection pipe prior to covering the leachate pipes so that Chance could survey the top of leachate collection pipes at the design grade point locations.
Noon	Ryan took lunch.
12:45 p.m.	Ryan resumed work. Ryan began building a 3-foot-thick road approximately in the center of Phase 3 and 4 beginning at the north delineation berm running south in order to use a backhoe and hand power to move and place an approximate 400-foot section of leachate collection pipe on the eastern half of the cell.
3:30 p.m.	Ryan was welding/fusing the northern leachate collection pipe western half to the eastern half that was just placed.
6:00 p.m.	Ryan stopped hauling select aggregate fill and shut equipment down for the day.
6:30 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Select aggregate fill	**Quantity:**
Item:	**Quantity:**
Item:	**Quantity:**

Report No. 39

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

None

Work Decisions:

Did not allow Ryan to use a skid loader to run directly on the geocushion to drag the eastern section of collection pipe across the geocushion into the design location. Ryan used a track-hoe with a pipe sling (setting on a 3-foot thick stone access road) to assist Ryan to hand drag the pipe into the design location over the geocushion.

Report No. 39

Daily Communications:

Name/Representing: Todd Martin, RMT **Time:** 9:45

Subject/Comments: Updated Todd on construction activities and discussed whether or not to use the skid loader directly on the geocushion for transporting leachate collection piping over the geocushion.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 40

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☒W ☐Th ☐F ☐S	**Date:** 4 / 20 / 11

Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction

RMT Project Manager: Mike Parker | **Office Contact:** Todd Martin/ Nathan Braun

RMT Representatives: Alex McCune

Time Arrived On-Site: 7:00 am | **Time Left Site:** 6:30 | **Hrs:** 11

Client Representative(s): Bill Morris

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: _8_ Operators, _0_ Laborers, _0_ Engineer.

Subcontractors: None

Equipment/Materials Delivered: Select Aggregate Fill, Select Granular Fill

Weather: Partly Cloudy | **Temp.:** 69-89

Humidity: Med% | **Rain:** 0 in. | **Pressure:** N/A | **Wind:** N,NE @ 5-20 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☒ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site.
7:15 a.m.	Ryan is placing No.67 stone on the west quarter of phase 3 and 4 using a track hoe to load, off-road haul trucks to haul and dozer to level and place the stone. I verified that the leachate collection pipes had a minimum of 3" bedding stone under the pipe.
10:00 a.m.	Ryan placed a 400 foot section of southern leachate collection pipe in the eastern half of the cell. Ryan used a track hoe and hand power to place the pipe. The track hoe sat on a minimum 3-foot thick No. 67 stone road. The track hoe used a sling strap to assist Ryan personnel to drag and placed the collection pipe into design location. Ryan then fused the placed pipe section to the existing pipe section that was placed earlier during Phase 3 and 4 construction.
10:30 a.m.	Ryan using one of the CAT D6 dozers to grade topsoil.
Noon	Ryan took lunch
12:45 p.m.	Ryan resumed work. Ryan continued to place and spread select aggregate fill on Phase 3 and 4 using a track hoe, 2 off-road haul trucks, and a D6 Dozer. I verified that the leachate pipe bedding is a minimum of 3" thick under the pipe.
1:00 p.m.	Ryan used a forklift to transport a section of leachate collection piping running north-south on the east side of the Phase 3 and 4 cell.
1:30 p.m.	Ryan used a John Deer 650 dozer to grade/level general fill southwest of Phase 3 and 4.
2:00 p.m.	Ryan fusing dual contained forcemain pipe tees to be installed east of the pump station manhole.
4:00 p.m.	Excess GCL leftover from Phase 3 and 4 liner and Phase 1A and 1B final cover construction was loaded on a flat bed truck and hauled off site. The excess geosynthetics leftover from the final cover and liner construction projects will be hauled off-site and used by Chesapeake for other projects.
6:10 p.m.	Ryan shut down for the day.
6:30 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Select aggregate fill	**Quantity:**
Item:	**Quantity:**
Item:	**Quantity:**

Report No. 40

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

None

Work Decisions:

None

Report No. 40

Daily Communications:

Name/Representing: Todd Martin **Time:**

Subject/Comments: I updated Todd on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 41

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☒Th ☐F ☐S	**Date:** 4 / 21 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Alex McCune		
Time Arrived On-Site: 7:00 am	**Time Left Site:** 6:30	**Hrs:** 11
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 9 Operators, 0 Laborers, 0 Engineer.

Subcontractors: None

Equipment/Materials Delivered: Select Aggregate Fill and Select Granular Fill

Weather: Cloudy, Rainy				**Temp.:** 49-66
Humidity: Med%	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** E	@ 0-10 mph

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☒ Cat Dozer D6	☐ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☒ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site.
7:15 a.m.	Ryan began placing No. 67 stone on the west quarter of Phase 3 and 4 using a track hoe, off-road haul trucks, and dozers. I verified that the leachate collection pipes had a minimum 3-inch thickness of pipe bedding stone under the pipe. Ryan also placing rip rap at the drainage layer outlet pipes at the base of Phase 1A and 1B.
7:30 a.m.	Ryan fusing pipe cleanout fittings to be used on the east side of Phase 3 and 4 for leachate force main and pump manhole.
8:30 a.m.	Ryan using the John Deere track hoe to excavate for installation of the pump station manhole and expose existing leachate force main.
10:00 a.m.	Held weekly landfill construction progress meeting with Bill Morris.
11:30 a.m.	Ryan fusing dual contained forcemain fittings.
Noon	Ryan took lunch
12:30-1:30 p.m.	Rain
1:00 p.m.	Ryan continued to place and spread select aggregate fill using an off-road haul truck, the GPS D6 dozer and the 650 John Deere dozer.
5:30 p.m.	Ryan pressure testing the leachate forcemain at 5 psi for 30 minutes and removing bolts from blind flange on existing leachate forcemain.
6:10 p.m.	Ryan shut down for the day.
6:30 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Select aggregate fill	**Quantity:**
Item: Forcemain pipe fusing	**Quantity:**
Item:	**Quantity:**

Report No. 41

Testing Performed/Samples Collected:

Air pressure tested the dual contained forcemain piping. The dual contained pipes passed air pressure testing. The air pressure (approximately 5 psig) placed on the pipes held the air pressure with no drop in air pressure for a minimum of 30 minutes.

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

None

Work Decisions:

None

Report No. 41

Daily Communications:

Name/Representing: Todd Martin, RMT **Time: 9:00**

Subject/Comments:

Updated Todd on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 42

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☒F ☐S	**Date:** 4 / 22 / 11

Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction

RMT Project Manager: Mike Parker | **Office Contact:** Todd Martin/ Nathan Braun

RMT Representatives: Alex McCune

Time Arrived On-Site: 7:00 am | **Time Left Site:** 6:30 | **Hrs:** 11

Client Representative(s): Bill Morris

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: None

Equipment/Materials Delivered: Select Aggregate Fill, Select Granular Fill, concrete

Weather: Cloudy | **Temp.:** 49-65

Humidity: Med% | **Rain:** 0 in. | **Pressure:** N/A | **Wind:** E @ 0-10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☐ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site.
7:15 a.m	Ryan began spreading No. 67 stone on Phase 3 and 4 using CAT D6 dozers working from west to east. I checked and verifie that a minimum of 3 inches of pipe bedding stone was placed under the leachate collection pipes.
7:30 a.m	Ryan field fit the location of the pump station manhole so that a minimum of 3 feet of cover will be placed over the forcemain pipe at the back of the manhole. Ryan then excavated for the cast in-place pump station manhole reinforced concrete pad.
10:00 a.m.	Ryan installed rebar for the cast in-place concrete pad.
12:15 p.m.	Ready Mixed Concrete Company deliverd 6 cubic yards of 6,000 psi concrete and Ryan placed the concrete for the pad.
12:45 p.m.	Ryan took lunch.
1:30 p.m.	Ryan resumed work. Ryan resumed placing select aggregate fill using 2 haul trucks and one D6 dozer. All the select aggregate fill stockpiled on-site was used. I verified that the leachate collection pipes had a minimum of 3 inches of pipe bedding stone placed under the collection pipes.
4:00 p.m.	All the select aggregate fill stockpiled on-site was used. Ryan used two CAT D6 dozers to spread the select aggregate fill that had been hauled into the cell.
4:30 p.m.	Ryan used their skid loader to haul sandbags and place the sandbags on the plywood on the south delineation berm.
6:00 p.m.	Ryan shut down for the day and refueled equipment.
6:30 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Select aggregate fill	**Quantity:**
Item: Pump station manhole concrete pad	**Quantity:**
Item:	**Quantity:**

Report No. 42

Testing Performed/Samples Collected:
None
Field Problems and Nonconforming Materials or Work:
None
Notices To/From Contractors:
None
Work Decisions:
None

Report No. 42

Daily Communications:

Name/Representing: Todd Martin, RMT **Time:** 10:00

Subject/Comments:

I updated Todd on project progress.

Name/Representing: Todd Martin, RMT **Time:** 5:00

Subject/Comments:

I updated Todd on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 43

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☐F ☒S	**Date:** 4 / 23 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Alex McCune		
Time Arrived On-Site: 7:00 am	**Time Left Site:** 5:00	**Hrs:** 9
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: _6_ Operators, _0_ Laborers, _0_ Engineer.

Subcontractors: None

Equipment/Materials Delivered: None

Weather: Cloudy				**Temp.:** 64-81
Humidity: Med%	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** E	@ 0-10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☐ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☐ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☐ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Report No. 43

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site.
7:15 a.m.	Ryan began hauling and placing select granular fill (sand) utilizing the same methods used to place the No.67 stone. Ryan used one track hoe, two haul trucks and one D6 dozer to place the sand. Ryan started placing sand on the west side of the cell.
7:30 a.m.	Ryan was welding leachate collection piping on the east side of the cell for Phase 3 and 4.
Noon	Ryan took lunch.
12:30 p.m.	Ryan resumed work. Ryan continued placing sand using one haul truck and two D6 dozers.
1:00 p.m.	Ryan excavated the leachate force main trench in the east perimeter berm. Ryan continued welding the sections and fittings for the leachate collection piping.
2:00 p.m.	Ryan used their John Deere 650 dozer to dress up the fill material on the east side of the cell.
4:45 p.m.	Ryan shut down for the day and refueled and greased equipment.
5:00 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Select granular fill	**Quantity:**
Item: fused leachate collection pipes and fittings	**Quantity:**
Item:	**Quantity:**

Report No. 43

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

None

Work Decisions:

None

Report No. 43

Daily Communications: None

Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 44

Project No.: 05794.49.001	**Day:** ☐S ☒M ☐T ☐W ☐Th ☐F ☐S	**Date:** 4 / 25 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Alex McCune		
Time Arrived On-Site: 7:00 am	**Time Left Site:** 6:15	**Hrs:** 11
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 8 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Joe Chance Surveying

Equipment/Materials Delivered: Select Aggregate Fill

Weather: Partly cloudy				**Temp.:** 66-87
Humidity: Med%	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** NE	@ 0-5 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☐ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☒ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Report No. 44

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site.
7:15 a.m.	Today Ryan plans to set the pump station manhole, connect new forcemain to manhole, and connect new forcemain to existing forcemain. Ryan will also will continue to place and spread select aggregate fill on the eastern portion of phase 3 and 4.
7:45 a.m.	Ryan graded the haul road south of Phase 3 and 4.
10:30 a.m.	Joe chance arrives on-site to survey the top of pipe, top of stone and top of sand elevations.
Noon:	Ryan took lunch.
12:45 p.m.	Ryan resumed work. Ryan began hauling select aggregate fill using a track hoe, two off-road haul trucks, and one D6 dozer. Ryan also resumed fusing leachate collection fittings and cleanouts for the eastern side of the cell.
3:00 p.m.	Ryan flange connected the 18" HDPE leachate collection riser pipe to the pump station manhole. Ryan also began hauling and placing sand using two haul trucks and a D6 dozer.
5:00 p.m.	I collected a sample of pipe bedding material at documentation point 314.
6:00 p.m.	Ryan shut down equipment for the day and refueled and greased equipment.
6:15 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Select aggregate fill	**Quantity:**
Item: Select granular fill	**Quantity:**
Item:	**Quantity:**

Report No. 44

Testing Performed/Samples Collected:

Sample of pipe bedding stone at survey point location 314.

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

None

Work Decisions:

None

Report No. 44

Daily Communications:

Name/Representing: Joe Chance, Surveyor **Time: 7:00**

Subject/Comments:

Joe indicated that he would be out on-site today and survey record top of pipe elevations and the top of sand.

Name/Representing: Todd Martin, RMT **Time: 10:15**

Subject/Comments:

Updated Todd on project progress for today and work that took place on Saturday.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 45

Project No.: 05794.49.001	**Day:** ☐S ☐M ☒T ☐W ☐Th ☐F ☐S	**Date:** 4 / 26 / 11

Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction

RMT Project Manager: Mike Parker | **Office Contact:** Todd Martin/ Nathan Braun

RMT Representatives: Kim Pawlisch

Time Arrived On-Site: 7:00 a.m. | **Time Left Site:** 6:00 p.m. | **Hrs:** 11

Client Representative(s): Bill Morris

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: _6_ Operators, _0_ Laborers, _0_ Engineer.

Subcontractors: None

Equipment/Materials Delivered: No. 67 stone and Select Granular Fill

Weather: Partly Cloudy with close thunderstorms				**Temp.:** 70 - 85 F
Humidity: High %	**Rain:** trace **in.**	**Pressure:** N/A	**Wind:** S	@ 5 - 10 **mph**

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☐ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☒ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site with Alex McCune. Alex will stay on-site a couple of hours to transition me back into the project after my vacation. Ryan will haul and finish grade sand (select granular fill), weld the forcemain pipe to the existing forcemain and weld collection pipe and cleanout pipes on the eastern end of the cell.
8:00 a.m.	Ryan fusion welding the 6" x 10" dual contained forcemain tie-in weld to the existing dual contained forcemain. Ryan was also be hauling and placing the select granular fill layer over the select aggregate fill layer (No.67 stone layer). Alex gave me a tour around site to update me on the progress that had been made while I was on vacation. Sand and stone trucks were arriving and dumping in the on-site stockpile locations.
10:30 a.m.	Ryan completed the forcemain tie-in weld and began welding the collection pipe cleanout through the sump area. Ryan continuing to haul and place the sand layer and began placing pipe bedding under and over the forcemain pipe. I verified that the minimum amount of pipe bedding stone was places under the collection pipes. Alex McCune left the site after transitioning me back into the project. A flat bed truck was on-site to haul out leftover geosynthetics from the Phase 1A & 1B final cover project and from this liner construction project. The extra material will be hauled back to Chesapeake Containment Systems Inc.
11:45 p.m.	Lighting was occurring to the south of the site. Ryan shut down equipment because of the lightning and took lunch.
12:30 p.m.	The lightning had passed and the rain passed to the east of the site. Ryan resumed hauling and placing sand in the cell.
1:30 p.m.	Ryan shut down the haul truck hauling sand from the sand stockpile to the cell. The dozers will fine grade the sand that has been hauled to the site for the rest of the afternoon.
4:30 p.m.	Ryan continued to finish grade the sand layer (select granular fill layer) and welding the cleanout piping in the sump area.
5:30 p.m.	Ryan completed welding the northern collection header pipe to the sump inclined riser pipe.
6:00 p.m.	Ryan preparing to leave for the day. I left the site for the day.

Quantities of Pay Items Placed:

Item: Delivered and placed select granular fill	**Quantity:**
Item: Installed pipe cleanouts on the eastern side of the cell	**Quantity:**
Item: Connected dual contained forcemain pipe to existing pipe.	**Quantity:**

Report No. 45

Testing Performed/Samples Collected:

None.

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

Told Ryan that Joe Chance will be here Thursday to document remaining pipe locations and elevations and top of sand in areas where Ryan is ready final documentation.

Work Decisions:

None

Report No. 45

Daily Communications:

Name/Representing: Todd Martin	**Time:**
Subject/Comments: I updated Todd on project progress	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 46

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☒W ☐Th ☐F ☐S	**Date:** 4 / 27 / 11

Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction

RMT Project Manager: Mike Parker | **Office Contact:** Todd Martin/ Nathan Braun

RMT Representatives: Kim Pawlisch

Time Arrived On-Site: 7:00 a.m. | **Time Left Site:** 6:00 p.m. | **Hrs:** 11

Client Representative(s): Bill Morris

Status of Project in Relation to Schedule: ____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 2 Laborers, 0 Engineer.

Subcontractors: None

Equipment/Materials Delivered: No. 67 stone and Select Granular Fill.

Weather: Partly Cloudy				**Temp.:** 65 - 85 F
Humidity: High %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** S	@ 5-15 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☐ Cat 815 Compactor
☒ Cat 315L Trackhoe	☒ John Deere 650 Dozer
☐ John Deere 450D Trackhoe	☒ John Deere CT 322 Skid steer
☐ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Ryan will haul and place the No.67 stone layer (select granular fill layer) on the eastern side of the cell and place and finish grade the sand layer (select granular fill layer) following No.67 stone layer placement. Ryan will also weld and install the collection pipe north of the sump.
8:00 a.m.	Ryan hauling and placing No. 67 stone layer and finish grading the sand layer. Ryan is also welding and installing the north-south collection pipe north of the sump.
11:30 a.m.	Ryan complete welding and installing the north-south collection pipe north of the sump. Ryan began welding the southeastern most collection pipe cleanout. Electrical subcontractor on-site looking over the exiting electrical connection and at the proposed location of the electrical cable to the Phase 3 & 4 pump station manhole.
noon	Ryan completed installing the southeastern most cleanout pipe. The installation of all the collection piping is now complete. Ryan took lunch. Ryan's electrical subcontractor left the site after looking at the proposed electrical work connections and looking over the site.
12:30 p.m.	Ryan continued to place No.67 stone and finish grade the sand layer.
1:00 p.m.	Ryan placing the thrust blocks at the 3" forcemain tees.
2:30 p.m.	Ryan completed installing the thrust blocks for the 3" tees east of the pump station manhole.
4:00 p.m.	Ryan hauling and placing No.67 stone and finish grading the sand layer.
5:00 p.m.	Ryan installing 4" x 4"wooden post 100 O.C. on the west side of the cell to delineate the limits of the liner .
6:00 p.m	Ryan preparing to leave for the day. I left the site for the day.

Quantities of Pay Items Placed:

Item: Hauled in and placed sand	**Quantity:**
Item: Hauled in and placed No. 67 stone	**Quantity:**
Item: Completed welding and installing all the collection and collection cleanout pipes	**Quantity:**

Report No. 46

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

The electricians will be on-site this Monday to begin the electrical work for the pump station. The electricians may show up today to take a look at the existing panels and the location of the new items to get prepared and bring everything they need to start the work.

Work Decisions:

None

Report No. 46

Daily Communications:

Name/Representing: Nate Braun **Time:**

Subject/Comments: I updated Nate on Project progress.

Name/Representing: Todd Martin **Time:**

Subject/Comments: I updated Todd on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 47

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☒Th ☐F ☐S	**Date:** 4 / 28 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 4:45 p.m.	**Hrs:** 9.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 1 Laborers, 0 Engineer.

Subcontractors: None

Equipment/Materials Delivered: Aggregate Base Coarse diliver and stockpiled, Cat 815 compactor removed from site

Weather: Cloudy with rain starting at 4:30 p.m.				**Temp.:** 70 -80 F
Humidity: High %	**Rain:** Trace before leaving	**Pressure:** N/A	**Wind:** S	@ 15 - 25 **mph**

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☐ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ Cat CS 563E Smooth Drum Roller	☐ John Deere 650 Dozer
☐ Cat 315L Trackhoe	☐ John Deere CT 322 Skid steer
☐ John Deere 450D Trackhoe	☐
☐ Gehl RS6 42 Forklift	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Ryan will start the day out by finish grading the select aggregate fill that was hauled into the cell yesterday afternoon.
9:45 a.m.	Joe Chance on-site to document the collection pipe on the east side of the site, the forcemain pipe, and the top of sand elevations in the cell.
10:00 a.m.	Held progress meeting.
10:30 a.m.	Ryan continuing to finish grade the select aggregate fill layer that was hauled in yesterday afternoon.
11:00 a.m.	Joe Chance surveying/documenting the collection pipe and forcemain pipe on the east side of the cell and went back to surveying/documenting the top of sand elevations.
Noon	Ryan took lunch.
12:30 p.m.	Ryan continued to finish grade the select aggregate fill layer.
2:30 p.m.	Ryan stopped finish grading the select aggregate fill layer and began hauling and placing sand to construct the select granular fill layer.
4:15 p.m.	It started to lightning and Ryan started to shut down for the day. A thunderstorm to the south east of the site was heading towards the site.
4:30 p.m.	Ryan left the site for the day.
4:45 p.m.	I completed my paper work and left the site for the day. It started raining as I left the site.

Quantities of Pay Items Placed:

Item: Placed sand layer	**Quantity:**
Item: Placed No.67 Stone	**Quantity:**
Item:	**Quantity:**

Report No. 47

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

None

Work Decisions:

None

Report No. 47

Daily Communications:

Name/Representing: Todd Martin	**Time:**
Subject/Comments: Updated Todd on project progress	
We will be having a progress meeting today at 10:00 a.m.	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 48

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☒F ☐S	**Date:** 4 / 29 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:30 a.m.	**Time Left Site:** 6:00 p.m.	**Hrs:** 10.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: None

Equipment/Materials Delivered: No. 67 Stone and Aggregate Base Coarse. Took another haul truck off-site

Weather: Clear				**Temp.:** 60 -75 F
Humidity: med %	**Rain:** 0.3 **in.** Yesterday afternoon	**Pressure:** N/A	**Wind:** NW	@ 5- 10 **mph**

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☒ Volvo A40E Haul Truck
☐ Gehl RS6 42 Forklift	☒ John Deere CT 322 Skid steer
☐ Cat CS 563E Smooth Drum Roller	☒ John Deere 650 Dozer
☒ Cat 315L Trackhoe	☐
☒ John Deere 450D Trackhoe	☐
☐	☐

Report No. 48

Time	Description of Work in Progress:
7:30 a.m.	I arrived on-site. Ryan was pumping the cell from the rain late afternoon and evening. Ryan was also haul sand from the stockpile into the cell.
8:00 a.m.	Trucks were arriving delivering No. 67 stone. Ryan continued to haul and place the sand layer.
10:30 a.m.	Ryan stopped hauling and placing sand and began hauling and placing No. 67 stone. Ryan began placing the protective plywood on the east side of the cell.
Noon	Ryan diminished the last of the No. 67 stone that they hauled in and had stockpiled and Ryan took lunch.
12:30 p.m.	Ryan began removing the minimum 15-foot wide/ 3-foot plus thick temporary haul road made of No.67 stone that they constructed along the Phase 2/3 delineation berm. Ryan hauled and placed the excess No. 67 stone removed from the temporary haul road in the gravel layer. Ryan is anticipating that these is more than enough excess stone in this temporary haul road to complete the gravel layer of the cell.
3:00 p.m.	Ryan continuing to remove the minimum 15-foot wide/3-foot plus thick temporary haul road.
6:00 p.m.	Ryan and I left the site for the day.

Quantities of Pay Items Placed:

Item: Completed placing the No 67 stone layer	**Quantity:**
Item: Placed sand layer	**Quantity:**
Item:	**Quantity:**

Report No. 48

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

Ryan will be working tomorrow (Saturday)

Work Decisions:

None

Report No. 48

Daily Communications:

Name/Representing: Todd Martin	**Time:**
Subject/Comments: I updated Todd on project progress	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 49

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☐F ☒S	**Date:** 4 / 30 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 3:00 p.m.	**Hrs:** 8
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: None

Equipment/Materials Delivered: None

Weather: Clear				**Temp.:** 55 - 70
Humidity: med %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** N	@ 0 - 10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ John Deere 450D Trackhoe	☒ John Deere 650 Dozer
☒ Cat CS 563E Smooth Drum Roller	☒ John Deere CT 322 Skid steer
☒ Cat 315L Trackhoe	☐
☒ Gehl RS6 42 Forklift	☐
☐	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Ryan will use a backhoe to place stone and sand around the sump and 18" leachate collection riser piping. We did not want the D6 dozer running over the sump area with all the piping in that area. Ryan will also touch up the stone on the southern delineation berm using a skid loader where it was difficult to place the stone with the D6 dozer. Ryan will also start cleaning up areas, and consolidating all the excess material (partial rolls of geosynthetics, granular bentonite, pipe, etc.) in one place (west of the cell).
8:00 a.m.	Ryan completed placing no. 67 stone in the sump area using a backhoe and they began to place/grade sand over the remaining area of the cell. Ryan placed a minimum of two feet of stone over the pipe. Ryan also completed placing protective 4 x 8 sheets of plywood at the eastern side of the cell.
9:00 a.m.	Ryan placing stone on the delineation berm using the tracked skid loader. Ryan completed placing the sand in the cell. There was excess sand left in the cell after finish grading of the sand was complete. Ryan will grade the excess sand on the Phase 2/3 delineation berm.
11:00 a.m.	Ryan started to consolidate the excess materials (partial rolls of geosynthetics, granular bentonite, pipe, etc.) west of the site (in the location where the No.67 stone stockpile was).
noon	Ryan continued to work without taking a lunch. Ryan was grading the excess sand on the Phase 2/3 delineation berm, consolidating excess materials, and placing No. 67 stone on the southern delineation berm using the skid loader.
3:00 p.m.	Ryan preparing to leave for the day. I left the site for the day.

Quantities of Pay Items Placed:

Item: Completed stone and sand layer placement	**Quantity:**
Item:	**Quantity:**
Item:	**Quantity:**

Report No. 49

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

Ryan could use the excess sand remaining in the in the cell on the Phase 2/3 delineation berm.

Work Decisions:

Ryan could use the excess sand remaining in the in the cell on the Phase 2/3 delineation berm.

Report No. 49

Daily Communications:

Name/Representing: None	**Time:**
Subject/Comments:	

Name/Representing:	**Time:**
Subject/Comments:	

Name/Representing:	**Time:**
Subject/Comments:	

Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 50

Project No.: 05794.49.001	**Day:** ☐S ☒M ☐T ☐W ☐Th ☐F ☐S	**Date:** 5 / 2 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 6:00 p.m.	**Hrs:** 10.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: ____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: None

Equipment/Materials Delivered: None

Weather: Mostly clear				**Temp.:** 55 – 80 F
Humidity: med. %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** S	@ 0 - 10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ John Deere 450D Trackhoe	☒ John Deere 650 Dozer
☒ Cat CS 563E Smooth Drum Roller	☒ John Deere CT 322 Skid steer
☒ Cat 315L Trackhoe	☐
☐	☐
☐	☐
☐	☐

Report No. 50

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Ryan will backfill the eastern anchor trench and grade the eastern berm including backfilling around the pump station manhole and over the forcemain pipe bedding. Ryan will also remove and dispose of the "cones" (markers made of PVC pipe placed vertical on the liner or over the collection pipe and marked at 1-foot intervals) that were used to visually indicate the depth of stone/sand over the pipe or liner. Ryan will also finish grade the stone at the top of the perimeter berms and on the southern delineation berm for documentation by the surveyors tomorrow.
8:00 a.m.	Ryan backfilling the anchor trench and over the forcemain pipe bedding on the eastern perimeter berm, as well as, finish grading the eastern berm. Ryan was also removing the cones in the cell for disposal.
11:00 a.m.	Ryan continued to work on the eastern berm and completed removing the cone markers from the cell.
noon	Ryan took lunch.
12:30 p.m.	Ryan began working on grading the delineation berm outboard slope.
6:00 p.m	Ryan preparing to leave for the day.
6:30 p.m.	Ryan and I left the site for the day.

Quantities of Pay Items Placed:

Item: Backfilled eastern anchor trench	**Quantity:**
Item: finish graded the eastern berm	**Quantity:**
Item:	**Quantity:**

20D

Report No. 50

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

The surveyors will be on-site tomorrow to document the remaining top of sand locations

Work Decisions:

None

Report No. 50

Daily Communications:

Name/Representing: Todd Martin **Time:**

Subject/Comments: I updated Todd on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 51

Project No.: 05794.49.001	**Day:** ☐S ☐M ☒T ☐W ☐Th ☐F ☐S	**Date:** 5 / 3 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 6:00 p.m.	**Hrs:** 10.5
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Eastern Omni Constructors, Inc. (electrical subcontractor to Ryan) Chance and Associates, Inc. Surveying subcontractor to RMT.

Equipment/Materials Delivered: Conduit and other materials needed by Omni

Weather: Partly cloudy				**Temp.:** 60 -80 F
Humidity: High %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** SW	@ 5 - 10 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ John Deere 450D Trackhoe	☒ John Deere 650 Dozer
☒ Cat CS 563E Smooth Drum Roller	☒ John Deere CT 322 Skid steer
☒ Cat 315L Trackhoe	☐
☐	☐
☐	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Ryan will place topsoil today on the perimeter and back-slope of the delineation berm. They will also dig the trench for the electrical power conduit between the Phase 2 and Phase 3&4 pump station manholes.
7:30 a.m.	Ryan placing topsoil on the outer slope of the delineation berm.
9:30 a.m.	Omni arrived on-site. Omni showed Ryan where they wanted the trench for the conduit between the pump station manholes. Chance and Associates, Inc. was onsite to begin documenting the top of sand layer, the location of the cleanout inlets, and the location of the electrical conduit.
10:30a.m.	Ryan excavating the conduit trench for Omni. Ryan was installing the 4 x 4 wooden marker posts showing the edge of the liner at 100 feet on-center intervals. Ryan was painting the wooden marker posts white.
11:30 a.m.	Ryan completed excavating the conduit trench for Omni and went back to placing topsoil on the outboard slopes of the berms.
noon	Ryan took lunch.
12:30 p.m.	Ryan continued to topsoil the outboard slopes of the berms.
1:30 p.m.	Omni installing the power conduit to the pump station manhole. Chance and Associates left the site after documenting the top of sand, cleanout locations and the electrical conduit location.
2:00 p.m.	Omni pulling the wire into the conduit. Ryan continuing to place topsoil.
4:00 p.m.	Ryan backfilling the electrical trench approximately 1 foot so Omni can put the warning tape in the trench above the conduit.
5:30 p.m.	Ryan placing fill over the electrical and forcemain trench on the eastern side of the cell.
6:00 p.m.	I left the site for the day. Ryan preparing to leave the site for the day.

Quantities of Pay Items Placed:

Item: Trenched in and installed electrical conduit to new panel	**Quantity:**
Item: Topsoil on the outboard slopes of the berms.	**Quantity:**
Item:	**Quantity:**

Report No. 51

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

None

Work Decisions:

None

Report No. 51

Daily Communications:

Name/Representing: Todd Martin **Time:**

Subject/Comments: I updated Todd on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 52

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☒W ☐Th ☐F ☐S	**Date:** 5 / 4 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 3:00 p.m.	**Hrs:** 8
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: ____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: _6_ Operators, _0_ Laborers, _0_ Engineer.

Subcontractors: Eastern Omni Constructors, Inc. (electrical contractor to Ryan)

Equipment/Materials Delivered: None

Weather: Cloudy with rain in the a.m.				**Temp.:** 55 - 70 F
Humidity: Med. %	**Rain:** Trace	**Pressure:** N/A	**Wind:** NW	@ 10 - 15 **mph**

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ John Deere 450D Trackhoe	☒ John Deere 650 Dozer
☒ Cat CS 563E Smooth Drum Roller	☒ John Deere CT 322 Skid steer
☒ Cat 315L Trackhoe	☐
☐	☐
☐	☐
☐	☐

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Ryan will place topsoil on the perimeter berms and bring the east berm up to design grade. Ryan scheduled two dump trucks to arrive at noon to assist them with placing/spreading the aggregate base course for access road construction. When the trucks arrive, Ryan will start stoning the roads.
7:30 a.m.	Omni arrived on-site. Omni will install the panel supports for the panels. Ryan was placing general fill on the eastern berm to bring the berm up to design grade and allow for access road construction on the berm.
10:00 a.m.	Ryan continued to place general fill on the eastern berm to bring it up to grade.
10:30 a.m.	It began to rain. Ryan began to smooth-drum roll the eastern perimeter berm to seal and protect it from the rain. Ryan shut down the rest of the equipment.
11:30 a.m.	I left the site to send the nuclear density gauge back to RMT's office.
2:00 p.m.	I arrived back on-site after shipping the gauge. Ryan left the site at noon for the day because of the rain/mist. Omni installed the panel supports and will let the concrete cure until tomorrow before mounting the panels on the supports.
3:00 p.m.	I left the site for the day.

Quantities of Pay Items Placed:

Item: Topsoil	**Quantity:**
Item: Perimeter berm construction (eastern berm)	**Quantity:**
Item:	**Quantity:**

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

Rain and heavy mist shut down Ryan at noon.

Notices To/From Contractors:

None

Work Decisions:

None

Report No. 52

Daily Communications:

Name/Representing: Todd Martin	**Time:**
Subject/Comments: I updated Todd on project progress.	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	
Name/Representing:	**Time:**
Subject/Comments:	

DAILY CONSTRUCTION REPORT

Report No. 53

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☒Th ☐F ☐S	**Date:** 5 / 5 / 11

Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction

RMT Project Manager: Mike Parker | **Office Contact:** Todd Martin/ Nathan Braun

RMT Representatives: Kim Pawlisch

Time Arrived On-Site: 7:00 a.m. | **Time Left Site:** 6:00 p.m. | **Hrs:** 10.5

Client Representative(s): Bill Morris

Status of Project in Relation to Schedule: _____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Eastern Omni Constructors, Inc. (electrical contractor to Ryan)

Equipment/Materials Delivered: None

Weather: Mostly Clear				**Temp.:** 45 - 65
Humidity: Low %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** N	@ 10 - 15 mph

Contractor's Equipment (☒ *Denotes equipment in use today, otherwise idled)*

☒ Cat Dozer D6	☐ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ John Deere 450D Trackhoe	☒ John Deere 650 Dozer
☒ Cat CS 563E Smooth Drum Roller	☒ John Deere CT 322 Skid steer
☐ Cat 315L Trackhoe	☐
☐	☐
☐	☐
☐	☐

211

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Ryan will topsoil the outboard slope and the top inside of the 16-foot wide access road of the eastern perimeter berm. After completing the topsoil placement, Ryan will begin placing 8-ounce nonwoven geotextile and aggregate base course to construct the roads.
7:30 p.m.	Omni was on-site. Omni will mount the panels on the supports and wire the panels and manhole. Omni will shut down the power to the existing panels tomorrow and connect to the new power cable to the existing power cable. Ryan was placing topsoil on the eastern perimeter berm outboard slope.
10:00 a.m.	We held a short progress meeting.
10:30 a.m.	Ryan completed placing topsoil on the east berm and was placing 8 oz. geotextile and aggregate base course to construct the access roads.
Noon	Ryan took lunch.
12:30 p.m.	Ryan resumed constructing the access roads.
4:00 p.m.	Ryan completed the 16-feet-wide road on the eastern perimeter berm and the 24-feet-wide road east of the haul road to the borrow area. Ryan began installing the 16-feet-wide road on the western perimeter berm. I drove the site and developed a punch list and emailed it Domtar for review.
6:00 p.m.	Ryan was preparing to shut down for the day. I left the site for the day.

Quantities of Pay Items Placed:

Item: Topsoil placement on the eastern perimeter berm	**Quantity:**
Item: 16- and 24-feet-wide roads	**Quantity:**
Item: Installed electrical panels	**Quantity:**

212

Report No. 53

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

I developed a punch list for the remaining construction items. I will go through the list with Bill Morris tomorrow morning and give the list to Ryan.

My last day on-site is tomorrow. I will travel back home Saturday.

Work Decisions:

None

Report No. 53

Daily Communications:

Name/Representing: Todd Martin **Time:**

Subject/Comments: I updated Todd on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

DAILY CONSTRUCTION REPORT

Report No. 54

Project No.: 05794.49.001	**Day:** ☐S ☐M ☐T ☐W ☐Th ☒F ☐S	**Date:** 5 / 6 / 11
Project Name: Domtar Paper Company Landfill No. 3 Phase 3 & 4 Liner Construction		
RMT Project Manager: Mike Parker	**Office Contact:** Todd Martin/ Nathan Braun	
RMT Representatives: Kim Pawlisch		
Time Arrived On-Site: 7:00 a.m.	**Time Left Site:** 3:00 p.m.	**Hrs:** 8
Client Representative(s): Bill Morris		

Status of Project in Relation to Schedule: ____ days ☐ ahead of schedule ☐ behind schedule ☒ on schedule

Contractors: Ryan Central Inc.

Superintendent/Foreman: John Knoth

Operators/Laborers: 6 Operators, 0 Laborers, 0 Engineer.

Subcontractors: Eastern Omni Constructors, Inc. (electrical contractor to Ryan)

Equipment/Materials Delivered: None

Weather: Partly cloudy				**Temp.:** 55 - 70
Humidity: Low %	**Rain:** 0 in.	**Pressure:** N/A	**Wind:** SW	@ 10 - 15 mph

Contractor's Equipment (☒ ***Denotes equipment in use today, otherwise idled)***

☒ Cat Dozer D6	☒ Cat Dozer D6
☒ Volvo A40E Haul Truck	☐ Volvo A40E Haul Truck
☒ John Deere 450D Trackhoe	☒ John Deere 650 Dozer
☒ Cat CS 563E Smooth Drum Roller	☒ John Deere CT 322 Skid steer
☐ Cat 315L Trackhoe	☐
☐	☐
☐	☐
☐	☐

215

Report No. 54

Time	Description of Work in Progress:
7:00 a.m.	I arrived on-site. Ryan will complete constructing 24-feet-wide road west of the haul road to the borrow area. They will then start finishing grading around the site and complete some of the punch list items.
9:00 a.m.	Ryan constructing the 24-feet-wide road west of the haul road to the borrow area. I shipped out my office supplies, reference reports, and other materials back to RMT's office.
9:30 a.m.	Domtar drove the site and look at the punch list items I developed. Domtar didn't have any items to add to the punch list. I gave and went through the punch list items with Ryan.
10:00 a.m.	Omni was working on the Phase 3 & 4 panels for the pumping station
11:00 a.m.	Ryan was assembling one of the pumps, hoes, and connection in preparation to install the pump in the pump station. Omni was working at the existing Phase 2 cable pull/tab enclosure.
noon	Ryan completed installing one of the pumps and they will assemble the second pump and install it after lunch. Ryan took lunch.
12:30 p.m.	Ryan continued to construct the 24-feet-wide road west of the haul road to the borrow area and began assembling the second leachate pump for installation.
1:30 p.m.	Ryan completed assembling and installing the second pump in Pump Station #5.
2:00 p.m.	Omni completed connecting the new power cable to the existing pull/tab enclosure and began connecting the pumps and transducer cables to the new panel. Ryan continuing with constructing the 24-feet-wide road.
3:00 p.m.	I left the site for the day. Ryan continued to work on the punch list items.

Quantities of Pay Items Placed:

Item: 24-feet-wide road	**Quantity:**
Item: installed and wired pumps in the pump station	**Quantity:**
Item:	**Quantity:**

216

Report No. 54

Testing Performed/Samples Collected:

None

Field Problems and Nonconforming Materials or Work:

None

Notices To/From Contractors:

I gave Ryan the punch list I developed and told them that Domtar didn't have any other additional items for the punch list.

Ryan is hoping to finish with construction and the punch list items on Saturday.

The electrical work may not be completed by Saturday.

Work Decisions:

None

Report No. 54

Daily Communications:

Name/Representing: Todd Martin **Time:**

Subject/Comments: I updated Todd on project progress.

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Name/Representing: **Time:**

Subject/Comments:

Appendix C
Construction Photographs

RMT

Photographic Log

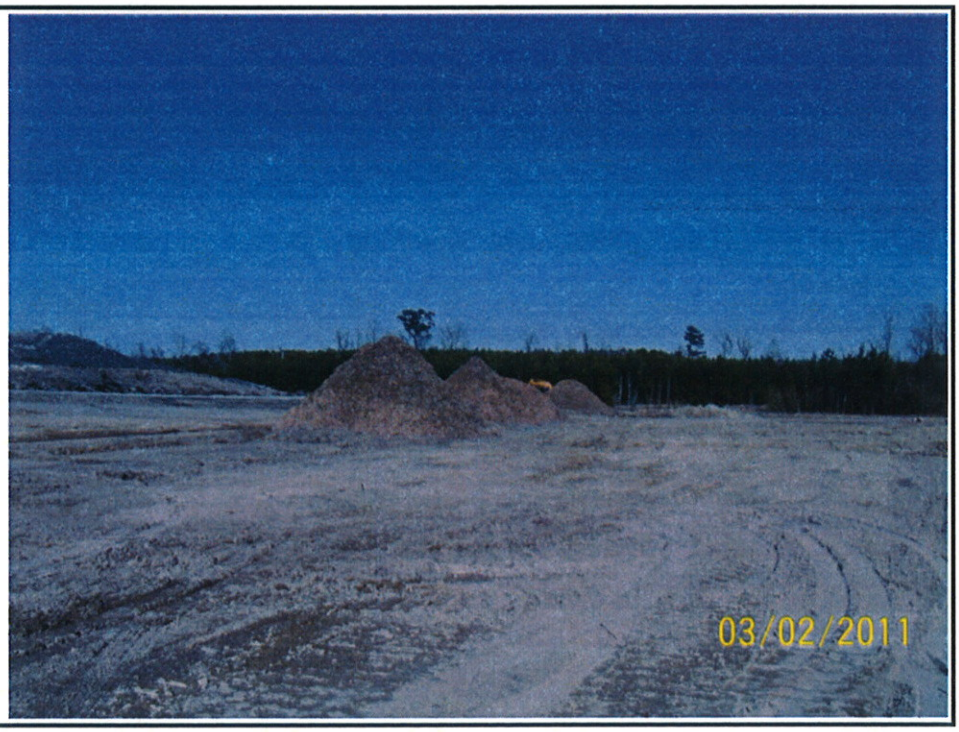
Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
1	

Description
Parratt Wolff grouting MW-07 after casing removal using a tremie pipe.

Photo No.	Date
2	

Description
Wood chip piles from clearing and grubbing operations that were removed from site and used at the Domtar Mill as fuel.



RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
3	

Description
Loading topsoil into an off-road haul truck to haul to the topsoil stockpile for future use.

Photo No.	Date
4	

Description
Removing the existing sedimentation basin vertical stand pipe.

RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
5	

Description
Silt trap constructed east of Phase 3 and 4.

Photo No.	Date
6	

Description
Exposed subbase soil near the beginning of Phase 3 and 4 construction.

RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
7	

Description
Leveling prepared subgrade fill into an approximate 8-inch–thick loose lift with a dozer prior to compaction.

Photo No.	Date
8	

Description
Compacting a lift of prepared subgrade fill using a Caterpillar 815 wedge-foot compactor and leveling an 8-inch–thick loose lift of prepared subgrade using a dozer in the background.

RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
9	

Description
Smooth-drum rolling a lift of prepared subgrade using a Caterpillar CS563 vibratory to seal the lift and prepare the surface for field density/moisture testing.

Photo No.	Date
10	

Description
Using a GPS controlled dozer to finish grade the top of the prepared subgrade layer.

RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
11	

Description
Smooth-drum rolling the top of the prepared subgrade layer.

Photo No.	Date
12	

Description
Constructing the anchor trench along the phase delineation berm as a bench.

RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
13	

Description
Deploying GCL with a skid loader and attached spreader bar.

Photo No.	Date
14	

Description
Deploying geomembrane over the GCL.

RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
15	

Description
Bead of granular bentonite along a GCL longitudinal seam.

Photo No.	Date
16	

Description
Seaming geomembrane panels using dual hot wedge fusion.

RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
17	

Description
Extrusion welding a repair.

Photo No.	Date
18	

Description
Air pressure-testing a fusion welded seam.

RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
19	

Description
Vacuum box-testing an extrusion welded repair.

Photo No.	Date
20	

Description
Deploying geocushion over the geomembrane liner.

RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
21	

Description
Fusion bonding geocushion panels using a dual hot wedge welding machine.

Photo No.	Date
22	

Description
Constructing a minimum 3-feet–thick access road using No. 67 stone.

RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
23	

Description
Placing No. 67 stone layer over installed geosynthetics.

Photo No.	Date
24	

Description
Using a Volvo A40E off-road haul truck to haul the sand into the Phase 3 and 4 liner area.

RMT

Photographic Log

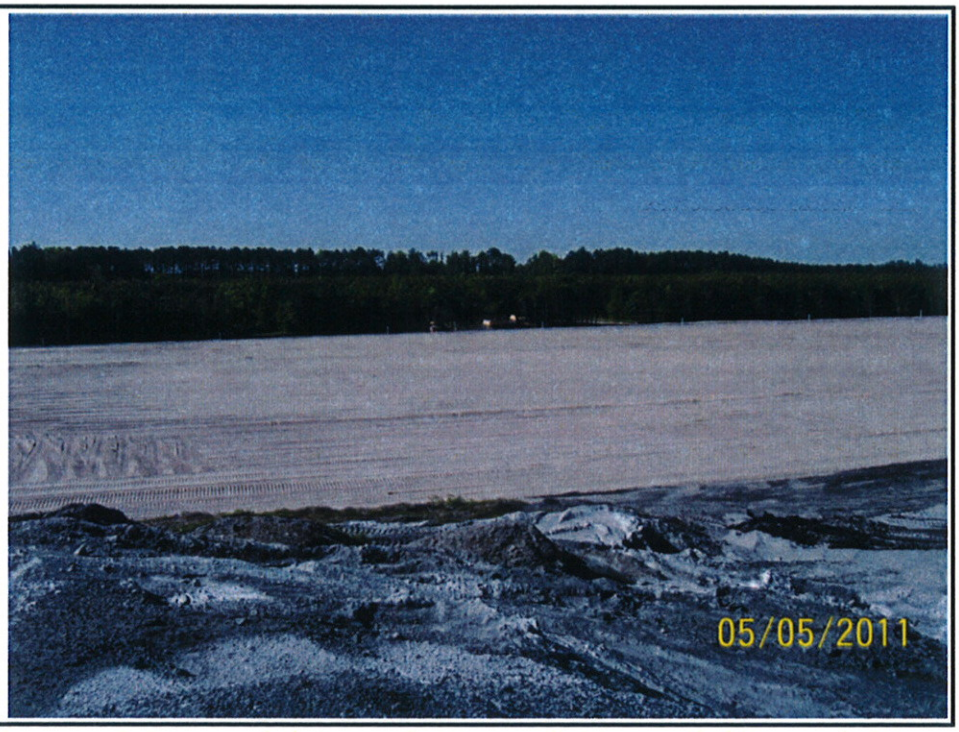
Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
25	

Description
Placing the sand layer over the No. 67 stone layer.

Photo No.	Date
26	

Description
The completed graded granular filter layer.



RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
27	

Description
Pipe bedding placed under the pipe.

Photo No.	Date
28	

Description
Piping within the sump area.

RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
29	

Description
Inside of the pump station manhole.

Photo No.	Date
30	

Description
Butt-fusion welding the dual contained forcemain to the back of the pump station manhole.

RMT

Photographic Log

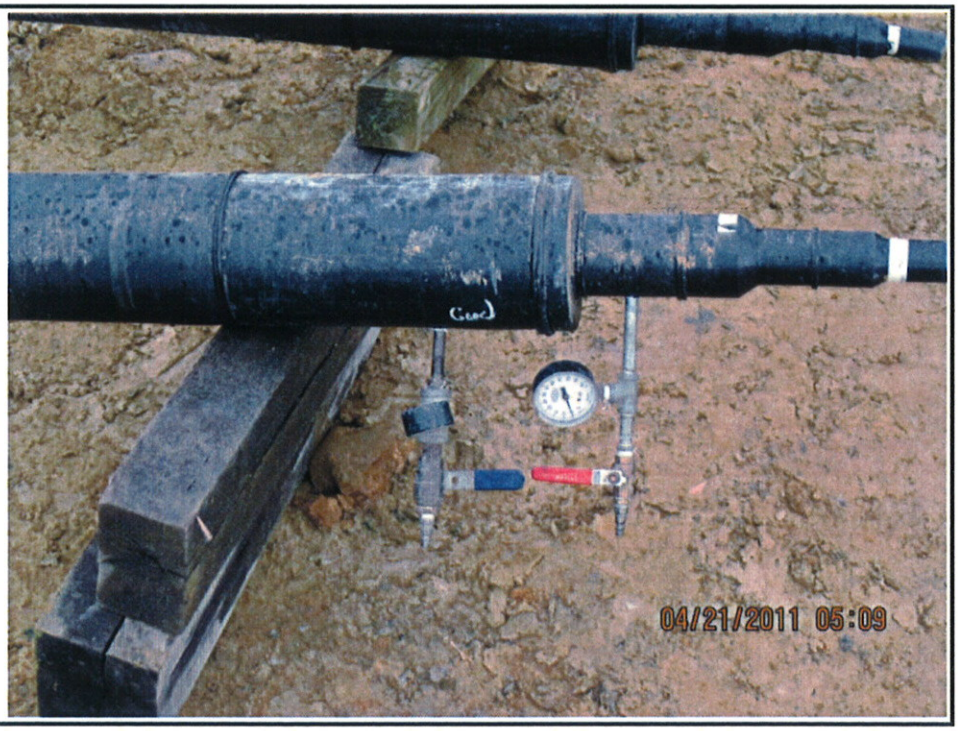
Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
31	

Description
Butt-fusion welding the dual contained forcemain header pipe to the existing dual contained forcemain header pipe.

Photo No.	Date
32	

Description
Air pressure-testing the dual contained forcemain pipe.



RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
33	

Description
EPG leachate pump prior to installation in the 18-inch–diameter collection riser pipes.

Photo No.	Date
34	

Description
Panels being installed near MH-6.

RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
35	

Description
Power cable conduit install from MH-5 to MH-6.

Photo No.	Date
36	

Description
Constructing the 24-foot–wide access road on the western side of Phase 3 and 4.

RMT

Photographic Log

Client Name:	Site Location:	Project No.:
Domtar Paper Company, LLC	Landfill No. 3 – Phase 3 & 4 Plymouth, North Carolina	05794.49.002

Photo No.	Date
37	

Description
Constructing the 24-foot–wide access road on the western side of Phase 3 and 4 and placed topsoil on the outboard slope of the phase delineation berm.

Photo No.	Date
38	

Description
Graded and seeded borrow area after soil excavation for Phase 3 and 4 construction was complete.

Appendix D
Prepared Subgrade Fill and Select Clay Fill Laboratory Test Results

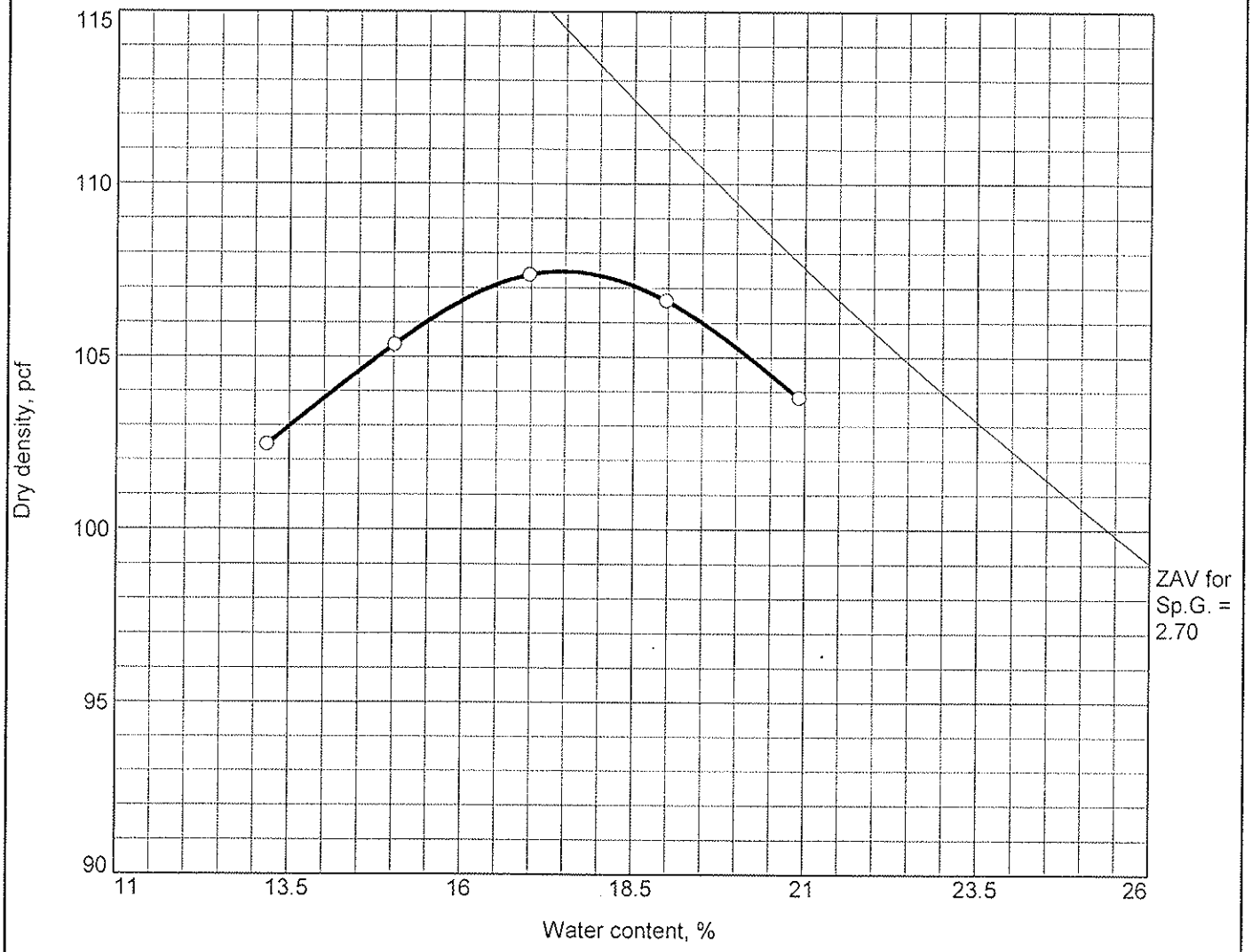
Table of Contents

- Representative Sample Test Results
  - Standard Proctor Test
  - Atterberg Limits
  - Grain Size Distribution
  - Remolded Hydraulic Conductivity
- Undisturbed Sample Test Results
  - Atterberg Limits
  - Grain Size Distribution
  - Hydraulic Conductivity

Representative Sample Test Results

Standard Proctor Test

COMPACTION TEST REPORT



Test specification: ASTM D 698-00a Method A Standard

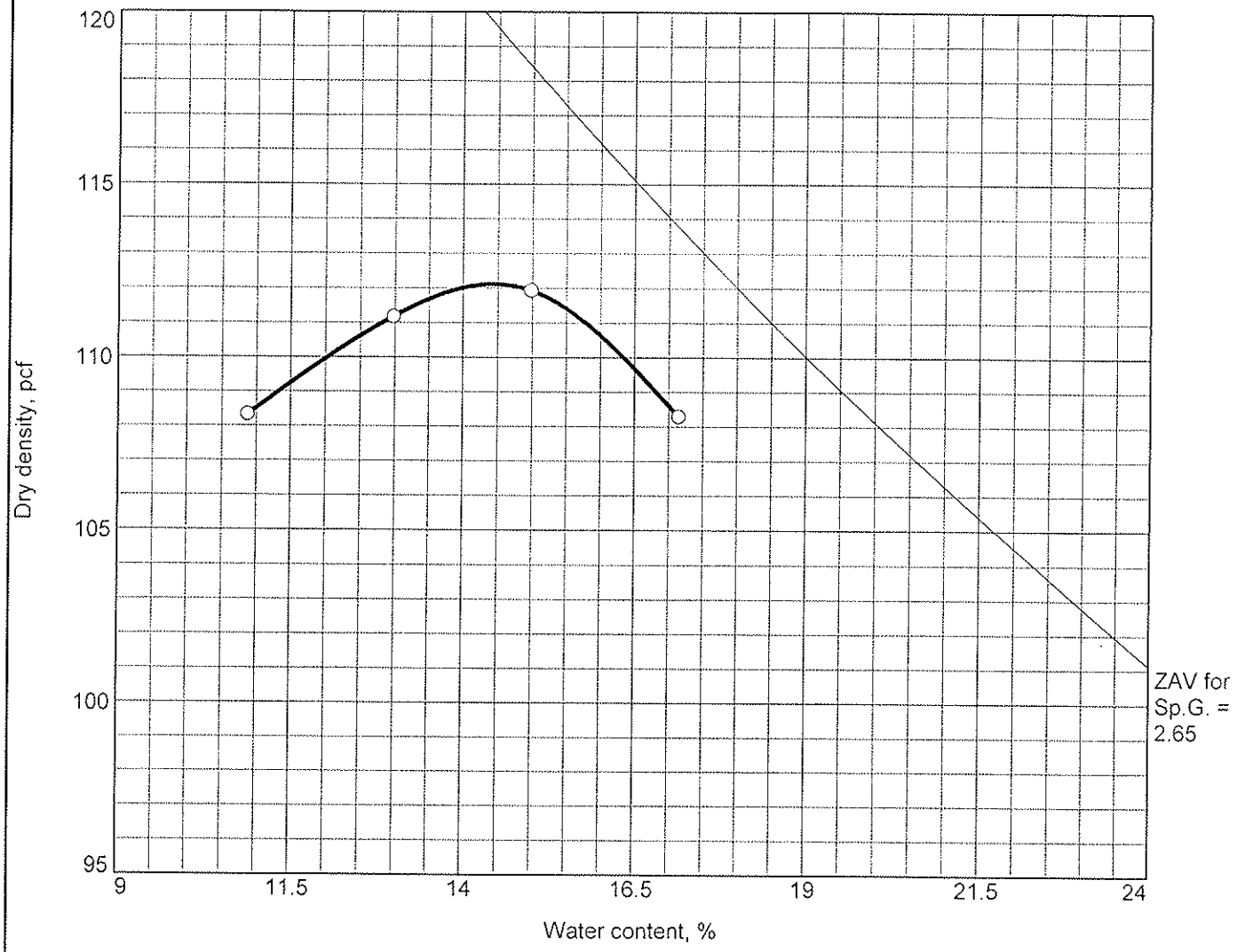
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	SC	A-6(6)	24.7		39	19	0.0	48.2

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 107.5 pcf Optimum moisture = 17.5 %	Clayey sand
Project No. 05794.49.003 Client: Project: Domtar ○ Source of Sample: Prepared Subgrade Sample Number: Sample #1 RMT, Inc. Madison, Wisconsin	Remarks: Figure:

Tested By: HJW Checked By: JPH

5

COMPACTION TEST REPORT



Test specification: ASTM D 698-00a Method A Standard

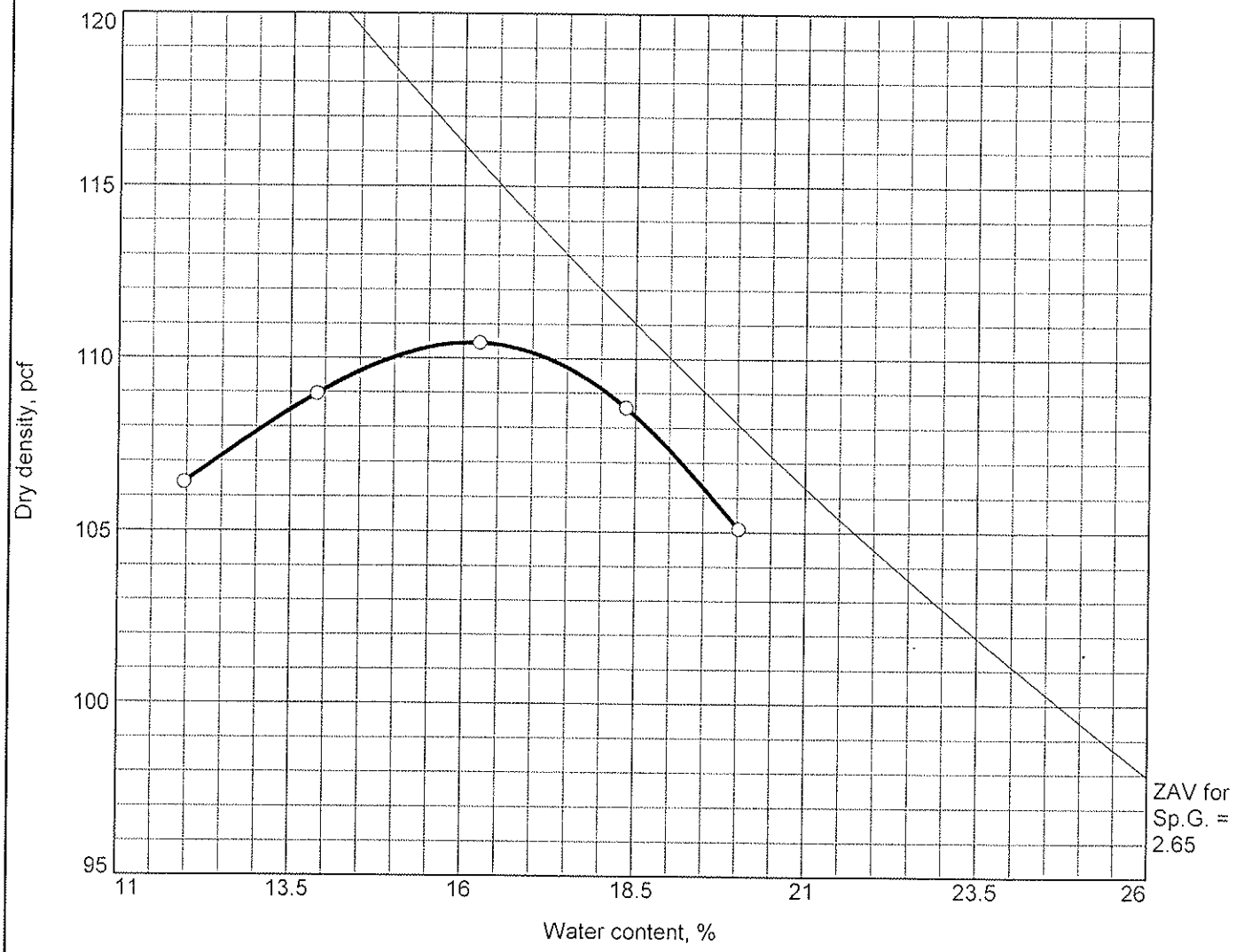
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	SM	A-2-4(0)	17.5		NV	NP	0.0	22.6

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 112.1 pcf Optimum moisture = 14.4 %	Silty sand
Project No. 05794.49.003 Client: Project: Domtar ○ Source of Sample: Prepared Subgrade Sample Number: Sample #2 RMT, Inc. Madison, Wisconsin	Remarks: Figure:

Tested By: HJW Checked By: JPH

6

COMPACTION TEST REPORT



Test specification: ASTM D 698-00a Method A Standard

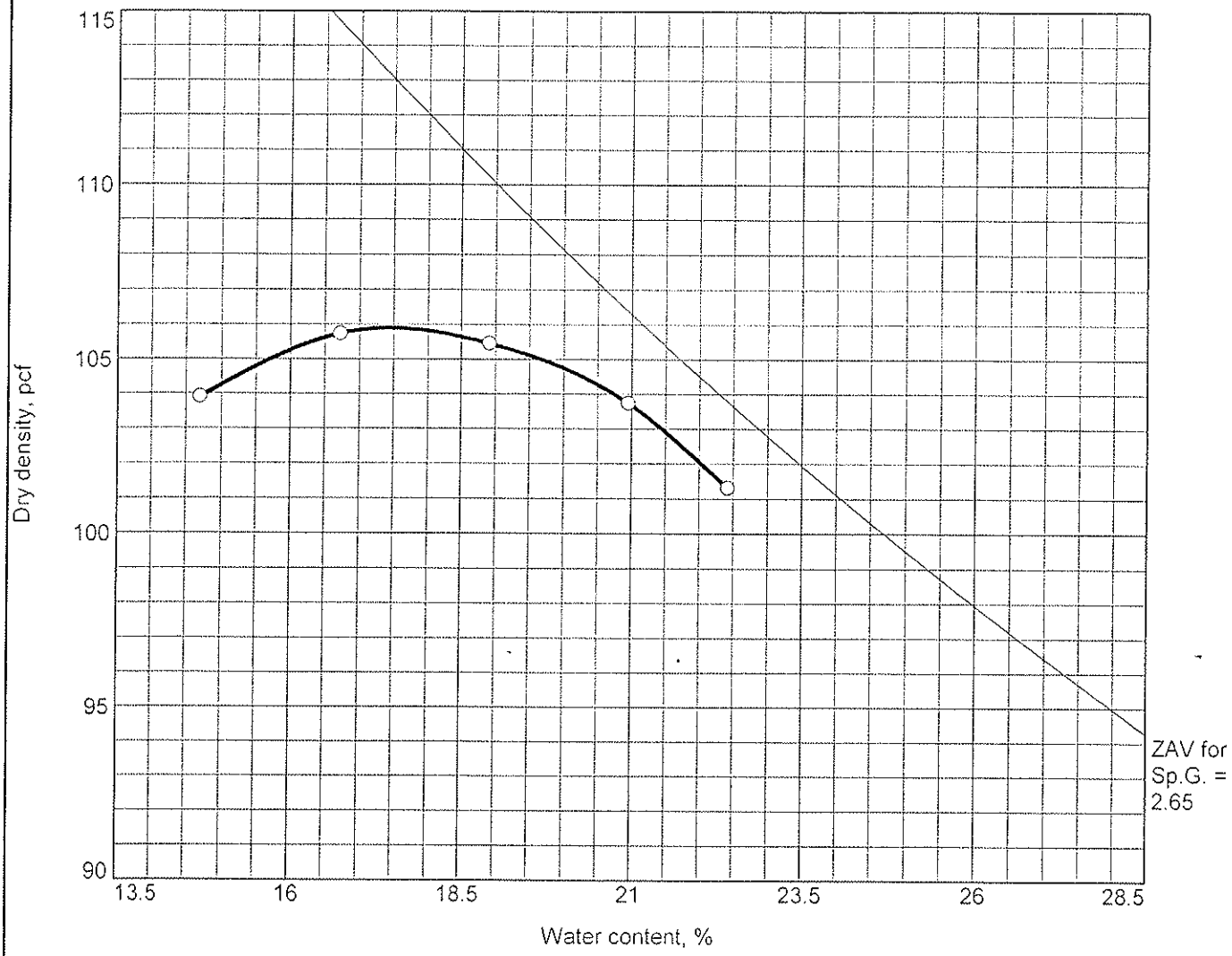
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	SC	A-6(2)	23.4		32	14	0.0	40.5

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 110.5 pcf Optimum moisture = 16.1 %	Clayey sand
Project No. 05794.49.003 Client: Project: Domtar ○ Source of Sample: Prepared Subgrade Sample Number: Sample #3 RMT, Inc. Madison, Wisconsin	Remarks: Figure:

Tested By: HJW Checked By: JPH

1

COMPACTION TEST REPORT



Test specification: ASTM D 698-00a Method A Standard

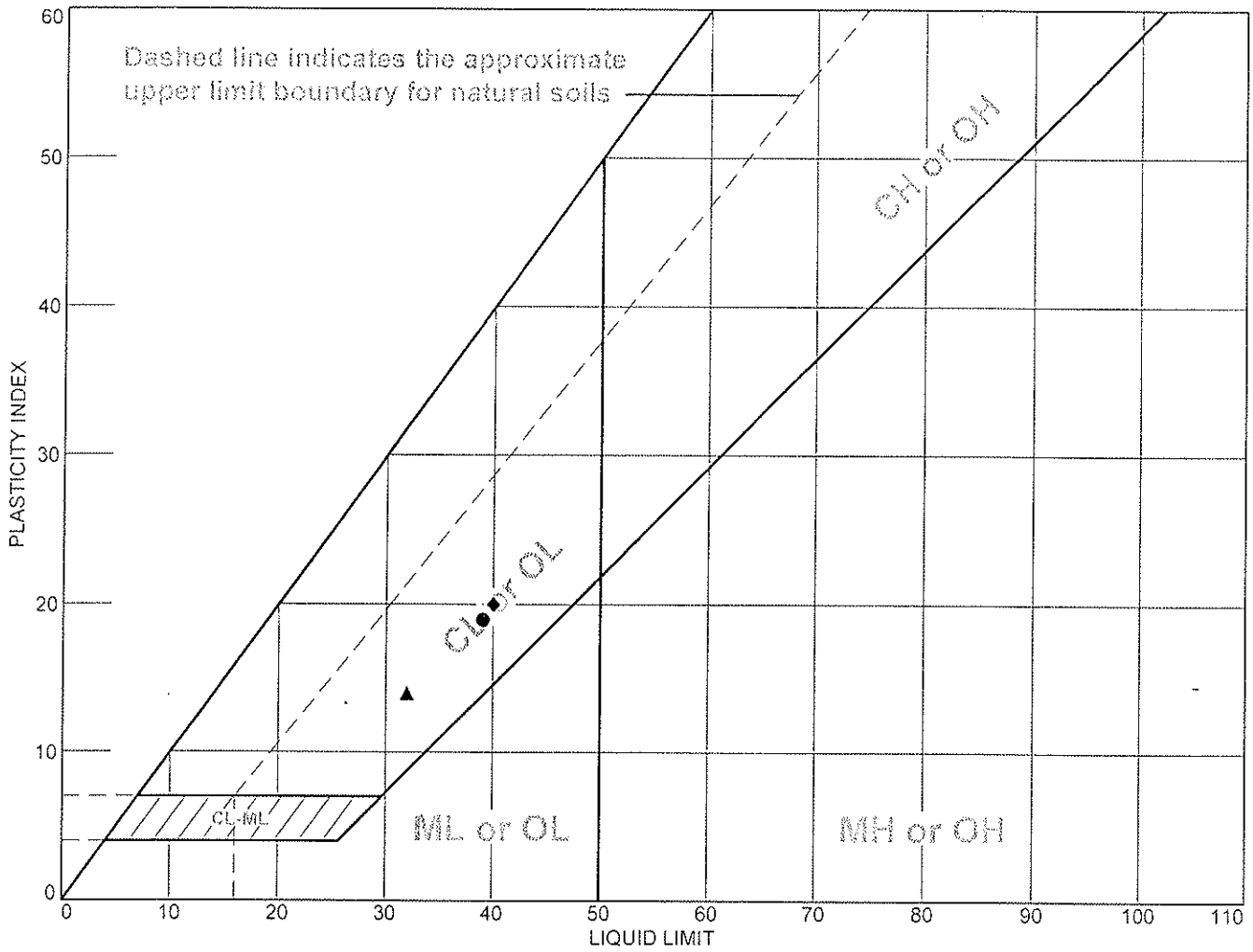
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	CL	A-6(7)	28.8		40	20	0.0	52.6

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 105.9 pcf Optimum moisture = 17.5 %	Sandy lean clay
Project No. 05794.49.003 Client: Project: Domtar ○ Source of Sample: Select Clay Fill Sample Number: Sample #4 RMT, Inc. Madison, Wisconsin	Remarks: Figure:

Tested By: HJW Checked By: JPH

Atterberg Limits

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Clayey sand	39	20	19	98.1	48.2	SC
■	Silty sand	NV	NP	NP	97.8	22.6	SM
▲	Clayey sand	32	18	14	97.9	40.5	SC
◆	Sandy lean clay	40	20	20	98.5	52.6	CL

Project No. 05794.49.003 Client:

Project: Domtar

● Source of Sample: Prepared Subgrade Sample Number: Sample #1
■ Source of Sample: Prepared Subgrade Sample Number: Sample #2
▲ Source of Sample: Prepared Subgrade Sample Number: Sample #3
◆ Source of Sample: Select Clay Fill Sample Number: Sample #4

RMT, Inc.

Madison, Wisconsin

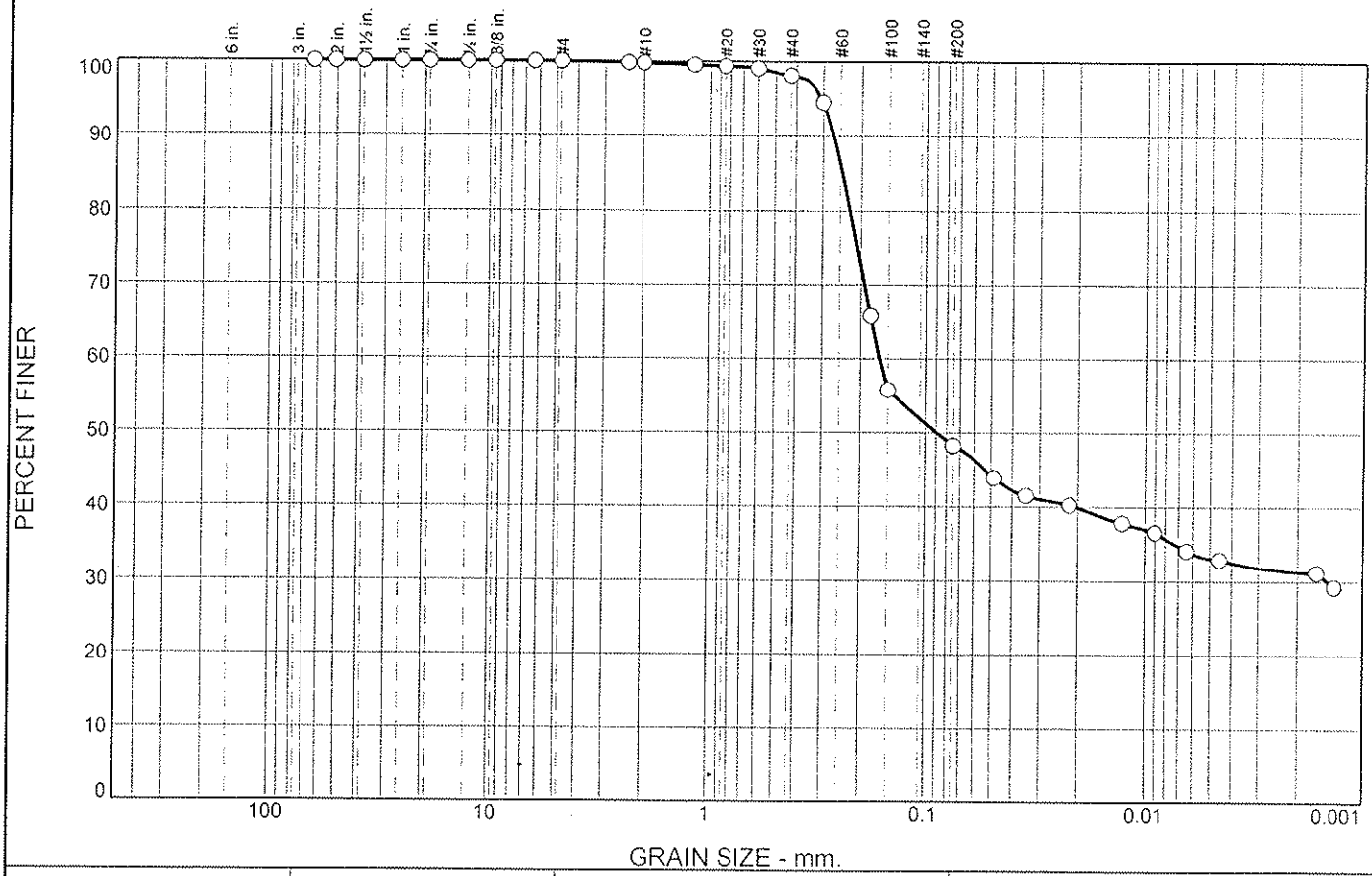
Remarks:

Figure: 11

Tested By: JPH Checked By: JPH

Grain Size Distribution

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.7	49.9	15.1	33.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	99.9		
#10	99.8		
#16	99.5		
#20	99.4		
#30	99.1		
#40	98.1		
#50	94.5		
#80	65.8		
#100	55.8		
#200	48.2		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 20 LL= 39 PI= 19

Coefficients

D_{90}= 0.2674 D_{85}= 0.2434 D_{60}= 0.1633
D_{50}= 0.0888 D_{30}= 0.0014 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(6)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Sample #1

Date: 03-10-11

RMT, Inc.

Madison, Wisconsin

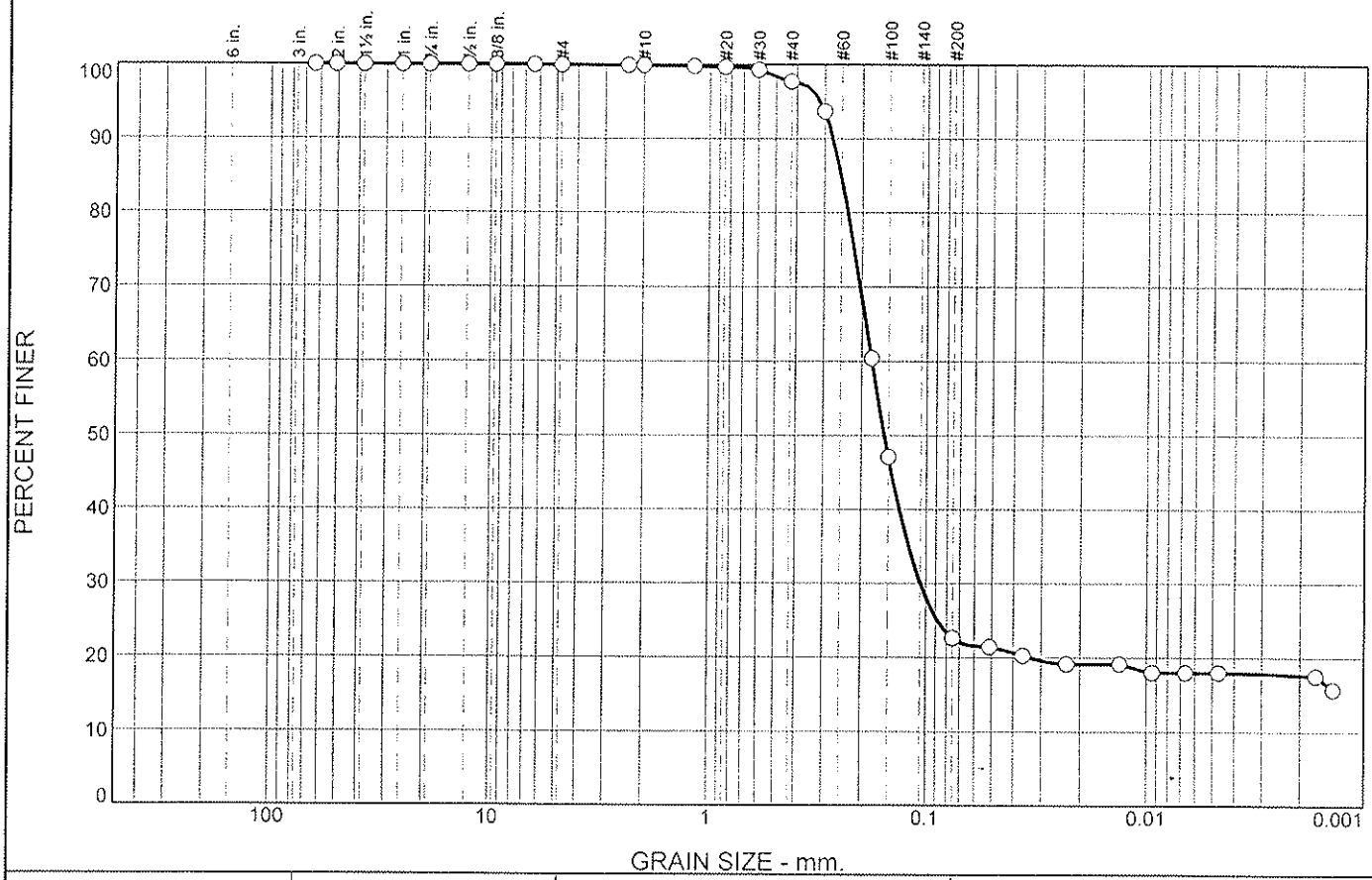
Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: JPH Checked By: JPH

15

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.1	75.2	4.6	18.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	99.9		
#10	99.9		
#16	99.8		
#20	99.7		
#30	99.3		
#40	97.8		
#50	93.7		
#80	60.4		
#100	47.1		
#200	22.6		

* (no specification provided)

Material Description

Silty sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 0.2744 D_{85}= 0.2510 D_{60}= 0.1790
D_{50}= 0.1565 D_{30}= 0.1061 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Sample #2

Date: 03-10-11

RMT, Inc.

Madison, Wisconsin

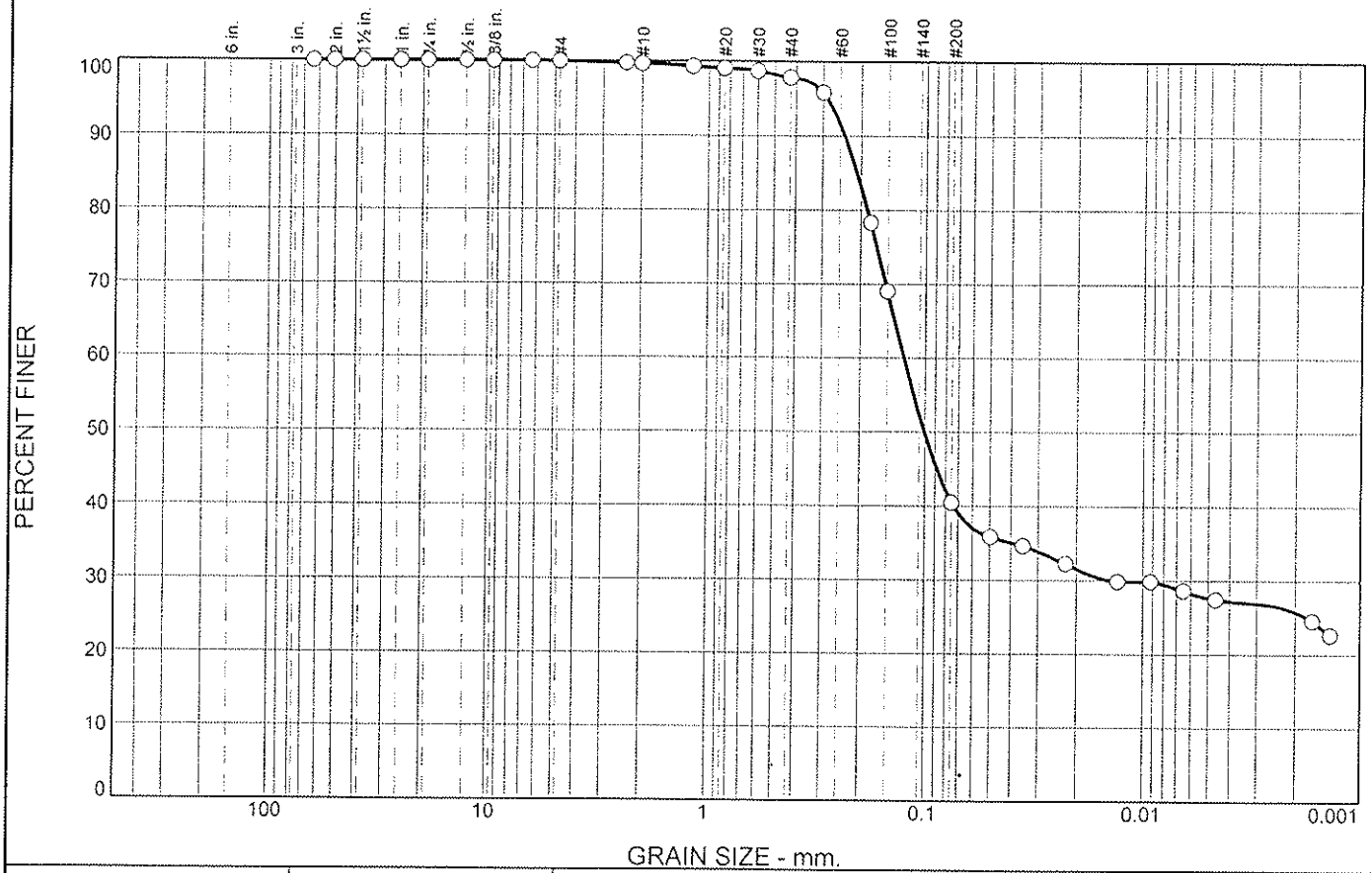
Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: JPH Checked By: JPH

UCe

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.8	57.4	12.8	27.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	99.7		
#10	99.7		
#16	99.3		
#20	99.1		
#30	98.7		
#40	97.9		
#50	95.9		
#80	78.3		
#100	69.1		
#200	40.5		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 18 LL= 32 PI= 14

Coefficients

D_{90}= 0.2376 D_{85}= 0.2084 D_{60}= 0.1253
D_{50}= 0.1005 D_{30}= 0.0140 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(2)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Sample #3

Date: 03-10-11

RMT, Inc.

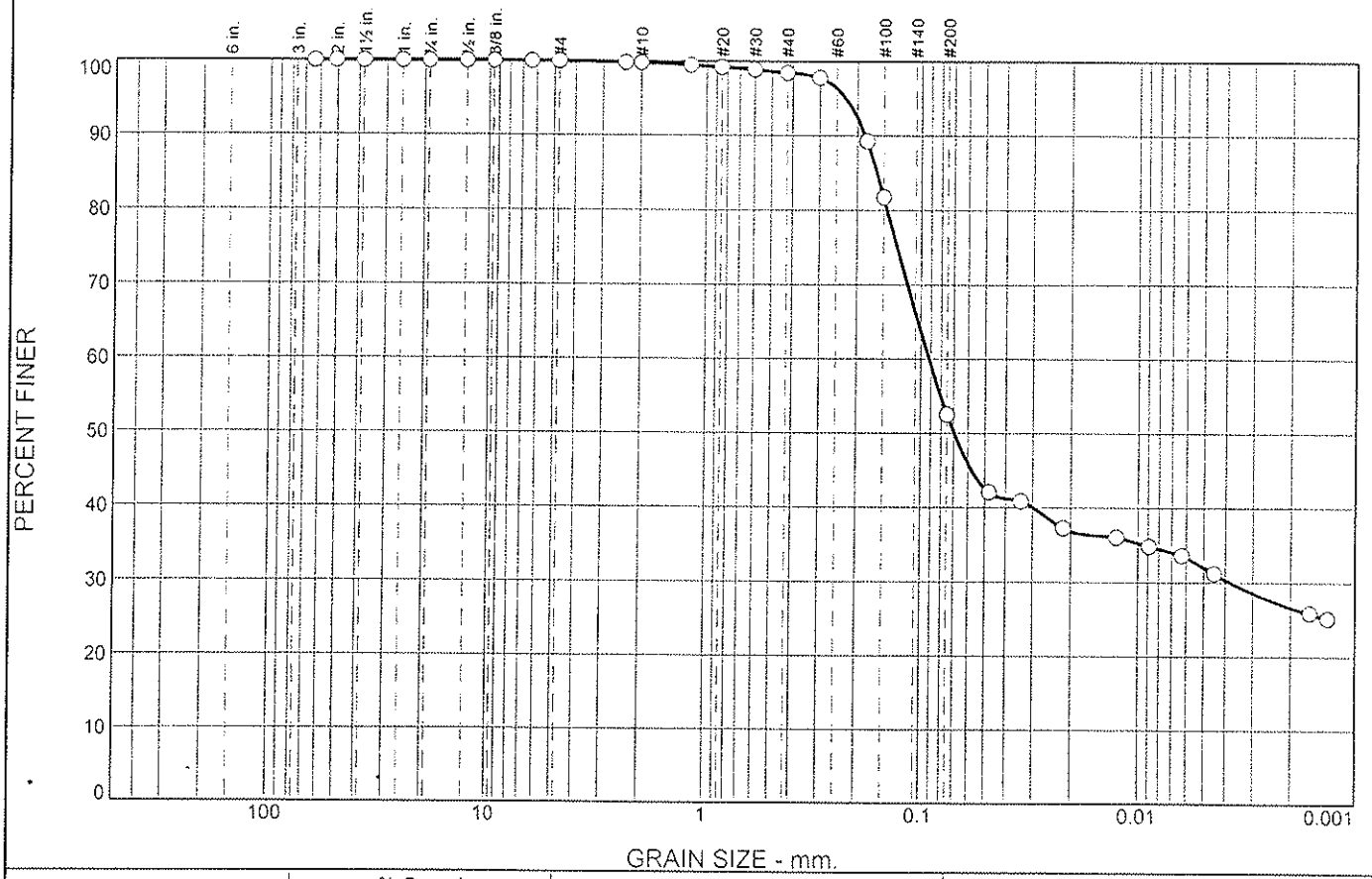
Madison, Wisconsin

Client:
Project: Domtar
Project No: 05794.49.003 Figure:

Tested By: JPH Checked By: JPH

17

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.3	45.9	20.5	32.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	99.9		
#10	99.8		
#16	99.5		
#20	99.2		
#30	98.9		
#40	98.5		
#50	97.8		
#80	89.3		
#100	81.8		
#200	52.6		

* (no specification provided)

Material Description

Sandy lean clay

Atterberg Limits

PL= 20 LL= 40 PI= 20

Coefficients

D_{90}= 0.1837 D_{85}= 0.1614 D_{60}= 0.0914
D_{50}= 0.0694 D_{30}= 0.0038 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(7)

Remarks

Source of Sample: Select Clay Fill
Sample Number: Sample #4

Date: 03-10-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: JPH Checked By: JPH

Remolded Hydraulic Conductivity

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC: HJW

QA: JPH

Project Name:	Domtar	Cell #:	8
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Sample #1	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	4.3E-08 cm/sec

Sample Type:	Remolded	Initial Values	Final Values	Maximum Proctor Density:	107.5
				Optimum Moisture Content:	17.5
Sample Dia. (in)		3.00	3.00	Permeant:	Water
Sample Ht. (in)		2.48	2.48	Permeant Specific Gravity:	1.00
Tare & Wet (g)		565.91	828.30	Sample Specific Gravity:	2.59 Est.
Tare & Dry (g)		473.56	726.20	Confining Pressure (psi):	100.0
Tare (g)		0.00	250.98	Burette Diameter (in):	0.250
Sample Wt. (g)		565.91	577.32	Burette Zero (cm):	100.0
% of Proctor Density:		96.2%	96.6%		
% (+/-) of Optimum Moisture Content:		2.0%	4.0%		
Moisture (%)		19.5	21.5	Maximum Gradient:	5.9
Wet Density (pcf)		123.6	126.1	Average Gradient:	5.5
Dry Density (pcf)		103.5	103.8	Max. Effect. Stress (psi):	5.7
Saturation (%)		89.9	100.0	Min. Effect. Stress (psi):	4.4
				Ave. Effect. Stress (psi):	4.7

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	10	14	49.00		0.0	95	95	48.80		10.20		99.35				
2	2011	3	10	15	16.00	1620	23.0	95	95	49.50	0.70	10.40	0.20	98.60	0.75	-57.9	1.3E-07	
3	2011	3	10	15	45.00	1740	23.0	95	95	50.20	0.70	10.70	0.30	98.30	0.30	0.0	8.0E-08	
4	2011	3	10	16	16.00	1860	23.0	95	95	50.70	0.50	11.00	0.30	98.05	0.25	9.1	6.9E-08	
5	2011	3	11	5	10.00	46440	20.0	95	95	59.20	8.50	17.15	6.15	92.95	5.10	9.3	6.5E-08	
6	2011	3	11	7	10.00	7200	20.0	95	95	60.35	1.15	18.15	1.00	92.15	0.80	11.1	7.3E-08	
7	2011	3	11	9	11.00	7260	20.0	95	95	61.30	0.95	19.10	0.95	91.60	0.55	26.7	6.2E-08	
8	2011	3	11	11	17.00	7560	22.0	95	95	63.10	1.80	19.85	0.75	90.90	0.70	3.4	5.6E-08	
9	2011	3	11	13	11.00	6840	23.0	95	95	64.20	1.10	20.55	0.70	90.25	0.65	3.7	5.7E-08	
10	2011	3	11	15	32.00	8460	23.0	95	95	64.90	0.70	21.40	0.85	89.50	0.75	6.2	5.6E-08	
11	2011	3	14	5	41.00	223740	20.0	95	95	72.15	7.25	36.00	14.60	76.35	13.15	5.2	5.1E-08	
12	2011	3	14	5	42.00		0.0	95	95	72.15		36.00		76.35				
13	2011	3	14	7	52.00	7800	21.0	95	95	72.50	0.35	36.40	0.40	76.10	0.25	23.1	4.5E-08	
14	2011	3	14	9	44.00	6720	22.0	95	95	73.00	0.50	36.70	0.30	75.85	0.25	9.1	4.3E-08	
15	2011	3	14	11	44.00	7200	23.0	95	95	73.80	0.80	37.10	0.40	75.60	0.25	23.1	4.7E-08	
16	2011	3	14	13	47.00	7380	24.0	95	95	74.80	1.00	37.35	0.25	75.35	0.25	0.0	3.5E-08	
17	2011	3	14	15	44.00	7020	24.0	95	95	74.40	-0.40	37.70	0.35	75.00	0.35	0.0	5.3E-08	
18	2011	3	15	5	26.00	49320	20.0	95	95	73.50	-0.90	39.50	1.80	73.25	1.75	1.4	4.4E-08	1
19	2011	3	15	7	27.00	7260	21.0	95	95	74.60	1.10	39.75	0.25	73.00	0.25	0.0	4.4E-08	1
20	2011	3	15	9	27.00	7200	22.0	95	95	75.40	0.80	40.00	0.25	72.80	0.20	11.1	4.0E-08	1
21	2011	3	15	11	26.00	7140	23.0	95	95	76.30	0.90	40.25	0.25	72.55	0.25	0.0	4.4E-08	1
22																		
23																		
24																		
25																		
26																		

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column.

4.3E-08 cm/sec

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

21

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC: HJW

QA: JPH

Project Name: Domtar

Project #: 05794.49.003

Sample Name: Prepared Subgrade, Sample #2

Visual Descript: Silty sand

Cell #: 9

USCS Description: Silty sand

USCS Classification: SM

Average Kv = 2.0E-06 cm/sec

	Initial Values	Final Values
Sample Type: Remolded		
Sample Dia. (in)	3.00	3.00
Sample Ht. (in)	2.49	2.49
Tare & Wet (g)	573.82	848.80
Tare & Dry (g)	492.97	754.87
Tare (g)	0.00	260.57
Sample Wt. (g)	573.82	588.23
% of Proctor Density:	95.6%	95.9%
% (+/-) of Optimum Moisture Content:	2.0%	4.6%
Moisture (%)	16.4	19.0
Wet Density (pcf)	124.8	127.9
Dry Density (pcf)	107.2	107.5
Saturation (%)	85.6	100.0

Maximum Proctor Density:	112.1
Optimum Moisture Content:	14.4
Permeant:	Water
Permeant Specific Gravity:	1.00
Sample Specific Gravity:	2.56 Est.
Confining Pressure (psi):	100.0
Burette Diameter (in):	0.250
Burette Zero (cm):	100.0
Maximum Gradient:	7.7
Average Gradient:	5.2
Max. Effect. Stress (psi):	5.8
Min. Effect. Stress (psi):	4.3
Ave. Effect. Stress (psi):	5.0

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	10	14	53.00		0.0	95	95	42.00		12.75		97.90				
2	2011	3	10	14	58.00	300	23.0	95	95	42.00	0.00	15.40	2.65	95.10	2.80	-2.8	4.5E-06	
3	2011	3	10	15	6.00	480	23.0	95	95	42.00	0.00	18.60	3.20	92.00	3.10	1.6	3.5E-06	
4	2011	3	10	15	19.00	780	23.0	95	95	42.00	0.00	22.40	3.80	88.20	3.80	0.0	2.9E-06	
5	2011	3	10	15	39.00	1200	23.0	95	95	42.20	0.20	27.00	4.60	83.70	4.50	1.1	2.5E-06	
6	2011	3	10	16	0.00	1260	23.0	95	95	42.30	0.10	30.80	3.80	79.80	3.90	-1.3	2.4E-06	
7	2011	3	10	16	17.00	1020	23.0	95	95	42.50	0.20	33.40	2.60	77.30	2.50	2.0	2.2E-06	
8	2011	3	11	6	55.00		0.0	95	95	47.00		2.40		104.00				
9	2011	3	11	7	10.00	900	20.0	95	95	47.05	0.05	7.00	4.60	99.00	5.00	-4.2	2.4E-06	
10	2011	3	11	7	57.00	2820	21.0	95	95	47.60	0.55	17.85	10.85	87.35	11.65	-3.6	2.1E-06	
11	2011	3	11	8	27.00	1800	21.0	95	95	47.60	0.00	24.70	6.85	81.60	5.75	8.7	2.4E-06	
12	2011	3	11	8	57.00	1800	21.0	95	95	47.90	0.30	29.40	4.70	76.90	4.70	0.0	2.2E-06	
13	2011	3	11	9	27.00	1800	21.0	95	95	48.15	0.25	33.40	4.00	72.90	4.00	0.0	2.2E-06	
14	2011	3	11	9	57.00	1800	22.0	95	95	48.40	0.25	36.60	3.20	69.70	3.20	0.0	2.1E-06	
15	2011	3	11	10	27.00	1800	22.0	95	95	48.70	0.30	39.30	2.70	67.00	2.70	0.0	2.1E-06	
16	2011	3	11	10	57.00	1800	22.0	95	95	49.00	0.30	41.50	2.20	64.80	2.20	0.0	2.0E-06	
17	2011	3	11	11	31.00	2040	22.0	95	95	49.30	0.30	43.70	2.20	62.70	2.10	2.3	2.1E-06	
18	2011	3	14	5	41.00		0.0	95	95	55.40		2.90		103.15				
19	2011	3	14	6	11.00	1800	20.0	95	95	55.55	0.15	11.25	8.35	94.45	8.70	-2.1	2.3E-06	
20	2011	3	14	7	13.00	3720	20.0	95	95	55.75	0.20	23.80	12.55	82.05	12.40	0.6	2.1E-06	
21	2011	3	14	7	44.00	1860	21.0	95	95	55.90	0.15	28.60	4.80	77.35	4.70	1.1	2.1E-06	
22	2011	3	14	8	15.00	1860	21.0	95	95	56.00	0.10	32.50	3.90	73.40	3.95	-0.6	2.0E-06	1
23	2011	3	14	8	44.00	1740	21.0	95	95	56.20	0.20	35.60	3.10	70.30	3.10	0.0	2.0E-06	1
24	2011	3	14	9	15.00	1860	21.5	95	95	56.20	0.00	38.30	2.70	67.60	2.70	0.0	2.0E-06	1
25	2011	3	14	9	45.00	1800	22.0	95	95	56.50	0.30	40.60	2.30	65.30	2.30	0.0	2.0E-06	1
26	2011	3	14	10	15.00	1800	22.0	95	95	56.70	0.20	42.50	1.90	63.55	1.75	4.1	1.9E-06	1

**A zero in this column starts a series of measurements.

(Termination determined by stable Kv and low flow differential.)

*Average Kv for those rows with a 1 in the Ave. column. 2.0E-06 cm/sec

***Kv adjusted for temperature.

22

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC: HJW

QA: JPH

Project Name:	Domtar	Cell #:	10
Project #:	05794.49.003	USCS Description:	Clyey sand
Sample Name:	Prepared Subgrade, Sample #3	USCS Classification:	SC
Visual Descript:	Clyey sand	Average Kv =	2.8E-08 cm/sec

		Initial Values	Final Values			
Sample Type:	Remolded			Maximum Proctor Density:	110.5	
				Optimum Moisture Content:	16.1	
Sample Dia. (in)		3.00	3.00	Permeant:	Water	
Sample Ht. (in)		2.49	2.49	Permeant Specific Gravity:	1.00	
Tare & Wet (g)		574.59	847.90	Sample Specific Gravity:	2.59	Est.
Tare & Dry (g)		486.53	749.60	Confining Pressure (psi):	100.0	
Tare (g)		0.00	261.53	Burette Diameter (in):	0.250	
Sample Wt. (g)		574.59	586.37	Burette Zero (cm):	100.0	
% of Proctor Density:		95.8%	96.1%			
% (+/-) of Optimum Moisture Content:		2.0%	4.0%			
Moisture (%)		18.1	20.1	Maximum Gradient:	7.9	
Wet Density (pcf)		125.0	127.6	Average Gradient:	7.5	
Dry Density (pcf)		105.9	106.2	Max. Effect. Stress (psi):	5.8	
Saturation (%)		89.0	100.0	Min. Effect. Stress (psi):	4.5	
				Ave. Effect. Stress (psi):	4.9	

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	10	14	55.00		0.0	95	95	44.70		11.80		98.90				
2	2011	3	10	15	17.00	1320	23.0	95	95	45.30	0.60	11.85	0.05	98.25	0.65	-85.7	1.3E-07	
3	2011	3	10	15	46.00	1740	23.0	95	95	45.60	0.30	12.10	0.25	98.05	0.20	11.1	6.1E-08	
4	2011	3	10	16	18.00	1920	23.0	95	95	46.30	0.70	12.20	0.10	97.90	0.15	-20.0	3.1E-08	*
5	2011	3	11	5	11.00	46380	20.0	95	95	49.10	2.80	16.25	4.05	95.00	2.90	16.5	4.0E-08	
6	2011	3	11	7	11.00	7200	20.0	95	95	49.75	0.65	16.75	0.50	94.55	0.45	5.3	3.7E-08	
7	2011	3	11	9	13.00	7320	21.0	95	95	50.90	1.15	17.25	0.50	94.05	0.50	0.0	3.8E-08	
8	2011	3	11	11	18.00	7500	22.0	95	95	52.30	1.40	17.65	0.40	93.50	0.55	-15.8	3.5E-08	
9	2011	3	11	13	13.00	6900	23.0	95	95	53.20	0.90	18.05	0.40	93.05	0.45	-5.9	3.3E-08	
10	2011	3	11	15	34.00	8460	23.0	95	95	53.50	0.30	18.50	0.45	92.50	0.55	-10.0	3.2E-08	
11	2011	3	14	5	42.00	223680	20.0	95	95	57.60	4.10	30.05	11.55	82.10	10.40	5.2	3.5E-08	
12	2011	3	14	5	43.00		0.0	95	95	57.60		30.05		82.10				
13	2011	3	14	7	53.00	7800	21.0	95	95	58.00	0.40	30.25	0.20	81.80	0.30	-20.0	2.7E-08	
14	2011	3	14	9	46.00	6780	22.0	95	95	58.70	0.70	30.50	0.25	81.50	0.30	-9.1	3.3E-08	
15	2011	3	14	11	46.00	7200	23.0	95	95	60.00	1.30	30.70	0.20	81.20	0.30	-20.0	2.8E-08	
16	2011	3	14	13	48.00	7320	23.0	95	95	60.70	0.70	30.90	0.20	80.75	0.45	-38.5	3.6E-08	
17	2011	3	14	15	45.00	7020	24.0	95	95	60.60	-0.10	31.10	0.20	80.50	0.25	-11.1	2.6E-08	1
18	2011	3	15	5	27.00	49320	20.0	95	95	58.90	-1.70	33.00	1.90	79.15	1.35	16.9	3.0E-08	1
19	2011	3	15	7	27.00	7200	21.0	95	95	59.90	1.00	33.25	0.25	78.90	0.25	0.0	3.2E-08	1
20	2011	3	15	9	28.00	7260	22.0	95	95	60.60	0.70	33.45	0.20	78.70	0.20	0.0	2.5E-08	1
21	2011	3	15	11	28.00	7200	23.0	95	95	61.80	1.20	33.65	0.20	78.45	0.25	-11.1	2.8E-08	1
22																		
23																		
24																		
25																		
26																		

**A zero in this column starts a series of measurements.

(Termination determined by stable Kv and low flow differential.)

*Average Kv for those rows with a 1 in the Ave. column. 2.8E-08 cm/sec

***Kv adjusted for temperature.

23

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC: HJW

QA: JPH

Project Name:	Domtar	Cell #:	11
Project #:	05794.49.003	USCS Description:	Sandy lean clay
Sample Name:	Select Clay Fill, Sample #4	USCS Classification:	CL
Visual Descript:	Sandy lean clay	Average Kv =	5.0E-08 cm/sec

Sample Type:	Remolded	Initial Values	Final Values	Maximum Proctor Density:	105.9
				Optimum Moisture Content:	17.5
Sample Dia. (in)		3.00	3.00	Permeant:	Water
Sample Ht. (in)		2.49	2.49	Permeant Specific Gravity:	1.00
Tare & Wet (g)		557.16	837.90	Sample Specific Gravity:	2.60 Est.
Tare & Dry (g)		466.24	731.20	Confining Pressure (psi):	100.0
Tare (g)		0.00	263.40	Burette Diameter (in):	0.250
Sample Wt. (g)		557.16	574.50	Burette Zero (cm):	100.0
% of Proctor Density:		95.8%	96.1%		
% (+/-) of Optimum Moisture Content:		2.0%	5.3%		
Moisture (%)		19.5	22.8	Maximum Gradient:	5.4
Wet Density (pcf)		121.2	125.0	Average Gradient:	5.0
Dry Density (pcf)		101.5	101.8	Max. Effect. Stress (psi):	5.9
Saturation (%)		84.7	100.0	Min. Effect. Stress (psi):	4.5
				Ave. Effect. Stress (psi):	4.8

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	10	15	14.00		0.0	95	95	39.90		14.70		99.80				
2	2011	3	10	15	47.00	1980	23.0	95	95	40.80	0.90	15.05	0.35	98.60	1.20	-54.8	1.9E-07	
3	2011	3	10	16	19.00	1920	23.0	95	95	41.60	0.80	15.30	0.25	98.40	0.20	11.1	5.8E-08	
4	2011	3	11	5	11.00	46320	20.0	95	95	50.35	8.75	21.15	5.85	93.55	4.85	9.3	6.5E-08	
5	2011	3	11	7	11.00	7200	20.0	95	95	51.65	1.30	21.90	0.75	92.95	0.60	11.1	5.7E-08	
6	2011	3	11	9	14.00	7380	21.0	95	95	53.40	1.75	22.70	0.80	92.30	0.65	10.3	6.0E-08	
7	2011	3	11	11	19.00	7500	22.0	95	95	55.00	1.60	23.50	0.80	91.70	0.60	14.3	5.7E-08	
8	2011	3	11	13	14.00	6900	23.0	95	95	56.10	1.10	24.25	0.75	91.10	0.60	11.1	5.9E-08	
9	2011	3	11	15	35.00	8460	23.0	95	95	56.80	0.70	25.10	0.85	90.30	0.80	3.0	6.0E-08	
10	2011	3	14	5	43.00	223680	20.0	95	95	70.65	13.85	39.65	14.55	76.85	13.45	3.9	5.5E-08	
11	2011	3	14	5	44.00		0.0	95	95	70.65		39.65		76.85				
12	2011	3	14	7	54.00	7800	21.0	95	95	71.40	0.75	40.05	0.40	76.60	0.25	23.1	4.9E-08	
13	2011	3	14	9	47.00	6780	22.0	95	95	71.40	0.00	40.35	0.30	76.30	0.30	0.0	5.1E-08	
14	2011	3	14	11	47.00	7200	23.0	95	95	73.80	2.40	40.70	0.35	76.10	0.20	27.3	4.4E-08	
15	2011	3	14	13	49.00	7320	23.0	95	95	74.40	0.60	41.05	0.35	75.90	0.20	27.3	4.4E-08	
16	2011	3	14	15	46.00	7020	24.0	95	95	74.40	0.00	41.35	0.30	75.50	0.40	-14.3	5.8E-08	
17	2011	3	15	5	27.00	49260	20.0	95	95	74.30	-0.10	43.15	1.80	73.70	1.80	0.0	5.0E-08	1
18	2011	3	15	7	28.00	7260	21.0	95	95	75.50	1.20	43.40	0.25	73.45	0.25	0.0	4.9E-08	1
19	2011	3	15	9	30.00	7320	22.0	95	95	76.20	0.70	43.70	0.30	73.20	0.25	9.1	5.3E-08	1
20	2011	3	15	11	30.00	7200	23.0	95	95	76.50	0.30	44.00	0.30	73.00	0.20	20.0	4.9E-08	1
21																		
22																		
23																		
24																		
25																		
26																		

**A zero in this column starts a series of measurements.

(Termination determined by stable Kv and low flow differential.)

*Average Kv for those rows with a 1 in the Ave. column. 5.0E-08 cm/sec

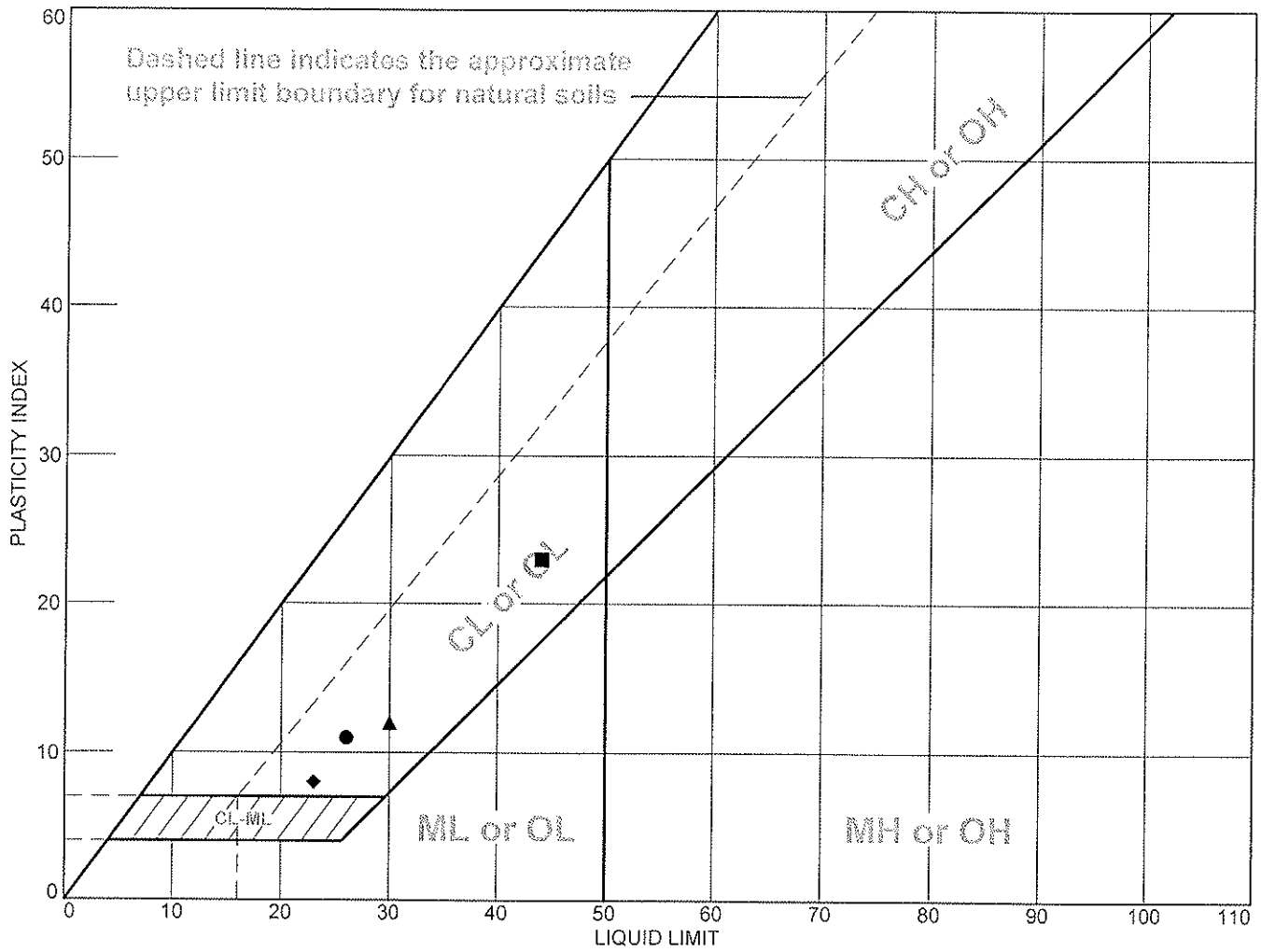
***Kv adjusted for temperature.

24

Undisturbed Sample Test Results

Atterberg Limits

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Clayey sand	26	15	11	99.5	42.6	SC
■	Clayey sand	44	21	23	98.4	44.5	SC
▲	Clayey sand	30	18	12	98.6	36.8	SC
◆	Clayey sand	23	15	8	98.6	34.9	SC

Project No. 05794.49.003 Client:

Project: Domtar

● Source of Sample: Prepared Subgrade Sample Number: Pt. 132, Lift 1
■ Source of Sample: Prepared Subgrade Sample Number: Pt. 160, Lift 1
▲ Source of Sample: Prepared Subgrade Sample Number: Pt. 186, Lift 1
◆ Source of Sample: Prepared Subgrade Sample Number: Pt. 204, Lift 1

RMT, Inc.

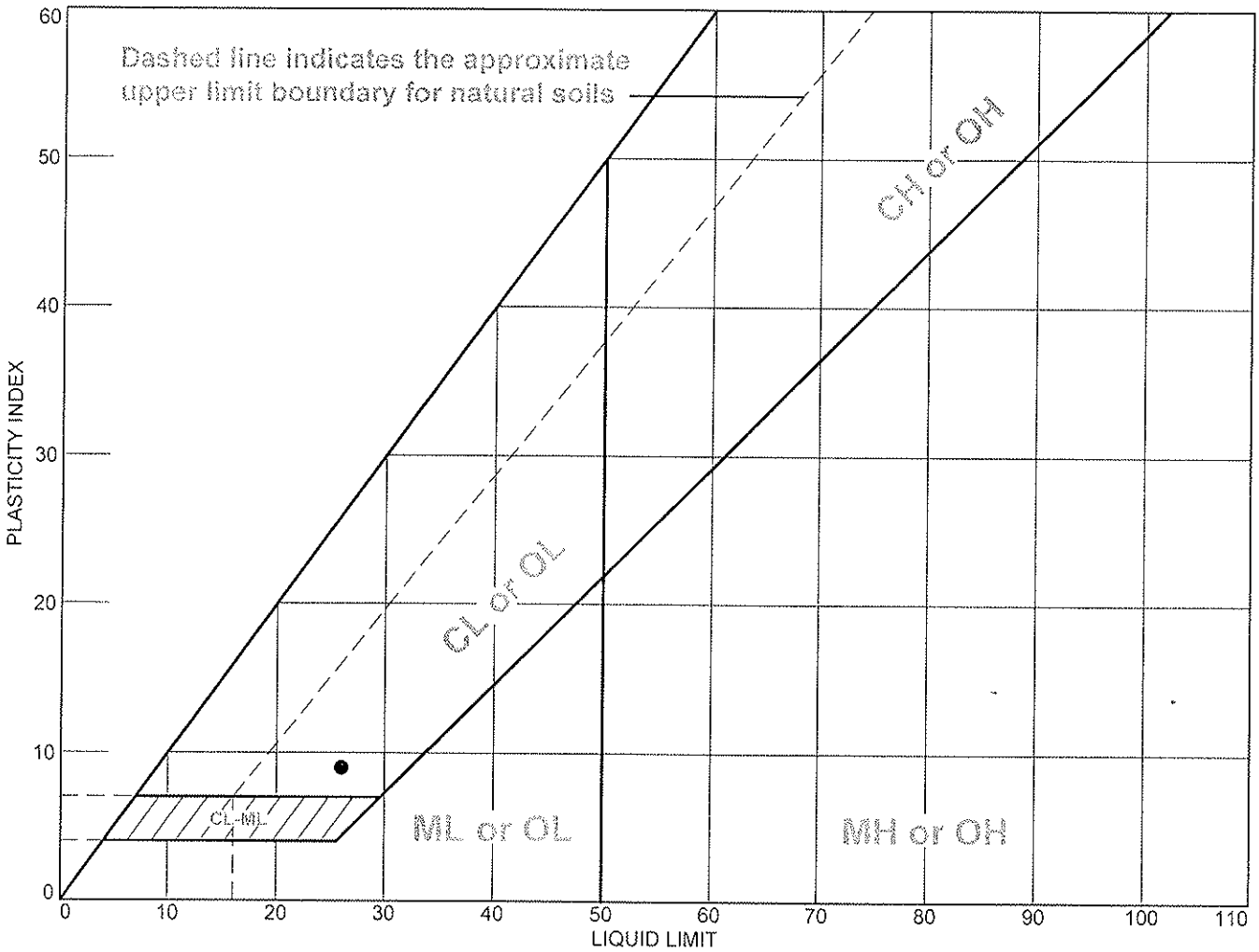
Madison, Wisconsin

Remarks:

Figure: 29

Tested By: HJW Checked By: JPH

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Clayey sand	26	17	9	95.2	38.0	SC

Project No. 05794.49.003 Client:

Project: Domtar

● Source of Sample: Prepared Subgrade Sample Number: Pt. 232, Lift 1

Remarks:

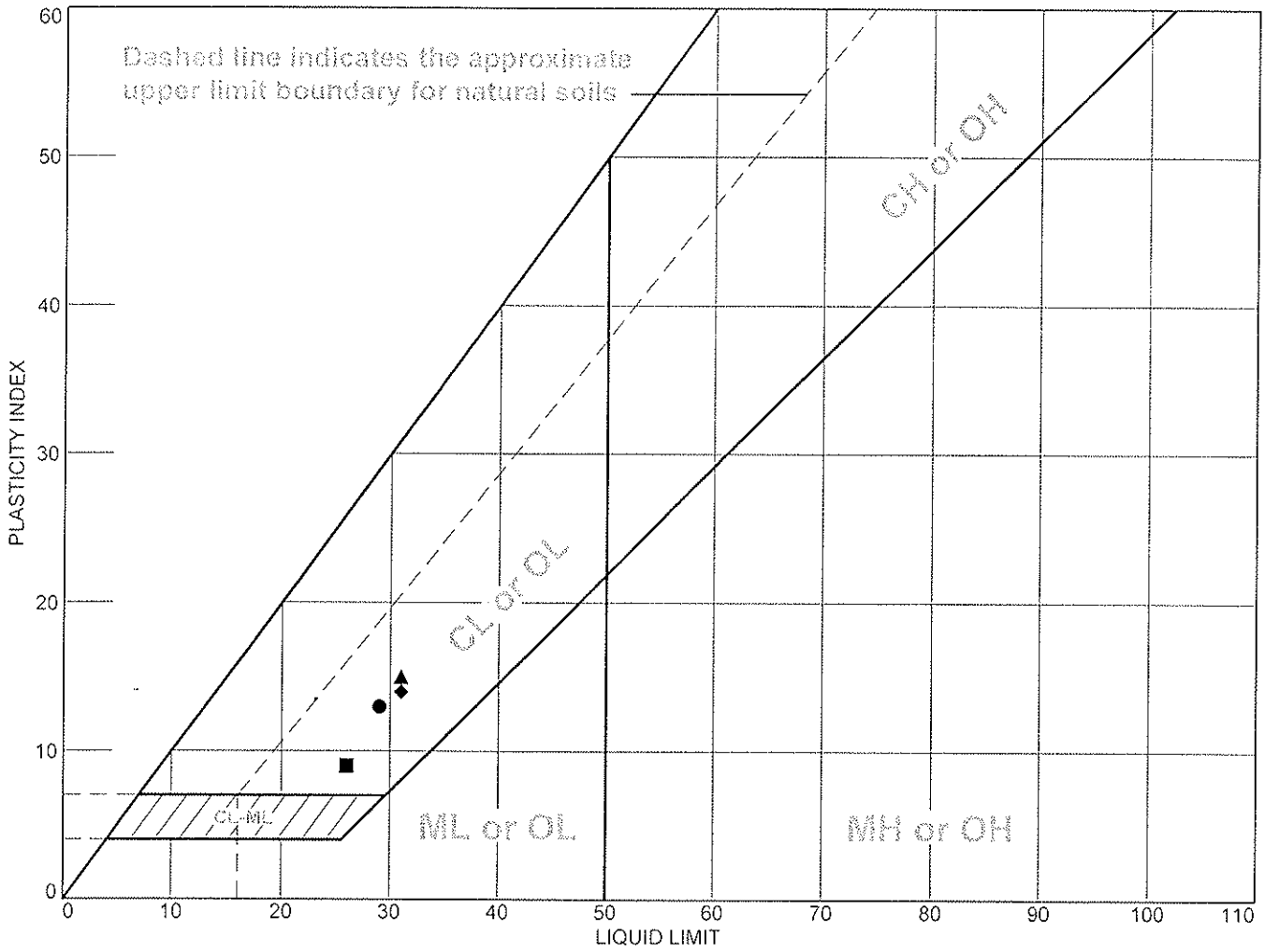
RMT, Inc.

Madison, Wisconsin

Figure: 3D

Tested By: HJW Checked By: JPH

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Sandy lean clay	29	16	13	95.2	54.5	CL
■	Clayey sand	26	17	9	98.0	31.8	SC
▲	Clayey sand	31	16	15	94.4	42.2	SC
◆	Clayey sand	31	17	14	96.2	47.3	SC

Project No. 05794.49.003 Client:

Project: Domtar

Remarks:

● Source of Sample: Prepared Subgrade Sample Number: Pt. 145, Lift 2
■ Source of Sample: Prepared Subgrade Sample Number: Pt. 217, Lift 2
▲ Source of Sample: Prepared Subgrade Sample Number: Pt. 175, Lift 2
◆ Source of Sample: Prepared Subgrade Sample Number: Pt. 197, Lift 2

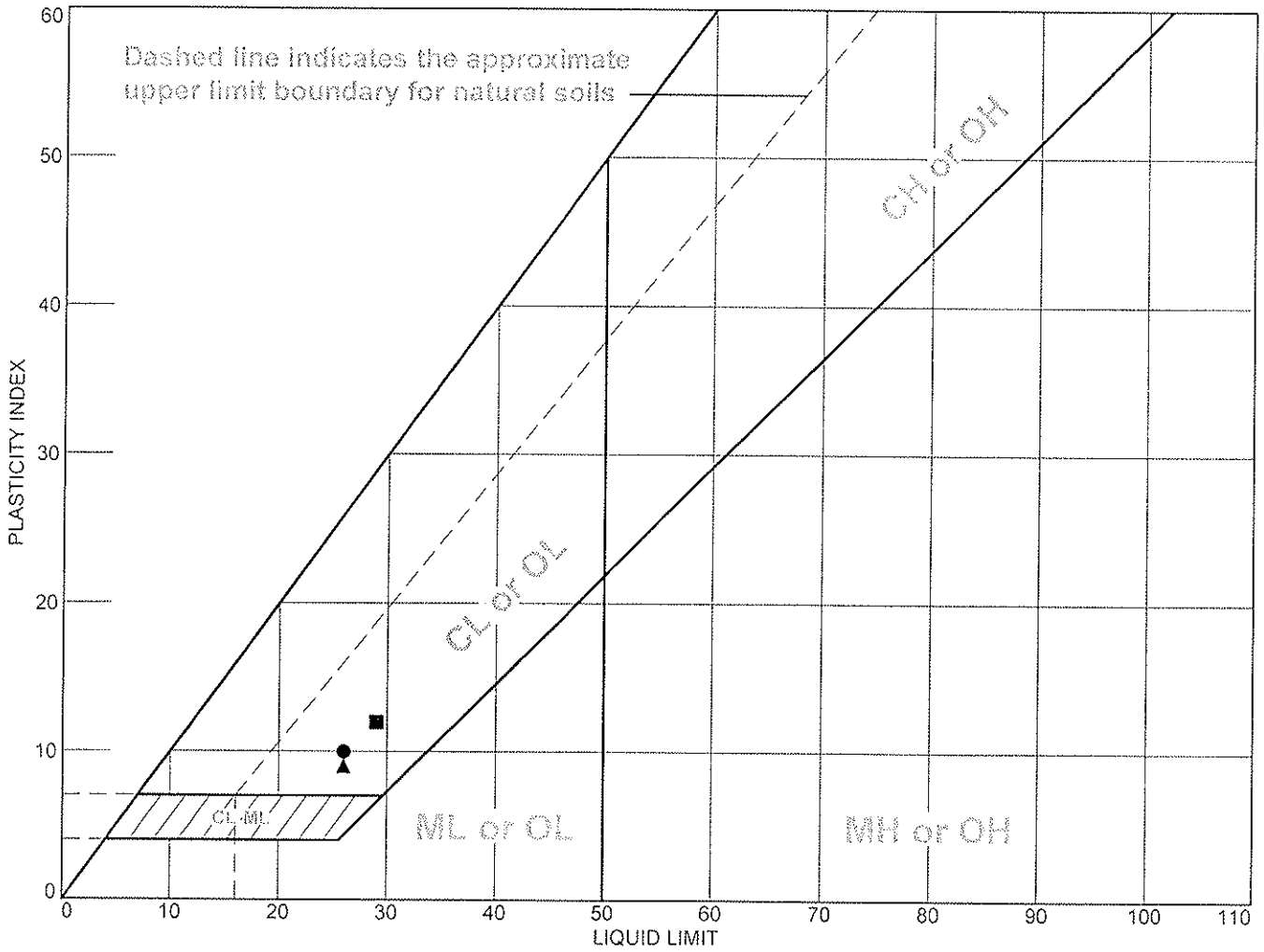
RMT, Inc.

Madison, Wisconsin

Figure: 31

Tested By: HJW Checked By: JPH

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Clayey sand	26	16	10	86.2	27.4	SC
■	Clayey sand	29	17	12	96.9	37.6	SC
▲	Clayey sand	26	17	9	94.8	32.5	SC

Project No. 05794.49.003 **Client:**

Project: Domtar

● **Source of Sample:** Prepared Subgrade **Sample Number:** Pt. 310, Lift 1
■ **Source of Sample:** Prepared Subgrade **Sample Number:** Pt. 304, Lift 1
▲ **Source of Sample:** Prepared Subgrade **Sample Number:** Pt. 382, Lift 1

RMT, Inc.

Madison, Wisconsin

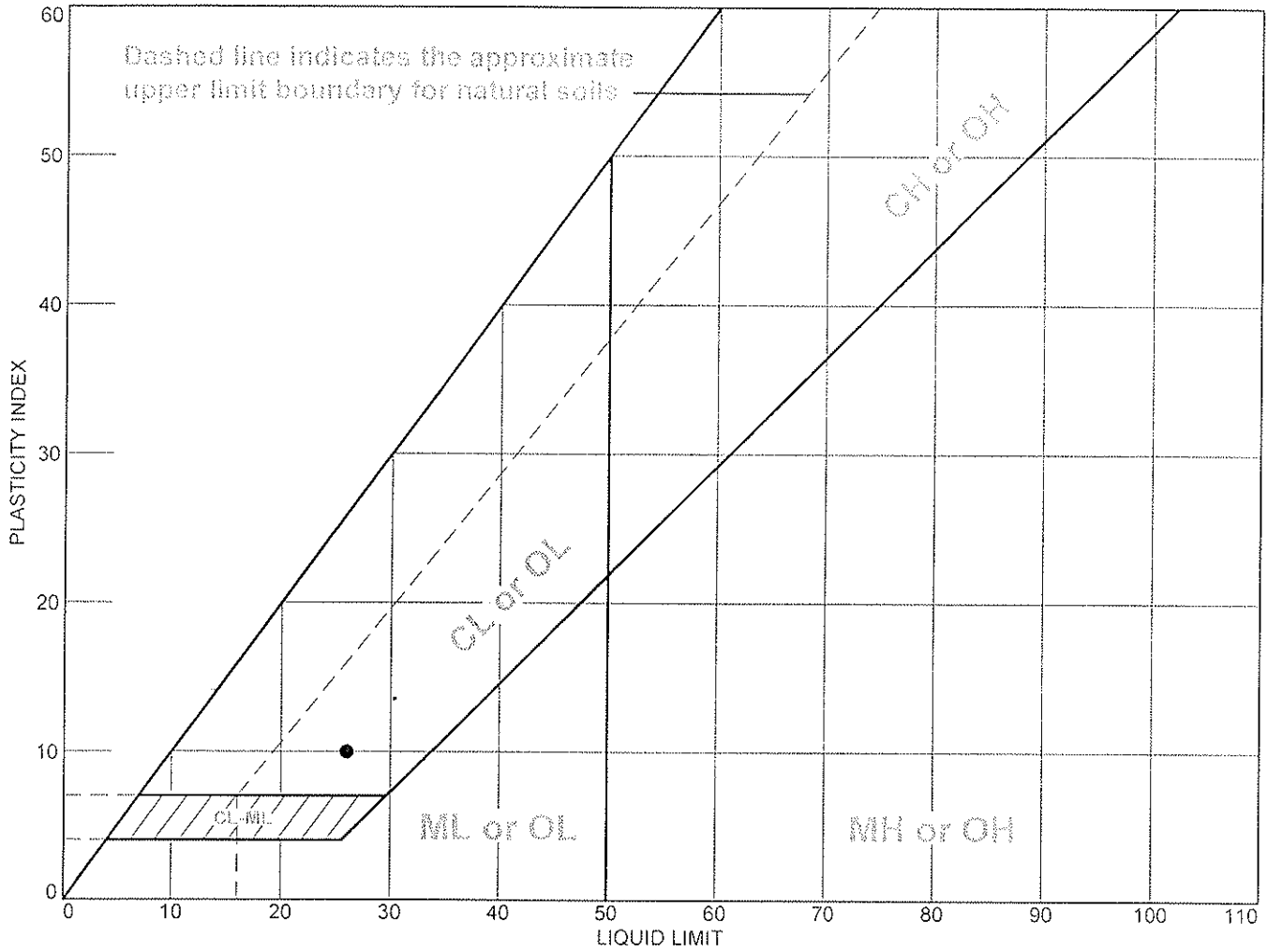
Remarks:

Figure:

Tested By: HJW **Checked By:** JPH

32

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Clayey sand	26	16	10	91.3	35.8	SC

Project No. 05794.49.003 Client:

Project: Domtar

● Source of Sample: Prepared Subgrade Sample Number: Pt. 295, Lift 2

Remarks:

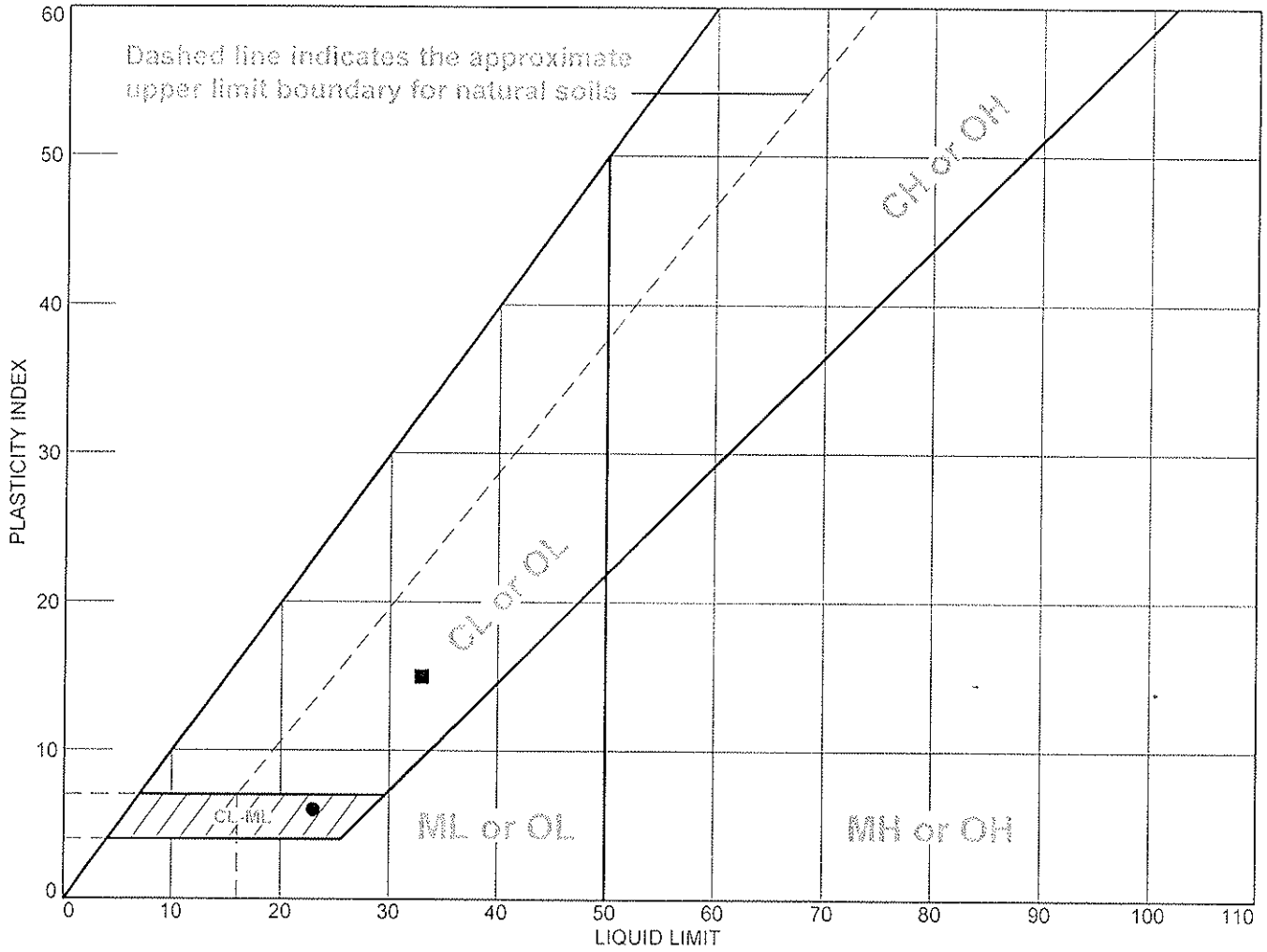
RMT, Inc.

Madison, Wisconsin

Figure:

Tested By: HJW Checked By: JPH

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Silty, clayey sand	23	17	6	97.3	36.3	SC-SM
■	Clayey sand	33	18	15	95.4	41.9	SC

Project No. 05794.49.003 Client:

Project: Domtar

● Source of Sample: Prepared Subgrade Sample Number: Pt. 265, Lift 2

■ Source of Sample: Prepared Subgrade Sample Number: Pt. 267, Lift 2

Remarks:

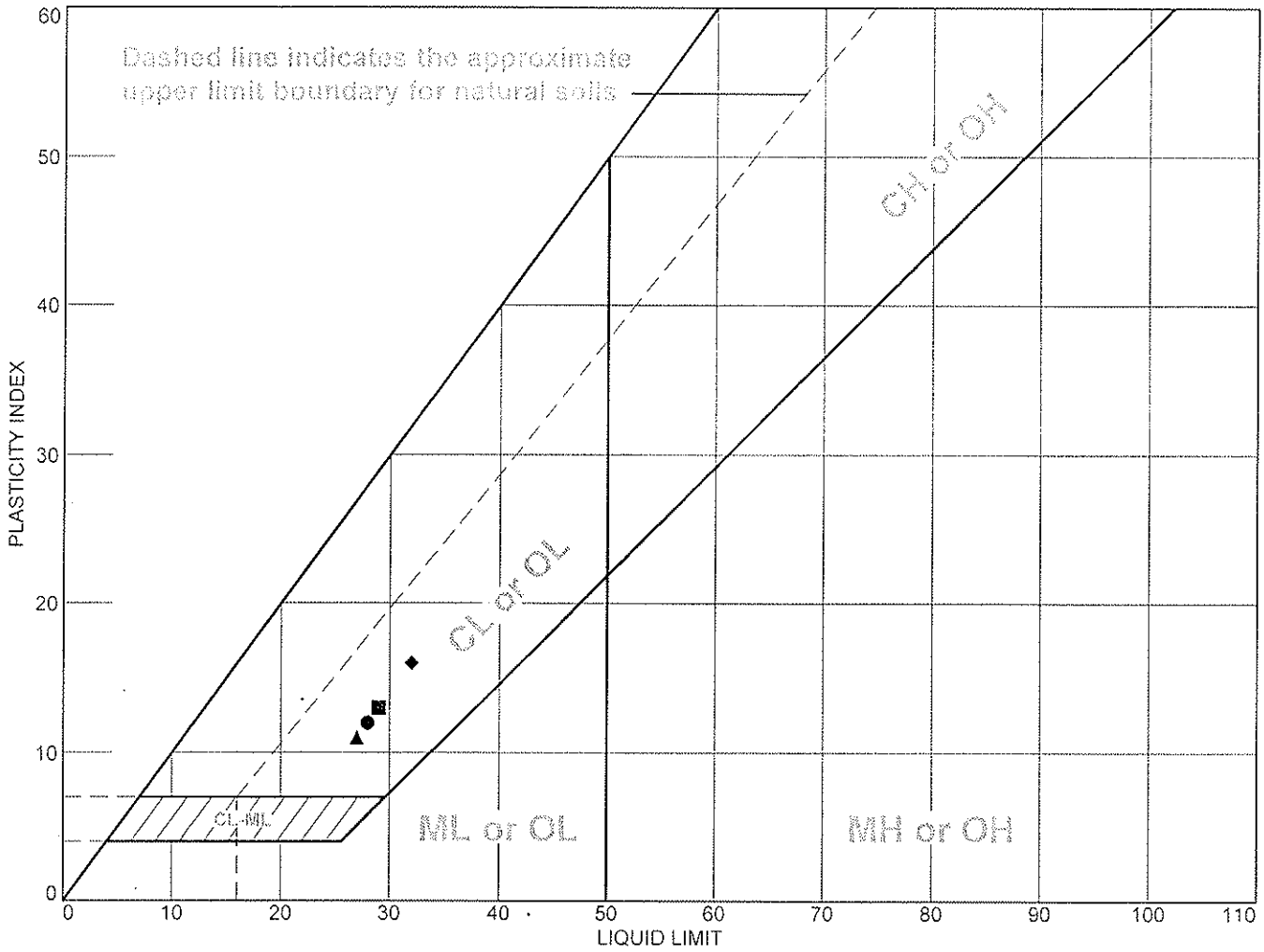
RMT, Inc.

Madison, Wisconsin

Figure: 34

Tested By: HJW Checked By: JPH

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Clayey sand	28	16	12	96.8	38.0	SC
■	Clayey sand	29	16	13	98.0	43.6	SC
▲	Clayey sand	27	16	11	96.2	38.4	SC
◆	Clayey sand	32	16	16	96.9	43.4	SC

Project No. 05794.49.003 Client:

Project: Domtar

Remarks:

● Source of Sample: Select Clay Fill Sample Number: Sump Lift 1
■ Source of Sample: Select Clay Fill Sample Number: Sump Lift 2
▲ Source of Sample: Select Clay Fill Sample Number: Sump Lift 3
◆ Source of Sample: Select Clay Fill Sample Number: Sump Lift 4

RMT, Inc.

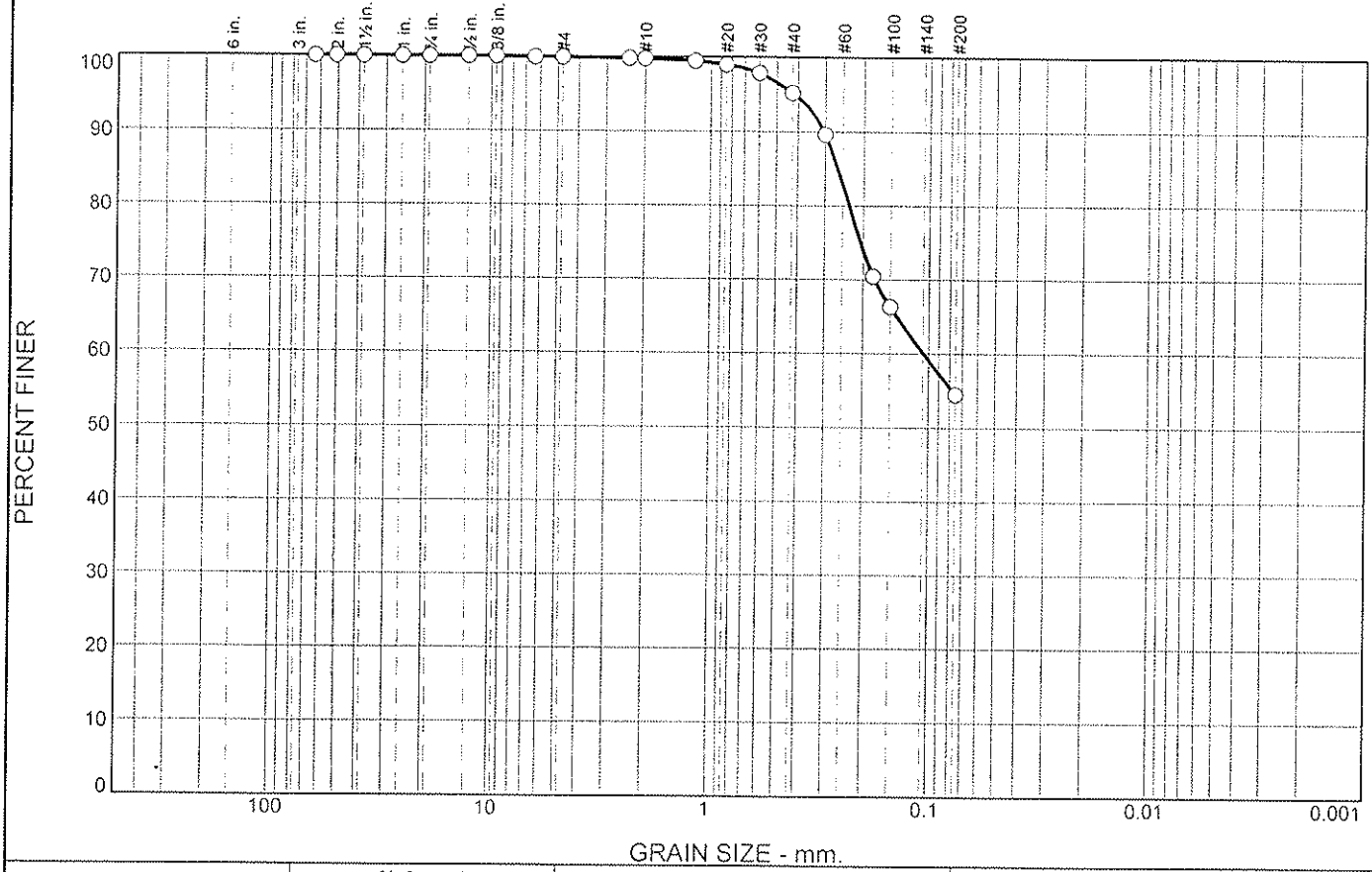
Madison, Wisconsin

Figure:

Tested By: HJW Checked By: JPH

Grain Size Distribution

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	4.5	40.7	54.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	99.9		
#4	99.9		
#8	99.8		
#10	99.7		
#16	99.5		
#20	99.0		
#30	97.9		
#40	95.2		
#50	89.6		
#80	70.5		
#100	66.3		
#200	54.5		

* (no specification provided)

Material Description

Sandy lean clay

Atterberg Limits

PL= 16 LL= 29 PI= 13

Coefficients

D_{90}= 0.3039 D_{85}= 0.2620 D_{60}= 0.1051
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(4)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 145, Lift 2

Date: 03-24-11

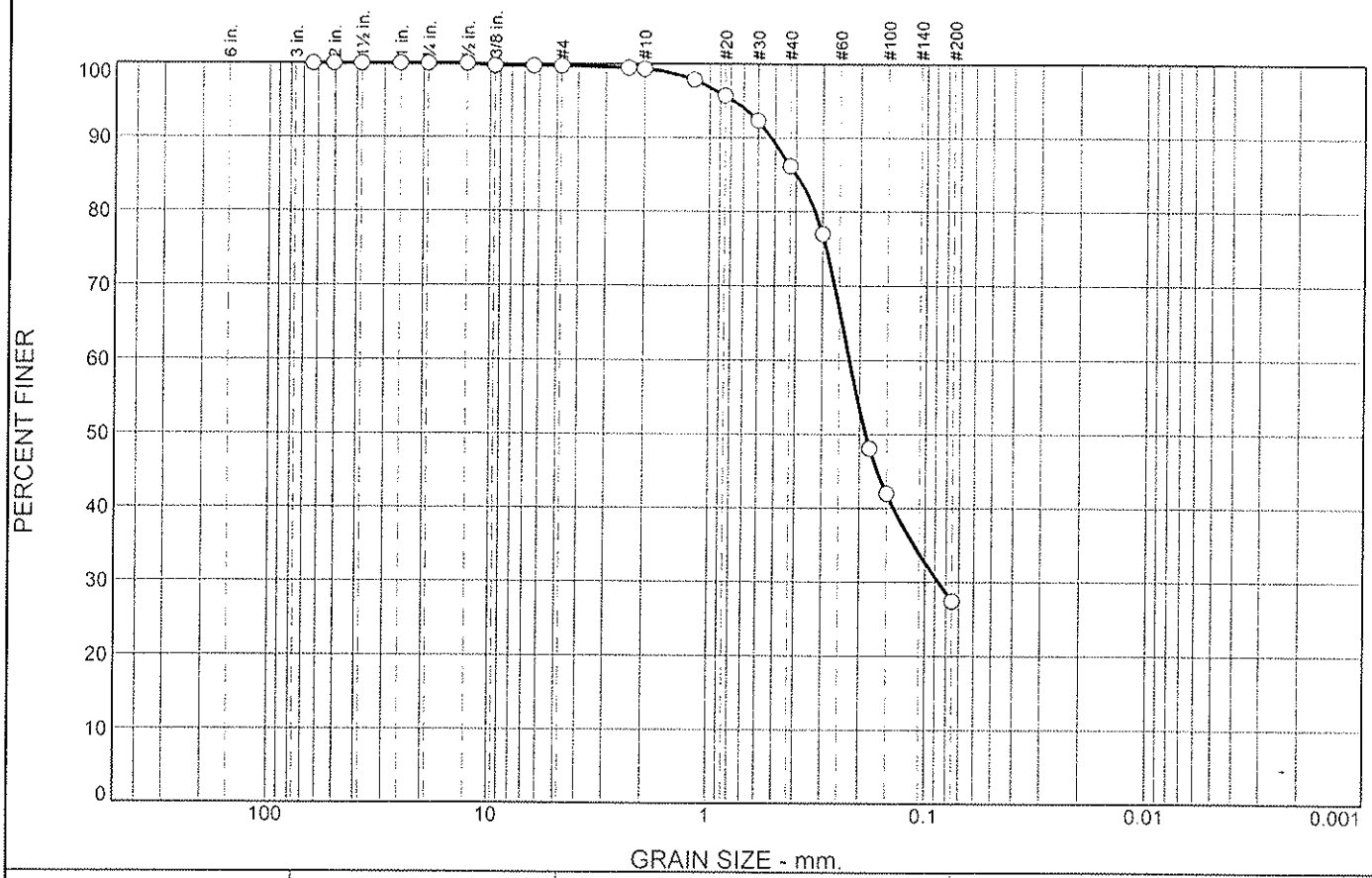
RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar
Project No: 05794.49.003
Figure:

Tested By: HJW Checked By: JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.4	13.1	58.8	27.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	99.7		
.25	99.7		
#4	99.7		
#8	99.4		
#10	99.3		
#16	97.9		
#20	95.7		
#30	92.3		
#40	86.2		
#50	77.0		
#80	48.1		
#100	42.0		
#200	27.4		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 16 LL= 26 PI= 10

Coefficients

D_{90}= 0.5202 D_{85}= 0.3987 D_{60}= 0.2231
D_{50}= 0.1874 D_{30}= 0.0865 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-2-4(0)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 310, Lift 1

Date: 03-24-11

RMT, Inc.

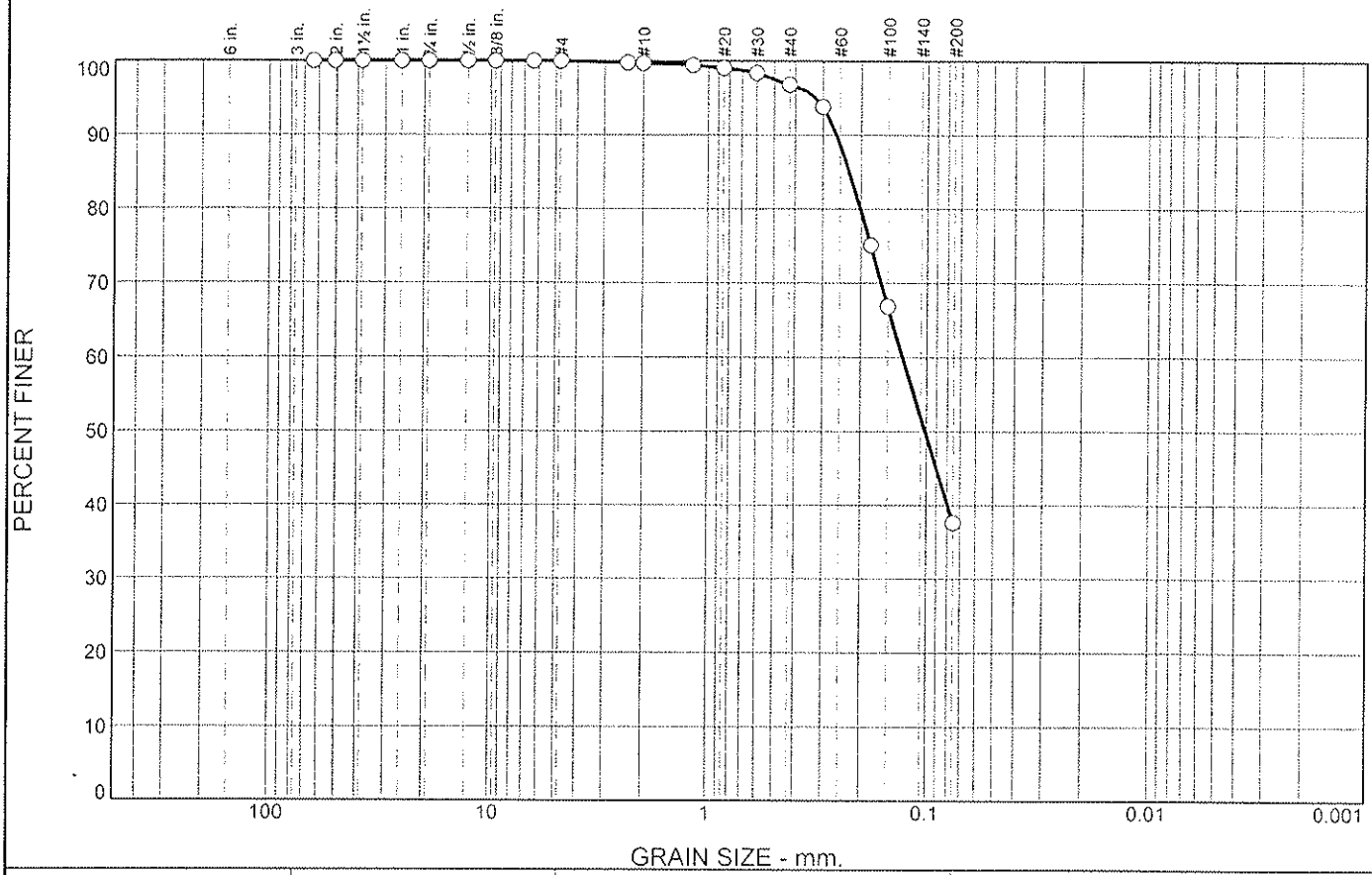
Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	2.8	59.3	37.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	99.8		
#10	99.7		
#16	99.5		
#20	99.1		
#30	98.4		
#40	96.9		
#50	93.8		
#80	75.1		
#100	66.9		
#200	37.6		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 17 LL= 29 PI= 12

Coefficients

D_{90}= 0.2591 D_{85}= 0.2259 D_{60}= 0.1283
D_{50}= 0.1013 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(1)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 304, Lift 1

Date: 03-24-11

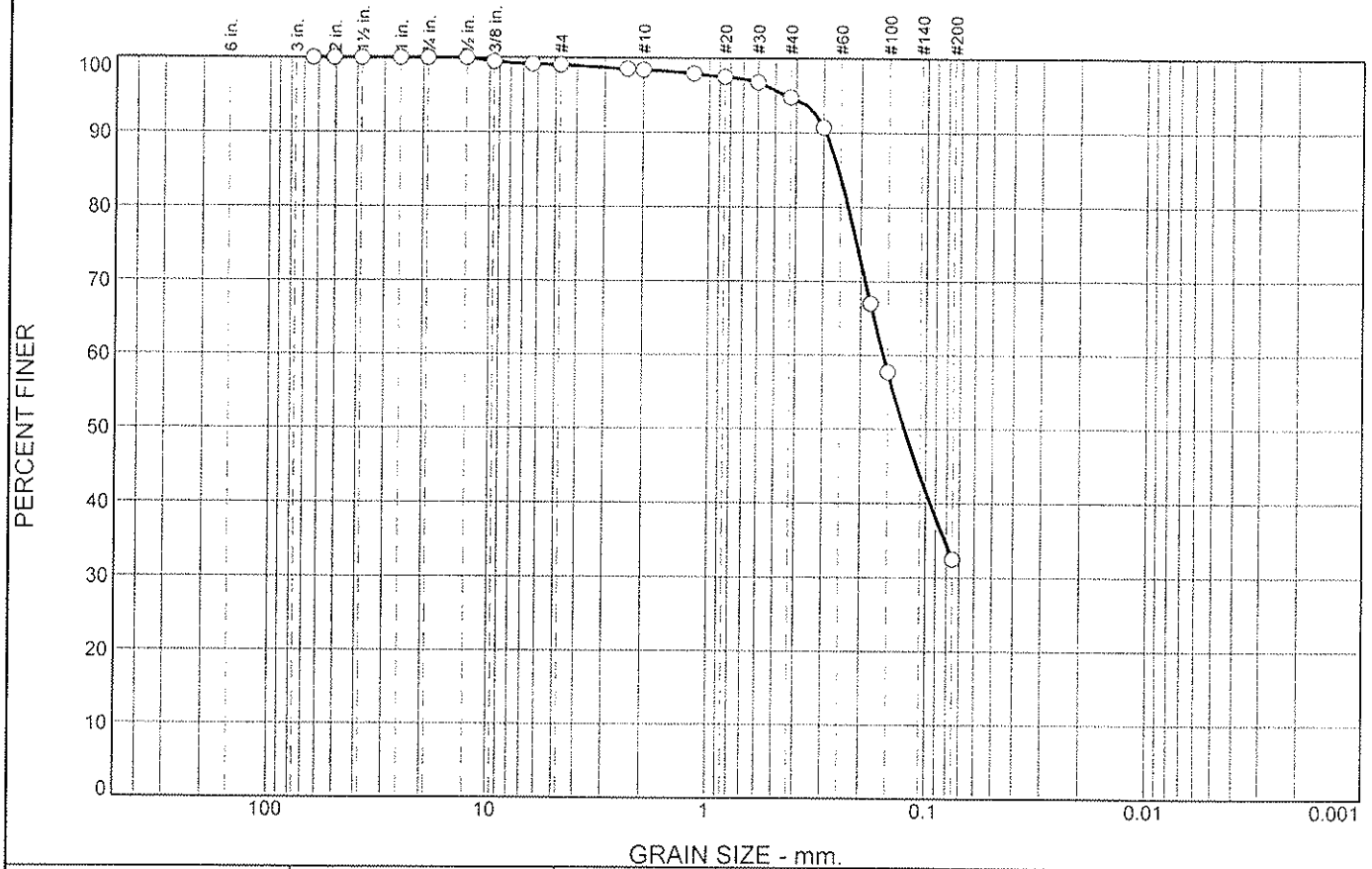
RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar
Project No: 05794.49.003
Figure:

Tested By: HJW Checked By: JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	0.7	3.6	62.3	32.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	99.5		
.25	99.2		
#4	99.1		
#8	98.5		
#10	98.4		
#16	97.9		
#20	97.5		
#30	96.8		
#40	94.8		
#50	90.8		
#80	67.0		
#100	57.7		
#200	32.5		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 17 LL= 26 PI= 9

Coefficients

D_{90}= 0.2918 D_{85}= 0.2549 D_{60}= 0.1572
D_{50}= 0.1255 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-2-4(0)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 382, Lift 1

Date: 03-24-11

RMT, Inc.

Madison, Wisconsin

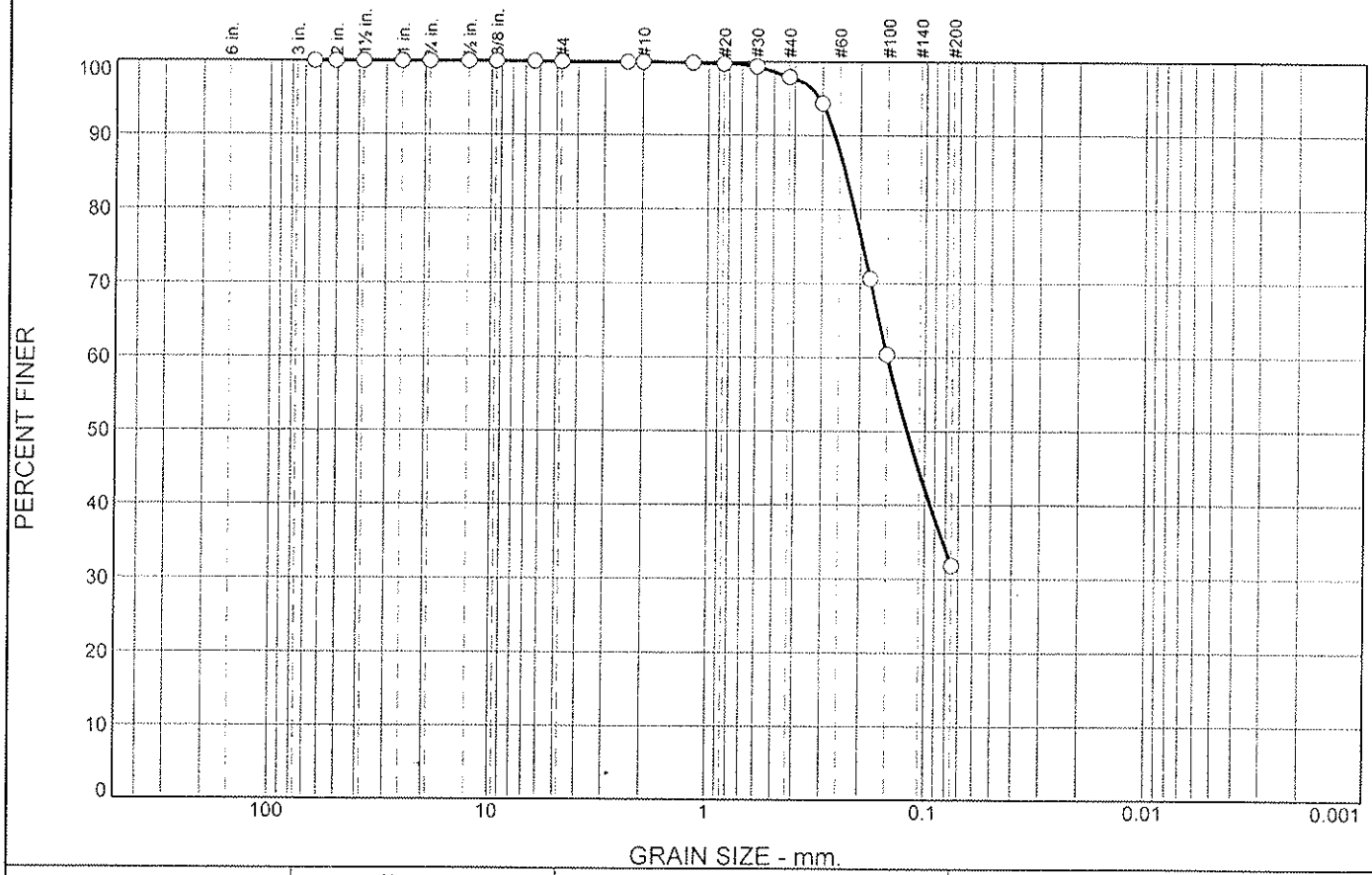
Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

42

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.9	66.2	31.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	99.9		
#10	99.9		
#16	99.9		
#20	99.7		
#30	99.4		
#40	98.0		
#50	94.4		
#80	70.7		
#100	60.4		
#200	31.8		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 17 LL= 26 PI= 9

Coefficients

D_{90}= 0.2622 D_{85}= 0.2341 D_{60}= 0.1489
D_{50}= 0.1209 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-2-4(0)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 217, Lift 2

Date: 03-24-11

RMT, Inc.

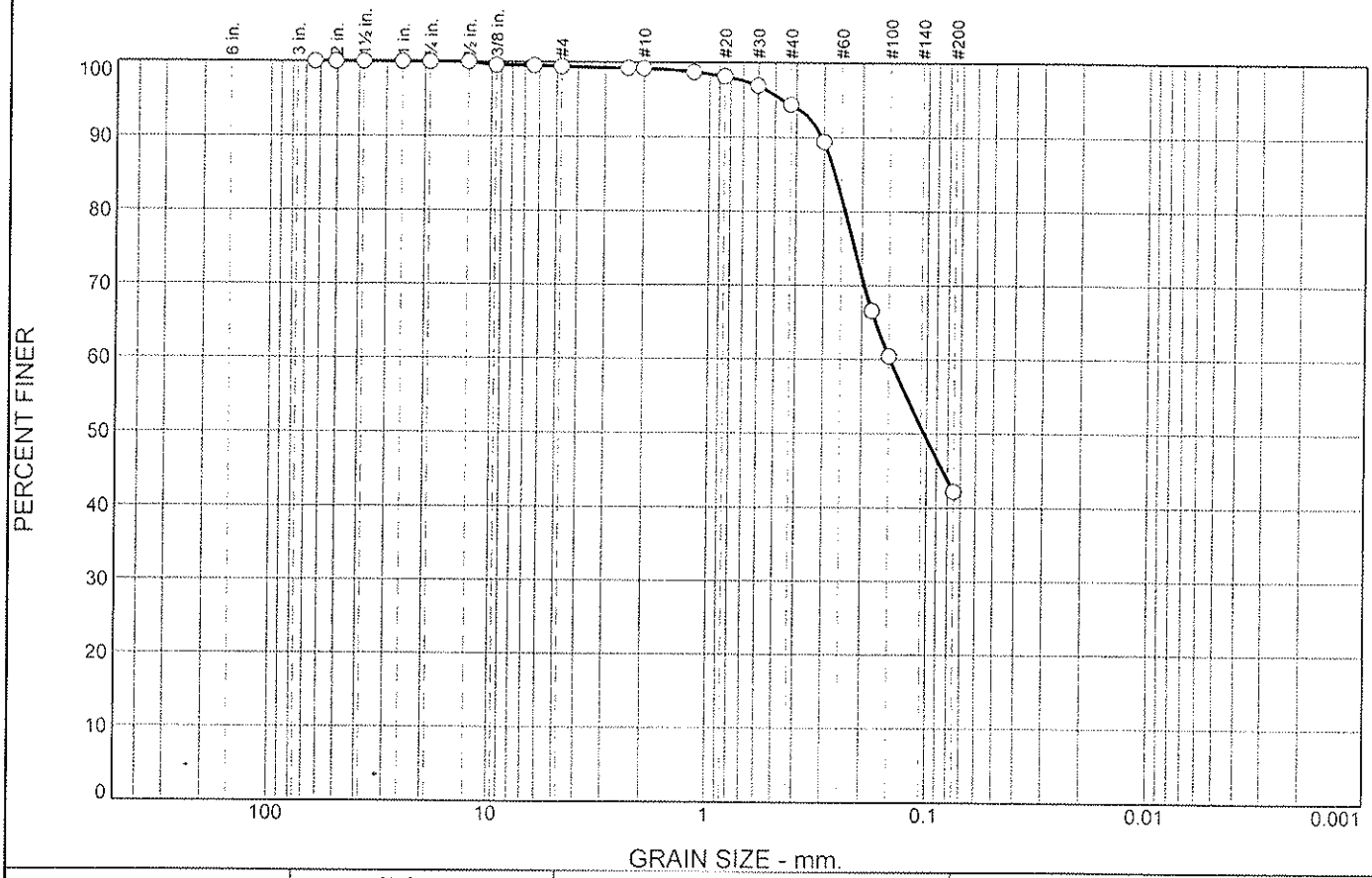
Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.2	4.8	52.2	42.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	99.5		
.25	99.5		
#4	99.4		
#8	99.2		
#10	99.2		
#16	98.7		
#20	98.1		
#30	97.0		
#40	94.4		
#50	89.4		
#80	66.6		
#100	60.4		
#200	42.2		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 16 LL= 31 PI= 15

Coefficients

D_{90}= 0.3065 D_{85}= 0.2662 D_{60}= 0.1479
D_{50}= 0.1026 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(2)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 175, Lift 2

Date: 03-24-11

RMT, Inc.

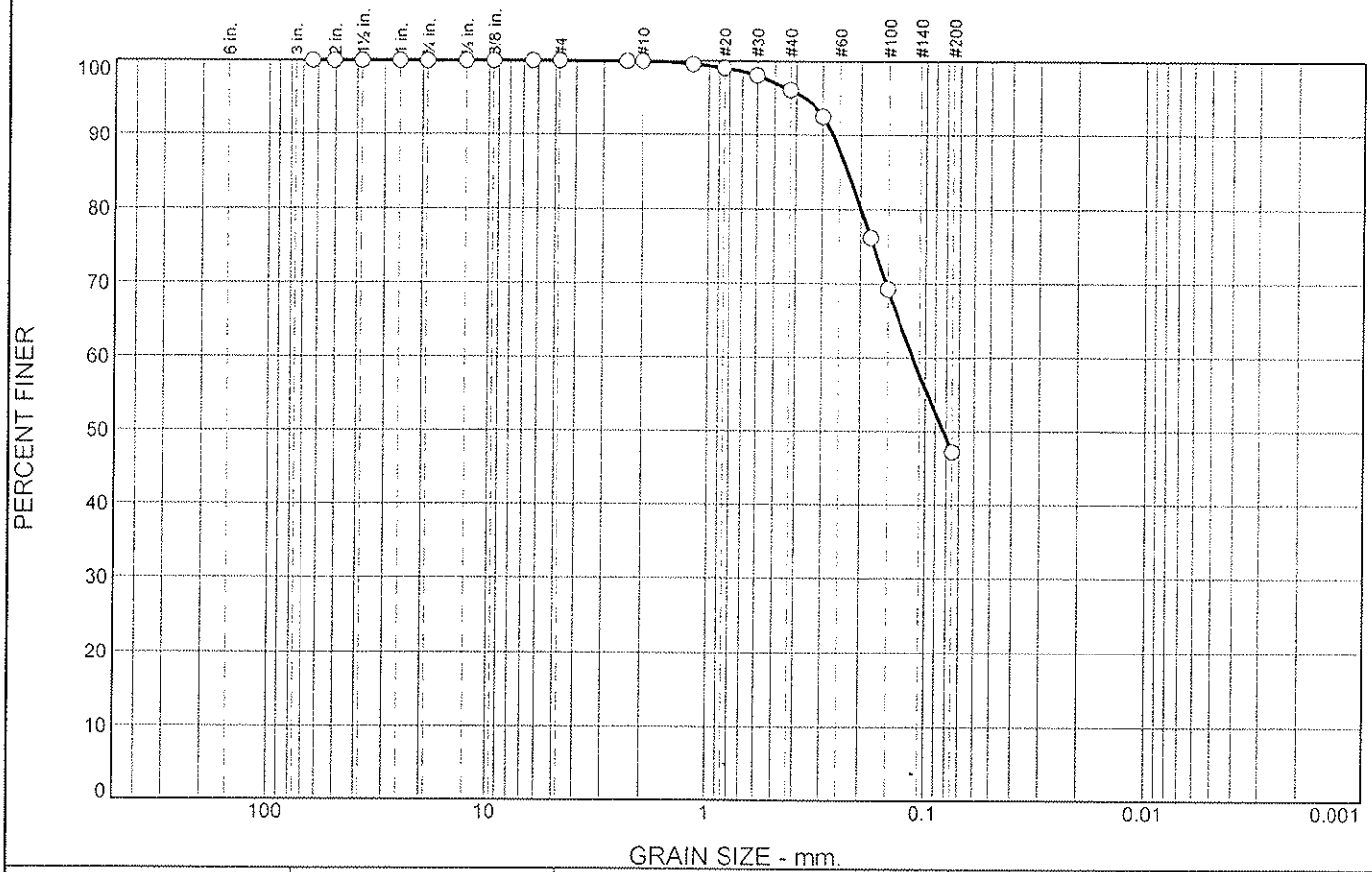
Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.8	48.9	47.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#16	99.6		
#20	99.1		
#30	98.1		
#40	96.2		
#50	92.6		
#80	76.1		
#100	69.3		
#200	47.3		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 17 LL= 31 PI= 14

Coefficients

D_{90}= 0.2682 D_{85}= 0.2284 D_{60}= 0.1141
D_{50}= 0.0823 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(3)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 197, Lift 2

Date: 03-24-11

RMT, Inc.

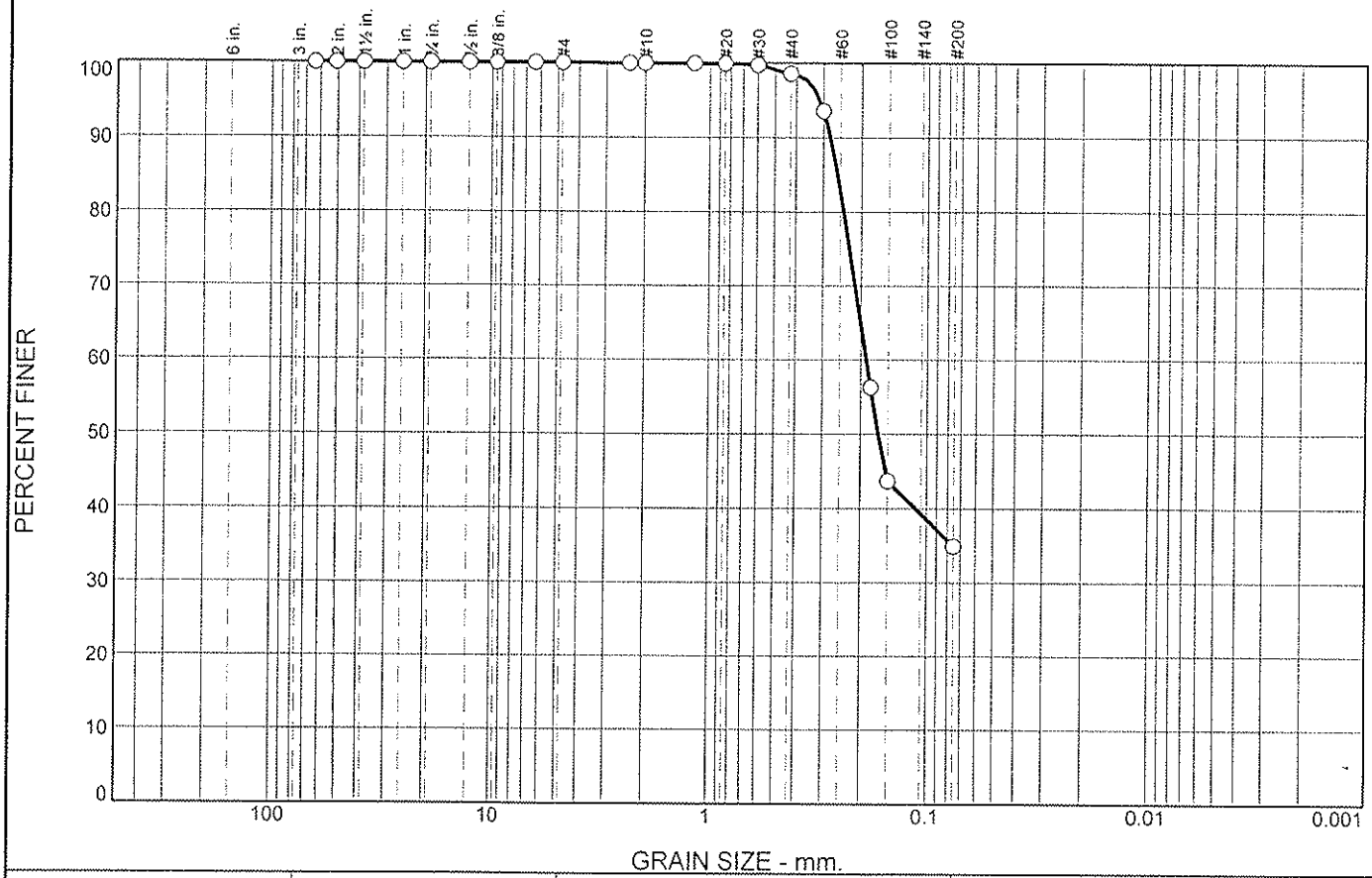
Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.4	63.7	34.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#16	100.0		
#20	99.9		
#30	99.8		
#40	98.6		
#50	93.6		
#80	56.3		
#100	43.7		
#200	34.9		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 15 LL= 23 PI= 8

Coefficients

D_{90}= 0.2786 D_{85}= 0.2571 D_{60}= 0.1884
D_{50}= 0.1656 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-2-4(0)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 204, Lift 1

Date: 03-17-11

RMT, Inc.

Madison, Wisconsin

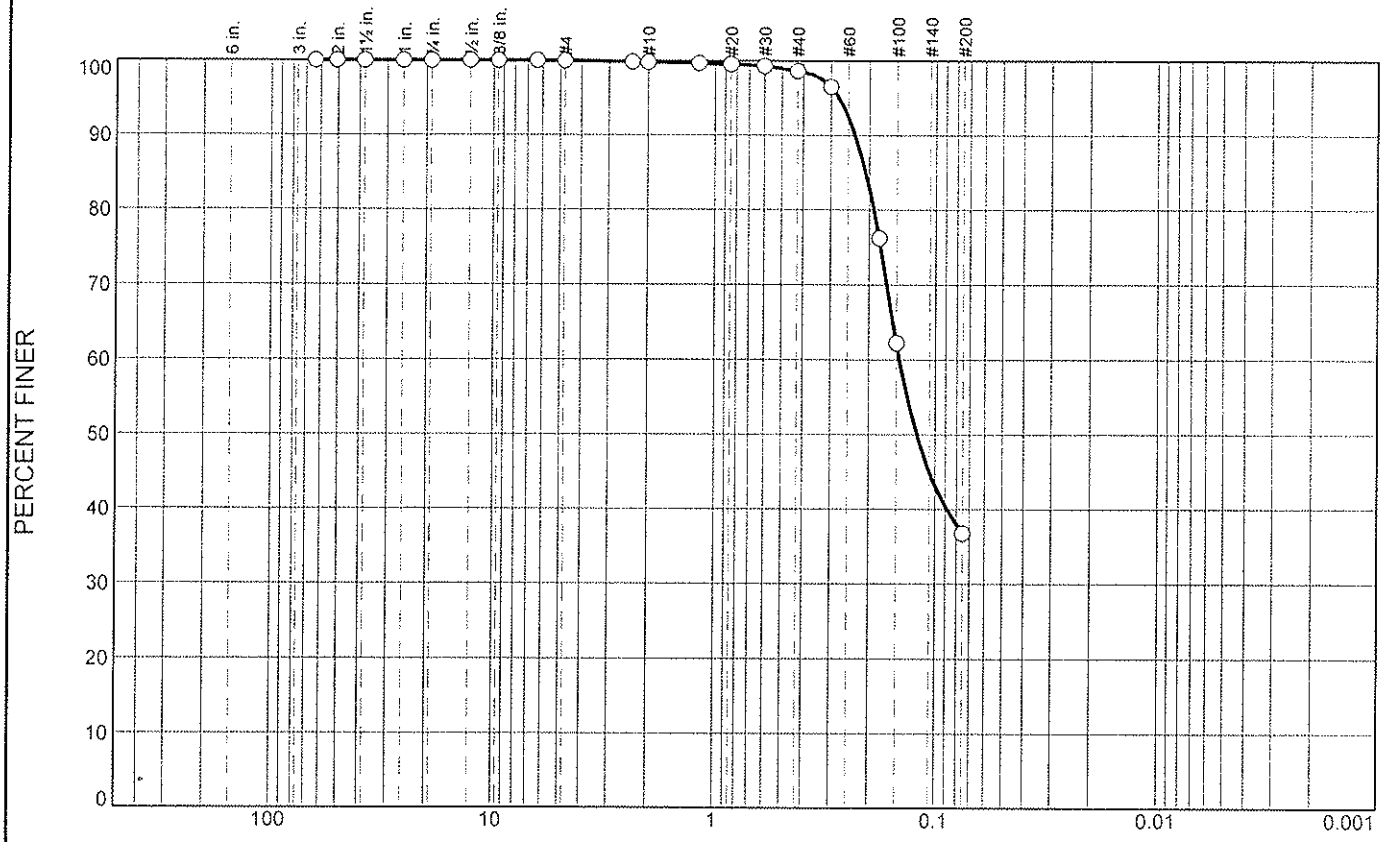
Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

46

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	1.2	61.8	36.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	99.9		
#10	99.8		
#16	99.7		
#20	99.5		
#30	99.3		
#40	98.6		
#50	96.5		
#80	76.2		
#100	62.2		
#200	36.8		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 18 LL= 30 PI= 12

Coefficients

D_{90}= 0.2319 D_{85}= 0.2075 D_{60}= 0.1453
D_{50}= 0.1212 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(1)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 186, Lift 1

Date: 03-17-11

RMT, Inc.

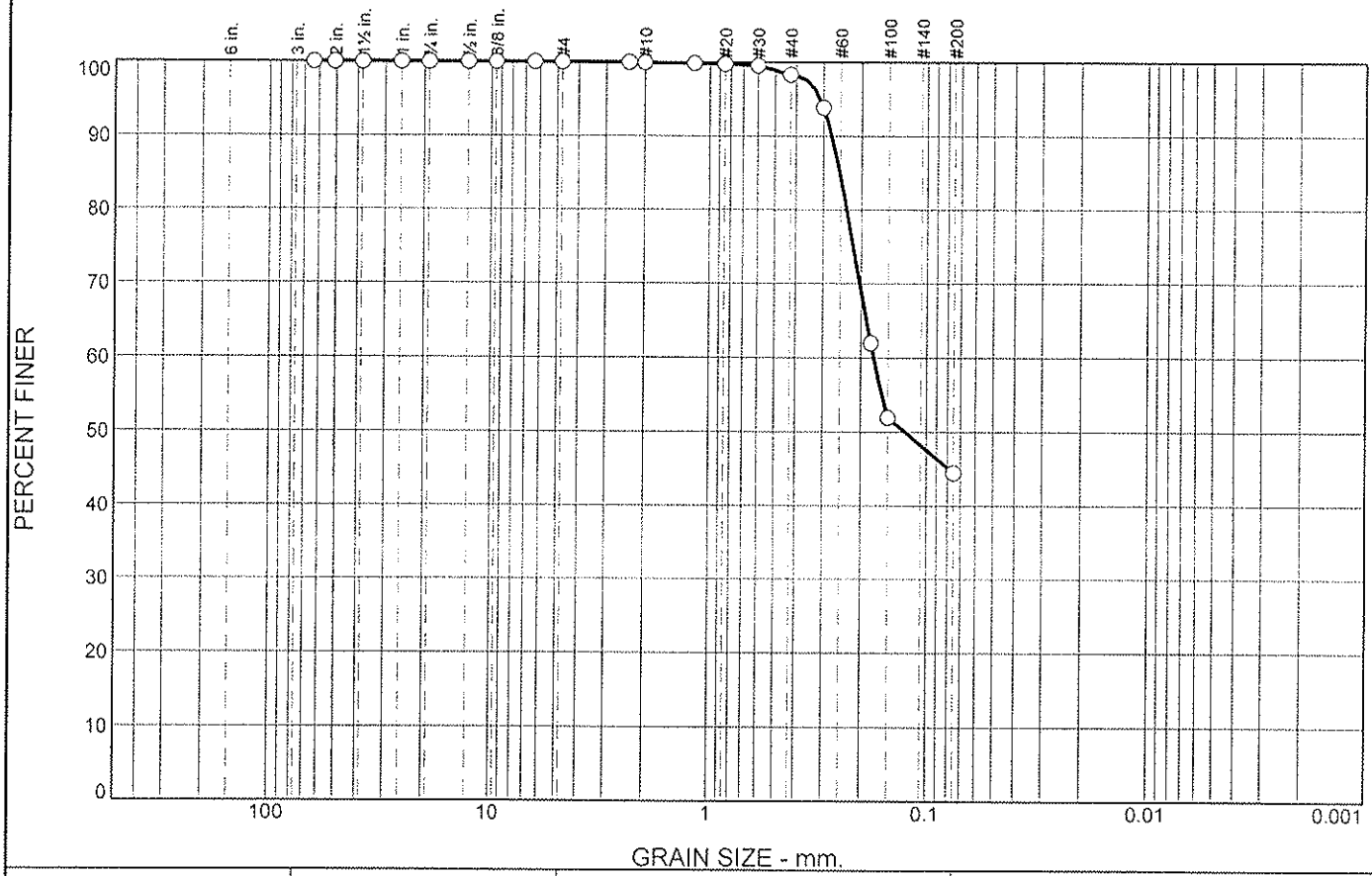
Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.5	53.9	44.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	100.0		
#10	99.9		
#16	99.8		
#20	99.8		
#30	99.6		
#40	98.4		
#50	93.9		
#80	62.0		
#100	52.0		
#200	44.5		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 21 LL= 44 PI= 23

Coefficients

D_{90}= 0.2743 D_{85}= 0.2514 D_{60}= 0.1744
D_{50}= 0.1249 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-7-6(6)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 160, Lift 1

Date: 03-17-11

RMT, Inc.

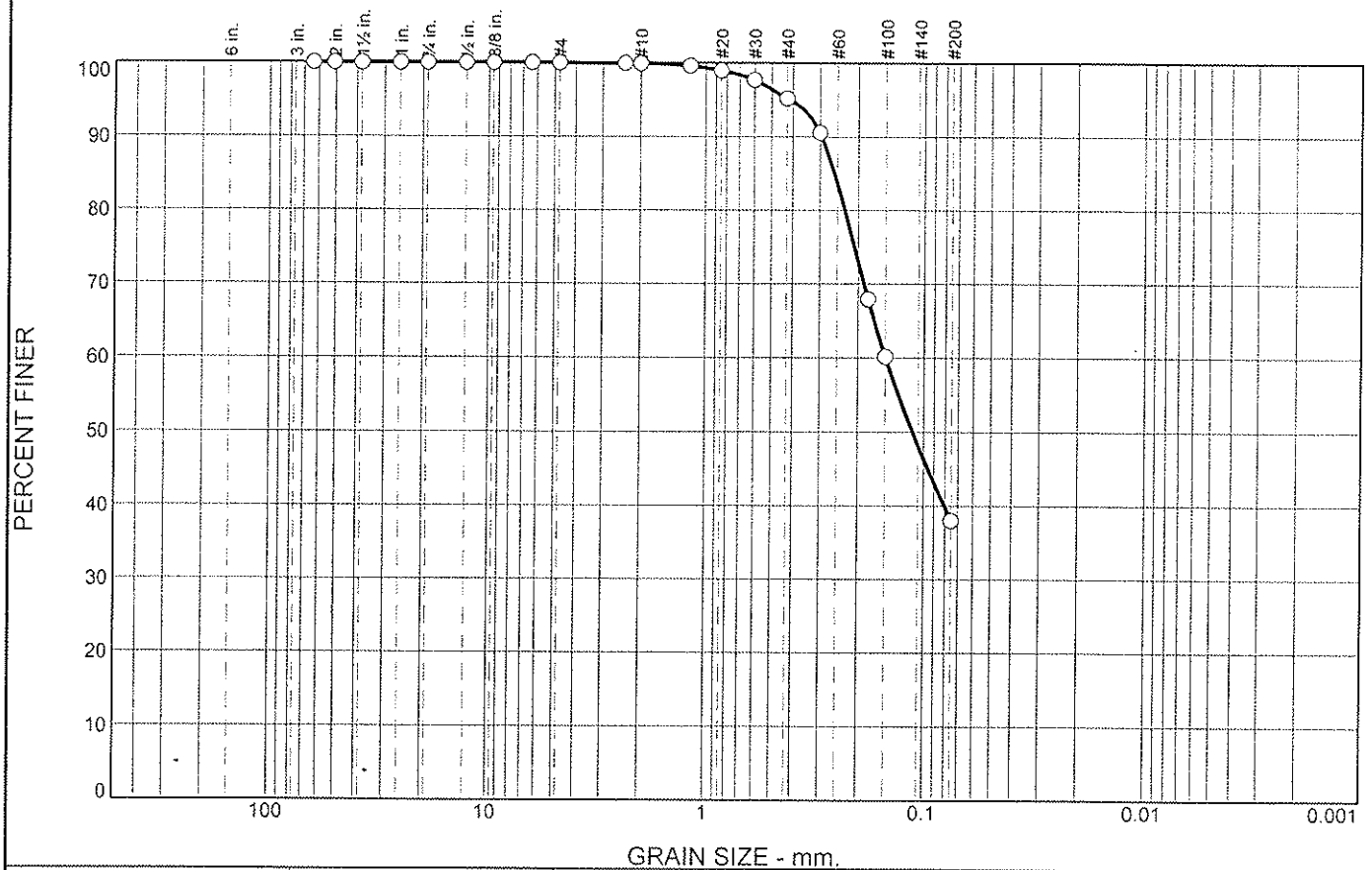
Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	4.7	57.2	38.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	100.0		
#10	99.9		
#16	99.6		
#20	99.0		
#30	97.7		
#40	95.2		
#50	90.6		
#80	67.9		
#100	60.2		
#200	38.0		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 17 LL= 26 PI= 9

Coefficients

D_{90}= 0.2940 D_{85}= 0.2566 D_{60}= 0.1493
D_{50}= 0.1125 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-4(0)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 232, Lift 1

Date: 03-17-11

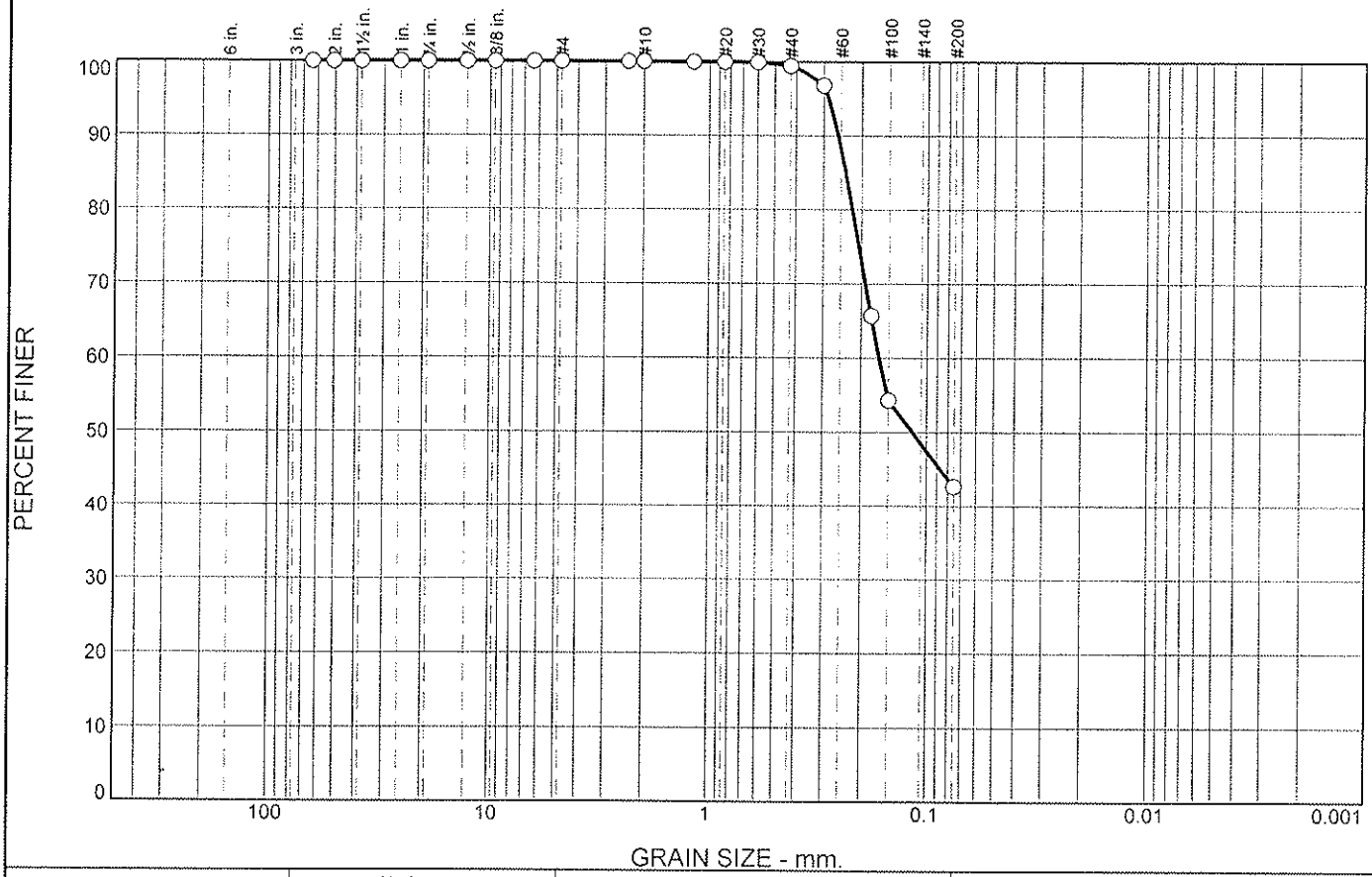
RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar
Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.5	56.9	42.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	100.0		
#10	100.0		
#16	100.0		
#20	100.0		
#30	99.9		
#40	99.5		
#50	96.8		
#80	65.7		
#100	54.3		
#200	42.6		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 15 LL= 26 PI= 11

Coefficients

D_{90}= 0.2568 D_{85}= 0.2366 D_{60}= 0.1654
D_{50}= 0.1161 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(1)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 132, Lift 1

Date: 03-17-11

RMT, Inc.

Madison, Wisconsin

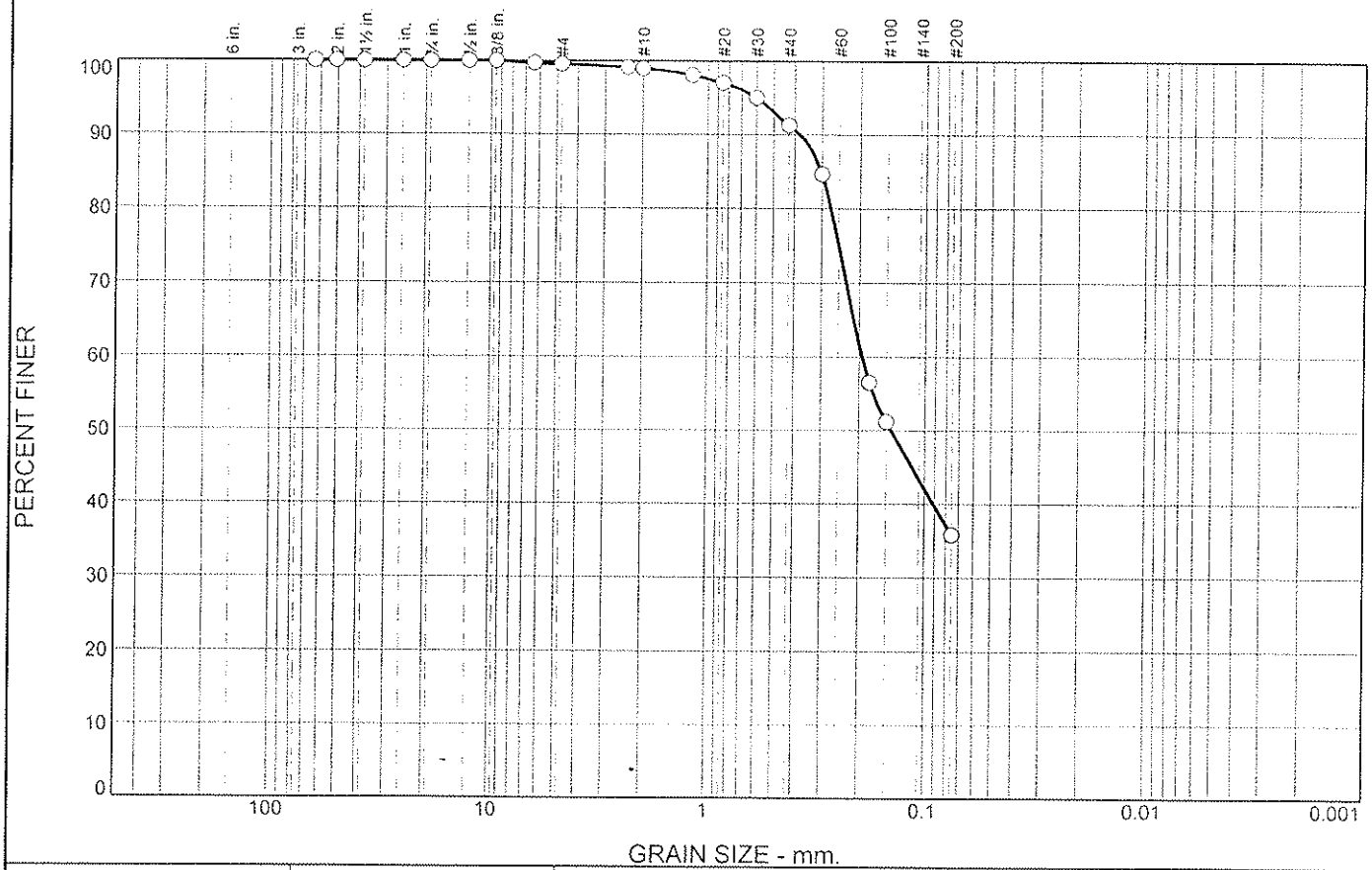
Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

50

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	0.6	7.7	55.5	35.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	99.7		
#4	99.6		
#8	99.2		
#10	99.0		
#16	98.1		
#20	97.1		
#30	95.1		
#40	91.3		
#50	84.7		
#80	56.6		
#100	51.2		
#200	35.8		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 16 LL= 26 PI= 10

Coefficients

D_{90}= 0.3767 D_{85}= 0.3025 D_{60}= 0.1938
D_{50}= 0.1423 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-4(0)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 295, Lift 2

Date: 03-25-11

RMT, Inc.

Madison, Wisconsin

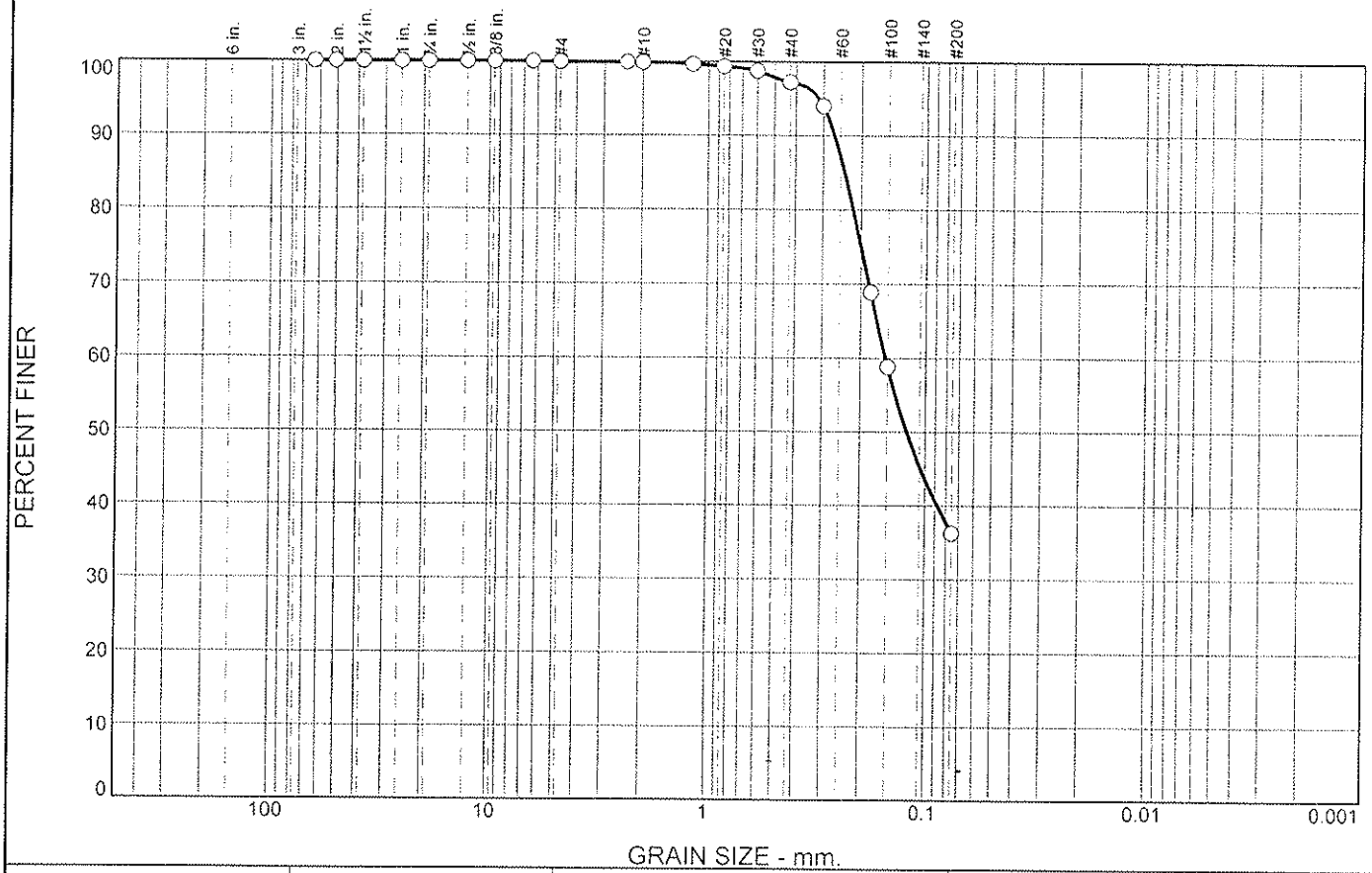
Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

51

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	2.6	61.0	36.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	99.9		
#10	99.9		
#16	99.7		
#20	99.4		
#30	98.8		
#40	97.3		
#50	94.0		
#80	68.9		
#100	58.8		
#200	36.3		

* (no specification provided)

Material Description

Silty, clayey sand

Atterberg Limits

PL= 17 LL= 23 PI= 6

Coefficients

D_{90}= 0.2660 D_{85}= 0.2388 D_{60}= 0.1534
D_{50}= 0.1221 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC-SM AASHTO= A-4(0)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 265, Lift 2

Date: 03-29-11

RMT, Inc.

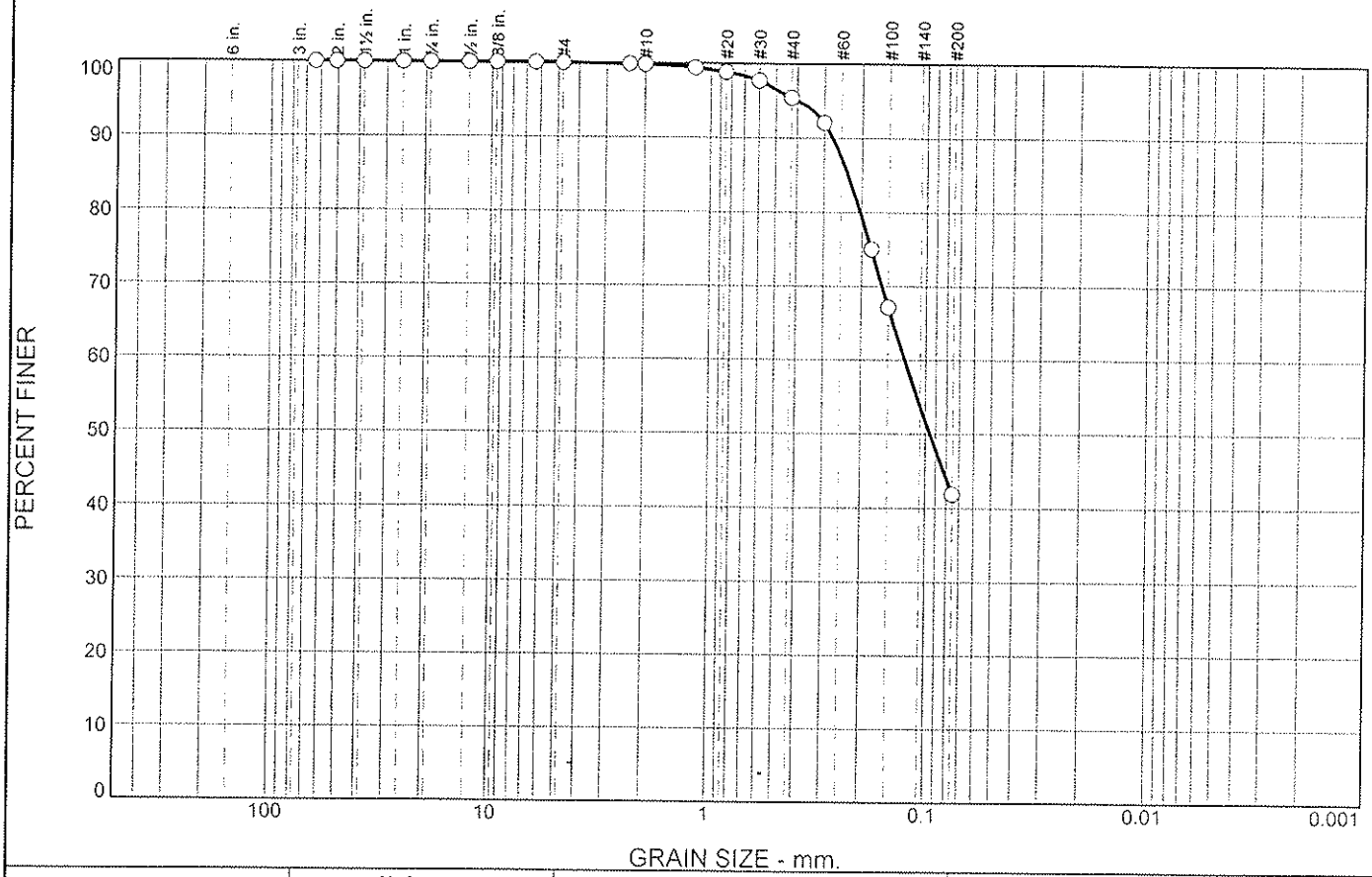
Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	4.4	53.5	41.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	99.9		
#10	99.8		
#16	99.4		
#20	98.8		
#30	97.7		
#40	95.4		
#50	92.1		
#80	75.0		
#100	67.2		
#200	41.9		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 18 LL= 33 PI= 15

Coefficients

D_{90}= 0.2726 D_{85}= 0.2314 D_{60}= 0.1254
D_{50}= 0.0952 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(3)

Remarks

Source of Sample: Prepared Subgrade
Sample Number: Pt. 267, Lift 2

Date: 03-29-11

RMT, Inc.

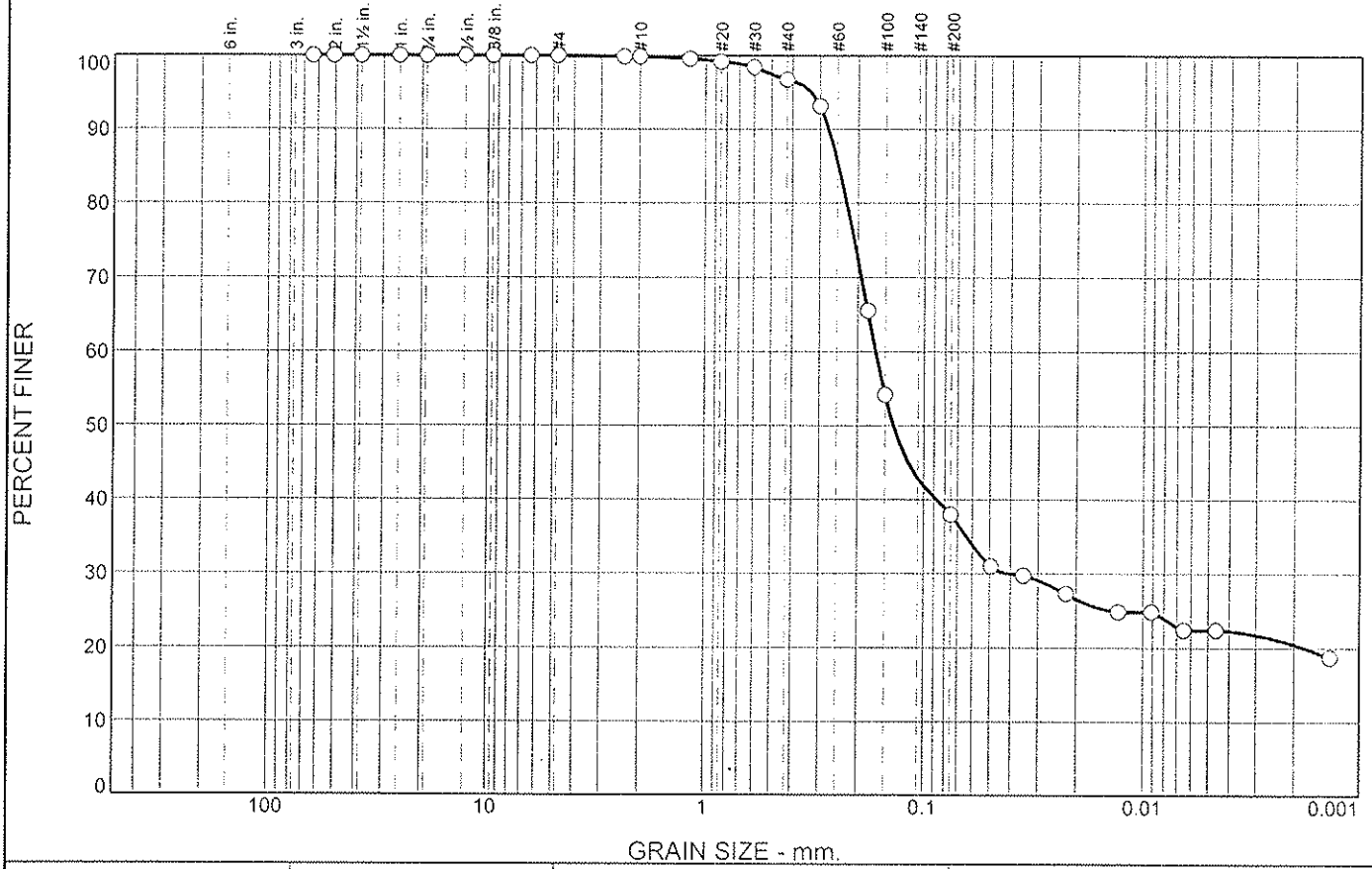
Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	3.1	58.8	15.6	22.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	99.9		
#10	99.9		
#16	99.6		
#20	99.2		
#30	98.5		
#40	96.8		
#50	93.1		
#80	65.6		
#100	54.2		
#200	38.0		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 16 LL= 28 PI= 12

Coefficients

D_{90}= 0.2737 D_{85}= 0.2460 D_{60}= 0.1654
D_{50}= 0.1371 D_{30}= 0.0407 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(1)

Remarks

Source of Sample: Select Clay Fill
Sample Number: Sump Lift 1

Date: 04-20-11

RMT, Inc.

Madison, Wisconsin

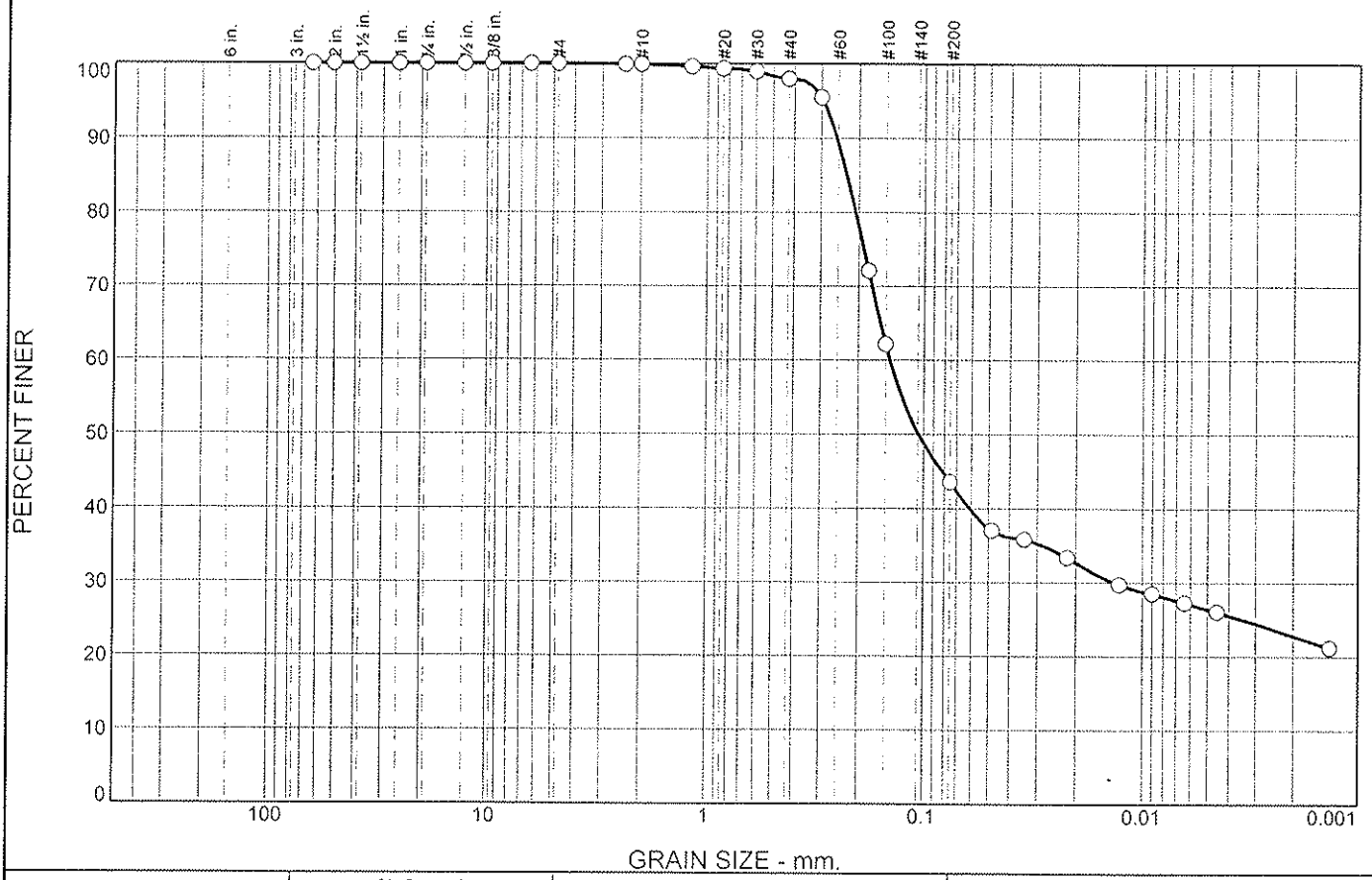
Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

54

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	1.9	54.4	17.2	26.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	100.0		
#8	99.9		
#10	99.9		
#16	99.6		
#20	99.4		
#30	99.0		
#40	98.0		
#50	95.5		
#80	72.1		
#100	62.2		
#200	43.6		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 16 LL= 29 PI= 13

Coefficients

D_{90}= 0.2533 D_{85}= 0.2274 D_{60}= 0.1431
D_{50}= 0.1053 D_{30}= 0.0134 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(2)

Remarks

Source of Sample: Select Clay Fill
Sample Number: Sump Lift 2

Date: 04-20-11

RMT, Inc.

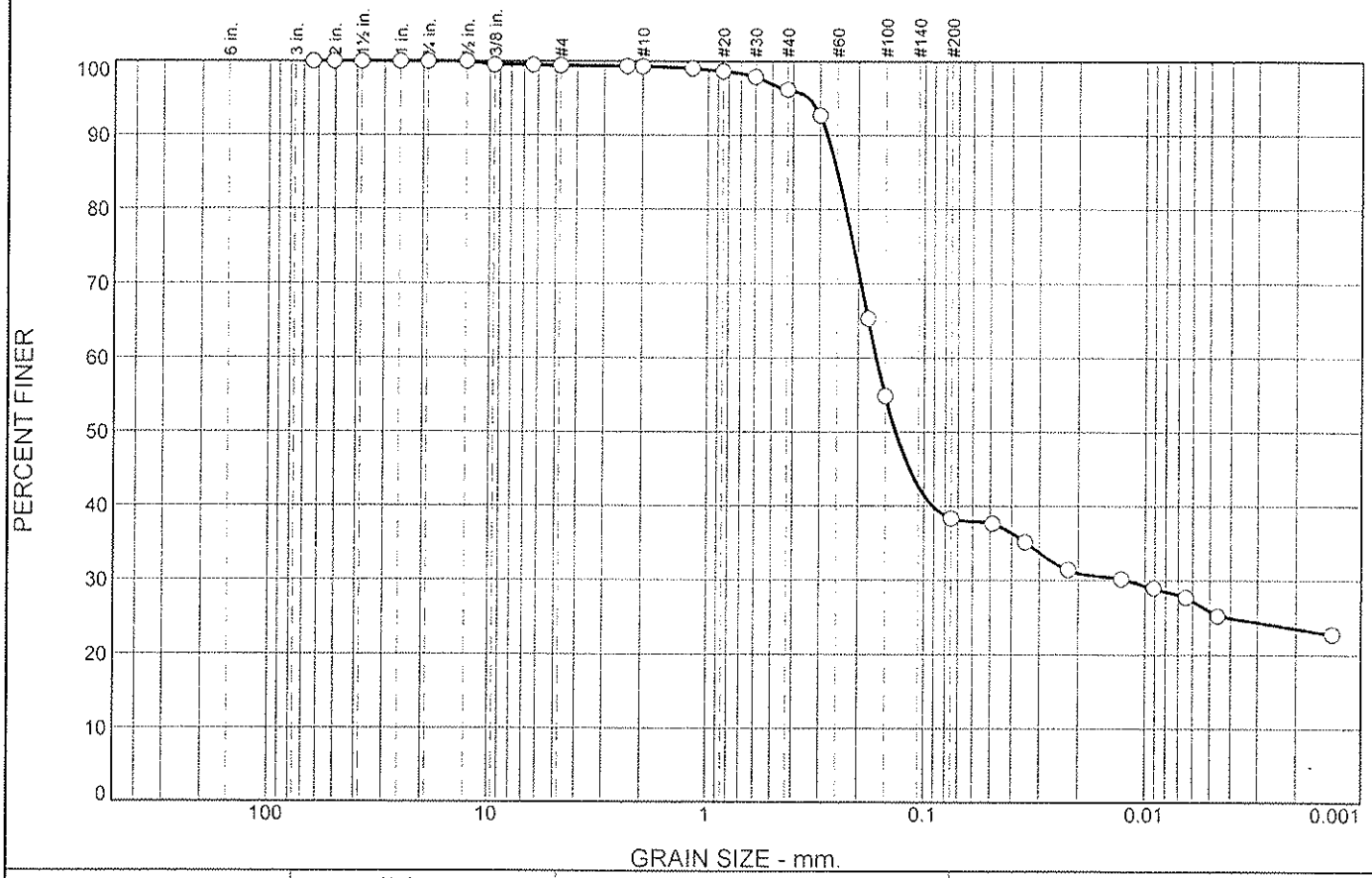
Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.1	3.1	57.8	12.5	25.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
.25	99.6		
#4	99.4		
#8	99.4		
#10	99.3		
#16	99.1		
#20	98.7		
#30	97.9		
#40	96.2		
#50	92.7		
#80	65.3		
#100	54.9		
#200	38.4		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 16 LL= 27 PI= 11

Coefficients

D_{90}= 0.2770 D_{85}= 0.2489 D_{60}= 0.1648
D_{50}= 0.1346 D_{30}= 0.0120 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(1)

Remarks

Source of Sample: Select Clay Fill
Sample Number: Sump Lift 3

Date: 04-20-11

RMT, Inc.

Madison, Wisconsin

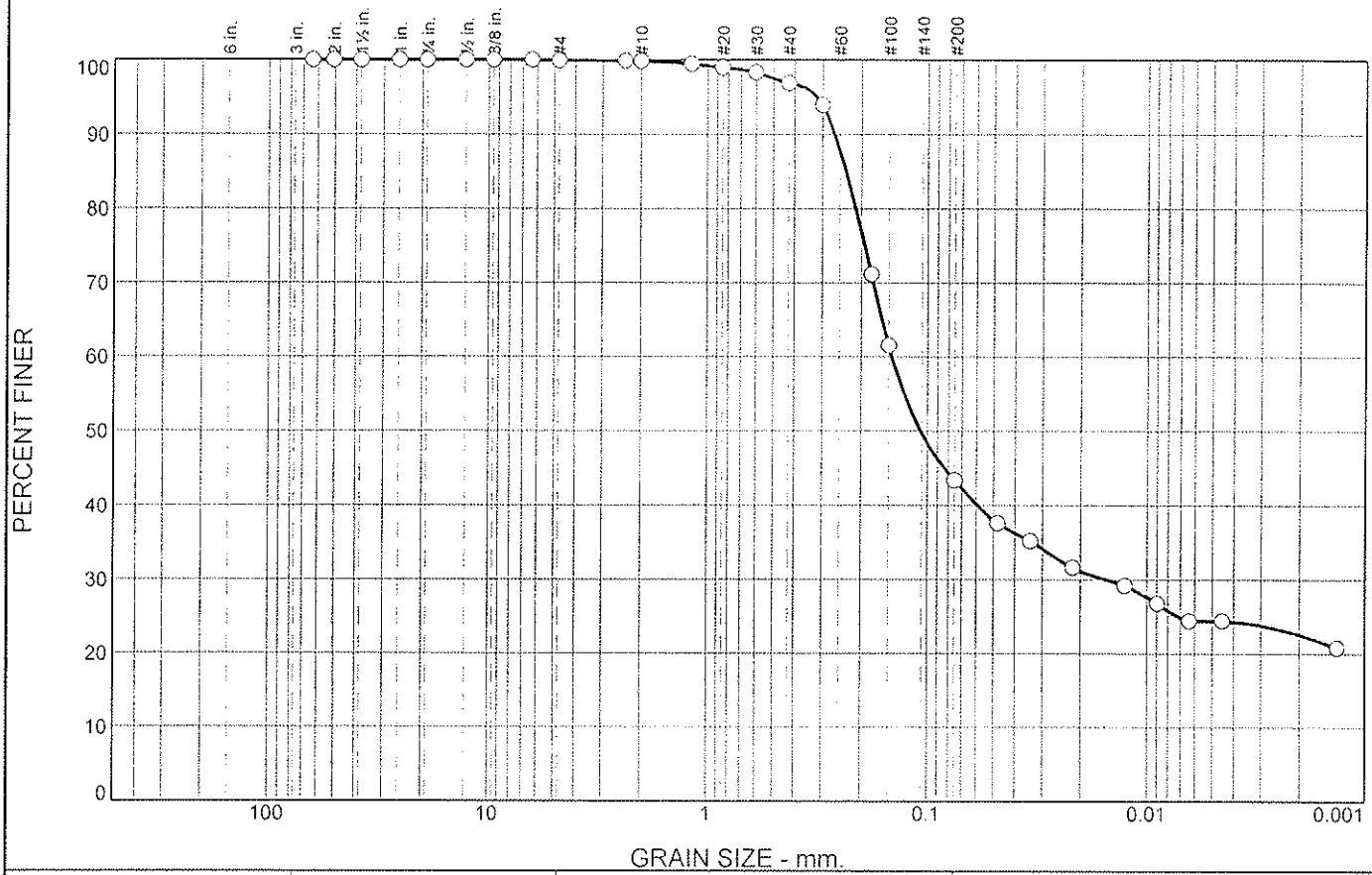
Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

56

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.1	2.9	53.5	19.0	24.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	100.0		
#4	99.9		
#8	99.9		
#10	99.8		
#16	99.4		
#20	99.0		
#30	98.3		
#40	96.9		
#50	94.0		
#80	71.2		
#100	61.6		
#200	43.4		

* (no specification provided)

Material Description

Clayey sand

Atterberg Limits

PL= 16 LL= 32 PI= 16

Coefficients

D_{90}= 0.2632 D_{85}= 0.2340 D_{60}= 0.1449
D_{50}= 0.1074 D_{30}= 0.0150 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(3)

Remarks

Source of Sample: Select Clay Fill
Sample Number: Sump Lift 4

Date: 04-20-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar
Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

51

Hydraulic Conductivity

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC: HJW

QA: JPH

Project Name:	Domtar	Cell #:	6
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 132, Lift 1	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	5.9E-05 cm/sec

Sample Type: Undisturbed	Initial Values	Final Values		
Sample Dia. (in)	2.86	2.86	Permeant:	Water
Sample Ht. (in)	2.30	2.30	Permeant Specific Gravity:	1.00
Tare & Wet (g)	481.60	793.30	Sample Specific Gravity:	2.64 Est.
Tare & Dry (g)	416.05	708.90	Confining Pressure (psi):	100.0
Tare (g)	0.00	292.85	Burette Diameter (in):	0.250
Sample Wt. (g)	481.60	500.45	Burette Zero (cm):	100.0
Moisture (%)	15.8	20.3	Maximum Gradient:	13.9
Wet Density (pcf)	124.2	129.0	Average Gradient:	10.2
Dry Density (pcf)	107.3	107.3	Max. Effect. Stress (psi):	5.9
Saturation (%)	77.6	100.0	Min. Effect. Stress (psi):	4.4
			Ave. Effect. Stress (psi):	5.1

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	16	12	40.00		0.0	95	95	35.30		16.40		102.05				
2	2011	3	16	12	41.00	60	23.0	95	95	35.30	0.00	26.90	10.50	91.55	10.50	0.0	9.7E-05	
3	2011	3	16	12	42.00	60	23.0	95	95	35.30	0.00	35.10	8.20	83.35	8.20	0.0	1.0E-04	
4	2011	3	16	12	43.00	60	23.0	95	95	35.30	0.00	41.20	6.10	77.25	6.10	0.0	1.0E-04	
5	2011	3	16	12	44.00	60	23.0	95	95	35.30	0.00	45.75	4.55	72.70	4.55	0.0	1.0E-04	
6	2011	3	16	14	45.00		0.0	95	95	37.50		6.50		102.60				
7	2011	3	16	14	46.00	60	22.5	95	95	37.50	0.00	15.50	9.00	93.60	9.00	0.0	7.4E-05	
8	2011	3	16	14	47.00	60	22.5	95	95	37.50	0.00	22.50	7.00	86.60	7.00	0.0	7.0E-05	
9	2011	3	16	14	48.00	60	22.5	95	95	37.50	0.00	28.25	5.75	80.85	5.75	0.0	7.0E-05	
10	2011	3	16	14	49.00	60	22.5	95	95	37.50	0.00	33.00	4.75	76.10	4.75	0.0	7.1E-05	
11	2011	3	17	7	41.00		0.0	95	95	44.80		3.20		102.10				
12	2011	3	17	7	42.00	60	24.0	95	95	44.80	0.00	11.90	8.70	93.40	8.70	0.0	6.6E-05	
13	2011	3	17	7	43.00	60	24.0	95	95	44.80	0.00	18.80	6.90	86.50	6.90	0.0	6.3E-05	
14	2011	3	17	7	44.00	60	24.0	95	95	44.80	0.00	24.50	5.70	80.80	5.70	0.0	6.2E-05	
15	2011	3	17	7	45.00	60	24.0	95	95	44.80	0.00	29.20	4.70	76.10	4.70	0.0	6.2E-05	
16	2011	3	18	7	45.00		0.0	95	95	49.10		4.20		101.00				
17	2011	3	18	7	46.00	60	23.0	95	95	49.10	0.00	12.60	8.40	92.60	8.40	0.0	6.6E-05	
18	2011	3	18	7	47.00	60	23.0	95	95	49.10	0.00	19.30	6.70	85.90	6.70	0.0	6.3E-05	
19	2011	3	18	7	48.00	60	23.0	95	95	49.10	0.00	24.80	5.50	80.40	5.50	0.0	6.3E-05	
20	2011	3	18	7	49.00	60	23.0	95	95	49.10	0.00	29.60	4.80	75.60	4.80	0.0	6.6E-05	
21	2011	3	18	9	27.00		0.0	95	95	49.60		4.00		101.40				
22	2011	3	18	9	28.00	60	23.0	95	95	49.60	0.00	12.00	8.00	93.40	8.00	0.0	6.2E-05	
23	2011	3	18	9	29.00	60	23.0	95	95	49.60	0.00	18.40	6.40	87.00	6.40	0.0	5.9E-05	1
24	2011	3	18	9	30.00	60	23.0	95	95	49.60	0.00	23.75	5.35	81.65	5.35	0.0	5.9E-05	1
25	2011	3	18	9	31.00	60	23.0	95	95	49.60	0.00	28.30	4.55	77.10	4.55	0.0	5.9E-05	1
26	2011	3	18	9	32.00	60	23.0	95	95	49.60	0.00	32.15	3.85	73.25	3.85	0.0	5.9E-05	1

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column. 5.9E-05 cm/sec

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

61

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC: HJW

QA: JPH

Project Name:	Domtar	Cell #:	7
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 160, Lift 1	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	5.3E-07 cm/sec

Sample Type:	Undisturbed	Initial Values	Final Values			
Sample Dia. (in)		2.87	2.87	Permeant:	Water	
Sample Ht. (in)		2.29	2.29	Permeant Specific Gravity:	1.00	
Tare & Wet (g)		505.40	778.30	Sample Specific Gravity:	2.67	Est.
Tare & Dry (g)		428.30	695.52	Confining Pressure (psi):	100.0	
Tare (g)		0.00	267.22	Burette Diameter (in):	0.250	
Sample Wt. (g)		505.40	511.08	Burette Zero (cm):	100.0	
Moisture (%)		18.0	19.3	Maximum Gradient:	17.3	
Wet Density (pcf)		129.8	131.2	Average Gradient:	12.4	
Dry Density (pcf)		110.0	110.0	Max. Effect. Stress (psi):	5.9	
Saturation (%)		93.2	100.0	Min. Effect. Stress (psi):	4.3	
				Ave. Effect. Stress (psi):	5.0	

	Date		Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	16	12	31.00		0.0	95	95	39.15		13.65		102.75				
2	2011	3	16	12	44.00	780	23.0	95	95	39.60	0.45	15.15	1.50	101.25	1.50	0.0	9.0E-07	
3	2011	3	16	13	4.00	1200	23.0	95	95	39.80	0.20	16.80	1.65	99.60	1.65	0.0	6.7E-07	
4	2011	3	16	13*	35.00	1860	22.5	95	95	40.30	0.50	19.35	2.55	97.05	2.55	0.0	7.2E-07	
5	2011	3	16	14	8.00	1980	22.5	95	95	41.30	1.00	21.80	2.45	94.60	2.45	0.0	6.9E-07	
6	2011	3	16	14	39.00	1860	22.5	95	95	41.40	0.10	23.85	2.05	92.55	2.05	0.0	6.5E-07	
7	2011	3	16	15	10.00	1860	22.0	95	95	41.50	0.10	25.60	1.75	90.80	1.75	0.0	5.9E-07	
8	2011	3	16	15	39.00	1740	22.0	95	95	41.90	0.40	27.40	1.80	89.00	1.80	0.0	6.9E-07	
9	2011	3	16	16	40.00	3660	22.0	95	95	42.30	0.40	29.00	1.60	87.40	1.60	0.0	3.1E-07	
10	2011	3	17	4	59.00		0.0	95	95	48.55		2.95		102.90				
11	2011	3	17	5	32.00	1980	24.0	95	95	48.80	0.25	6.05	3.10	99.80	3.10	0.0	6.5E-07	
12	2011	3	17	6	0.00	1680	24.0	95	95	48.85	0.05	8.40	2.35	97.45	2.35	0.0	6.1E-07	
13	2011	3	17	6	18.00	1080	24.0	95	95	48.90	0.05	9.85	1.45	96.00	1.45	0.0	6.1E-07	
14	2011	3	17	7	1.00	2580	24.0	95	95	49.25	0.35	13.10	3.25	92.75	3.25	0.0	6.1E-07	
15	2011	3	17	9	1.00	7200	24.5	95	95	49.80	0.55	20.50	7.40	85.35	7.40	0.0	5.7E-07	
16	2011	3	17	11	0.00	7140	23.0	95	95	49.70	-0.10	26.50	6.00	79.35	6.00	0.0	5.9E-07	
17	2011	3	17	13	0.00	7200	22.0	95	95	49.20	-0.50	31.15	4.65	74.70	4.65	0.0	5.6E-07	
18	2011	3	17	15	0.00	7200	21.5	95	95	49.90	0.70	34.90	3.75	70.95	3.75	0.0	5.6E-07	
19	2011	3	18	5	54.00		0.0	95	95	52.55		2.45		103.00				
20	2011	3	18	7	55.00	7260	23.0	95	95	53.10	0.55	11.70	9.25	93.75	9.25	0.0	5.7E-07	1
21	2011	3	18	9	55.00	7200	23.0	95	95	53.50	0.40	18.75	7.05	86.70	7.05	0.0	5.4E-07	1
22	2011	3	18	11	55.00	7200	24.0	95	95	53.90	0.40	24.40	5.65	81.05	5.65	0.0	5.1E-07	1
23	2011	3	18	13	20.00	5100	24.0	95	95	54.05	0.15	27.90	3.50	77.55	3.50	0.0	5.2E-07	1
24																		
25																		
26																		

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column.

5.3E-07 cm/sec

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

62

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC: HJW

QA: JPH

Project Name:	Domtar	Cell #:	8
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 186, Lift 1	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	4.0E-05 cm/sec

Sample Type:	Undisturbed	Initial Values	Final Values			
Sample Dia. (in)		2.86	2.86	Permeant:	Water	
Sample Ht. (in)		2.30	2.30	Permeant Specific Gravity:	1.00	
Tare & Wet (g)		469.80	772.50	Sample Specific Gravity:	2.65	Est.
Tare & Dry (g)		379.69	673.50	Confining Pressure (psi):	100.0	
Tare (g)		0.00	293.81	Burette Diameter (in):	0.250	
Sample Wt. (g)		469.80	478.69	Burette Zero (cm):	100.0	
Moisture (%)		23.7	26.1	Maximum Gradient:	13.2	
Wet Density (pcf)		121.1	123.4	Average Gradient:	10.1	
Dry Density (pcf)		97.9	97.9	Max. Effect. Stress (psi):	5.9	
Saturation (%)		91.1	100.0	Min. Effect. Stress (psi):	4.3	
				Ave. Effect. Stress (psi):	5.0	

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	16	12	34.00		0.0	95	95	36.25		15.35		102.60				
2	2011	3	16	12	35.00	60	23.0	95	95	35.90	-0.35	20.40	5.05	97.55	5.05	0.0	4.3E-05	
3	2011	3	16	12	36.00	60	23.0	95	95	35.90	0.00	24.85	4.45	93.10	4.45	0.0	4.2E-05	
4	2011	3	16	12	37.00	60	23.0	95	95	35.90	0.00	28.85	4.00	89.10	4.00	0.0	4.3E-05*	
5	2011	3	16	12	38.00	60	23.0	95	95	35.90	0.00	32.35	3.50	85.60	3.50	0.0	4.3E-05	
6	2011	3	17	7	45.00		0.0	95	95	48.90		2.30		102.60				
7	2011	3	17	7	46.00	60	24.0	95	95	48.90	0.00	8.00	5.70	96.90	5.70	0.0	4.1E-05	
8	2011	3	17	7	47.00	60	24.0	95	95	48.90	0.00	13.10	5.10	91.80	5.10	0.0	4.1E-05	
9	2011	3	17	7	48.00	60	24.0	95	95	48.90	0.00	17.50	4.40	87.40	4.40	0.0	4.0E-05	
10	2011	3	17	7	49.00	60	24.0	95	95	48.90	0.00	21.40	3.90	83.50	3.90	0.0	4.0E-05	
11	2011	3	18	7	52.00		0.0	95	95	54.20		3.60		102.20				
12	2011	3	18	7	53.00	60	23.0	95	95	54.20	0.00	9.10	5.50	96.70	5.50	0.0	4.1E-05	
13	2011	3	18	7	54.00	60	23.0	95	95	54.20	0.00	13.90	4.80	91.90	4.80	0.0	4.0E-05	
14	2011	3	18	7	55.00	60	23.0	95	95	54.20	0.00	18.20	4.30	87.60	4.30	0.0	4.0E-05	
15	2011	3	18	7	56.00	60	23.0	95	95	54.20	0.00	22.00	3.80	83.80	3.80	0.0	4.0E-05	
16	2011	3	18	7	57.00	60	23.0	95	95	54.20	0.00	25.30	3.30	80.50	3.30	0.0	3.9E-05	
17	2011	3	18	7	58.00	60	23.0	95	95	54.20	0.00	28.30	3.00	77.50	3.00	0.0	4.0E-05	
18	2011	3	18	7	59.00	60	23.0	95	95	54.20	0.00	31.00	2.70	74.80	2.70	0.0	4.0E-05	
19	2011	3	18	9	44.00		0.0	95	95	54.50		3.15		100.20				
20	2011	3	18	9	45.00	60	23.0	95	95	54.50	0.00	8.60	5.45	94.75	5.45	0.0	4.1E-05	
21	2011	3	18	9	46.00	60	23.0	95	95	54.50	0.00	13.20	4.60	90.15	4.60	0.0	3.9E-05	
22	2011	3	18	9	47.00	60	23.0	95	95	54.50	0.00	17.35	4.15	86.00	4.15	0.0	4.0E-05	1
23	2011	3	18	9	48.00	60	23.0	95	95	54.50	0.00	21.10	3.75	82.25	3.75	0.0	4.0E-05	1
24	2011	3	18	9	49.00	60	23.0	95	95	54.50	0.00	24.40	3.30	78.95	3.30	0.0	4.0E-05	1
25	2011	3	18	9	50.00	60	23.0	95	95	54.50	0.00	27.30	2.90	76.05	2.90	0.0	3.9E-05	1
26	2011	3	18	9	51.00	60	23.0	95	95	54.50	0.00	30.00	2.70	73.35	2.70	0.0	4.1E-05	1

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column.

4.0E-05 cm/sec

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

63

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC: HJW

QA: JPH

Project Name:	Domtar	Cell #:	9
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 204, Lift 1	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	1.1E-05 cm/sec

Sample Type: Undisturbed	Initial Values	Final Values			
Sample Dia. (in)	2.86	2.86	Permeant:	Water	
Sample Ht. (in)	2.32	2.32	Permeant Specific Gravity:	1.00	
Tare & Wet (g)	497.40	778.10	Sample Specific Gravity:	2.58	Est.
Tare & Dry (g)	421.21	698.40	Confining Pressure (psi):	100.0	
Tare (g)	0.00	277.19	Burette Diameter (in):	0.250	
Sample Wt. (g)	497.40	500.91	Burette Zero (cm):	100.0	
Moisture (%)	18.1	18.9	Maximum Gradient:	16.1	
Wet Density (pcf)	127.9	128.8	Average Gradient:	14.6	
Dry Density (pcf)	108.3	108.3	Max. Effect. Stress (psi):	6.0	
Saturation (%)	95.6	100.0	Min. Effect. Stress (psi):	4.3	
			Ave. Effect. Stress (psi):	5.1	

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top		Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	16	12	57.00		0.0	95	95	34.10		9.85		103.20				
2	2011	3	16	12	58.00	60	23.0	95	95	34.10	0.00	11.55	1.70	101.50	1.70	0.0	1.3E-05	
3	2011	3	16	12	59.00	60	23.0	95	95	34.10	0.00	13.00	1.45	100.05	1.45	0.0	1.1E-05	
4	2011	3	16	13	0.00	60	*23.0	95	95	34.10	0.00	14.35	1.35	98.70	1.35	0.0	1.1E-05	
5	2011	3	16	13	1.00	60	23.0	95	95	34.10	0.00	15.70	1.35	97.35	1.35	0.0	1.1E-05	
6	2011	3	17	7	51.00		0.0	95	95	46.60		2.60		103.40				
7	2011	3	17	7	52.00	60	24.0	95	95	46.60	0.00	4.25	1.65	101.75	1.65	0.0	1.1E-05	
8	2011	3	17	7	53.00	60	24.0	95	95	46.60	0.00	5.70	1.45	100.30	1.45	0.0	1.0E-05	
9	2011	3	17	7	54.00	60	24.0	95	95	46.60	0.00	7.10	1.40	98.90	1.40	0.0	1.0E-05	
10	2011	3	17	7	55.00	60	24.0	95	95	46.60	0.00	8.40	1.30	97.60	1.30	0.0	9.8E-06	
11	2011	3	18	8	2.00		0.0	95	95	50.40		3.90		102.30				
12	2011	3	18	8	3.00	60	23.0	95	95	50.40	0.00	5.50	1.60	100.70	1.60	0.0	1.2E-05	
13	2011	3	18	8	4.00	60	23.0	95	95	50.40	0.00	6.90	1.40	99.30	1.40	0.0	1.0E-05	
14	2011	3	18	8	5.00	60	23.0	95	95	50.40	0.00	8.30	1.40	97.90	1.40	0.0	1.1E-05	
15	2011	3	18	8	6.00	60	23.0	95	95	50.40	0.00	9.60	1.30	96.60	1.30	0.0	1.0E-05	
16	2011	3	18	8	7.00	60	23.0	95	95	50.40	0.00	10.85	1.25	95.35	1.25	0.0	1.0E-05	
17	2011	3	18	8	8.00	60	23.0	95	95	50.40	0.00	12.10	1.25	94.10	1.25	0.0	1.1E-05	
18	2011	3	18	8	9.00	60	23.0	95	95	50.40	0.00	13.30	1.20	92.90	1.20	0.0	1.0E-05	
19	2011	3	18	10	15.00		0.0	95	95	50.90		4.90		102.40				
20	2011	3	18	10	16.00	60	23.0	95	95	50.90	0.00	6.40	1.50	100.90	1.50	0.0	1.1E-05	
21	2011	3	18	10	17.00	60	23.0	95	95	50.90	0.00	8.00	1.60	99.30	1.60	0.0	1.2E-05	1
22	2011	3	18	10	18.00	60	23.0	95	95	50.90	0.00	9.40	1.40	97.90	1.40	0.0	1.1E-05	1
23	2011	3	18	10	19.00	60	23.0	95	95	50.90	0.00	10.85	1.45	96.45	1.45	0.0	1.2E-05	1
24	2011	3	18	10	20.00	60	23.0	95	95	50.90	0.00	12.20	1.35	95.10	1.35	0.0	1.1E-05	1
25	2011	3	18	10	21.00	60	23.0	95	95	50.90	0.00	13.45	1.25	93.85	1.25	0.0	1.1E-05	1
26	2011	3	18	10	22.00	60	23.0	95	95	50.90	0.00	14.70	1.25	92.60	1.25	0.0	1.1E-05	1

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column. 1.1E-05 cm/sec

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC:

QA:

Project Name:	Domtar	Cell #:	10
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 232, Lift 1	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	1.1E-06 cm/sec

Sample Type: Undisturbed	Initial Values	Final Values		
Sample Dia. (in)	2.86	2.86	Permeant:	Water
Sample Ht. (in)	2.29	2.29	Permeant Specific Gravity:	1.00
Tare & Wet (g)	476.60	742.80	Sample Specific Gravity:	2.61 Est.
Tare & Dry (g)	390.54	651.40	Confining Pressure (psi):	100.0
Tare (g)	0.00	260.86	Burette Diameter (in):	0.250
Sample Wt. (g)	476.60	481.94	Burette Zero (cm):	100.0
Moisture (%)	22.0	23.4	Maximum Gradient:	7.8
Wet Density (pcf)	123.4	124.8	Average Gradient:	5.9
Dry Density (pcf)	101.1	101.1	Max. Effect. Stress (psi):	6.0
Saturation (%)	94.2	100.0	Min. Effect. Stress (psi):	4.5
			Ave. Effect. Stress (psi):	5.2

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	17	10	39.00		0.0	95	95	30.15		2.75		102.80				
2	2011	3	17	10	45.00	360	24.0	95	95	30.15	0.00	4.00	1.25	101.55	1.25	0.0	1.4E-06	
3	2011	3	17	11	1.00	960	23.0	95	95	29.80	-0.35	6.85	2.85	98.70	2.85	0.0	1.3E-06	
4	2011	3	17	11	11.00	600	23.0	95	95	29.70	-0.10	8.55	1.70	97.00	1.70	0.0	1.3E-06	
5	2011	3	17	11	41.00	1800	22.5	95	95	29.70	0.00	13.40	4.85	92.15	4.85	0.0	1.4E-06	
6	2011	3	17	12	13.00	1920	22.0	95	95	30.05	0.35	18.35	4.95	87.20	4.95	0.0	1.5E-06	
7	2011	3	17	12	43.00	1800	22.0	95	95	30.50	0.45	22.40	4.05	83.15	4.05	0.0	1.5E-06	
8	2011	3	17	13	14.00	1860	22.0	95	95	31.05	0.55	26.05	3.65	79.50	3.65	0.0	1.5E-06	
9	2011	3	17	13	45.00	1860	22.0	95	95	31.50	0.45	29.25	3.20	76.30	3.20	0.0	1.5E-06	
10	2011	3	17	14	16.00	1860	21.5	95	95	32.00	0.50	32.20	2.95	73.35	2.95	0.0	1.6E-06	
11	2011	3	17	14	46.00	1800	21.5	95	95	32.50	0.50	34.40	2.20	71.15	2.20	0.0	1.4E-06	
12	2011	3	17	15	17.00	1860	21.5	95	95	32.90	0.40	36.80	2.40	68.75	2.40	0.0	1.6E-06	
13	2011	3	17	15	47.00	1800	21.5	95	95	33.30	0.40	38.60	1.80	66.95	1.80	0.0	1.4E-06	
14	2011	3	17	16	17.00	1800	21.5	95	95	33.70	0.40	40.30	1.70	65.25	1.70	0.0	1.5E-06	
15	2011	3	18	5	55.00		0.0	95	95	38.50		2.45		103.55				
16	2011	3	18	7	42.00	6420	23.0	95	95	39.10	0.60	18.40	15.95	87.60	15.95	0.0	1.2E-06	
17	2011	3	18	8	12.00	1800	23.0	95	95	39.40	0.30	21.80	3.40	84.20	3.40	0.0	1.2E-06	
18	2011	3	18	8	42.00	1800	23.0	95	95	39.40	0.00	24.90	3.10	81.10	3.10	0.0	1.2E-06	
19	2011	3	18	9	13.00	1860	23.0	95	95	39.75	0.35	27.75	2.85	78.25	2.85	0.0	1.2E-06	
20	2011	3	18	9	43.00	1800	23.0	95	95	39.70	-0.05	30.25	2.50	75.75	2.50	0.0	1.2E-06	
21	2011	3	18	10	13.00	1800	23.0	95	95	39.90	0.20	32.40	2.15	73.60	2.15	0.0	1.1E-06	1
22	2011	3	18	10	43.00	1800	23.0	95	95	40.10	0.20	34.40	2.00	71.60	2.00	0.0	1.2E-06	1
23	2011	3	18	11	13.00	1800	23.0	95	95	40.25	0.15	36.20	1.80	69.80	1.80	0.0	1.2E-06	1
24	2011	3	18	11	43.00	1800	23.0	95	95	40.50	0.25	37.80	1.60	68.20	1.60	0.0	1.2E-06	1
25	2011	3	18	12	13.00	1800	24.0	95	95	40.80	0.30	39.20	1.40	66.80	1.40	0.0	1.1E-06	1
26	2011	3	18	12	43.00	1800	24.0	95	95	40.85	0.05	40.45	1.25	65.55	1.25	0.0	1.1E-06	1

**A zero in this column starts a series of measurements.
(Termination determined by stable Kv and low flow differential.)

*Average Kv for those rows with a 1 in the Ave. column.

1.1E-06 cm/sec

***Kv adjusted for temperature.

65

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC:

QA:

Project Name:	Domtar	Cell #:	6
Project #:	05794.49.003	USCS Description:	Sandy lean clay
Sample Name:	Prepared Subgrade, Pt. 145, Lift 2	USCS Classification:	CL
Visual Descript:	Sandy lean clay	Average Kv =	2.0E-07 cm/sec

		Initial Values	Final Values			
Sample Type:	Undisturbed					
Sample Dia. (in)		2.86	2.86	Permeant:	Water	
Sample Ht. (in)		2.29	2.29	Permeant Specific Gravity:	1.00	
Tare & Wet (g)		475.70	745.20	Sample Specific Gravity:	2.62	Est.
Tare & Dry (g)		381.90	649.90	Confining Pressure (psi):	100.0	
Tare (g)		0.00	268.00	Burette Diameter (in):	0.250	
Sample Wt. (g)		475.70	477.20	Burette Zero (cm):	100.0	
Moisture (%)		24.6	25.0			
Wet Density (pcf)		123.2	123.6			
Dry Density (pcf)		98.9	98.9	Max. Effect. Stress (psi):	6.0	
Saturation (%)		98.5	100.0	Min. Effect. Stress (psi):	4.5	
				Ave. Effect. Stress (psi):	5.1	

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	21	13	19.00		0.0	95	95	32.70		13.15		103.10				
2	2011	3	21	13	47.00	1680	25.0	95	95	33.20	0.50	16.10	2.95	100.15	2.95	0.0	8.0E-07	
3	2011	3	21	14	16.00	1740	25.0	95	95	33.75	0.55	18.45	2.35	97.80	2.35	0.0	6.5E-07	
4	2011	3	21	14	47.00	1860	25.0	95	95	34.15	0.40	20.65	2.20	95.60	2.20	0.0	6.1E-07	
5	2011	3	21	15	18.00	1860	25.0	95	95	34.50	0.35	22.60	1.95	93.65	1.95	0.0	5.7E-07	
6	2011	3	21	15	48.00	1800	25.0	95	95	34.80	0.30	24.15	1.55	92.10	1.55	0.0	4.9E-07	
7	2011	3	21	16	18.00	1800	25.0	95	95	35.00	0.20	25.50	1.35	90.75	1.35	0.0	4.5E-07	
8	2011	3	22	5	2.00	45840	22.0	95	95	39.00	4.00	43.05	17.55	73.20	17.55	0.0	3.6E-07	
9	2011	3	22	5	4.00		0.0	95	95	39.20		2.55		102.85				
10	2011	3	22	5	38.00	2040	22.0	95	95	39.35	0.15	4.20	1.65	101.20	1.65	0.0	3.5E-07	
11	2011	3	22	6	7.00	1740	22.0	95	95	39.50	0.15	5.45	1.25	99.95	1.25	0.0	3.2E-07	
12	2011	3	22	6	38.00	1860	22.0	95	95	39.65	0.15	6.85	1.40	98.55	1.40	0.0	3.4E-07	
13	2011	3	22	7	38.00	3600	22.5	95	95	40.00	0.35	9.30	2.45	96.10	2.45	0.0	3.2E-07	
14	2011	3	22	8	8.00	1800	22.5	95	95	40.30	0.30	10.40	1.10	95.00	1.10	0.0	3.0E-07	
15	2011	3	22	8	38.00	1800	22.5	95	95	40.40	0.10	11.40	1.00	94.00	1.00	0.0	2.8E-07	
16	2011	3	22	9	8.00	1800	22.5	95	95	40.50	0.10	12.55	1.15	92.85	1.15	0.0	3.3E-07	
17	2011	3	22	9	38.00	1800	23.0	95	95	40.60	0.10	13.60	1.05	91.80	1.05	0.0	3.0E-07	
18	2011	3	22	10	8.00	1800	23.0	95	95	40.80	0.20	14.40	0.80	91.00	0.80	0.0	2.4E-07	
19	2011	3	22	10	45.00	2220	23.0	95	95	40.90	0.10	15.70	1.30	89.70	1.30	0.0	3.2E-07	
20	2011	3	22	11	15.00	1800	23.0	95	95	41.10	0.20	16.50	0.80	88.90	0.80	0.0	2.5E-07	
21	2011	3	22	11	45.00	1800	23.0	95	95	41.20	0.10	17.50	1.00	87.90	1.00	0.0	3.2E-07	
22	2011	3	22	12	15.00	1800	23.0	95	95	41.30	0.10	18.40	0.90	87.00	0.90	0.0	3.0E-07	
23	2011	3	22	12	45.00	1800	23.0	95	95	41.30	0.00	19.20	0.80	86.20	0.80	0.0	2.7E-07	
24	2011	3	22	13	15.00	1800	23.0	95	95	41.30	0.00	20.00	0.80	85.40	0.80	0.0	2.8E-07	
25	2011	3	22	13	45.00	1800	23.0	95	95	41.40	0.10	20.70	0.70	84.70	0.70	0.0	2.5E-07	
26	2011	3	23	5	9.00	55440	22.0	95	95	43.15	1.75	35.35	14.65	70.05	14.65	0.0	2.3E-07	

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column.

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

66

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC:

QA:

Project Name:	Domtar	Cell #:	6
Project #:	05794.49.003	USCS Description:	Sandy lean clay
Sample Name:	Prepared Subgrade, Pt. 145, Lift 2	USCS Classification:	Cl.
Visual Descript:	Sandy lean clay		

Sample Type:	Undisturbed	Initial Values	Final Values			
Sample Dia. (in)		2.86	2.86	Permeant:	Water	
Sample Ht. (in)		2.29	2.29	Permeant Specific Gravity:	1.00	
Tare & Wet (g)		475.70	745.20	Sample Specific Gravity:	2.62	Est.
Tare & Dry (g)		381.90	649.90	Confining Pressure (psi):	100.0	
Tare (g)		0.00	268.00	Burette Diameter (in):	0.250	
Sample Wt. (g)		475.70	477.20	Burette Zero (cm):	100.0	

Moisture (%)	24.6	25.0	Maximum Gradient:	6.0
Wet Density (pcf)	123.2	123.6	Average Gradient:	5.0
Dry Density (pcf)	98.9	98.9	Max. Effect. Stress (psi):	5.4
Saturation (%)	98.5	100.0	Min. Effect. Stress (psi):	4.9
			Ave. Effect. Stress (psi):	5.1

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	23	5	9.00		0.0	95	95	43.15		35.35		70.05				
2	2011	3	23	7	12.00	7380	22.0	95	95	43.45	0.30	36.65	1.30	68.75	1.30	0.0	2.2E-07	1
3	2011	3	23	9	12.00	7200	22.0	95	95	44.25	0.80	37.65	1.00	67.75	1.00	0.0	1.9E-07	1
4	2011	3	23	11	14.00	7320	24.0	95	95	45.20	0.95	38.70	1.05	66.70	1.05	0.0	2.0E-07	1
5	2011	3	23	13	15.00	7260	23.0	95	95	44.40	-0.80	39.60	0.90	65.80	0.90	0.0	1.9E-07	1
6	2011	3	23	15	15.00	7200	23.0	95	95	44.30	-0.10	40.40	0.80	65.00	0.80	0.0	1.8E-07	1
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
21																		
22																		
23																		
24																		
25																		
26																		

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column.

2.0E-07 cm/sec

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

67

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC:

QA:

Project Name:	Domtar	Cell #:	7
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 217, Lift 2	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	2.2E-07 cm/sec

Sample Type: Undisturbed	Initial Values	Final Values		
Sample Dia. (in)	2.86	2.86	Permeant:	Water
Sample Ht. (in)	2.30	2.30	Permeant Specific Gravity:	1.00
Tare & Wet (g)	502.20	773.70	Sample Specific Gravity:	2.64 Est.
Tare & Dry (g)	420.60	691.20	Confining Pressure (psi):	100.0
Tare (g)	0.00	270.60	Burette Diameter (in):	0.250
Sample Wt. (g)	502.20	503.10	Burette Zero (cm):	100.0
Moisture (%)	19.4	19.6		
Wet Density (pcf)	129.5	129.7		
Dry Density (pcf)	108.4	108.4	Max. Effect. Stress (psi):	6.0
Saturation (%)	98.9	100.0	Min. Effect. Stress (psi):	4.5
			Ave. Effect. Stress (psi):	5.1

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	21	13	17.00		0.0	95	95	31.65		10.75		102.75				
2	2011	3	21	13	49.00	1920	25.0	95	95	32.20	0.55	12.45	1.70	101.05	1.70	0.0	3.9E-07	
3	2011	3	21	14	16.00	1620	25.0	95	95	32.75	0.55	13.75	1.30	99.75	1.30	0.0	3.6E-07	
4	2011	3	21	14	47.00	1860	25.0	95	95	33.15	0.40	15.15	1.40	98.35	1.40	0.0	3.5E-07	*
5	2011	3	21	15	19.00	1920	25.0	95	95	33.80	0.65	16.55	1.40	96.95	1.40	0.0	3.5E-07	
6	2011	3	21	15	49.00	1800	25.0	95	95	34.20	0.40	17.80	1.25	95.70	1.25	0.0	3.3E-07	
7	2011	3	21	16	19.00	1800	25.0	95	95	34.40	0.20	18.90	1.10	94.60	1.10	0.0	3.2E-07	
8	2011	3	22	5	2.00	45780	22.0	95	95	39.55	5.15	37.05	18.15	76.45	18.15	0.0	3.0E-07	
9	2011	3	22	5	5.00		0.0	95	95	39.75		3.45		102.20				
10	2011	3	22	5	38.00	1980	22.0	95	95	39.90	0.15	4.85	1.40	100.80	1.40	0.0	3.1E-07	
11	2011	3	22	6	7.00	1740	22.0	95	95	40.20	0.30	6.00	1.15	99.65	1.15	0.0	3.0E-07	
12	2011	3	22	6	38.00	1860	22.0	95	95	40.30	0.10	7.15	1.15	98.50	1.15	0.0	2.8E-07	
13	2011	3	22	7	39.00	3660	22.5	95	95	40.70	0.40	9.35	2.20	96.30	2.20	0.0	2.9E-07	
14	2011	3	22	8	9.00	1800	22.5	95	95	41.00	0.30	10.40	1.05	95.25	1.05	0.0	2.9E-07	
15	2011	3	22	8	39.00	1800	22.5	95	95	41.20	0.20	11.40	1.00	94.25	1.00	0.0	2.8E-07	
16	2011	3	22	9	9.00	1800	22.5	95	95	41.40	0.20	12.30	0.90	93.35	0.90	0.0	2.6E-07	
17	2011	3	22	9	39.00	1800	23.0	95	95	41.50	0.10	13.30	1.00	92.35	1.00	0.0	2.9E-07	
18	2011	3	22	10	9.00	1800	23.0	95	95	41.70	0.20	14.20	0.90	91.45	0.90	0.0	2.7E-07	
19	2011	3	22	10	46.00	2220	23.0	95	95	41.80	0.10	15.30	1.10	90.35	1.10	0.0	2.7E-07	
20	2011	3	22	11	16.00	1800	23.0	95	95	41.90	0.10	16.10	0.80	89.55	0.80	0.0	2.5E-07	
21	2011	3	22	11	46.00	1800	23.0	95	95	42.10	0.20	17.00	0.90	88.65	0.90	0.0	2.9E-07	
22	2011	3	22	12	16.00	1800	23.0	95	95	42.30	0.20	17.80	0.80	87.85	0.80	0.0	2.6E-07	
23	2011	3	22	12	46.00	1800	23.0	95	95	42.30	0.00	18.55	0.75	87.10	0.75	0.0	2.5E-07	
24	2011	3	22	13	16.00	1800	23.0	95	95	42.40	0.10	19.30	0.75	86.35	0.75	0.0	2.6E-07	
25	2011	3	22	13	46.00	1800	23.0	95	95	42.50	0.10	20.05	0.75	85.60	0.75	0.0	2.6E-07	
26	2011	3	23	5	10.00	55440	22.0	95	95	44.30	1.80	35.50	15.45	70.15	15.45	0.0	2.4E-07	

**A zero in this column starts a series of measurements.
(Termination determined by stable Kv and low flow differential.)

*Average Kv for those rows with a 1 in the Ave. column.

***Kv adjusted for temperature.

68

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC:

QA:

Project Name:	Domtar	Cell #:	7
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 217, Lift 2	USCS Classification:	SC
Visual Descript:	Clayey sand		

Sample Type: Undisturbed	Initial Values	Final Values			
Sample Dia. (in)	2.86	2.86	Permeant:	Water	
Sample Ht. (in)	2.30	2.30	Permeant Specific Gravity:	1.00	
Tare & Wet (g)	502.20	773.70	Sample Specific Gravity:	2.64	Est.
Tare & Dry (g)	420.60	691.20	Confining Pressure (psi):	100.0	
Tare (g)	0.00	270.60	Burette Diameter (in):	0.250	
Sample Wt. (g)	502.20	503.10	Burette Zero (cm):	100.0	

Moisture (%)	19.4	19.6	Maximum Gradient:	5.5
Wet Density (pcf)	129.5	129.7	Average Gradient:	4.7
Dry Density (pcf)	108.4	108.4	Max. Effect. Stress (psi):	5.4
Saturation (%)	98.9	100.0	Min. Effect. Stress (psi):	4.9
			Ave. Effect. Stress (psi):	5.1

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C***	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	23	5	10.00		0.0	95	95	44.30		35.50		70.15				
2	2011	3	23	7	12.00	7320	22.0	95	95	45.10	0.80	36.85	1.35	68.80	1.35	0.0	2.4E-07	
3	2011	3	23	9	12.00	7200	22.0	95	95	45.80	0.70	38.00	1.15	67.65	1.15	0.0	2.2E-07	1
4	2011	3	23	11	15.00	7380	24.0	95	95	46.85	1.05	39.20	1.20	66.45	1.20	0.0	2.3E-07	1
5	2011	3	23	13	16.00	7260	23.0	95	95	46.20	-0.65	40.10	0.90	65.55	0.90	0.0	2.0E-07	1
6	2011	3	23	15	16.00	7200	23.0	95	95	46.20	0.00	41.05	0.95	64.60	0.95	0.0	2.2E-07	1
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
21																		
22																		
23																		
24																		
25																		
26																		

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column.

2.2E-07 cm/sec

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

69

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC:

QA:

Project Name:	Domtar	Cell #:	8
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 175, Lift 2	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	6.2E-07 cm/sec

Sample Type: Undisturbed	Initial Values	Final Values		
Sample Dia. (in)	2.86	2.86	Permeant:	Water
Sample Ht. (in)	2.29	2.29	Permeant Specific Gravity:	1.00
Tare & Wet (g)	491.00	761.10	Sample Specific Gravity:	2.62 Est.
Tare & Dry (g)	407.50	677.10	Confining Pressure (psi):	100.0
Tare (g)	0.00	269.60	Burette Diameter (in):	0.250
Sample Wt. (g)	491.00	491.50	Burette Zero (cm):	100.0
Moisture (%)	20.5	20.6		
Wet Density (pcf)	127.9	128.0		
Dry Density (pcf)	106.1	106.1	Max. Effect. Stress (psi):	6.1
Saturation (%)	99.3	99.9	Min. Effect. Stress (psi):	4.4
			Ave. Effect. Stress (psi):	5.2

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	21	13	18.00		0.0	95	95	27.75		13.60		103.15				
2	2011	3	21	13	50.00	1920	25.0	95	95	29.40	1.65	19.35	5.75	97.40	5.75	0.0	1.4E-06	
3	2011	3	21	14	17.00	1620	25.0	95	95	30.15	0.75	22.90	3.55	93.85	3.55	0.0	1.2E-06	
4	2011	3	21	14	48.00	1860	25.0	95	95	28.40	-1.75	* 26.35	3.45	90.40	3.45	0.0	1.1E-06	
5	2011	3	21	15	20.00	1920	25.0	95	95	30.45	2.05	28.90	2.55	87.85	2.55	0.0	8.5E-07	
6	2011	3	21	15	50.00	1800	25.0	95	95	31.90	1.45	31.05	2.15	85.70	2.15	0.0	8.3E-07	
7	2011	3	21	16	20.00	1800	25.0	95	95	32.50	0.60	33.10	2.05	83.65	2.05	0.0	8.6E-07	
8	2011	3	22	5	6.00		0.0	95	95	36.40		3.60		103.40				
9	2011	3	22	5	39.00	1980	22.0	95	95	37.80	1.40	6.85	3.25	100.15	3.25	0.0	7.2E-07	
10	2011	3	22	6	8.00	1740	22.0	95	95	38.90	1.10	9.60	2.75	97.40	2.75	0.0	7.4E-07	
11	2011	3	22	6	39.00	1860	22.0	95	95	39.50	0.60	12.45	2.85	94.55	2.85	0.0	7.7E-07	
12	2011	3	22	7	40.00	3660	22.5	95	95	39.60	0.10	17.25	4.80	89.75	4.80	0.0	7.2E-07	
13	2011	3	22	8	10.00	1800	22.5	95	95	40.20	0.60	19.45	2.20	87.55	2.20	0.0	7.4E-07	
14	2011	3	22	8	40.00	1800	22.5	95	95	40.40	0.20	21.50	2.05	85.50	2.05	0.0	7.3E-07	
15	2011	3	22	9	10.00	1800	22.5	95	95	39.90	-0.50	23.35	1.85	83.65	1.85	0.0	7.0E-07	
16	2011	3	22	9	40.00	1800	23.0	95	95	40.80	0.90	25.05	1.70	81.95	1.70	0.0	6.7E-07	
17	2011	3	22	10	10.00	1800	23.0	95	95	41.10	0.30	26.65	1.60	80.35	1.60	0.0	6.7E-07	
18	2011	3	22	10	47.00	2220	23.0	95	95	41.10	0.00	28.60	1.95	78.40	1.95	0.0	7.0E-07	
19	2011	3	22	11	17.00	1800	23.0	95	95	39.00	-2.10	30.30	1.70	76.70	1.70	0.0	8.1E-07	
20	2011	3	22	11	47.00	1800	23.0	95	95	40.60	1.60	31.40	1.10	75.60	1.10	0.0	5.6E-07	
21	2011	3	22	12	17.00	1800	23.0	95	95	41.80	1.20	32.70	1.30	74.30	1.30	0.0	7.0E-07	
22	2011	3	22	12	47.00	1800	23.0	95	95	42.00	0.20	33.85	1.15	73.15	1.15	0.0	6.5E-07	
23	2011	3	22	13	17.00	1800	23.0	95	95	42.30	0.30	35.05	1.20	71.95	1.20	0.0	7.3E-07	
24	2011	3	22	13	47.00	1800	23.0	95	95	42.50	0.20	36.10	1.05	70.90	1.05	0.0	6.7E-07	
25	2011	3	23	5	6.00		0.0	95	95	44.85		2.25		103.10				
26	2011	3	23	5	36.00	1800	22.0	95	95	46.00	1.15	5.05	2.80	100.30	2.80	0.0	6.7E-07	

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column.

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

10

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC:

QA:

Project Name:	Domtar	Cell #:	8
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 175, Lift 2	USCS Classification:	SC
Visual Descript:	Clayey sand		

Sample Type:	Undisturbed	Initial Values	Final Values			
Sample Dia. (in)		2.86	2.86	Permeant:	Water	
Sample Ht. (in)		2.29	2.29	Permeant Specific Gravity:	1.00	
Tare & Wet (g)		491.00	761.10	Sample Specific Gravity:	2.62	Est.
Tare & Dry (g)		407.50	677.10	Confining Pressure (psi):	100.0	
Tare (g)		0.00	269.60	Burette Diameter (in):	0.250	
Sample Wt. (g)		491.00	491.50	Burette Zero (cm):	100.0	
Moisture (%)		20.5	20.6	Maximum Gradient:	7.9	
Wet Density (pcf)		127.9	128.0	Average Gradient:	6.7	
Dry Density (pcf)		106.1	106.1	Max. Effect. Stress (psi):	5.8	
Saturation (%)		99.3	99.9	Min. Effect. Stress (psi):	4.4	
				Ave. Effect. Stress (psi):	5.1	

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	23	5	36.00		0.0	95	95	46.00		5.05		100.30				
2	2011	3	23	6	10.00	2040	22.0	95	95	45.90	-0.10	8.15	3.10	97.20	3.10	0.0	7.0E-07	
3	2011	3	23	6	39.00	1740	22.0	95	95	46.35	0.45	10.60	2.45	94.75	2.45	0.0	6.9E-07	
4	2011	3	23	7	10.00	1860	22.0	95	95	46.55	0.20	13.05	2.45	92.30	2.45	0.0	6.8E-07	
5	2011	3	23	7	40.00	1800	22.0	95	95	46.65	0.10	15.25	2.20	90.10	2.20	0.0	6.7E-07	
6	2011	3	23	8	10.00	1800	22.0	95	95	44.70	-1.95	17.50	2.25	87.85	2.25	0.0	7.3E-07	
7	2011	3	23	8	40.00	1800	22.0	95	95	44.70	0.00	19.50	2.00	85.85	2.00	0.0	6.9E-07	
8	2011	3	23	9	10.00	1800	22.0	95	95	46.35	1.65	21.10	1.60	84.25	1.60	0.0	5.8E-07	
9	2011	3	23	9	40.00	1800	22.5	95	95	47.20	0.85	22.75	1.65	82.60	1.65	0.0	6.3E-07	
10	2011	3	23	10	31.00	3060	24.0	95	95	46.10	-1.10	25.65	2.90	79.70	2.90	0.0	6.7E-07	
11	2011	3	23	11	2.00	1860	24.0	95	95	46.80	0.70	27.20	1.55	78.15	1.55	0.0	6.4E-07	
12	2011	3	23	11	32.00	1800	24.0	95	95	47.50	0.70	28.55	1.35	76.80	1.35	0.0	6.1E-07	
13	2011	3	23	12	2.00	1800	24.0	95	95	46.90	-0.60	29.85	1.30	75.50	1.30	0.0	6.2E-07	
14	2011	3	23	12	32.00	1800	24.0	95	95	47.30	0.40	31.05	1.20	74.30	1.20	0.0	6.1E-07	1
15	2011	3	23	13	2.00	1800	23.0	95	95	47.20	-0.10	32.15	1.10	73.20	1.10	0.0	6.0E-07	1
16	2011	3	23	13	32.00	1800	23.0	95	95	47.25	0.05	33.30	1.15	72.05	1.15	0.0	6.6E-07	1
17	2011	3	23	14	3.00	1860	23.0	95	95	47.10	-0.15	34.35	1.05	71.00	1.05	0.0	6.2E-07	1
18	2011	3	23	14	32.00	1740	23.0	95	95	47.10	0.00	35.30	0.95	70.05	0.95	0.0	6.3E-07	1
19	2011	3	23	15	2.00	1800	23.0	95	95	47.10	0.00	36.15	0.85	69.20	0.85	0.0	5.8E-07	1
20																		
21																		
22																		
23																		
24																		
25																		
26																		

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column.

6.2E-07 cm/sec

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

71

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC:

QA:

Project Name:	Domtar	Cell #:	9
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 197, Lift 2	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv **	1.1E-06 cm/sec

		Initial Values	Final Values			
Sample Type:	Undisturbed					
Sample Dia. (in)		2.86	2.86	Permeant:	Water	
Sample Ht. (in)		2.30	2.30	Permeant Specific Gravity:	1.00	
Tare & Wet (g)		476.50	738.30	Sample Specific Gravity:	2.60	Est.
Tare & Dry (g)		383.70	645.30	Confining Pressure (psi):	100.0	
Tare (g)		0.00	261.60	Burette Diameter (in):	0.250	
Sample Wt. (g)		476.50	476.70	Burette Zero (cm):	100.0	
Moisture (%)		24.2	24.2	Maximum Gradient:	9.4	
Wet Density (pcf)		123.6	123.6	Average Gradient:	6.9	
Dry Density (pcf)		99.5	99.5	Max. Effect. Stress (psi):	5.9	
Saturation (%)		99.8	100.0	Min. Effect. Stress (psi):	4.5	
				Ave. Effect. Stress (psi):	5.2	

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	21	14	25.00		0.0	95	95	37.65		8.30		102.90				
2	2011	3	21	14	34.00	540	25.0	95	95	38.40	0.75	9.85	1.55	101.35	1.55	0.0	1.2E-06	
3	2011	3	21	14	48.00	840	25.0	95	95	39.60	1.20	12.15	2.30	99.05	2.30	0.0	1.2E-06	
4	2011	3	21	15	22.00	2040	25.0	95	95	42.80	3.20	16.70	4.55	94.50	4.55	0.0	1.1E-06	
5	2011	3	22	14	2.00		0.0	95	95	31.80		12.25		97.20				
6	2011	3	22	14	15.00	780	23.0	95	95	32.00	0.20	14.50	2.25	94.95	2.25	0.0	1.5E-06	
7	2011	3	22	14	30.00	900	23.5	95	95	32.40	0.40	16.85	2.35	92.60	2.35	0.0	1.4E-06	
8	2011	3	22	14	46.00	960	23.5	95	95	32.75	0.35	19.20	2.35	90.25	2.35	0.0	1.4E-06	
9	2011	3	22	15	2.00	960	23.5	95	95	33.05	0.30	21.10	1.90	88.35	1.90	0.0	1.2E-06	
10	2011	3	22	15	30.00	1680	23.5	95	95	33.50	0.45	24.50	3.40	84.95	3.40	0.0	1.3E-06	
11	2011	3	22	15	58.00	1680	23.5	95	95	33.90	0.40	27.40	2.90	82.05	2.90	0.0	1.2E-06	
12	2011	3	22	16	24.00	1560	23.5	95	95	34.15	0.25	29.90	2.50	79.55	2.50	0.0	1.3E-06	
13	2011	3	23	5	7.00		0.0	95	95	38.30		2.90		103.00				
14	2011	3	23	5	37.00	1800	22.0	95	95	38.60	0.30	7.70	4.80	98.20	4.80	0.0	1.2E-06	
15	2011	3	23	6	10.00	1980	22.0	95	95	38.60	0.00	12.45	4.75	93.45	4.75	0.0	1.2E-06	
16	2011	3	23	6	10.00		0.0	95	95	38.60		12.45		93.45				
17	2011	3	23	6	40.00	1800	22.0	95	95	38.80	0.20	16.25	3.80	89.65	3.80	0.0	1.2E-06	
18	2011	3	23	7	11.00	1860	22.0	95	95	38.90	0.10	19.80	3.55	86.10	3.55	0.0	1.2E-06	
19	2011	3	23	7	41.00	1800	22.0	95	95	39.10	0.20	22.90	3.10	83.00	3.10	0.0	1.2E-06	
20	2011	3	23	8	11.00	1800	22.0	95	95	39.20	0.10	25.65	2.75	80.25	2.75	0.0	1.1E-06	
21	2011	3	23	8	40.00	1740	22.0	95	95	39.50	0.30	28.25	2.60	77.65	2.60	0.0	1.2E-06	1
22	2011	3	23	9	11.00	1860	22.0	95	95	39.60	0.10	30.50	2.25	75.40	2.25	0.0	1.1E-06	1
23	2011	3	23	9	41.00	1800	22.5	95	95	39.80	0.20	32.60	2.10	73.30	2.10	0.0	1.2E-06	1
24	2011	3	23	10	32.00	3060	24.0	95	95	40.60	0.80	35.70	3.10	70.20	3.10	0.0	1.1E-06	1
25	2011	3	23	11	3.00	1860	24.0	95	95	40.70	0.10	37.30	1.60	68.60	1.60	0.0	1.1E-06	1
26	2011	3	23	11	33.00	1800	24.0	95	95	40.50	-0.20	38.75	1.45	67.15	1.45	0.0	1.1E-06	1

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column. 1.1E-06 cm/sec

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

12

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC:

QA:

Project Name:	Domtar	Cell #:	10
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 310, Lift 1	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	3.9E-06 cm/sec

Sample Type: Undisturbed	Initial Values	Final Values			
Sample Dia. (in)	2.86	2.86	Permeant:	Water	
Sample Ht. (in)	2.32	2.32	Permeant Specific Gravity:	1.00	
Tare & Wet (g)	476.70	740.80	Sample Specific Gravity:	2.60	Est.
Tare & Dry (g)	384.30	645.80	Confining Pressure (psi):	100.0	
Tare (g)	0.00	261.50	Burette Diameter (in):	0.250	
Sample Wt. (g)	476.70	479.30	Burette Zero (cm):	100.0	
Moisture (%)	24.0	24.7	Maximum Gradient:	10.9	
Wet Density (pcf)	122.5	123.2	Average Gradient:	5.3	
Dry Density (pcf)	98.8	98.8	Max. Effect. Stress (psi):	6.0	
Saturation (%)	97.3	100.0	Min. Effect. Stress (psi):	4.6	
			Ave. Effect. Stress (psi):	5.2	

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	22	13	50.00		0.0	95	95	28.80		12.30		99.50				
2	2011	3	22	13	51.00	60	23.0	95	95	28.80	0.00	13.10	0.80	98.70	0.80	0.0	6.5E-06	
3	2011	3	22	13	52.00	60	23.0	95	95	28.80	0.00	13.60	0.50	98.20	0.50	0.0	4.1E-06	
4	2011	3	22	13	53.00	60	23.0	95	95	28.80	0.00	14.15	0.55	97.65	0.55	0.0	4.6E-06	
5	2011	3	22	13	54.00	60	23.0	95	95	28.80	0.00	14.65	0.50	97.15	0.50	0.0	4.2E-06	
6	2011	3	22	13	55.00	60	23.0	95	95	28.80	0.00	15.10	0.45	96.70	0.45	0.0	3.8E-06	
7	2011	3	23	5	8.00		0.0	95	95	34.45		3.10		102.10				
8	2011	3	23	5	38.00	1800	22.0	95	95	34.75	0.30	15.15	12.05	90.05	12.05	0.0	3.3E-06	
9	2011	3	23	6	11.00	1980	22.0	95	95	34.85	0.10	24.45	9.30	80.75	9.30	0.0	3.1E-06	
10	2011	3	23	6	40.00	1740	22.0	95	95	35.20	0.35	30.45	6.00	74.75	6.00	0.0	3.0E-06	
11	2011	3	23	7	11.00	1860	22.0	95	95	35.20	0.00	35.25	4.80	69.95	4.80	0.0	2.8E-06	
12	2011	3	23	7	42.00	1860	22.0	95	95	35.50	0.30	38.90	3.65	66.30	3.65	0.0	2.7E-06	
13	2011	3	23	8	12.00	1800	22.0	95	95	35.75	0.25	41.50	2.60	63.70	2.60	0.0	2.5E-06	
14	2011	3	23	8	41.00	1740	22.0	95	95	35.90	0.15	43.60	2.10	61.60	2.10	0.0	2.6E-06	
15	2011	3	23	9	11.00	1800	22.0	95	95	36.20	0.30	45.15	1.55	60.05	1.55	0.0	2.3E-06	
16	2011	3	23	9	40.00	1740	22.0	95	95	36.40	0.20	46.50	1.35	58.70	1.35	0.0	2.5E-06	
17	2011	3	23	10	33.00	3180	24.0	95	95	37.35	0.95	48.15	1.65	57.05	1.65	0.0	2.0E-06	
18	2011	3	23	11	37.00		0.0	95	95	38.00		7.85		97.80				
19	2011	3	23	12	3.00	1560	24.0	95	95	37.45	-0.55	20.75	12.90	84.90	12.90	0.0	4.4E-06	
20	2011	3	23	12	34.00	1860	24.0	95	95	37.30	-0.15	30.60	9.85	75.05	9.85	0.0	4.0E-06	1
21	2011	3	23	13	4.00	1800	23.0	95	95	37.10	-0.20	36.90	6.30	68.75	6.30	0.0	3.9E-06	1
22	2011	3	23	13	34.00	1800	23.0	95	95	37.15	0.05	41.50	4.60	64.15	4.60	0.0	4.0E-06	1
23	2011	3	23	14	4.00	1800	23.0	95	95	37.10	-0.05	44.60	3.10	61.05	3.10	0.0	3.7E-06	1
24	2011	3	23	14	34.00	1800	23.0	95	95	37.05	-0.05	46.80	2.20	58.85	2.20	0.0	3.6E-06	1
25																		
26																		

**A zero in this column starts a series of measurements.
(Termination determined by stable Kv and low flow differential.)

*Average Kv for those rows with a 1 in the Ave. column. 3.9E-06 cm/sec

***Kv adjusted for temperature.

13

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC:

QA:

Project Name:	Domtar	Cell #:	11
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 304, Lift 1	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	3.1E-06 cm/sec

Sample Type: Undisturbed	Initial Values	Final Values			
Sample Dia. (in)	2.86	2.86	Permeant:	Water	
Sample Ht. (in)	2.29	2.29	Permeant Specific Gravity:	1.00	
Tare & Wet (g)	487.70	752.20	Sample Specific Gravity:	2.61	Est.
Tare & Dry (g)	402.48	665.70	Confining Pressure (psi):	100.0	
Tare (g)	0.00	263.22	Burette Diameter (in):	0.250	
Sample Wt. (g)	487.70	488.98	Burette Zero (cm):	100.0	
Moisture (%)	21.2	21.5	Maximum Gradient:	12.5	
Wet Density (pcf)	126.3	126.6	Average Gradient:	6.9	
Dry Density (pcf)	104.2	104.2	Max. Effect. Stress (psi):	6.0	
Saturation (%)	98.6	100.0	Min. Effect. Stress (psi):	4.5	
			Ave. Effect. Stress (psi):	5.2	

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	23	11	39.00		0.0	95	95	30.00		13.10		102.70				
2	2011	3	23	11	40.00	60	24.0	95	95	29.90	-0.10	13.70	0.60	102.10	0.60	0.0	4.5E-06	
3	2011	3	23	11	41.00	60	24.0	95	95	29.90	0.00	14.10	0.40	101.70	0.40	0.0	3.1E-06	
4	2011	3	23	11	42.00	60	24.0	95	95	29.90	0.00	14.50	0.40	101.30	0.40	0.0	3.1E-06	
5	2011	3	23	11	43.00	60	24.0	95	95	30.00	0.10	14.95	0.45	100.85	0.45	0.0	3.5E-06	
6	2011	3	23	11	44.00	60	24.0	95	95	30.00	0.00	15.40	0.45	100.40	0.45	0.0	3.5E-06	
7	2011	3	23	12	35.00	3060	24.0	95	95	30.40	0.40	31.45	16.05	84.35	16.05	0.0	3.1E-06	
8	2011	3	23	13	5.00	1800	23.0	95	95	30.80	0.40	37.40	5.95	78.40	5.95	0.0	2.9E-06	
9	2011	3	23	13	35.00	1800	23.0	95	95	31.40	0.60	42.10	4.70	73.70	4.70	0.0	3.0E-06	
10	2011	3	23	14	5.00	1800	23.0	95	95	31.80	0.40	45.50	3.40	70.30	3.40	0.0	2.8E-06	
11	2011	3	23	14	35.00	1800	23.0	95	95	32.10	0.30	48.10	2.60	67.70	2.60	0.0	2.7E-06	
12	2011	3	24	7	46.00		0.0	95	95	41.10		3.80		102.30				
13	2011	3	24	8	16.00	1800	21.0	95	95	41.20	0.10	16.40	12.60	89.70	12.60	0.0	3.6E-06	
14	2011	3	24	8	46.00	1800	21.0	95	95	41.20	0.00	25.30	8.90	80.80	8.90	0.0	3.4E-06	
15	2011	3	24	9	16.00	1800	21.0	95	95	41.40	0.20	31.80	6.50	74.30	6.50	0.0	3.2E-06	
16	2011	3	24	9	46.00	1800	21.0	95	95	41.70	0.30	36.65	4.85	69.45	4.85	0.0	3.1E-06	
17	2011	3	24	10	16.00	1800	21.0	95	95	41.90	0.20	40.40	3.75	65.70	3.75	0.0	3.1E-06	
18	2011	3	24	10	46.00	1800	21.0	95	95	42.00	0.10	43.20	2.80	62.90	2.80	0.0	3.0E-06	
19	2011	3	24	10	53.00		0.0	95	95	42.50		4.50		102.00				
20	2011	3	24	11	23.00	1800	21.0	95	95	42.50	0.00	16.95	12.45	89.55	12.45	0.0	3.6E-06	
21	2011	3	24	11	53.00	1800	22.0	95	95	42.60	0.10	25.70	8.75	80.80	8.75	0.0	3.2E-06	1
22	2011	3	24	12	23.00	1800	22.0	95	95	42.80	0.20	32.20	6.50	74.30	6.50	0.0	3.2E-06	1
23	2011	3	24	12	53.00	1800	22.0	95	95	43.00	0.20	37.10	4.90	69.40	4.90	0.0	3.1E-06	1
24	2011	3	24	13	23.00	1800	22.0	95	95	43.15	0.15	40.70	3.60	65.80	3.60	0.0	3.0E-06	1
25	2011	3	24	13	53.00	1800	22.0	95	95	43.40	0.25	43.60	2.90	62.90	2.90	0.0	3.1E-06	1
26																		

**A zero in this column starts a series of measurements.

(Termination determined by stable Kv and low flow differential.)

*Average Kv for those rows with a 1 in the Ave. column. 3.1E-06 cm/sec

***Kv adjusted for temperature.

14

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC:

QA:

Project Name:	Domtar	Cell #:	12
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 382, Lift 1	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	4.0E-06 cm/sec

Sample Type: Undisturbed	Initial Values	Final Values			
Sample Dia. (in)	2.86	2.86	Permeant:	Water	
Sample Ht. (in)	2.30	2.30	Permeant Specific Gravity:	1.00	
Tare & Wet (g)	498.60	771.30	Sample Specific Gravity:	2.63	Est.
Tare & Dry (g)	416.71	687.80	Confining Pressure (psi):	100.0	
Tare (g)	0.00	271.09	Burette Diameter (in):	0.250	
Sample Wt. (g)	498.60	500.21	Burette Zero (cm):	100.0	
Moisture (%)	19.7	20.0	Maximum Gradient:	8.1	
Wet Density (pcf)	128.6	129.0	Average Gradient:	4.5	
Dry Density (pcf)	107.4	107.4	Max. Effect. Stress (psi):	6.1	
Saturation (%)	98.1	100.0	Min. Effect. Stress (psi):	4.5	
			Ave. Effect. Stress (psi):	5.2	

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	23	11	46.00		0.0	95	95	25.80		11.20		102.10				
2	2011	3	23	11	47.00	60	24.0	95	95	25.70	-0.10	11.90	0.70	101.40	0.70	0.0	5.3E-06	
3	2011	3	23	11	48.00	60	24.0	95	95	25.70	0.00	12.50	0.60	100.80	0.60	0.0	4.6E-06	
4	2011	3	23	11	49.00	60	24.0	95	95	25.70	0.00	13.10	0.60	100.20	0.60	0.0	4.6E-06	
5	2011	3	23	11	50.00	60	24.0	95	95	25.70	0.00	13.65	0.55	99.65	0.55	0.0	4.3E-06	
6	2011	3	23	11	51.00	60	24.0	95	95	25.75	0.05	14.20	0.55	99.10	0.55	0.0	4.4E-06	
7	2011	3	23	12	36.00	2700	24.0	95	95	26.40	0.65	32.70	18.50	80.60	18.50	0.0	4.3E-06	
8	2011	3	23	13	6.00	1800	23.0	95	95	27.00	0.60	40.10	7.40	73.20	7.40	0.0	4.3E-06	
9	2011	3	23	13	36.00	1800	23.0	95	95	27.50	0.50	45.20	5.10	68.10	5.10	0.0	4.3E-06	
10	2011	3	23	14	6.00	1800	23.0	95	95	28.05	0.55	48.70	3.50	64.60	3.50	0.0	4.2E-06	
11	2011	3	23	14	36.00	1800	20.0	95	95	28.50	0.45	51.10	2.40	62.20	2.40	0.0	4.5E-06	
12	2011	3	24	7	47.00		0.0	95	95	35.70		3.70		101.70				
13	2011	3	24	8	17.00	1800	21.0	95	95	35.80	0.10	18.60	14.90	86.80	14.90	0.0	4.4E-06	
14	2011	3	24	8	47.00	1800	21.0	95	95	35.80	0.00	28.70	10.10	76.70	10.10	0.0	4.3E-06	
15	2011	3	24	9	17.00	1800	21.0	95	95	36.05	0.25	35.70	7.00	69.70	7.00	0.0	4.2E-06	
16	2011	3	24	9	47.00	1800	21.0	95	95	36.20	0.15	40.60	4.90	64.80	4.90	0.0	4.1E-06	
17	2011	3	24	10	17.00	1800	21.0	95	95	36.40	0.20	44.10	3.50	61.30	3.50	0.0	4.1E-06	
18	2011	3	24	10	47.00	1800	21.0	95	95	36.50	0.10	46.60	2.50	58.80	2.50	0.0	4.2E-06	
19	2011	3	24	10	54.00		0.0	95	95	37.20		4.30		101.60				
20	2011	3	24	11	24.00	1800	21.0	95	95	36.80	-0.40	19.20	14.90	86.70	14.90	0.0	4.4E-06	
21	2011	3	24	11	54.00	1800	22.0	95	95	36.90	0.10	29.20	10.00	76.70	10.00	0.0	4.2E-06	
22	2011	3	24	12	24.00	1800	22.0	95	95	37.10	0.20	36.15	6.95	69.75	6.95	0.0	4.1E-06	1
23	2011	3	24	12	54.00	1800	22.0	95	95	37.25	0.15	41.00	4.85	64.90	4.85	0.0	4.0E-06	1
24	2011	3	24	13	24.00	1800	22.0	95	95	37.60	0.35	44.40	3.40	61.50	3.40	0.0	4.0E-06	1
25	2011	3	24	13	54.00	1800	22.0	95	95	37.70	0.10	46.85	2.45	59.05	2.45	0.0	4.0E-06	1
26																		

**A zero in this column starts a series of measurements.
(Termination determined by stable Kv and low flow differential.)

*Average Kv for those rows with a 1 in the Ave. column.

4.0E-06 cm/sec

***Kv adjusted for temperature.

75

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC:

QA:

Project Name:	Domtar	Cell #:	6
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 295, Lift 2	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv *	1.5E-06 cm/sec

		Initial Values	Final Values			
Sample Type:	Undisturbed					
Sample Dia. (in)		2.86	2.86	Permeant:	Water	
Sample Ht. (in)		2.30	2.30	Permeant Specific Gravity:	1.00	
Tare & Wet (g)		480.40	759.60	Sample Specific Gravity:	2.62	Est.
Tare & Dry (g)		390.01	667.20	Confining Pressure (psi):	100.0	
Tare (g)		0.00	277.19	Burette Diameter (in):	0.250	
Sample Wt. (g)		480.40	482.41	Burette Zero (cm):	100.0	
Moisture (%)		23.2	23.7	Maximum Gradient:	6.8	
Wet Density (pcf)		124.3	124.8	Average Gradient:	5.0	
Dry Density (pcf)		100.9	100.9	Max. Effect. Stress (psi):	6.0	
Saturation (%)		97.9	100.0	Min. Effect. Stress (psi):	4.5	
				Ave. Effect. Stress (psi):	5.2	

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	25	12	42.00		0.0	95	95	27.80		13.30		99.20				
2	2011	3	25	12	43.00	60	22.0	95	95	27.80	0.00	13.90	0.60	98.60	0.60	0.0	5.0E-06	
3	2011	3	25	12	44.00	60	22.0	95	95	27.80	0.00	14.30	0.40	98.20	0.40	0.0	3.4E-06	
4	2011	3	25	12	45.00	60	22.0	95	95	27.80	0.00	14.80	0.50	97.70	0.50	0.0	4.3E-06	
5	2011	3	25	12	46.00	60	22.0	95	95	27.80	0.00	15.20	0.40	97.30	0.40	0.0	3.4E-06	
6	2011	3	25	12	51.00	300	22.0	95	95	28.10	0.30	17.00	1.80	95.50	1.80	0.0	3.2E-06	
7	2011	3	25	13	21.00	1800	23.0	95	95	28.70	0.60	25.60	8.60	86.90	8.60	0.0	2.9E-06	
8	2011	3	25	13	51.00	1800	23.0	95	95	29.20	0.50	31.70	6.10	80.80	6.10	0.0	2.6E-06	
9	2011	3	25	14	22.00	1860	23.0	95	95	30.00	0.80	36.25	4.55	76.25	4.55	0.0	2.3E-06	
10	2011	3	25	14	51.00	1740	23.0	95	95	30.40	0.40	39.70	3.45	72.80	3.45	0.0	2.3E-06	
11	2011	3	25	15	21.00	1800	23.0	95	95	30.80	0.40	42.45	2.75	70.05	2.75	0.0	2.1E-06	
12	2011	3	25	15	51.00	1800	23.0	95	95	31.10	0.30	44.50	2.05	68.00	2.05	0.0	1.9E-06	
13	2011	3	28	7	43.00		0.0	95	95	39.10		4.90		99.90				
14	2011	3	28	8	13.00	1800	20.0	95	95	39.30	0.20	11.70	6.80	93.10	6.80	0.0	1.9E-06	
15	2011	3	28	8	43.00	1800	20.0	95	95	39.20	-0.10	17.45	5.75	87.35	5.75	0.0	1.9E-06	
16	2011	3	28	9	14.00	1860	20.5	95	95	39.50	0.30	22.20	4.75	82.60	4.75	0.0	1.8E-06	
17	2011	3	28	9	44.00	1800	21.0	95	95	39.80	0.30	26.30	4.10	78.50	4.10	0.0	1.8E-06	
18	2011	3	28	10	14.00	1800	21.5	95	95	39.90	0.10	29.70	3.40	75.10	3.40	0.0	1.7E-06	
19	2011	3	28	10	44.00	1800	22.0	95	95	40.25	0.35	32.55	2.85	72.25	2.85	0.0	1.6E-06	
20	2011	3	28	11	14.00	1800	22.0	95	95	40.40	0.15	35.10	2.55	69.70	2.55	0.0	1.6E-06	1
21	2011	3	28	11	44.00	1800	23.0	95	95	40.50	0.10	37.30	2.20	67.50	2.20	0.0	1.6E-06	1
22	2011	3	28	12	15.00	1860	23.0	95	95	40.80	0.30	39.10	1.80	65.70	1.80	0.0	1.4E-06	1
23	2011	3	28	12	45.00	1800	23.0	95	95	40.90	0.10	40.70	1.60	64.10	1.60	0.0	1.5E-06	1
24	2011	3	28	13	15.00	1800	23.0	95	95	41.10	0.20	42.20	1.50	62.60	1.50	0.0	1.6E-06	1
25																		
26																		

**A zero in this column starts a series of measurements.

(Termination determined by stable Kv and low flow differential.)

*Average Kv for those rows with a 1 in the Ave. column.

1.5E-06 cm/sec

***Kv adjusted for temperature.

76

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC:

QA:

Project Name:	Domtar	Cell #:	7
Project #:	05794.49.003	USCS Description:	Silty, clayey sand
Sample Name:	Prepared Subgrade, Pt. 265, Lift 2	USCS Classification:	SC-SM
Visual Descript:	Silty, clayey sand	Average Kv *	5.0E-06 cm/sec

Sample Type: Undisturbed	Initial Values	Final Values		
Sample Dia. (in)	2.86	2.86	Permeant:	Water
Sample Ht. (in)	2.31	2.31	Permeant Specific Gravity:	1.00
Tare & Wet (g)	498.50	748.00	Sample Specific Gravity:	2.62 Est.
Tare & Dry (g)	415.38	664.70	Confining Pressure (psi):	100.0
Tare (g)	0.00	249.32	Burette Diameter (in):	0.250
Sample Wt. (g)	498.50	498.68	Burette Zero (cm):	100.0
Moisture (%)	20.0	20.1	Maximum Gradient:	10.3
Wet Density (pcf)	128.6	128.7	Average Gradient:	4.9
Dry Density (pcf)	107.2	107.2	Max. Effect. Stress (psi):	6.0
Saturation (%)	99.8	100.0	Min. Effect. Stress (psi):	4.2
			Ave. Effect. Stress (psi):	4.9

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	28	13	52.00		0.0	95	95	31.70		12.35		99.40				
2	2011	3	28	13	53.00	60	23.0	95	95	31.80	0.10	13.10	0.75	98.65	0.75	0.0	6.1E-06	
3	2011	3	28	13	54.00	60	23.0	95	95	31.90	0.10	13.65	0.55	98.10	0.55	0.0	4.5E-06	
4	2011	3	28	13	55.00	60	23.0	95	95	32.00	0.10	14.20	0.55	97.55	0.55	0.0	4.6E-06	
5	2011	3	28	13	56.00	60	23.5	95	95	32.10	0.10	14.75	0.55	97.00	0.55	0.0	4.6E-06	
6	2011	3	28	14	2.00	360	23.5	95	95	32.80	0.70	17.70	2.95	94.05	2.95	0.0	4.3E-06	
7	2011	3	28	14	32.00	1800	23.5	95	95	35.30	2.50	29.50	11.80	82.25	11.80	0.0	4.3E-06	
8	2011	3	28	15	2.00	1800	24.5	95	95	37.30	2.00	37.50	8.00	74.25	8.00	0.0	4.1E-06	
9	2011	3	28	15	32.00	1800	24.5	95	95	39.10	1.80	43.20	5.70	68.55	5.70	0.0	4.2E-06	
10	2011	3	28	16	2.00	1800	24.5	95	95	40.70	1.60	46.80	3.60	64.95	3.60	0.0	3.8E-06	
11	2011	3	29	7	37.00		0.0	95	95	55.50		5.10		100.60				
12	2011	3	29	8	6.00	1740	21.0	95	95	55.40	-0.10	21.20	16.10	84.50	16.10	0.0	5.2E-06	
13	2011	3	29	8	36.00	1800	21.0	95	95	55.50	0.10	31.75	10.55	73.95	10.55	0.0	4.9E-06	
14	2011	3	29	9	6.00	1800	22.0	95	95	56.10	0.60	38.60	6.85	67.10	6.85	0.0	4.7E-06	
15	2011	3	29	9	36.00	1800	22.0	95	95	56.60	0.50	43.20	4.60	62.50	4.60	0.0	4.6E-06	
16	2011	3	29	9	39.00		0.0	95	95	57.00		4.50		99.90				
17	2011	3	29	10	8.00	1740	22.0	95	95	57.20	0.20	21.00	16.50	83.40	16.50	0.0	5.2E-06	
18	2011	3	29	10	38.00	1800	22.5	95	95	57.80	0.60	32.40	11.40	72.00	11.40	0.0	5.4E-06	
19	2011	3	29	11	8.00	1800	23.0	95	95	58.10	0.30	39.20	6.80	65.20	6.80	0.0	4.9E-06	
20	2011	3	29	11	38.00	1800	23.0	95	95	58.30	0.20	43.70	4.50	60.70	4.50	0.0	4.9E-06	
21	2011	3	29	11	40.00		0.0	95	95	58.70		4.40		100.80				
22	2011	3	29	12	10.00	1800	23.0	95	95	58.70	0.00	22.40	18.00	82.80	18.00	0.0	5.4E-06	
23	2011	3	29	12	40.00	1800	23.5	95	95	59.10	0.40	33.30	10.90	71.90	10.90	0.0	5.2E-06	1
24	2011	3	29	13	13.00	1980	23.5	95	95	59.40	0.30	40.55	7.25	64.65	7.25	0.0	5.0E-06	1
25	2011	3	29	13	41.00	1680	24.0	95	95	59.50	0.10	44.60	4.05	60.60	4.05	0.0	5.0E-06	1
26	2011	3	29	14	11.00	1800	24.0	95	95	59.85	0.35	47.35	2.75	57.85	2.75	0.0	4.8E-06	1

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column. 5.0E-06 cm/sec

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

77

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC:

QA:

Project Name:	Domtar	Cell #:	S
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Prepared Subgrade, Pt. 267, Lift 2	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	8.1E-07 cm/sec

Sample Type: Undisturbed	Initial Values	Final Values		
Sample Dia. (in)	2.86	2.86	Permeant:	Water
Sample Ht. (in)	2.31	2.31	Permeant Specific Gravity:	1.00
Tare & Wet (g)	487.60	743.90	Sample Specific Gravity:	2.65 Est.
Tare & Dry (g)	399.84	651.80	Confining Pressure (psi):	100.0
Tare (g)	0.00	251.96	Burette Diameter (in):	0.250
Sample Wt. (g)	487.60	491.94	Burette Zero (cm):	100.0
Moisture (%)	21.9	23.0	Maximum Gradient:	7.8
Wet Density (pcf)	125.2	126.3	Average Gradient:	6.8
Dry Density (pcf)	102.6	102.6	Max. Effect. Stress (psi):	5.8
Saturation (%)	95.3	100.0	Min. Effect. Stress (psi):	4.2
			Ave. Effect. Stress (psi):	4.9

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	3	28	13	31.00		0.0	95	95	44.40		14.40		98.25				
2	2011	3	28	13	32.00	60	23.0	95	95	44.40	0.00	14.60	0.20	98.05	0.20	0.0	1.7E-06	
3	2011	3	28	13	33.00	60	23.0	95	95	44.40	0.00	14.80	0.20	97.85	0.20	0.0	1.7E-06	
4	2011	3	28	13	34.00	60	23.0	95	95	44.40	0.00	14.95	0.15	97.70	0.15	0.0	1.3E-06	
5	2011	3	28	13	35.00	60	23.0	95	95	44.80	0.40	15.10	0.15	97.55	0.15	0.0	1.3E-06	
6	2011	3	28	13	36.00	60	23.0	95	95	44.70	-0.10	15.25	0.15	97.40	0.15	0.0	1.3E-06	
7	2011	3	28	14	4.00	1680	23.5	95	95	45.80	1.10	18.80	3.55	93.85	3.55	0.0	1.1E-06	
8	2011	3	28	14	34.00	1800	24.0	95	95	47.10	1.30	22.40	3.60	90.25	3.60	0.0	1.1E-06	
9	2011	3	28	15	4.00	1800	24.5	95	95	48.70	1.60	25.40	3.00	87.25	3.00	0.0	1.0E-06	
10	2011	3	28	15	33.00	1740	24.5	95	95	49.30	0.60	28.10	2.70	84.55	2.70	0.0	1.1E-06	
11	2011	3	28	16	3.00	1800	24.5	95	95	50.50	1.20	30.55	2.45	82.10	2.45	0.0	1.0E-06	
12	2011	3	29	7	38.00		0.0	95	95	62.70		4.35		101.50				
13	2011	3	29	8	7.00	1740	21.0	95	95	62.90	0.20	8.20	3.85	97.65	3.85	0.0	1.0E-06	
14	2011	3	29	8	37.00	1800	21.0	95	95	62.60	-0.30	11.55	3.35	94.30	3.35	0.0	9.5E-07	
15	2011	3	29	9	7.00	1800	22.0	95	95	63.30	0.70	14.40	2.85	91.45	2.85	0.0	8.5E-07	
16	2011	3	29	9	37.00	1800	22.0	95	95	63.90	0.60	17.00	2.60	88.85	2.60	0.0	8.3E-07	
17	2011	3	29	10	7.00	1800	22.0	95	95	63.80	-0.10	19.30	2.30	86.55	2.30	0.0	7.9E-07	
18	2011	3	29	10	37.00	1800	22.0	95	95	64.40	0.60	21.80	2.50	84.05	2.50	0.0	9.2E-07	
19	2011	3	29	11	7.00	1800	23.0	95	95	65.00	0.60	24.05	2.25	81.80	2.25	0.0	8.7E-07	
20	2011	3	29	11	37.00	1800	23.0	95	95	64.80	-0.20	26.20	2.15	79.65	2.15	0.0	9.0E-07	
21	2011	3	29	12	9.00	1920	23.0	95	95	65.00	0.20	28.25	2.05	77.60	2.05	0.0	8.7E-07	
22	2011	3	29	12	39.00	1800	23.5	95	95	65.70	0.70	30.00	1.75	75.85	1.75	0.0	8.5E-07	
23	2011	3	29	13	10.00	1860	23.5	95	95	65.40	-0.30	31.55	1.55	74.30	1.55	0.0	7.9E-07	1
24	2011	3	29	13	40.00	1800	24.0	95	95	65.70	0.30	33.05	1.50	72.80	1.50	0.0	8.2E-07	1
25	2011	3	29	14	10.00	1800	24.0	95	95	66.20	0.50	34.40	1.35	71.45	1.35	0.0	8.0E-07	1
26	2011	3	29	14	40.00	1800	24.0	95	95	66.60	0.40	35.70	1.30	70.15	1.30	0.0	8.2E-07	1

**A zero in this column starts a series of measurements.

(Termination determined by stable Kv and low flow differential.)

*Average Kv for those rows with a 1 in the Ave. column. 8.1E-07 cm/sec

***Kv adjusted for temperature.

78

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC: HJW

QA: JPH

Project Name:	Domtar	Cell #:	1
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Select Clay Fill, Sump Lift 1	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	3.5E-08 cm/sec

		Initial Values	Final Values			
Sample Type:	Undisturbed					
Sample Dia. (in)		2.87	2.87	Permeant:	Water	
Sample Ht. (in)		2.30	2.30	Permeant Specific Gravity:	1.00	
Tare & Wet (g)		511.80	783.90	Sample Specific Gravity:	2.62	Est.
Tare & Dry (g)		438.20	709.00	Confining Pressure (psi):	100.0	
Tare (g)		0.00	270.80	Burette Diameter (in):	0.250	
Sample Wt. (g)		511.80	513.10	Burette Zero (cm):	100.0	
Moisture (%)		16.8	17.1	Maximum Gradient:	9.4	
Wet Density (pcf)		131.8	132.1	Average Gradient:	8.8	
Dry Density (pcf)		112.8	112.8	Max. Effect. Stress (psi):	6.0	
Saturation (%)		98.3	100.0	Min. Effect. Stress (psi):	4.7	
				Ave. Effect. Stress (psi):	5.2	

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	4	11	14	43.00		0.0	95	95	30.20		13.30		97.70				
2	2011	4	11	15	13.00	1800	22.0	95	95	31.10	0.90	13.70	0.40	97.30	0.40	0.0	1.1E-07	
3	2011	4	11	15	43.00	1800	22.0	95	95	31.60	0.50	14.00	0.30	97.00	0.30	0.0	8.5E-08	
4	2011	4	11	16	15.00	1920	22.0	95	95	32.10	0.50	14.40	0.40	96.60	0.40	0.0	1.1E-07	
5	2011	4	11	16	49.00	2040	22.0	95	95	32.60	0.50	14.80	0.40	96.20	0.40	0.0	1.0E-07	
6	2011	4	12	4	39.00	42600	22.0	95	95	38.20	5.60	19.95	5.15	91.05	5.15	0.0	6.7E-08	
7	2011	4	12	6	42.00	7380	23.0	95	95	38.85	0.65	20.60	0.65	90.40	0.65	0.0	5.2E-08	
8	2011	4	12	8	42.00	7200	23.5	95	95	39.70	0.85	21.30	0.70	89.70	0.70	0.0	5.8E-08	
9	2011	4	12	10	42.00	7200	22.5	95	95	39.20	-0.50	21.80	0.50	89.20	0.50	0.0	4.3E-08	
10	2011	4	12	12	42.00	7200	22.0	95	95	39.40	0.20	22.35	0.55	88.65	0.55	0.0	4.8E-08	
11	2011	4	12	14	42.00	7200	22.0	95	95	39.90	0.50	22.90	0.55	88.10	0.55	0.0	4.9E-08	
12	2011	4	12	16	42.00	7200	22.0	95	95	40.20	0.30	23.40	0.50	87.60	0.50	0.0	4.5E-08	
13	2011	4	13	4	47.00	43500	22.0	95	95	42.10	1.90	26.10	2.70	84.90	2.70	0.0	4.3E-08	
14	2011	4	13	6	27.00	6000	23.0	95	95	42.60	0.50	26.50	0.40	84.50	0.40	0.0	4.7E-08	
15	2011	4	13	8	49.00	8520	23.0	95	95	43.20	0.60	26.95	0.45	84.05	0.45	0.0	3.8E-08	
16	2011	4	13	10	53.00	7440	22.5	95	95	42.10	-1.10	27.25	0.30	83.75	0.30	0.0	3.0E-08	
17	2011	4	13	12	50.00	7020	22.0	95	95	42.40	0.30	27.60	0.35	83.40	0.35	0.0	3.8E-08	
18	2011	4	13	14	49.00	7140	22.0	95	95	42.90	0.50	28.00	0.40	83.00	0.40	0.0	4.3E-08	
19	2011	4	13	16	33.00	6240	22.0	95	95	43.20	0.30	28.30	0.30	82.70	0.30	0.0	3.7E-08	1
20	2011	4	14	7	48.00	54900	23.0	95	95	45.50	2.30	30.40	2.10	80.60	2.10	0.0	3.0E-08	1
21	2011	4	14	9	48.00	7200	23.0	95	95	45.90	0.40	30.90	0.50	80.10	0.50	0.0	5.8E-08	1
22	2011	4	14	11	48.00	7200	23.5	95	95	46.10	0.20	31.20	0.30	79.80	0.30	0.0	3.5E-08	1
23	2011	4	14	13	49.00	7260	24.0	95	95	46.20	0.10	31.45	0.25	79.55	0.25	0.0	2.9E-08	1
24	2011	4	14	16	9.00	8400	24.0	95	95	46.30	0.10	31.65	0.20	79.35	0.20	0.0	2.0E-08	1
25																		
26																		

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column.

3.5E-08 cm/sec

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

79

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC: HJW

QA: JPH

Project Name:	Domtar	Cell #:	2
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Select Clay Fill, Sump Lift 2	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	2.7E-08 cm/sec

Sample Type:	Undisturbed	Initial Values	Final Values			
Sample Dia. (in)		2.86	2.86	Permeant:	Water	
Sample Ht. (in)		2.30	2.30	Permeant Specific Gravity:	1.00	
Tare & Wet (g)		495.10	756.40	Sample Specific Gravity:	2.62	Est.
Tare & Dry (g)		420.41	675.80	Confining Pressure (psi):	100.0	
Tare (g)		0.00	255.39	Burette Diameter (in):	0.250	
Sample Wt. (g)		495.10	501.01	Burette Zero (cm):	100.0	
Moisture (%)		17.8	19.2	Maximum Gradient:	9.6	
Wet Density (pcf)		128.1	129.6	Average Gradient:	9.1	
Dry Density (pcf)		108.8	108.8	Max. Effect. Stress (psi):	5.9	
Saturation (%)		92.7	100.0	Min. Effect. Stress (psi):	4.7	
				Ave. Effect. Stress (psi):	5.1	

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	4	11	14	44.00		0.0	95	95	33.30		17.10		96.60				
2	2011	4	11	15	15.00	1860	22.0	95	95	34.30	1.00	17.40	0.30	96.30	0.30	0.0	8.7E-08	
3	2011	4	11	15	44.00	1740	22.0	95	95	34.70	0.40	17.70	0.30	96.00	0.30	0.0	9.4E-08	
4	2011	4	11	16	16.00	1920	22.0	95	95	35.50	0.80	18.00	0.30	95.70	0.30	0.0	8.6E-08	
5	2011	4	11	16	50.00	2040	22.0	95	95	36.20	0.70	18.25	0.25	95.45	0.25	0.0	6.8E-08	
6	2011	4	12	4	39.00	42540	22.0	95	95	44.20	8.00	22.05	3.80	91.65	3.80	0.0	5.2E-08	
7	2011	4	12	6	42.00	7380	23.0	95	95	45.20	1.00	22.55	0.50	91.15	0.50	0.0	4.1E-08	
8	2011	4	12	8	43.00	7260	22.5	95	95	46.30	1.10	23.05	0.50	90.65	0.50	0.0	4.3E-08	
9	2011	4	12	10	43.00	7200	22.5	95	95	45.90	-0.40	23.50	0.45	90.20	0.45	0.0	4.0E-08	
10	2011	4	12	12	42.00	7140	22.0	95	95	46.25	0.35	23.95	0.45	89.75	0.45	0.0	4.1E-08	
11	2011	4	12	14	42.00	7200	22.0	95	95	46.90	0.65	24.40	0.45	89.30	0.45	0.0	4.1E-08	
12	2011	4	12	16	43.00	7260	22.0	95	95	47.40	0.50	24.80	0.40	88.90	0.40	0.0	3.6E-08	
13	2011	4	13	4	47.00	43440	22.0	95	95	49.70	2.30	27.00	2.20	86.70	2.20	0.0	3.5E-08	
14	2011	4	13	6	27.00	6000	23.0	95	95	50.45	0.75	27.25	0.25	86.45	0.25	0.0	2.9E-08	
15	2011	4	13	8	49.00	8520	23.0	95	95	51.15	0.70	27.65	0.40	86.05	0.40	0.0	3.3E-08	
16	2011	4	13	10	55.00	7560	22.5	95	95	50.20	-0.95	27.90	0.25	85.80	0.25	0.0	2.4E-08	
17	2011	4	13	12	50.00	6900	22.0	95	95	50.50	0.30	28.20	0.30	85.50	0.30	0.0	3.2E-08	
18	2011	4	13	14	50.00	7200	22.0	95	95	51.20	0.70	28.50	0.30	85.20	0.30	0.0	3.1E-08	
19	2011	4	13	16	34.00	6240	22.0	95	95	51.50	0.30	28.75	0.25	84.95	0.25	0.0	3.0E-08	
20	2011	4	14	7	49.00	54900	23.0	95	95	54.20	2.70	30.60	1.85	83.10	1.85	0.0	2.6E-08	1
21	2011	4	14	9	49.00	7200	23.0	95	95	54.70	0.50	30.85	0.25	82.85	0.25	0.0	2.8E-08	1
22	2011	4	14	11	49.00	7200	23.5	95	95	54.80	0.10	31.10	0.25	82.60	0.25	0.0	2.8E-08	1
23	2011	4	14	13	50.00	7260	24.0	95	95	55.10	0.30	31.35	0.25	82.35	0.25	0.0	2.7E-08	1
24	2011	4	14	16	10.00	8400	24.0	95	95	55.20	0.10	31.60	0.25	82.10	0.25	0.0	2.4E-08	1
25																		
26																		

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column.

2.7E-08 cm/sec

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

80

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC: HJW

QA: JPH

Project Name:	Domtar	Cell #:	3
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Select Clay Fill, Sump Lift 3	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	1.8E-08 cm/sec

		Initial Values	Final Values			
Sample Type:	Undisturbed					
Sample Dia. (in)		2.86	2.86	Permeant:	Water	
Sample Ht. (in)		2.31	2.31	Permeant Specific Gravity:	1.00	
Tare & Wet (g)		516.50	771.66	Sample Specific Gravity:	2.63	Est.
Tare & Dry (g)		441.63	696.60	Confining Pressure (psi):	100.0	
Tare (g)		0.00	254.97	Burette Diameter (in):	0.250	
Sample Wt. (g)		516.50	516.69	Burette Zero (cm):	100.0	
Moisture (%)		17.0	17.0	Maximum Gradient:	11.5	
Wet Density (pcf)		132.6	132.7	Average Gradient:	11.0	
Dry Density (pcf)		113.4	113.4	Max. Effect. Stress (psi):	5.9	
Saturation (%)		99.8	100.0	Min. Effect. Stress (psi):	4.6	
				Ave. Effect. Stress (psi):	5.1	

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	4	11	14	44.00		0.0	95	95	33.90		15.70		99.30				
2	2011	4	11	15	16.00	1920	22.0	95	95	35.70	1.80	15.90	0.20	99.10	0.20	0.0	5.3E-08	
3	2011	4	11	15	45.00	1740	22.0	95	95	36.60	0.90	16.10	0.20	98.90	0.20	0.0	5.9E-08	
4	2011	4	11	16	17.00	1920	22.0	95	95	37.60	1.00	16.30	0.20	98.70	0.20	0.0	5.4E-08	
5	2011	4	11	16	51.00	2040	22.0	95	95	38.60	1.00	16.50	0.20	98.50	0.20	0.0	5.1E-08	
6	2011	4	12	4	40.00	42540	22.0	95	95	46.35	7.75	19.15	2.65	95.85	2.65	0.0	3.4E-08	
7	2011	4	12	6	43.00	7380	23.0	95	95	47.20	0.85	19.40	0.25	95.60	0.25	0.0	1.8E-08	
8	2011	4	12	8	43.00	7200	23.3	95	95	48.20	1.00	19.90	0.50	95.10	0.50	0.0	3.8E-08	
9	2011	4	12	10	43.00	7200	22.5	95	95	47.70	-0.50	20.20	0.30	94.80	0.30	0.0	2.4E-08	
10	2011	4	12	12	43.00	7200	22.0	95	95	47.95	0.25	20.40	0.20	94.60	0.20	0.0	1.6E-08	
11	2011	4	12	14	43.00	7200	22.0	95	95	48.40	0.45	20.80	0.40	94.20	0.40	0.0	3.2E-08	
12	2011	4	12	16	43.00	7200	22.0	95	95	48.90	0.50	21.15	0.35	93.85	0.35	0.0	2.8E-08	
13	2011	4	13	4	47.00	43440	22.0	95	95	50.80	1.90	22.75	1.60	92.25	1.60	0.0	2.2E-08	
14	2011	4	13	6	27.00	6000	23.0	95	95	51.40	0.60	23.00	0.25	92.00	0.25	0.0	2.5E-08	
15	2011	4	13	8	49.00	8520	23.0	95	95	51.90	0.50	23.25	0.25	91.75	0.25	0.0	1.8E-08	
16	2011	4	13	10	56.00	7620	22.5	95	95	50.90	-1.00	23.40	0.15	91.60	0.15	0.0	1.2E-08	
17	2011	4	13	12	51.00	6900	22.0	95	95	51.20	0.30	23.70	0.30	91.30	0.30	0.0	2.7E-08	
18	2011	4	13	14	51.00	7200	22.0	95	95	51.90	0.70	23.90	0.20	91.10	0.20	0.0	1.8E-08	
19	2011	4	13	16	34.00	6180	22.0	95	95	52.10	0.20	24.10	0.20	90.90	0.20	0.0	2.1E-08	1
20	2011	4	14	7	50.00	54960	23.0	95	95	54.40	2.30	25.70	1.60	89.30	1.60	0.0	1.9E-08	1
21	2011	4	14	9	50.00	7200	23.0	95	95	54.80	0.40	25.85	0.15	89.15	0.15	0.0	1.4E-08	1
22	2011	4	14	11	50.00	7200	23.5	95	95	55.10	0.30	26.05	0.20	88.95	0.20	0.0	1.8E-08	1
23	2011	4	14	13	51.00	7260	24.0	95	95	55.20	0.10	26.25	0.20	88.75	0.20	0.0	1.8E-08	1
24	2011	4	14	16	11.00	8400	24.0	95	95	55.30	0.10	26.50	0.25	88.50	0.25	0.0	1.9E-08	1
25																		
26																		

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column.

1.8E-08 cm/sec

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

87

RMT, Inc.

Falling Head Permeability Test (ASTM D5084)

QC: HJW

QA: JPH

Project Name:	Domtar	Cell #:	4
Project #:	05794.49.003	USCS Description:	Clayey sand
Sample Name:	Select Clay Fill, Sump Lift 4	USCS Classification:	SC
Visual Descript:	Clayey sand	Average Kv =	5.0E-08 cm/sec

		Initial Values	Final Values			
Sample Type:	Undisturbed					
Sample Dia. (in)		2.86	2.86	Permeant:	Water	
Sample Ht. (in)		2.31	2.31	Permeant Specific Gravity:	1.00	
Tare & Wet (g)		501.60	768.00	Sample Specific Gravity:	2.62	Est.
Tare & Dry (g)		426.15	688.60	Confining Pressure (psi):	100.0	
Tare (g)		0.00	262.45	Burette Diameter (in):	0.250	
Sample Wt. (g)		501.60	505.55	Burette Zero (cm):	100.0	
Moisture (%)		17.7	18.6	Maximum Gradient:	5.9	
Wet Density (pcf)		129.4	130.4	Average Gradient:	5.3	
Dry Density (pcf)		109.9	109.9	Max. Effect. Stress (psi):	5.8	
Saturation (%)		95.0	100.0	Min. Effect. Stress (psi):	4.6	
				Ave. Effect. Stress (psi):	4.9	

	Date			Time		Run	Temp	Pressure (psi)			Cham.		Bot.		Top	Flow	Kv ***	Ave.*
	Yr.	Mo.	Day	Hr.	Min.	Time	C°**	Bot	Top	Cham	Dif.	Bot	Dif.	Top	Dif.	Dif.%	cm/sec	0,1
1	2011	4	11	15	17.00		0.0	95	95	42.80		14.10		99.90				
2	2011	4	11	15	46.00	1740	22.0	95	95	44.20	1.40	15.10	1.00	98.90	1.00	0.0	2.9E-07	
3	2011	4	11	16	18.00	1920	22.0	95	95	45.10	0.90	16.15	1.05	97.85	1.05	0.0	2.8E-07	
4	2011	4	11	16	52.00	2040	22.0	95	95	46.20	1.10	17.20	1.05	96.80	1.05	0.0	2.7E-07	
5	2011	4	12	4	40.00	42480	22.0	95	95	56.40	10.20	27.95	10.75	86.05	10.75	0.0	1.6E-07	
6	2011	4	12	6	43.00	7380	23.0	95	95	55.75	-0.65	29.05	1.10	84.95	1.10	0.0	1.1E-07	
7	2011	4	12	8	45.00	7320	23.5	95	95	57.10	1.35	30.10	1.05	83.90	1.05	0.0	1.1E-07	
8	2011	4	12	10	44.00	7140	22.5	95	95	56.60	-0.50	31.00	0.90	83.00	0.90	0.0	1.0E-07	
9	2011	4	12	12	43.00	7140	22.0	95	95	57.00	0.40	31.85	0.85	82.15	0.85	0.0	1.0E-07	
10	2011	4	12	14	44.00	7260	22.0	95	95	57.60	0.60	32.70	0.85	81.30	0.85	0.0	1.0E-07	
11	2011	4	12	16	44.00	7200	22.0	95	95	58.10	0.50	33.45	0.75	80.55	0.75	0.0	9.3E-08	
12	2011	4	13	4	47.00	43380	22.0	95	95	58.90	0.80	37.20	3.75	76.80	3.75	0.0	8.5E-08	
13	2011	4	13	6	27.00	6000	23.0	95	95	60.80	1.90	37.55	0.35	76.45	0.35	0.0	6.2E-08	
14	2011	4	13	8	49.00	8520	23.0	95	95	61.40	0.60	38.10	0.55	75.90	0.55	0.0	7.0E-08	
15	2011	4	13	10	57.00	7680	22.5	95	95	60.10	-1.30	38.50	0.40	75.50	0.40	0.0	6.0E-08	
16	2011	4	13	12	52.00	6900	22.0	95	95	60.40	0.30	38.90	0.40	75.10	0.40	0.0	6.8E-08	
17	2011	4	13	14	52.00	7200	22.0	95	95	61.20	0.80	39.30	0.40	74.70	0.40	0.0	6.6E-08	
18	2011	4	13	16	35.00	6180	22.0	95	95	61.50	0.30	39.70	0.40	74.30	0.40	0.0	7.9E-08	
19	2011	4	14	7	51.00	54960	23.0	95	95	62.90	1.40	42.20	2.50	71.80	2.50	0.0	5.9E-08	1
20	2011	4	14	9	51.00	7200	23.0	95	95	64.20	1.30	42.45	0.25	71.55	0.25	0.0	4.9E-08	1
21	2011	4	14	11	51.00	7200	23.5	95	95	63.00	-1.20	42.70	0.25	71.30	0.25	0.0	5.0E-08	1
22	2011	4	14	13	52.00	7260	24.0	95	95	64.90	1.90	42.90	0.20	71.10	0.20	0.0	4.0E-08	1
23	2011	4	14	16	12.00	8400	24.0	95	95	63.70	-1.20	43.20	0.30	70.80	0.30	0.0	5.2E-08	1
24																		
25																		
26																		

**A zero in this column starts a series of measurements.

*Average Kv for those rows with a 1 in the Ave. column.

5.0E-08 cm/sec

(Termination determined by stable Kv and low flow differential.)

***Kv adjusted for temperature.

82/82

Appendix E
Manufacturers' Information

Table of Contents

- Manufacturers' GCL Specifications
- Manufacturers' Geomembrane Specifications
- Manufacturers' Geocushion (NW32) Specifications
- List of Items Procured by Domtar
- Manufacturers' 8-ounce Geotextile (NW8) Specifications

Manufacturers' GCL Specifications

The Pioneer Of Geosynthetics

Product Data Sheet

GSE BentoLiner NSL Geosynthetic Clay Liner

GSE BentoLiner "NSL" is a needlepunched reinforced composite geosynthetic clay liner (GCL) comprised of a uniform layer of granular sodium bentonite encapsulated between a woven and a nonwoven geotextile. The product is intended for moderate to steep slopes and moderate to high load applications where increased internal shear strength is required.

Product Specifications

TESTED PROPERTY	TEST METHOD	FREQUENCY	VALUE (ENGLISH)	VALUE (SI)
GEOTEXTILE PROPERTY				
Cap Nonwoven, Mass/Unit Area	ASTM D 5261	1/200,000 ft^2 (1/20,000 m^2)	6.0 oz/yd^2 MARV[1]	200 g/m^2 MARV[1]
Carrier Woven, Mass/Unit Area	ASTM D 5261	1/200,000 ft^2 (1/20,000 m^2)	3.1 oz/yd^2 MARV	105 g/m^2 MARV
BENTONITE PROPERTY				
Swell Index	ASTM D 5890	1/100,000 lb (50,000 kg)	24 ml/2 g min	24 ml/2 g min
Moisture Content	ASTM D 4643	1/100,000 lb (50,000 kg)	12% max	12% max
Fluid Loss	ASTM D 5891	1/100,000 lb (50,000 kg)	18 ml max	18 ml max
FINISHED GCL PROPERTY				
Bentonite, Mass/Unit Area[2]	ASTM D 5993	1/40,000 ft^2 (1/4,000 m^2)	0.75 lb/ft^2 MARV	3.66 kg/m^2 MARV
Tensile Strength[3]	ASTM D 6768	1/40,000 ft^2 (1/4,000 m^2)	30 lb/in MARV	5 kN/m MARV
Peel Strength	ASTM D 6496 ASTM D 4632[4]	1/40,000 ft^2 (1/4,000 m^2)	3.5 lb/in MARV 21 lb MARV	610 N/m MARV 93 N MARV
Hydraulic Conductivity[5]	ASTM D 5887	1/Week	5×10^{-11} m/sec max	5×10^{-11} m/sec max
Index Flux[5]	ASTM D 5887	1/Week	1×10^{-8} m^3/m^2/sec max	1×10^{-8} m^3/m^2/sec max
Internal Shear Strength[6]	ASTM D 6243	Periodically	500 psf Typical	24 kPa Typical
ROLL DIMENSIONS				
Width x Length[7]	Typical	Every Roll	15.5 ft x 150 ft	4.7 m x 45.7 m
Area per Roll	Typical	Every Roll	2,325 ft^2	216 m^2
Packaged Weight	Typical	Every Roll	2,600 lb	1,179 kg

NOTES:

- [1] Minimum Average Roll Value.
- [2] Oven-dried measurement. Equates to 0.84 lb/ft^2 (4.1 kg/m^2) when indexed to a 12% moisture content.
- [3] Tested in machine direction.
- [4] Modified ASTM D 4632 to use a 4 in (100 mm) wide grip. The maximum peak of five specimens averaged in machine direction.
- [5] Deaired, deionized water @ 5 psi (34.5 kPa) maximum effective confining stress and 2 psi (13.8 kPa) head pressure.
- [6] Typical peak value for specimen hydrated for 24 hours and sheared under a 200 psf (9.6 kPa) normal stress.
- [7] Roll widths and lengths have a tolerance of ±1%.

GSEBENSL R01/15/10

3

This information is provided for reference purposes only and is not intended as a warranty or guarantee. GSE assumes no liability in connection with the use of this information. Specifications subject to change without notice.

GSE and BentoLiner are registered trademarks of GSE Lining Technology, LLC.

Manufacturers' Geomembrane Specifications

GSE

The Pioneer Of Geosynthetics

S I N C E 1 9 7 2

Product Data Sheet

GSE HD Smooth Geomembrane

GSE HD is a smooth high density polyethylene (HDPE) geomembrane manufactured with the highest quality resin specifically formulated for flexible geomembranes. This product is used in applications that require excellent chemical resistance and endurance properties.

Product Specifications

These product specifications meet or exceed GRI GM13.

TESTED PROPERTY	TEST METHOD	FREQUENCY	MINIMUM AVERAGE VALUE				
			30 mil	40 mil	60 mil	80 mil	100 mil
Thickness, (minimum average) mil (mm)	ASTM D 5199	every roll	30 (0.75)	40 (1.00)	60 (1.50)	80 (2.00)	100 (2.50)
Lowest individual reading (-10%)			27 (0.69)	36 (0.91)	54 (1.40)	72 (1.80)	90 (2.30)
Density, g/cm³	ASTM D 1505	200,000 lb	0.94	0.94	0.94	0.94	0.94
Tensile Properties (each direction)	ASTM D 6693, Type IV	20,000 lb					
Strength at Break, lb/in-width (N/mm)	Dumbell, 2 ipm		120 (21)	152 (26)	243 (42)	327 (57)	410 (71)
Strength at Yield, lb/in-width (N/mm)			66 (11)	84 (14)	132 (23)	177 (30)	212 (37)
Elongation at Break, %	G.L. 2.0 in (51 mm)		700	700	700	700	700
Elongation at Yield, %	G.L. 1.3 in (33 mm)		13	13	13	13	13
Tear Resistance, lb (N)	ASTM D 1004	45,000 lb	21 (93)	28 (124)	42 (186)	58 (257)	73 (324)
Puncture Resistance, lb (N)	ASTM D 4833	45,000 lb	65 (289)	85 (378)	125 (556)	160 (711)	195 (867)
Carbon Black Content, % (Range)	ASTM D 1603*/4218	20,000 lb	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lb	Note[1]	Note[1]	Note[1]	Note[1]	Note[1]
Notched Constant Tensile Load, hr	ASTM D 5397, Appendix	200,000 lb	1,000	1,000	1,000	1,000	1,000
Oxidative Induction Time, min	ASTM D 3895, 200° C; O_2, 1 atm	200,000 lb	>140	>140	>140	>140	>140
TYPICAL ROLL DIMENSIONS							
Roll Length[2], ft (m)			1,120 (341)	870 (265)	560 (171)	430 (131)	340 (104)
Roll Width[2], ft (m)			22.5 (6.9)	22.5 (6.9)	22.5 (6.9)	22.5 (6.9)	22.5 (6.9)
Roll Area, ft² (m²)			25,200 (2,341)	19,575 (1,819)	12,600 (1,171)	9,675 (899)	7,650 (711)

NOTES:

- [1]Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
- [2]Roll lengths and widths have a tolerance of ± 1%.
- GSE HD is available in rolls weighing approximately 3,900 lb (1,769 kg).
- All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77° C when tested according to ASTM D 746.
- *Modified.

DS1HD R01/13/10

1

This information is provided for reference purposes only and is not intended as a warranty or guarantee. GSE assumes no liability in connection with the use of this information. Specifications subject to change without notice.

GSE and other trademarks in this document are registered trademarks of GSE Lining Technology, LLC in the United States and certain foreign countries.

GSE

The Pioneer Of Geosynthetics

S I N C E 1 9 7 2

Product Data Sheet

GSE HD Textured Geomembrane

GSE HD Textured is a co-extruded textured high density polyethylene (HDPE) geomembrane available on one or both sides. It is manufactured from the highest quality resin specifically formulated for flexible geomembranes. This product is used in applications that require increased frictional resistance, excellent chemical resistance and endurance properties.

Product Specifications

These product specifications meet or exceed GRI GM13.

TESTED PROPERTY	TEST METHOD	FREQUENCY	MINIMUM AVERAGE VALUE				
			30 mil	40 mil	60 mil	80 mil	100 mil
Thickness, (minimum average) mil (mm)	ASTM D 5994	every roll	30 (0.75)	40 (1.00)	60 (1.50)	80 (2.00)	100 (2.50)
Lowest individual reading (-10%)			27 (0.69)	36 (0.91)	54 (1.40)	72 (1.80)	90 (2.30)
Density, g/cm³	ASTM D 1505	200,000 lb	0.94	0.94	0.94	0.94	0.94
Tensile Properties (each direction)	ASTM D 6693, Type IV	20,000 lb					
Strength at Break, lb/in-width (N/mm)	Dumbell, 2 ipm		66 (11)	75 (13)	115 (20)	155 (27)	230 (40)
Strength at Yield, lb/in-width (N/mm)			68 (11)	90 (15)	132 (23)	177 (31)	225 (39)
Elongation at Break, %	G.L. 2.0 in (51 mm)		100	100	100	100	100
Elongation at Yield, %	G.L. 1.3 in (33 mm)		12	12	12	12	12
Tear Resistance, lb (N)	ASTM D 1004	45,000 lb	24 (106)	32 (142)	45 (200)	60 (266)	75 (333)
Puncture Resistance, lb (N)	ASTM D 4833	45,000 lb	65 (289)	95 (422)	130 (578)	160 (711)	190 (845)
Carbon Black Content, % (Range)	ASTM D 1603*/4218	20,000 lb	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lb	Note[1]	Note[1]	Note[1]	Note[1]	Note[1]
Asperity Height, mil (mm)	ASTM D 7466	second roll	16 (0.40)	18 (0.45)	18 (0.45)	18 (0.45)	18 (0.45)
Notched Constant Tensile Load[2], hr	ASTM D 5397, Appendix	200,000 lb	1,000	1,000	1,000	1,000	1,000
Oxidative Induction Time, min	ASTM D 3895, 200° C; O_2, 1 atm	200,000 lb	>140	>140	>140	>140	>140
TYPICAL ROLL DIMENSIONS							
Roll Length[3], ft (m)	Double-Sided Textured		830 (253)	700 (213)	520 (158)	400 (122)	330 (101)
	Single-Sided Textured		840 (256)	650 (198)	420 (128)	320 (98)	250 (76)
Roll Width[3], ft (m)			22.5 (6.9)	22.5 (6.9)	22.5 (6.9)	22.5 (6.9)	22.5 (6.9)
Roll Area, ft² (m²)	Double-Sided Textured		18,675 (1,735)	15,750 (1,463)	11,700 (1,087)	9,000 (836)	7,425 (690)
	Single-Sided Textured		18,900 (1,755)	14,625 (1,359)	9,450 (878)	7,200 (669)	5,625 (523)

NOTES:

- [1]Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
- [2]NCTL for GSE HD Textured is conducted on representative smooth membrane samples.
- [3]Roll lengths and widths have a tolerance of ± 1%.
- GSE HD Textured Double-Sided is available in rolls weighing approximately 4,000 lb (1,800 kg) and Single-Sided weighing approximately 3,000 lb (1,360 kg).
- All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77° C when tested according to ASTM D 746.
- *Modified.

DS1HDT R01/13/10

8

This information is provided for reference purposes only and is not intended as a warranty or guarantee. GSE assumes no liability in connection with the use of this information. Specifications subject to change without notice.

GSE and other trademarks in this document are registered trademarks of GSE Lining Technology, LLC in the United States and certain foreign countries.

Manufacturers' Geocushion (NW32) Specifications

GSE

The Pioneer Of Geosynthetics

SINCE 1972

Product Data Sheet

GSE Nonwoven "Heavyweight" Geotextile

GSE Nonwoven "Heavyweight" Geotextile is a family of staple fiber needlepunched geotextiles. The geotextile is manufactured using an advanced manufacturing and quality system to produce the most uniform and consistent nonwoven needlepunched geotextile currently available in the industry. GSE combines a fiber selection and approval system with in-line quality control and a state-of-the-art laboratory to ensure that every roll shipped meets customer specifications and for various applications.

Product Specifications *These product specifications meet or exceed GRI GT12 and AASHTO M288*

TESTED PROPERTY	TEST METHOD	FREQUENCY	MINIMUM AVERAGE VALUE			
			NW20	NW24	NW28	NW32
Mass per Unit Area, oz/yd² (g/m²)	ASTM D 5261	90,000 ft²	20 (675)	24 (810)	28 (950)	32 (1,080)
Grab Tensile Strength, lb (N)	ASTM D 4632	90,000 ft²	450 (1,980)	500 (2,200)	550 (2,420)	600 (2,640)
Grab Elongation, %	ASTM D 4632	90,000 ft²	50	50	50	50
Puncture Strength, lb (N)	ASTM D 4833	90,000 ft²	200 (880)	250 (1,100)	300 (1,320)	350 (1,540)
Trapezoidal Tear Strength, lb (N)	ASTM D 4533	90,000 ft²	125 (550)	200 (880)	250 (1,100)	270 (1,190)
UV Resistance (% retained after 500 hours)	ASTM D 4355	per formulation	70	70	70	70
NOMINAL ROLL DIMENSIONS						
Roll Length[1], ft (m)			200 (61)	200 (61)	150 (45.7)	150 (45.7)
Roll Width[1], ft (m)			15 (4.6)	15 (4.6)	15 (4.6)	15 (4.6)
Roll Area, ft² (m²)			3,000 (281)	3,000 (281)	2,250 (209)	2,250 (209)

NOTES:

- The property values listed are in weaker principal direction. All values listed are Minimum Average Values except UV resistance which is a typical value.
- [1]Roll lengths and widths have a tolerance of ±1%.

DS12MWHWR10/11/10

11

This information is provided for reference purposes only and is not intended as a warranty or guarantee. GSE assumes no liability in connection with the use of this information. Specifications subject to change without notice.

GSE and other trademarks in this document are registered trademarks of GSE Lining Technology, LLC in the United States and certain foreign countries.

List of Items Procured by Domtar

EPG Companies Inc.

19900 County Road 81
Maple Grove, MN 55311

Phone: 763-424-2613
800-443-7426
Fax: 763-493-4812
www.epgco.com

Quote Number: 12772

TO:

Wynne Shaw
Domtar Paper (Plymouth-NC Complex)
NC HWY. 149 N.
Plymouth NC 27962
USA

Date: 12/23/2010
Expires: 1/22/2011
Reference: 06-8240
Site: Plymouth, NC
SalesPerson: Jim Bailey

Qty	Part Number / Description
2	WSDPT 12-8 EPG SurePump, patented, stainless steel Wheeled Sump Drainer, size 5, with 5 HP, 460 V, 3PH motor, 100' of jacketed 12-4 CP motor lead, 0-11' level sensor with built-in lightning arrestor and 100' Hytrel lead, 3"X2" stainless steel discharge adapter, and 100' of 3/16" stainless steel suspension cable and clamps.
2	DH300-100 Discharge Hose, 100' of 3" Type SR PVC hose, with stainless steel cam and groove quick connects, and stainless steel clamps.
2	NW3SS EPG Discharge Adapter, 3" stainless steel disconnect.
1	BJBP525 EPG Breakout Box, NEMA 4X non-metallic enclosure for 2 ea. motor leads, includes connection terminals.
1	BJBL625B EPG Breakout Box, NEMA 4X non-metallic enclosure, junction box for 2 ea. level sensors. Includes desiccant dryers, bellows, and connection terminals.
1	L950PT EPG PumpMaster Control Panel, 460V, 3PH, NEMA 4X stainless steel enclosure, to operate 2 ea. 5 HP submersible pump motors in lead-lag/alternating mode with LevelMaster level control meter and simulator, level sensor selector switch and bracket, elapsed time meters, AB PowerFlex 400 Variable Frequency Drives (VFDs), keypads (remote), load reactors, red panel mounted VFD fault lights, red panel mounted high sump level alarm light, red top mounted common alarms light, and 4-20 mA level output to terminals.

Manufacturers' 8-ounce Geotextile (NW8) Specifications

GSE

The Pioneer Of Geosynthetics

S I N C E 1 9 7 2

Product Data Sheet

GSE Nonwoven Geotextile

GSE Nonwoven Geotextile is a family of staple fiber needlepunched geotextiles. The geotextile is manufactured using an advanced manufacturing and quality system, to produce the most uniform and consistent nonwoven needlepunched geotextile currently available in the industry. GSE combines a fiber selection and approval system with in-line quality control and a state-of-the-art laboratory to ensure that every roll shipped meets customer specifications and for various applications.

Product Specifications *These product specifications meet or exceed GRI GT12, GRI GT13 and AASHTO M288.*

TESTED PROPERTY	TEST METHOD	FREQUENCY	MINIMUM AVERAGE VALUE					
			NW4	NW6	NW8	NW10	NW12	NW16
AASHTO M288 Class			3	2	1	>1	>>1	>>>1
Mass per Unit Area, oz/yd² (g/m²)	ASTM D 5261	90,000 ft²	4 (135)	6 (200)	8 (270)	10 (335)	12 (405)	16 (540)
Grab Tensile Strength, lb (N)	ASTM D 4632	90,000 ft²	120 (530)	160 (710)	220 (975)	260 (1,155)	320 (1,420)	390 (1,735)
Grab Elongation, %	ASTM D 4632	90,000 ft²	50	50	50	50	50	50
Puncture Strength, lb (N)	ASTM D 4833	90,000 ft²	60 (265)	90 (395)	120 (525)	165 (725)	190 (835)	240 (1,055)
Trapezoidal Tear Strength, lb (N)	ASTM D 4533	90,000 ft²	50 (220)	65 (290)	90 (395)	100 (445)	125 (555)	150 (665)
Apparent Opening Size, Sieve No. (mm)	ASTM D 4751	540,000 ft²	70 (0.212)	70 (0.212)	80 (0.180)	100 (0.150)	100 (0.150)	100 (0.150)
Permittivity, sec⁻¹	ASTM D 4491	540,000 ft²	1.80	1.50	1.30	1.00	0.80	0.60
Water Flow Rate, gpm/ft² (l/min/m²)	ASTM D 4491	540,000 ft²	135 (5,495)	110 (4,480)	95 (3,865)	75 (3,050)	60 (2,440)	45 (1,830)
UV Resistance (% retained after 500 hours)	ASTM D 4355	per formulation	70	70	70	70	70	70
NOMINAL ROLL DIMENSIONS								
Roll Length(1), ft (m)			850 (259)	850 (259)	600 (182)	500 (152)	400 (122)	300 (91)
Roll Width(1), ft (m)			15 (4.5)	15 (4.5)	15 (4.5)	15 (4.5)	15 (4.5)	15 (4.5)
Roll Area, ft² (m²)			12,750 (1,185)	12,750 (1,185)	9,000 (836)	7,500 (698)	6,000 (557)	4,500 (418)

NOTES:

- The property values listed are in weaker principal direction. All values listed are Minimum Average Values except apparent opening size in mm and UV resistance. Apparent opening size (mm) is a Maximum Value. UV is a typical value.
- (1)Roll lengths and widths have a tolerance of ±1%.

GS12NW R10/11/10

19

This information is provided for reference purposes only and is not intended as a warranty or guarantee. GSE assumes no liability in connection with the use of this information. Specifications subject to change without notice.

GSE and other trademarks in this document are registered trademarks of GSE Lining Technology, LLC in the United States and certain foreign countries.

20/20

Appendix F
Geosynthetic Quality Assurance Certifications

Table of Contents

- GCL Quality Assurance Certifications
- Geomembrane Quality Assurance Certifications
- Geocushion Quality Assurance Certifications
- 8-ounce Geotextile Quality Assurance Certifications
- Geomembrane Polyethylene Resin Certificate of Analysis

GCL Quality Assurance Certifications

GSE BentoLiner®

3150 1st Ave
Spearfish, SD 57783

TEL: 605-642-8531
FAX: 605-642-8539

BentoLiner® MANUFACTURING CERTIFICATION

CUSTOMER: CCS
PROJECT: Domtar Paper Company LF No.3 Phase 3&4
ORDER NO.: SO 63700

SHIP DATE:
 # ROLLS: 154
PRODUCT TYPE: BentoLiner NSL

GSE Bentoliner® hereby certifies that the GSE BentoLiner® Geosynthetic Clay Liner purchased and shipped for the above referenced project does meet or exceed GSE BentoLiner's® specifications .

The GSE BentoLiner® product has been continuously inspected for the presence of needles and is certified to be needle free.

BENTONITE testing was performed as follows:

Swell Index	ASTM D5890	1/20,000 ft²
Moisture Content	ASTM D4643	1/60,000 lb
Fluid Loss	ASTM D5891	1/20,000 ft²

GEOTEXTILE PROPERTIES

Top/Cap Mass (oz/yd²)	ASTM D5261	1/200,000 ft²
Bottom Mass (oz/yd²)	ASTM D5261	1/200,000 ft²

GEOSYNTHETIC CLAY LINER testing on the finished product was performed as follows:

Bentonite Mass Per Unit Area	ASTM D5993	1/20,000 ft²
Grab Tensile/Elongation	ASTM D4632	1/40,000 ft²
Tensile Strength	ASTM D6768	1/40,000 ft²
Peel Strength	ASTM D4632 Mod.	1/40,000 ft²
Peel Strength	ASTM D6496	1/40,000 ft²
Hydraulic Conductivity	ASTM D5084	1/750,000 ft²
**certified to meet the required specification of < 5E-9 cm/sec*		
Index Flux	ASTM D5887	1/750,000 ft²
**certified to meet the required specification of < 1E-8 m³/m²/sec*		
Internal Shear	ASTM D6243	Periodically
**hydrated 24 hours and sheared under 200 psf normal stress is certified to be 500 psf*		

The LOT and ROLL numbers for this shipment are as follows:

LOT# 21022703, 21022803

ROLL # 502175379 - 502175464; 502175465 - 502175532

Chuck Taylor
Lab Technician

Date: 3-2-11

Geosynthetic Clay Liner Traceability

Order: SO - 63700

Customer: CCS

Project Name: Dontar Paper Company LF No.3 - Phase 3, 4

Serial number	Roll length	Item number	Top Geo	Bottom Geo	Clay serial	Manufacturing date	Roll width
502175379	150.00	BLI-075-06N-03S-D-00	130388591	2021396575	1773086	3/1/2011	15.50
502175380	150.00	BLI-075-06N-03S-D-00	130388591	2021396575	1773086	3/1/2011	15.50
502175381	150.00	BLI-075-06N-03S-D-00	130388591	2021396575	1773086	3/1/2011	15.50
502175382	150.00	BLI-075-06N-03S-D-00	130388591	2021396575	1773086	3/1/2011	15.50
502175383	150.00	BLI-075-06N-03S-D-00	130388591	2021396575	1773086	3/1/2011	15.50
502175384	150.00	BLI-075-06N-03S-D-00	130388591	2021396575	1773086	3/1/2011	15.50
502175385	150.00	BLI-075-06N-03S-D-00	130388591	2021396575	1773086	3/1/2011	15.50
502175386	150.00	BLI-075-06N-03S-D-00	130388591	2021396575	1773086	3/1/2011	15.50
502175387	150.00	BLI-075-06N-03S-D-00	130388589	2021396575	1773086	3/1/2011	15.50
502175388	150.00	BLI-075-06N-03S-D-00	130388589	2021396575	1773086	3/1/2011	15.50
502175389	150.00	BLI-075-06N-03S-D-00	130388589	2021396575	1773088	3/1/2011	15.50
502175390	150.00	BLI-075-06N-03S-D-00	130388589	2021396575	1773088	3/1/2011	15.50
502175391	150.00	BLI-075-06N-03S-D-00	130388589	2021396575	1773088	3/1/2011	15.50
502175392	150.00	BLI-075-06N-03S-D-00	130388589	2021396575	1773088	3/1/2011	15.50
502175393	150.00	BLI-075-06N-03S-D-00	130388589	2021396575	1773088	3/1/2011	15.50
502175394	150.00	BLI-075-06N-03S-D-00	130388589	2021396575	1773088	3/1/2011	15.50
502175395	150.00	BLI-075-06N-03S-D-00	130388589	2021396575	1773088	3/1/2011	15.50
502175396	150.00	BLI-075-06N-03S-D-00	130388589	2021396575	1773088	3/1/2011	15.50
502175397	150.00	BLI-075-06N-03S-D-00	130388627	2021396575	1773088	3/1/2011	15.50
502175398	150.00	BLI-075-06N-03S-D-00	130388627	2021396575	1773088	3/1/2011	15.50
502175399	150.00	BLI-075-06N-03S-D-00	130388627	2021396575	1773088	3/1/2011	15.50
502175400	150.00	BLI-075-06N-03S-D-00	130388627	2021396575	1773088	3/1/2011	15.50
502175401	150.00	BLI-075-06N-03S-D-00	130388627	2021396575	1773088	3/1/2011	15.50
502175402	150.00	BLI-075-06N-03S-D-00	130388627	2021396575	1773088	3/1/2011	15.50
502175403	150.00	BLI-075-06N-03S-D-00	130388627	2021396575	1773088	3/1/2011	15.50
502175404	150.00	BLI-075-06N-03S-D-00	130388627	2021396575	1773088	3/1/2011	15.50
502175405	150.00	BLI-075-06N-03S-D-00	130388627	2021396575	1773088	3/1/2011	15.50
502175406	150.00	BLI-075-06N-03S-D-00	130388683	2021396575	1773088	3/1/2011	15.50
502175407	150.00	BLI-075-06N-03S-D-00	130388683	2021396575	1773088	3/1/2011	15.50

Geosynthetic Clay Liner Traceability

Order: SO - 63700
Customer: CCS
Project Name: Dontar Paper Company LF No.3 - Phase 3, 4

502175408	150.00	BLI-075-06N-03S-D-00	130388683	2021396575	1773088	3/1/2011	15.50
502175409	150.00	BLI-075-06N-03S-D-00	130388683	2021417258	1773088	3/1/2011	15.50
502175410	150.00	BLI-075-06N-03S-D-00	130388683	2021417258	1773088	3/1/2011	15.50
502175411	150.00	BLI-075-06N-03S-D-00	130388683	2021417258	1773088	3/1/2011	15.50
502175412	150.00	BLI-075-06N-03S-D-00	130388683	2021417258	1773088	3/1/2011	15.50
502175413	150.00	BLI-075-06N-03S-D-00	130388683	2021417258	1773088	3/1/2011	15.50
502175414	150.00	BLI-075-06N-03S-D-00	130388683	2021417258	1773088	3/1/2011	15.50
502175415	150.00	BLI-075-06N-03S-D-00	130388683	2021417258	1773088	3/1/2011	15.50
502175416	150.00	BLI-075-06N-03S-D-00	130388685	2021417258	1773088	3/1/2011	15.50
502175417	150.00	BLI-075-06N-03S-D-00	130388685	2021417258	1773088	3/1/2011	15.50
502175418	150.00	BLI-075-06N-03S-D-00	130388685	2021417258	1773089	3/1/2011	15.50
502175419	150.00	BLI-075-06N-03S-D-00	130388685	2021417258	1773089	3/1/2011	15.50
502175420	150.00	BLI-075-06N-03S-D-00	130388685	2021417258	1773089	3/1/2011	15.50
502175421	150.00	BLI-075-06N-03S-D-00	130388685	2021417258	1773089	3/1/2011	15.50
502175422	150.00	BLI-075-06N-03S-D-00	130388685	2021417258	1773089	3/1/2011	15.50
502175423	142.00	BLI-075-06N-03S-D-00	130388685	2021417258	1773089	3/1/2011	15.50
502175424	150.00	BLI-075-06N-03S-D-00	130388685	2021417258	1773089	3/1/2011	15.50
502175425	150.00	BLI-075-06N-03S-D-00	130388634	2021417258	1773089	3/1/2011	15.50
502175426	150.00	BLI-075-06N-03S-D-00	130388634	2021417258	1773089	3/1/2011	15.50
502175427	150.00	BLI-075-06N-03S-D-00	130388634	2021417258	1773089	3/1/2011	15.50
502175428	150.00	BLI-075-06N-03S-D-00	130388634	2021417258	1773089	3/1/2011	15.50
502175429	150.00	BLI-075-06N-03S-D-00	130388634	2021417258	1773089	3/1/2011	15.50
502175430	150.00	BLI-075-06N-03S-D-00	130388634	2021417258	1773089	3/1/2011	15.50
502175431	150.00	BLI-075-06N-03S-D-00	130388634	2021417258	1773089	3/1/2011	15.50
502175432	150.00	BLI-075-06N-03S-D-00	130388634	2021417258	1773089	3/1/2011	15.50
502175433	150.00	BLI-075-06N-03S-D-00	130388634	2021417258	1773089	3/1/2011	15.50
502175434	124.00	BLI-075-06N-03S-D-00	130388647	2021417258	1773089	3/1/2011	15.50
502175435	150.00	BLI-075-06N-03S-D-00	130388647	2021417258	1773089	3/1/2011	15.50
502175436	150.00	BLI-075-06N-03S-D-00	130388647	2021417258	1773089	3/1/2011	15.50
502175437	150.00	BLI-075-06N-03S-D-00	130388647	2021417258	1773089	3/1/2011	15.50

Geosynthetic Clay Liner Traceability

Order: SO - 63700

Customer: CCS

Project Name: Dontar Paper Company LF No.3 - Phase 3, 4

502175438	150.00	BLI-075-06N-03S-D-00	130388647	2021426317	1773089	3/1/2011	15.50
502175439	150.00	BLI-075-06N-03S-D-00	130388647	2021426317	1773089	3/1/2011	15.50
502175440	150.00	BLI-075-06N-03S-D-00	130388647	2021426317	1773089	3/1/2011	15.50
502175441	150.00	BLI-075-06N-03S-D-00	130388647	2021426317	1773089	3/1/2011	15.50
502175442	150.00	BLI-075-06N-03S-D-00	130388647	2021426317	1773089	3/1/2011	15.50
502175443	150.00	BLI-075-06N-03S-D-00	130388647	2021426317	1773089	3/1/2011	15.50
502175444	150.00	BLI-075-06N-03S-D-00	130388647	2021426317	1773089	3/1/2011	15.50
502175445	150.00	BLI-075-06N-03S-D-00	130388688	2021426317	1773089	3/1/2011	15.50
502175446	150.00	BLI-075-06N-03S-D-00	130388688	2021426317	1773089	3/1/2011	15.50
502175447	150.00	BLI-075-06N-03S-D-00	130388688	2021426317	1773090	3/1/2011	15.50
502175448	150.00	BLI-075-06N-03S-D-00	130388688	2021426317	1773090	3/1/2011	15.50
502175449	150.00	BLI-075-06N-03S-D-00	130388688	2021426317	1773090	3/1/2011	15.50
502175450	150.00	BLI-075-06N-03S-D-00	130388688	2021426317	1773090	3/1/2011	15.50
502175451	150.00	BLI-075-06N-03S-D-00	130388688	2021426317	1773090	3/1/2011	15.50
502175452	150.00	BLI-075-06N-03S-D-00	130388688	2021426317	1773090	3/1/2011	15.50
502175453	150.00	BLI-075-06N-03S-D-00	130388688	2021426317	1773090	3/1/2011	15.50
502175454	150.00	BLI-075-06N-03S-D-00	130388893	2021426317	1773090	3/1/2011	15.50
502175455	150.00	BLI-075-06N-03S-D-00	130388893	2021426317	1773090	3/1/2011	15.50
502175456	150.00	BLI-075-06N-03S-D-00	130388893	2021426317	1773090	3/1/2011	15.50
502175457	150.00	BLI-075-06N-03S-D-00	130388893	2021426317	1773090	3/1/2011	15.50
502175458	150.00	BLI-075-06N-03S-D-00	130388893	2021426317	1773090	3/1/2011	15.50
502175459	150.00	BLI-075-06N-03S-D-00	130388893	2021426317	1773090	3/1/2011	15.50
502175460	150.00	BLI-075-06N-03S-D-00	130388893	2021426317	1773090	3/1/2011	15.50
502175461	150.00	BLI-075-06N-03S-D-00	130388893	2021426317	1773090	3/1/2011	15.50
502175462	150.00	BLI-075-06N-03S-D-00	130388893	2021426317	1773090	3/1/2011	15.50
502175463	150.00	BLI-075-06N-03S-D-00	130388893	2021426317	1773090	3/1/2011	15.50
502175464	150.00	BLI-075-06N-03S-D-00	130388600	2021426317	1773090	3/1/2011	15.50
502175465	150.00	BLI-075-06N-03S-D-00	130388600	2021426317	1773090	3/1/2011	15.50
502175466	150.00	BLI-075-06N-03S-D-00	130388600	2021381372	1773090	3/1/2011	15.50
502175467	150.00	BLI-075-06N-03S-D-00	130388600	2021381372	1773090	3/1/2011	15.50

Geosynthetic Clay Liner Traceability

Order: SO - 63700
Customer: CCS
Project Name: Dontar Paper Company LF No.3 - Phase 3, 4

502175468	150.00	BLI-075-06N-03S-D-00	130388600	2021381372	1773090	3/1/2011	15.50
502175469	150.00	BLI-075-06N-03S-D-00	130388600	2021381372	1773090	3/1/2011	15.50
502175470	150.00	BLI-075-06N-03S-D-00	130388600	2021381372	1773090	3/1/2011	15.50
502175471	150.00	BLI-075-06N-03S-D-00	130388600	2021381372	1773090	3/1/2011	15.50
502175472	150.00	BLI-075-06N-03S-D-00	130388600	2021381372	1773090	3/1/2011	15.50
502175473	150.00	BLI-075-06N-03S-D-00	130388600	2021381372	1773090	3/1/2011	15.50
502175474	150.00	BLI-075-06N-03S-D-00	130388645	2021381372	1773090	3/1/2011	15.50
502175475	150.00	BLI-075-06N-03S-D-00	130388645	2021381372	1773090	3/1/2011	15.50
502175476	150.00	BLI-075-06N-03S-D-00	130388645	2021381372	1773091	3/1/2011	15.50
502175477	150.00	BLI-075-06N-03S-D-00	130388645	2021381372	1773091	3/1/2011	15.50
502175478	150.00	BLI-075-06N-03S-D-00	130388645	2021381372	1773091	3/1/2011	15.50
502175479	150.00	BLI-075-06N-03S-D-00	130388645	2021381372	1773091	3/1/2011	15.50
502175480	150.00	BLI-075-06N-03S-D-00	130388645	2021381372	1773091	3/1/2011	15.50
502175481	150.00	BLI-075-06N-03S-D-00	130388645	2021381372	1773091	3/1/2011	15.50
502175482	150.00	BLI-075-06N-03S-D-00	130388645	2021381372	1773091	3/1/2011	15.50
502175483	150.00	BLI-075-06N-03S-D-00	130388645	2021381372	1773091	3/1/2011	15.50
502175484	150.00	BLI-075-06N-03S-D-00	130388636	2021381372	1773091	3/1/2011	15.50
502175485	150.00	BLI-075-06N-03S-D-00	130388636	2021381372	1773091	3/1/2011	15.50
502175486	150.00	BLI-075-06N-03S-D-00	130388636	2021381372	1773091	3/1/2011	15.50
502175487	150.00	BLI-075-06N-03S-D-00	130388636	2021381372	1773091	3/1/2011	15.50
502175488	150.00	BLI-075-06N-03S-D-00	130388636	2021381372	1773091	3/1/2011	15.50
502175489	150.00	BLI-075-06N-03S-D-00	130388636	2021396576	1773091	3/1/2011	15.50
502175490	150.00	BLI-075-06N-03S-D-00	130388636	2021396576	1773091	3/1/2011	15.50
502175491	150.00	BLI-075-06N-03S-D-00	130388636	2021396576	1773091	3/1/2011	15.50
502175492	150.00	BLI-075-06N-03S-D-00	130388636	2021396576	1773091	3/1/2011	15.50
502175493	150.00	BLI-075-06N-03S-D-00	130388636	2021396576	1773091	3/1/2011	15.50
502175494	150.00	BLI-075-06N-03S-D-00	130388894	2021396576	1773091	3/1/2011	15.50
502175495	150.00	BLI-075-06N-03S-D-00	130388894	2021396576	1773091	3/1/2011	15.50
502175496	150.00	BLI-075-06N-03S-D-00	130388894	2021396576	1773091	3/1/2011	15.50
502175497	150.00	BLI-075-06N-03S-D-00	130388894	2021396576	1773091	3/1/2011	15.50

Geosynthetic Clay Liner Traceability

Order: SO - 63700
Customer: CCS
Project Name: Dontar Paper Company LF No.3 - Phase 3, 4

502175498	150.00	BLI-075-06N-03S-D-00	130388894	2021396576	1773091	3/1/2011	15.50
502175499	150.00	BLI-075-06N-03S-D-00	130388894	2021396576	1773091	3/1/2011	15.50
502175500	150.00	BLI-075-06N-03S-D-00	130388894	2021396576	1773091	3/1/2011	15.50
502175501	150.00	BLI-075-06N-03S-D-00	130388894	2021396576	1773091	3/1/2011	15.50
502175502	150.00	BLI-075-06N-03S-D-00	130388894	2021396576	1773091	3/1/2011	15.50
502175503	150.00	BLI-075-06N-03S-D-00	130388892	2021396576	1773091	3/1/2011	15.50
502175504	150.00	BLI-075-06N-03S-D-00	130388892	2021396576	1773091	3/1/2011	15.50
502175505	150.00	BLI-075-06N-03S-D-00	130388892	2021396576	1773093	3/1/2011	15.50
502175506	150.00	BLI-075-06N-03S-D-00	130388892	2021396576	1773093	3/1/2011	15.50
502175507	150.00	BLI-075-06N-03S-D-00	130388892	2021396576	1773093	3/1/2011	15.50
502175508	150.00	BLI-075-06N-03S-D-00	130388892	2021396576	1773093	3/1/2011	15.50
502175509	150.00	BLI-075-06N-03S-D-00	130388892	2021396576	1773093	3/1/2011	15.50
502175510	150.00	BLI-075-06N-03S-D-00	130388892	2021396576	1773093	3/1/2011	15.50
502175511	150.00	BLI-075-06N-03S-D-00	130388606	2021396576	1773093	3/1/2011	15.50
502175512	150.00	BLI-075-06N-03S-D-00	130388606	2021396576	1773093	3/1/2011	15.50
502175513	150.00	BLI-075-06N-03S-D-00	130388606	2021396576	1773093	3/1/2011	15.50
502175514	150.00	BLI-075-06N-03S-D-00	130388606	2021396576	1773093	3/1/2011	15.50
502175515	150.00	BLI-075-06N-03S-D-00	130388606	2021396576	1773093	3/1/2011	15.50
502175516	150.00	BLI-075-06N-03S-D-00	130388606	2021396576	1773093	3/1/2011	15.50
502175517	150.00	BLI-075-06N-03S-D-00	130388606	2021396576	1773093	3/1/2011	15.50
502175518	150.00	BLI-075-06N-03S-D-00	130388606	2021396576	1773093	3/1/2011	15.50
502175519	150.00	BLI-075-06N-03S-D-00	130388606	2021396576	1773093	3/1/2011	15.50
502175520	150.00	BLI-075-06N-03S-D-00	130388606	2021429575	1773093	3/1/2011	15.50
502175521	150.00	BLI-075-06N-03S-D-00	130388656	2021429575	1773093	3/1/2011	15.50
502175522	150.00	BLI-075-06N-03S-D-00	130388656	2021429575	1773093	3/1/2011	15.50
502175523	150.00	BLI-075-06N-03S-D-00	130388656	2021429575	1773093	3/1/2011	15.50
502175524	150.00	BLI-075-06N-03S-D-00	130388656	2021429575	1773093	3/1/2011	15.50
502175525	150.00	BLI-075-06N-03S-D-00	130388656	2021429575	1773093	3/1/2011	15.50
502175526	150.00	BLI-075-06N-03S-D-00	130388656	2021429575	1773093	3/1/2011	15.50
502175527	150.00	BLI-075-06N-03S-D-00	130388656	2021429575	1773093	3/1/2011	15.50

Geosynthetic Clay Liner Traceability

Order: SO - 63700
Customer: CCS
Project Name: Dontar Paper Company LF No.3 - Phase 3, 4

502175528	150.00	BLI-075-06N-03S-D-00	130388656	2021429575	1773093	3/1/2011	15.50
502175529	150.00	BLI-075-06N-03S-D-00	130388656	2021429575	1773093	3/1/2011	15.50
502175530	150.00	BLI-075-06N-03S-D-00	130388587	2021429575	1773093	3/1/2011	15.50
502175531	104.00	BLI-075-06N-03S-D-00	130388587	2021429575	1773093	3/1/2011	15.50
502175532	80.00	BLI-075-06N-03S-D-00	130388587	2021429575	1773093	3/1/2011	15.50

GSE Lining Technology, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: 3/2/2011

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-063700	Chesapeake Containment Systems, Inc.	Plymouth NC US	BLI-075-06N-03S-D-00	

Roll Number	ASTM D4632 Grab Strength (lbs)	Peel Strength ASTM D4632 (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content (lbs/sf)	ASTM D5890 Free Swell (ml)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502175379	190	59	50.2	11.9	0.77	25	10.8	13.4
502175380	190	59	50.2	11.9	0.77	25	10.8	13.4
502175381	190	59	50.2	11.9	0.77	25	10.8	13.4
502175382	190	59	50.2	11.9	0.77	25	10.8	13.4
502175383	190	59	50.2	11.9	0.77	25	10.8	13.4
502175384	190	59	50.2	11.9	0.77	25	10.8	13.4
502175385	190	59	50.2	11.9	0.77	25	10.8	13.4
502175386	190	59	50.2	11.9	0.79	25	10.8	13.4
502175387	190	59	50.2	11.9	0.79	25	10.8	13.4
502175388	190	59	50.2	11.9	0.79	25	10.8	13.4
502175389	190	59	50.2	11.9	0.79	25	9.8	14.2
502175390	190	59	50.2	11.9	0.79	25	9.8	14.2
502175391	190	59	50.2	11.9	0.79	25	9.8	14.2
502175392	190	59	50.2	11.9	0.79	25	9.8	14.2
502175393	190	59	50.2	11.9	0.79	25	9.8	14.2
502175394	190	59	50.2	11.9	0.79	25	9.8	14.2
502175395	165	31	51.0	5.8	0.85	25	9.8	14.2
502175396	165	31	51.0	5.8	0.85	25	9.8	14.2
502175397	165	31	51.0	5.8	0.85	28	9.8	14.0
502175398	165	31	51.0	5.8	0.85	28	9.8	14.0
502175399	165	31	51.0	5.8	0.85	28	9.8	14.0
502175400	165	31	51.0	5.8	0.85	28	9.8	14.0
502175401	165	31	51.0	5.8	0.85	28	9.8	14.0
502175402	165	31	51.0	5.8	0.85	28	9.8	14.0
502175403	165	31	51.0	5.8	0.80	28	9.8	14.0
502175404	165	31	51.0	5.8	0.80	28	9.8	14.0
502175405	165	31	51.0	5.8	0.80	26	9.8	14.0
502175406	165	31	51.0	5.8	0.80	26	9.8	14.0
502175407	165	31	51.0	5.8	0.80	26	9.8	14.0
502175408	165	31	51.0	5.8	0.80	26	9.8	14.0
502175409	165	31	51.0	5.8	0.80	26	9.8	14.0
502175410	165	31	51.0	5.8	0.80	26	9.8	14.0
502175411	236	55	65.9	10.3	0.82	26	9.8	14.0
502175412	236	55	65.9	10.3	0.82	26	9.8	14.0

GSE Lining Technology, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: 3/2/2011

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-063700	Chesapeake Containment Systems, Inc.	Plymouth NC US	BLI-075-06N-03S-D-00	

Roll Number	ASTM D4632 Grab Strength (lbs)	Peel Strength ASTM D4632 (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content (lbs/sf)	ASTM D5890 Free Swell (ml)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502175413	236	55	65.9	10.3	0.82	29	9.8	13.8
502175414	236	55	65.9	10.3	0.82	29	9.8	13.8
502175415	236	55	65.9	10.3	0.82	29	9.8	13.8
502175416	236	55	65.9	10.3	0.82	29	9.8	13.8
502175417	236	55	65.9	10.3	0.82	29	9.8	13.8
502175418	236	55	65.9	10.3	0.82	26	9.0	13.8
502175419	236	55	65.9	10.3	0.82	26	9.0	13.8
502175420	236	55	65.9	10.3	0.82	26	9.0	13.8
502175421	236	55	65.9	10.3	0.82	26	9.0	13.8
502175422	236	55	65.9	10.3	0.82	26	9.0	13.8
502175423	236	55	65.9	10.3	0.82	26	9.0	13.8
502175424	236	55	65.9	10.3	0.82	26	9.0	13.8
502175425	236	55	65.9	10.3	0.82	26	9.0	13.8
502175426	236	55	65.9	10.3	0.82	28	9.0	14.0
502175427	199	24	57.7	4.5	0.84	28	9.0	14.0
502175428	199	24	57.7	4.5	0.84	28	9.0	14.0
502175429	199	24	57.7	4.5	0.84	28	9.0	14.0
502175430	199	24	57.7	4.5	0.84	28	9.0	14.0
502175431	199	24	57.7	4.5	0.84	28	9.0	14.0
502175432	199	24	57.7	4.5	0.84	28	9.0	14.0
502175433	199	24	57.7	4.5	0.84	28	9.0	14.0
502175434	199	24	57.7	4.5	0.84	28	9.0	14.0
502175435	199	24	57.7	4.5	0.78	28	9.0	14.0
502175436	199	24	57.7	4.5	0.78	28	9.0	14.0
502175437	199	24	57.7	4.5	0.78	28	9.0	14.0
502175438	199	24	57.7	4.5	0.78	28	9.0	14.0
502175439	199	24	57.7	4.5	0.78	28	9.0	14.0
502175440	199	24	57.7	4.5	0.78	28	9.0	14.0
502175441	199	24	57.7	4.5	0.78	28	9.0	14.0
502175442	199	24	57.7	4.5	0.78	28	9.0	14.0
502175443	215	31	56.2	6.1	0.88	28	9.0	12.8
502175444	215	31	56.2	6.1	0.88	28	9.0	12.8
502175445	215	31	56.2	6.1	0.88	28	9.0	12.8
502175446	215	31	56.2	6.1	0.88	28	9.0	12.8

GSE Lining Technology, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: 3/2/2011

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-063700	Chesapeake Containment Systems, Inc.	Plymouth NC US	BLI-075-06N-03S-D-00	

Roll Number	ASTM D4632 Grab Strength (lbs)	Peel Strength ASTM D4632 (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content (lbs/sf)	ASTM D5890 Free Swell (ml)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502175447	215	31	56.2	6.1	0.88	26	8.9	13.4
502175448	215	31	56.2	6.1	0.88	26	8.9	13.4
502175449	215	31	56.2	6.1	0.88	26	8.9	13.4
502175450	215	31	56.2	6.1	0.88	26	8.9	13.4
502175451	215	31	56.2	6.1	0.79	26	8.9	13.4
502175452	215	31	56.2	6.1	0.79	26	8.9	13.4
502175453	215	31	56.2	6.1	0.79	26	8.9	13.4
502175454	215	31	56.2	6.1	0.79	26	8.9	13.4
502175455	215	31	56.2	6.1	0.79	28	8.9	12.8
502175456	215	31	56.2	6.1	0.79	28	8.9	12.8
502175457	215	31	56.2	6.1	0.79	28	8.9	12.8
502175458	215	31	56.2	6.1	0.79	28	8.9	12.8
502175459	188	34	51.4	6.8	0.82	28	8.9	12.8
502175460	188	34	51.4	6.8	0.82	28	8.9	12.8
502175461	188	34	51.4	6.8	0.82	28	8.9	12.8
502175462	188	34	51.4	6.8	0.82	28	8.9	12.8
502175463	188	34	51.4	6.8	0.82	28	8.9	12.0
502175464	188	34	51.4	6.8	0.82	28	8.9	12.0
502175465	196	28	46.6	5.2	0.90	28	8.9	12.0
502175466	196	28	46.6	5.2	0.90	28	8.9	12.0
502175467	196	28	46.6	5.2	0.90	28	8.9	12.0
502175468	196	28	46.6	5.2	0.90	28	8.9	12.0
502175469	196	28	46.6	5.2	0.90	28	8.9	12.0
502175470	196	28	46.6	5.2	0.90	28	8.9	12.0
502175471	196	28	46.6	5.2	0.90	26	8.9	13.0
502175472	196	28	46.6	5.2	0.90	26	8.9	13.0
502175473	196	28	46.6	5.2	0.81	26	8.9	13.0
502175474	196	28	46.6	5.2	0.81	26	8.9	13.0
502175475	196	28	46.6	5.2	0.81	26	8.9	13.0
502175476	196	28	46.6	5.2	0.81	27	10.2	13.6
502175477	196	28	46.6	5.2	0.81	27	10.2	13.6
502175478	196	28	46.6	5.2	0.81	27	10.2	13.6
502175479	196	28	46.6	5.2	0.81	27	10.2	13.6
502175480	196	28	46.6	5.2	0.81	27	10.2	13.6

21

GSE Lining Technology, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: 3/2/2011

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-063700	Chesapeake Containment Systems, Inc.	Plymouth NC US	BLI-075-06N-03S-D-00	

Roll Number	ASTM D4632 Grab Strength (lbs)	Peel Strength ASTM D4632 (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content (lbs/sf)	ASTM D5890 Free Swell (ml)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502175481	220	39	60.8	7.7	0.80	27	10.2	13.6
502175482	220	39	60.8	7.7	0.80	27	10.2	13.2
502175483	220	39	60.8	7.7	0.80	27	10.2	13.2
502175484	220	39	60.8	7.7	0.80	27	10.2	13.2
502175485	220	39	60.8	7.7	0.80	27	10.2	13.2
502175486	220	39	60.8	7.7	0.80	27	10.2	13.2
502175487	220	39	60.8	7.7	0.80	27	10.2	13.2
502175488	220	39	60.8	7.7	0.80	27	10.2	13.0
502175489	220	39	60.8	7.7	0.80	27	10.2	13.0
502175490	220	39	60.8	7.7	0.80	27	10.2	13.0
502175491	220	39	60.8	7.7	0.80	27	10.2	13.0
502175492	220	39	60.8	7.7	0.80	27	10.2	13.0
502175493	220	39	60.8	7.7	0.80	27	10.2	13.0
502175494	220	39	60.8	7.7	0.80	28	10.2	12.0
502175495	220	39	60.8	7.7	0.80	28	10.2	12.0
502175496	220	39	60.8	7.7	0.80	28	10.2	12.0
502175497	180	30	46.8	5.8	0.85	28	10.2	12.0
502175498	180	30	46.8	5.8	0.85	28	10.2	12.0
502175499	180	30	46.8	5.8	0.85	28	10.2	12.0
502175500	180	30	46.8	5.8	0.85	28	10.2	12.0
502175501	180	30	46.8	5.8	0.85	28	10.2	12.0
502175502	180	30	46.8	5.8	0.85	28	10.2	12.0
502175503	180	30	46.8	5.8	0.85	28	10.2	12.0
502175504	180	30	46.8	5.8	0.85	28	10.2	12.0
502175505	180	30	46.8	5.8	0.85	27	8.9	14.0
502175506	180	30	46.8	5.8	0.85	27	8.9	14.0
502175507	180	30	46.8	5.8	0.85	27	8.9	14.0
502175508	180	30	46.8	5.8	0.85	27	8.9	14.0
502175509	180	30	46.8	5.8	0.85	27	8.9	14.0
502175510	180	30	46.8	5.8	0.85	27	8.9	14.0
502175511	180	30	46.8	5.8	0.85	27	8.9	14.0
502175512	180	30	46.8	5.8	0.85	26	8.9	13.6
502175513	175	35	50.2	7.0	0.87	26	8.9	13.6
502175514	175	35	50.2	7.0	0.87	26	8.9	13.6

GSE Lining Technology, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: 3/2/2011

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-053700	Chesapeake Containment Systems, Inc.	Plymouth NC US	RLI-075-06N-03S-D-00	

Roll Number	ASTM D4632 Grab Strength (lbs)	Peel Strength ASTM D4632 (lbs)	ASTM D6768 Tensile Strength (ppi)	ASTM D6496 Peel Strength (ppi)	ASTM D5993 Clay Content (lbs/sf)	ASTM D5890 Free Swell (ml)	ASTM D2216 Moisture Content (%)	ASTM D5891 Fluid Loss (ml)
502175515	175	35	50.2	7.0	0.87	26	8.9	13.6
502175516	175	35	50.2	7.0	0.87	26	8.9	13.6
502175517	175	35	50.2	7.0	0.87	26	8.9	13.6
502175518	175	35	50.2	7.0	0.87	26	8.9	13.6
502175519	175	35	50.2	7.0	0.87	26	8.9	13.6
502175520	175	35	50.2	7.0	0.87	27	8.9	13.2
502175521	175	35	50.2	7.0	0.87	27	8.9	13.2
502175522	175	35	50.2	7.0	0.87	27	8.9	13.2
502175523	175	35	50.2	7.0	0.87	27	8.9	13.2
502175524	175	35	50.2	7.0	0.87	27	8.9	13.2
502175525	175	35	50.2	7.0	0.87	27	8.9	13.2
502175526	175	35	50.2	7.0	0.87	27	8.9	13.2
502175527	175	35	50.2	7.0	0.87	27	8.9	13.4
502175528	175	35	50.2	7.0	0.87	27	8.9	13.4
502175529	175	35	50.2	7.0	0.87	27	8.9	13.4
502175530	189	30	52.4	6.0	0.79	27	8.9	13.4
502175531	189	30	52.4	6.0	0.79	27	8.9	13.4
502175532	189	30	52.4	6.0	0.79	27	8.9	13.4

Laboratory Manager Chuck Taylor

This test report shall not be reproduced, except in full, without written approval of the laboratory.

Geomembrane Quality Assurance Certifications

GSE Roll Allocation

Order SO-063700
Customer Chesapeake Containment Systems, Inc.
Project Name Domtar Paper Landfill No 3

Roll#	Resin Lot	Product Code	Mfg Date	Length
102159132	8210058	HDS-060AE-BBB-B-00	3/1/2011	560
102159133	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159134	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159135	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159136	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159137	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159138	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159139	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159140	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159141	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159142	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159143	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159144	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159145	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159146	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159147	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159148	8210058	HDS-060AE-BBB-B-00	3/2/2011	560
102159149	8210058	HDS-060AE-BBB-B-00	3/3/2011	560
102159150	8210058	HDS-060AE-BBB-B-00	3/3/2011	560
102159151	8210058	HDS-060AE-BBB-B-00	3/3/2011	560
102159152	8210058	HDS-060AE-BBB-B-00	3/3/2011	560
102159153	8210058	HDS-060AE-BBB-B-00	3/3/2011	560
102159154	8210058	HDS-060AE-BBB-B-00	3/3/2011	560
102159155	8210058	HDS-060AE-BBB-B-00	3/3/2011	560
102159156	11B1080	HDS-060AE-BBB-B-00	3/3/2011	560
102159157	11B1080	HDS-060AE-BBB-B-00	3/3/2011	560

17

GSE Roll Allocation

Order SO-063700
Customer Chesapeake Containment Systems, Inc.
Project Name Domtar Paper Landfill No 3

Roll#	Resin Lot	Product Code	Mfg Date	Length
108155204	11B1086	HDT-060GE-BBB-B-W0	2/28/2011	520
108155205	11B1086	HDT-060GE-BBB-B-W0	3/1/2011	520
108155206	11B1086	HDT-060GE-BBB-B-W0	3/1/2011	520
108155207	11B1086	HDT-060GE-BBB-B-W0	3/1/2011	520
108155208	11B1086	HDT-060GE-BBB-B-W0	3/1/2011	520

GSE Roll Allocation

Order SO-063849
Customer Chesapeake Containment Systems, Inc.
Project Name Asheville Airport

Roll#	Resin Lot	Product Code	Mfg Date	Length
108155300	8201485	HDT-060AE-BBB-B-W0	3/5/2011	520

19

GSE Lining Technology, LLC

ROLL TEST DATA REPORT

Report Date: 3/4/2011

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-063700	Chesapeake Containment Systems, Inc.	Plymouth NC US	HDS-060AE-BBB-B-00	

Roll Number	Thickness Average ASTM D5199 (mils)	Thickness Minimum ASTM D5199 (mils)	Yield Strength ASTM D6693 (ppi) MD	Yield Strength ASTM D6693 (ppi) TD	Yield Elongation ASTM D6693 (%) MD	Yield Elongation ASTM D6693 (%) TD	Break Strength ASTM D6693 (ppi) MD	Break Strength ASTM D6693 (ppi) TD	Break Elongation ASTM D6693 (%) MD	Break Elongation ASTM D6693 (%) TD	Tear Resistance ASTM D1004 (lbs) MD	Tear Resistance ASTM D1004 (lbs) TD	Puncture Resistance ASTM D4833(lbs)	Density ASTM D1505 (g/cc)	Carbon Black Content ASTM D4218 (%)	Carbon Black Dispersion ASTM D5596 (Views in Cat1-Cat2)
102159132	60	57	143	145	17	17	298	310	886	965	49	48	143	0.947	2.60	10
102159133	60	56	150	157	17	17	276	289	812	881	50	48	147	0.947	2.60	10
102159134	61	57	150	157	17	17	276	289	812	881	50	48	147	0.947	2.60	10
102159135	61	56	154	158	17	17	300	310	855	939	51	48	141	0.947	2.42	10
102159136	61	57	154	158	17	17	300	310	855	939	51	48	141	0.947	2.42	10
102159137	61	58	154	158	17	17	300	310	855	939	51	48	141	0.947	2.42	10
102159138	61	58	150	154	17	17	302	320	842	957	53	49	150	0.947	2.49	9
102159139	60	57	150	154	17	17	302	320	842	957	53	49	150	0.947	2.49	9
102159140	60	57	150	154	17	17	302	320	842	957	53	49	150	0.947	2.49	9
102159141	61	57	161	167	17	17	307	324	867	967	54	52	148	0.947	2.61	10
102159142	60	56	161	167	17	17	307	324	867	967	54	52	148	0.947	2.61	10
102159143	61	58	161	167	17	17	307	324	867	967	54	52	148	0.947	2.61	10
102159144	60	56	144	146	17	17	291	328	836	998	50	47	145	0.946	2.64	10
102159145	60	56	144	146	17	17	291	328	836	998	50	47	145	0.946	2.64	10
102159146	60	57	144	146	17	17	291	328	836	998	50	47	145	0.946	2.64	10
102159147	61	56	140	148	17	17	280	293	817	884	50	47	139	0.946	2.38	10
102159148	61	57	140	148	17	17	280	293	817	884	50	47	139	0.946	2.38	10
102159149	60	56	140	148	17	17	280	293	817	884	50	47	139	0.946	2.38	10
102159150	60	57	142	148	17	17	291	294	838	880	50	47	146	0.946	2.59	10
102159151	60	58	142	148	17	17	291	294	838	880	50	47	146	0.946	2.59	10
102159152	61	57	142	148	17	17	291	294	838	880	50	47	146	0.946	2.59	10
102159153	60	57	152	139	17	17	294	258	841	862	52	48	138	0.946	2.50	10
102159154	61	57	152	139	17	17	294	258	841	862	52	48	138	0.946	2.50	10
102159155	60	57	152	139	17	17	294	258	841	862	52	48	138	0.946	2.50	10
102159156	60	56	154	162	17	17	307	317	851	928	54	51	156	0.946	2.50	10
102159157	61	59	154	162	17	17	307	317	851	928	54	51	156	0.946	2.50	10

Laboratory Manager Jane Allen

This test report shall not be reproduced, except in full, without written approval of the laboratory.

GSE Lining Technology, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: 3/1/2011

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-063700	Chesapeake Containment Systems, Inc.	Plymouth NC US	HDT-060GE-BBB-B-W0	

Roll Number	Thickness Average ASTM D5994 (mils)	Thickness Minimum ASTM D5994 (mils)	Yield Strength ASTM D6693 (ppi) MD	Yield Strength ASTM D6693 (ppi) TD	Yield Elongation ASTM D6693 (%) MD	Yield Elongation ASTM D6693 (%) TD	Break Strength ASTM D6693 (ppi) MD	Break Strength ASTM D6693 (ppi) TD	Break Elongation ASTM D6693 (%) MD	Break Elongation ASTM D6693 (%) TD	Tear Resistance ASTM D1004 (lbs) MD	Tear Resistance ASTM D1004 (lbs) TD	Puncture Resistance ASTM D4833(lbs)	Density ASTM D1505 (g/cc)	Carbon Black Content ASTM D4218 (%)	Carbon Black Dispersion ASTM D5596 (Views in Cat1-Cat2)	Asperity Height GRI GM12 (mils) Side A	Asperity Height GRI GM12 (mils) Side B
108155204	58	57	158	165	17	17	194	167	541	447	55	52	149	0.946	2.52	10	23	25
108155205	58	56	158	166	17	16	186	179	514	521	56	54	151	0.946	2.52	10	23	26
108155206	58	57	158	166	17	16	186	179	514	521	56	54	151	0.946	2.52	10	23	26
108155207	58	55	158	166	17	16	186	179	514	521	56	54	151	0.946	2.52	10	23	23
108155208	57	56	158	166	17	16	186	179	514	521	56	54	151	0.946	2.52	10	23	23

Laboratory Manager Jane Allen

This test report shall not be reproduced, except in full, without written approval of the laboratory.

GSE Lining Technology, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: 6/8/2011

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-063849	Chesapeake Containment Systems, Inc.	Fletcher NC US	HDT-060AE-BBB-B-W0	

Roll Number	Thickness Average ASTM D5994 (mils)	Thickness Minimum ASTM D5994 (mils)	Yield Strength ASTM D6693 (ppi) MD	Yield Strength ASTM D6693 (ppi) TD	Yield Elongation ASTM D6693 (%) MD	Yield Elongation ASTM D6693 (%) TD	Break Strength ASTM D6693 (ppi) MD	Break Strength ASTM D6693 (ppi) TD	Break Elongation ASTM D6693 (%) MD	Break Elongation ASTM D6693 (%) TD	Tear Resistance ASTM D1004 (lbs) MD	Tear Resistance ASTM D1004 (lbs) TD	Puncture Resistance ASTM D4833(lbs)	Density ASTM D1505 (g/cc)	Carbon Black Content ASTM D4218 (%)	Carbon Black Dispersion ASTM D5596 (Mews in Cat1-Cat2)	Asperity Height GRI GM12 (mils) Side A	Asperity Height GRI GM12 (mils) Side B
108155300	60	58	167	171	17	16	222	179	587	498	57	55	156	0.947	2.45	10	22	22

Laboratory Manager Jane Allen

This test report shall not be reproduced, except in full, without written approval of the laboratory.

Geocushion Quality Assurance Certifications

1245 Eastland Avenue
Kingstree, SC 29556
Phone 843-382-4603
Fax 843-382-4604

Date: February 23, 2011

Project: # 63700 Domtar Paper Company LF No. 3-Phase 3 & 4

Ref: Ultraviolet (UV) Resistance

To Whom It May Concern:

The resistance of nonwoven needle punched geotextiles to ultraviolet light depends primarily on antioxident and carbon black package mixed with resin to prepare a formulation for fiber extrusion. As long as this formulation remains the same the UV resistance of a geotextiles does not change. Therefore, GSE performs UV testing only once per resin formulation. The testing is performed according to ASTM Test Method D 4355 and results are included on GSE geotextile specification sheet. Currently, all GSE geotextiles meet or exceed a value of 70% strength retained after 500 hours of UV exposure. GSE will meet or exceed this value for the referenced project.

Although GSE geotextiles are manufactured using one of the best available antioxident packages, we recommend covering the geotextiles within 15 days of exposure to direct Sunlight. This period does not include time during which geotextiles rolls remain on site covered in black shrink-wrap. Our recommendation is based on UV performance data published in technical literature indicating geotextile strength can decrease sharply after prolonged exposure to Sunlight.

Actual data from an independent laboratory can be supplied upon request.

Jane Allen
Laboratory Manager

GSE Roll Allocation

Order : SO-063700
Customer : Chesapeake Containment Systems, Inc.
Project Name : Domtar Paper Landfill No 3

Roll#	Product Code	Mfg Date	Length
130390014	GEO-320E-EBN-E-00	2/23/2011	150
130390015	GEO-320E-EBN-E-00	2/23/2011	150
130390016	GEO-320E-EBN-E-00	2/23/2011	150
130390017	GEO-320E-EBN-E-00	2/23/2011	150
130390018	GEO-320E-EBN-E-00	2/23/2011	150
130390022	GEO-320E-EBN-E-00	2/23/2011	150
130390023	GEO-320E-EBN-E-00	2/23/2011	150
130390030	GEO-320E-EBN-E-00	2/23/2011	150
130390031	GEO-320E-EBN-E-00	2/23/2011	150
130390032	GEO-320E-EBN-E-00	2/23/2011	150
130390033	GEO-320E-EBN-E-00	2/23/2011	150
130390034	GEO-320E-EBN-E-00	2/23/2011	150
130390035	GEO-320E-EBN-E-00	2/23/2011	150
130390036	GEO-320E-EBN-E-00	2/23/2011	150
130390037	GEO-320E-EBN-E-00	2/23/2011	150
130390038	GEO-320E-EBN-E-00	2/23/2011	150
130390039	GEO-320E-EBN-E-00	2/23/2011	150
130390040	GEO-320E-EBN-E-00	2/23/2011	150
130390041	GEO-320E-EBN-E-00	2/23/2011	150
130390042	GEO-320E-EBN-E-00	2/23/2011	150
130390043	GEO-320E-EBN-E-00	2/23/2011	150
130390044	GEO-320E-EBN-E-00	2/23/2011	150
130390045	GEO-320E-EBN-E-00	2/23/2011	150
130390046	GEO-320E-EBN-E-00	2/23/2011	150
130390047	GEO-320E-EBN-E-00	2/23/2011	150
130390048	GEO-320E-EBN-E-00	2/23/2011	150
130390049	GEO-320E-EBN-E-00	2/23/2011	150
130390050	GEO-320E-EBN-E-00	2/23/2011	150
130390051	GEO-320E-EBN-E-00	2/23/2011	150
130390052	GEO-320E-EBN-E-00	2/23/2011	150
130390053	GEO-320E-EBN-E-00	2/23/2011	150
130390054	GEO-320E-EBN-E-00	2/23/2011	150
130390055	GEO-320E-EBN-E-00	2/23/2011	150
130390056	GEO-320E-EBN-E-00	2/23/2011	150
130390057	GEO-320E-EBN-E-00	2/23/2011	150
130390058	GEO-320E-EBN-E-00	2/23/2011	150
130390059	GEO-320E-EBN-E-00	2/23/2011	150
130390060	GEO-320E-EBN-E-00	2/23/2011	150
130390061	GEO-320E-EBN-E-00	2/23/2011	150
130390062	GEO-320E-EBN-E-00	2/23/2011	150
130390063	GEO-320E-EBN-E-00	2/23/2011	150
130390064	GEO-320E-EBN-E-00	2/23/2011	150
130390065	GEO-320E-EBN-E-00	2/23/2011	150
130390066	GEO-320E-EBN-E-00	2/23/2011	150
130390067	GEO-320E-EBN-E-00	2/23/2011	150
130390068	GEO-320E-EBN-E-00	2/23/2011	150
130390069	GEO-320E-EBN-E-00	2/24/2011	150
130390070	GEO-320E-EBN-E-00	2/24/2011	150
130390071	GEO-320E-EBN-E-00	2/24/2011	150

28

130390072	GEO-320E-EBN-E-00	2/24/2011	150
130390073	GEO-320E-EBN-E-00	2/24/2011	150
130390074	GEO-320E-EBN-E-00	2/24/2011	150
130390075	GEO-320E-EBN-E-00	2/24/2011	150
130390076	GEO-320E-EBN-E-00	2/24/2011	150
130390077	GEO-320E-EBN-E-00	2/24/2011	150
130390078	GEO-320E-EBN-E-00	2/24/2011	150
130390079	GEO-320E-EBN-E-00	2/24/2011	150
130390080	GEO-320E-EBN-E-00	2/24/2011	150
130390081	GEO-320E-EBN-E-00	2/24/2011	150
130390082	GEO-320E-EBN-E-00	2/24/2011	150
130390083	GEO-320E-EBN-E-00	2/24/2011	150
130390084	GEO-320E-EBN-E-00	2/24/2011	150
130390085	GEO-320E-EBN-E-00	2/24/2011	150
130390086	GEO-320E-EBN-E-00	2/24/2011	150
130390087	GEO-320E-EBN-E-00	2/24/2011	150
130390088	GEO-320E-EBN-E-00	2/24/2011	150
130390089	GEO-320E-EBN-E-00	2/24/2011	150
130390090	GEO-320E-EBN-E-00	2/24/2011	150
130390091	GEO-320E-EBN-E-00	2/24/2011	150
130390092	GEO-320E-EBN-E-00	2/24/2011	150
130390093	GEO-320E-EBN-E-00	2/24/2011	150
130390094	GEO-320E-EBN-E-00	2/24/2011	150
130390095	GEO-320E-EBN-E-00	2/24/2011	150
130390096	GEO-320E-EBN-E-00	2/24/2011	150
130390097	GEO-320E-EBN-E-00	2/24/2011	150
130390098	GEO-320E-EBN-E-00	2/24/2011	150
130390099	GEO-320E-EBN-E-00	2/24/2011	150
130390100	GEO-320E-EBN-E-00	2/24/2011	150
130390101	GEO-320E-EBN-E-00	2/24/2011	150
130390102	GEO-320E-EBN-E-00	2/24/2011	150
130390103	GEO-320E-EBN-E-00	2/24/2011	150
130390104	GEO-320E-EBN-E-00	2/24/2011	150
130390105	GEO-320E-EBN-E-00	2/24/2011	150
130390106	GEO-320E-EBN-E-00	2/24/2011	150
130390107	GEO-320E-EBN-E-00	2/24/2011	150
130390108	GEO-320E-EBN-E-00	2/24/2011	150
130390109	GEO-320E-EBN-E-00	2/24/2011	150
130390110	GEO-320E-EBN-E-00	2/24/2011	150
130390111	GEO-320E-EBN-E-00	2/24/2011	150
130390112	GEO-320E-EBN-E-00	2/24/2011	150
130390113	GEO-320E-EBN-E-00	2/24/2011	150
130390114	GEO-320E-EBN-E-00	2/24/2011	150
130390115	GEO-320E-EBN-E-00	2/24/2011	150
130390116	GEO-320E-EBN-E-00	2/24/2011	150
130390117	GEO-320E-EBN-E-00	2/24/2011	150
130390118	GEO-320E-EBN-E-00	2/24/2011	150
130390119	GEO-320E-EBN-E-00	2/24/2011	150
130390120	GEO-320E-EBN-E-00	2/24/2011	150
130390121	GEO-320E-EBN-E-00	2/24/2011	150
130390122	GEO-320E-EBN-E-00	2/24/2011	150
130390123	GEO-320E-EBN-E-00	2/24/2011	150
130390124	GEO-320E-EBN-E-00	2/24/2011	150
130390125	GEO-320E-EBN-E-00	2/24/2011	150
130390126	GEO-320E-EBN-E-00	2/24/2011	150
130390127	GEO-320E-EBN-E-00	2/24/2011	150
130390128	GEO-320E-EBN-E-00	2/24/2011	150
130390129	GEO-320E-EBN-E-00	2/24/2011	150

130390130	GEO-320E-EBN-E-00	2/24/2011	150
130390131	GEO-320E-EBN-E-00	2/24/2011	150
130390132	GEO-320E-EBN-E-00	2/24/2011	150
130390133	GEO-320E-EBN-E-00	2/24/2011	150
130390134	GEO-320E-EBN-E-00	2/24/2011	150
130390135	GEO-320E-EBN-E-00	2/24/2011	150
130390136	GEO-320E-EBN-E-00	2/24/2011	150
130390137	GEO-320E-EBN-E-00	2/24/2011	150
130390138	GEO-320E-EBN-E-00	2/24/2011	150
130390139	GEO-320E-EBN-E-00	2/24/2011	150
130390140	GEO-320E-EBN-E-00	2/24/2011	150
130390141	GEO-320E-EBN-E-00	2/24/2011	150
130390142	GEO-320E-EBN-E-00	2/24/2011	150
130390143	GEO-320E-EBN-E-00	2/24/2011	150
130390144	GEO-320E-EBN-E-00	2/24/2011	150
130390145	GEO-320E-EBN-E-00	2/24/2011	150
130390146	GEO-320E-EBN-E-00	2/24/2011	150
130390147	GEO-320E-EBN-E-00	2/24/2011	150
130390148	GEO-320E-EBN-E-00	2/24/2011	150
130390149	GEO-320E-EBN-E-00	2/24/2011	150
130390150	GEO-320E-EBN-E-00	2/24/2011	150
130390151	GEO-320E-EBN-E-00	2/24/2011	150
130390152	GEO-320E-EBN-E-00	2/24/2011	150
130390153	GEO-320E-EBN-E-00	2/24/2011	150
130390154	GEO-320E-EBN-E-00	2/24/2011	150
130390155	GEO-320E-EBN-E-00	2/24/2011	150
130390156	GEO-320E-EBN-E-00	2/24/2011	150
130390157	GEO-320E-EBN-E-00	2/24/2011	150
130390158	GEO-320E-EBN-E-00	2/24/2011	150
130390159	GEO-320E-EBN-E-00	2/24/2011	150
130390160	GEO-320E-EBN-E-00	2/24/2011	150
130390161	GEO-320E-EBN-E-00	2/24/2011	150
130390162	GEO-320E-EBN-E-00	2/24/2011	150
130390163	GEO-320E-EBN-E-00	2/24/2011	150
130390164	GEO-320E-EBN-E-00	2/24/2011	150
130390165	GEO-320E-EBN-E-00	2/24/2011	150
130390166	GEO-320E-EBN-E-00	2/24/2011	150
130390167	GEO-320E-EBN-E-00	2/24/2011	150
130390168	GEO-320E-EBN-E-00	2/24/2011	150
130390169	GEO-320E-EBN-E-00	2/24/2011	150
130390170	GEO-320E-EBN-E-00	2/24/2011	150
130390171	GEO-320E-EBN-E-00	2/25/2011	150
130390172	GEO-320E-EBN-E-00	2/25/2011	150
130390173	GEO-320E-EBN-E-00	2/25/2011	150
130390174	GEO-320E-EBN-E-00	2/25/2011	150
130390175	GEO-320E-EBN-E-00	2/25/2011	150
130390176	GEO-320E-EBN-E-00	2/25/2011	150
130390177	GEO-320E-EBN-E-00	2/25/2011	150
130390178	GEO-320E-EBN-E-00	2/25/2011	150
130390179	GEO-320E-EBN-E-00	2/25/2011	150
130390180	GEO-320E-EBN-E-00	2/25/2011	150
130390186	GEO-320E-EBN-E-00	2/25/2011	150
130390187	GEO-320E-EBN-E-00	2/25/2011	150
130390188	GEO-320E-EBN-E-00	2/25/2011	150
130390189	GEO-320E-EBN-E-00	2/25/2011	150
130390190	GEO-320E-EBN-E-00	2/25/2011	150
130390191	GEO-320E-EBN-E-00	2/25/2011	150
130390192	GEO-320E-EBN-E-00	2/25/2011	150

30

130390193	GEO-320E-EBN-E-00	2/25/2011	150
130390194	GEO-320E-EBN-E-00	2/25/2011	150
130390195	GEO-320E-EBN-E-00	2/25/2011	150
130390196	GEO-320E-EBN-E-00	2/25/2011	150

GSE Lining Technology, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: 2/25/2011

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-063700	Chesapeake Containment Systems, Inc.	Plymouth NC US	GEO-320E-EBN-E-00	

Roll Number	ASTM D5261 Mass per Unit Area (oz/yd²)	ASTM D5199 Geotextile Thickness (mils)	ASTM D4632 Grab Strength (lbs) MD	ASTM D4632 Grab Strength (lbs) TD	ASTM D4632 Grab Elongation (%) MD	ASTM D4632 Grab Elongation (%) TD	ASTM D4533 Trapezoidal Tear (lbs) MD	ASTM D4533 Trapezoidal Tear (lbs) TD	Puncture Resistance ASTM D4833(lbs)
130390014	32.8	300	661	917	163	147	331	520	400
130390015	32.8	300	661	917	163	147	331	520	400
130390016	32.8	300	661	917	163	147	331	520	400
130390017	32.8	300	661	917	163	147	331	520	400
130390018	32.8	300	661	917	163	147	331	520	400
130390022	32.8	300	661	917	163	147	331	520	400
130390023	32.8	300	661	917	163	147	331	520	400
130390030	32.8	300	661	917	163	147	331	520	400
130390031	32.8	300	661	917	163	147	331	520	400
130390032	32.8	300	661	917	163	147	331	520	400
130390033	32.8	300	661	917	163	147	331	520	400
130390034	32.8	300	661	917	163	147	331	520	400
130390035	32.8	300	661	917	163	147	331	520	400
130390036	32.8	300	661	917	163	147	331	520	400
130390037	32.8	300	661	917	163	147	331	520	400
130390038	32.8	300	661	917	163	147	331	520	400
130390039	32.8	300	661	917	163	147	331	520	400
130390040	32.8	300	661	917	163	147	331	520	400
130390041	32.8	300	661	917	163	147	331	520	400
130390042	32.8	300	661	917	163	147	331	520	400
130390043	32.8	300	661	917	163	147	331	520	400
130390044	32.8	300	661	917	163	147	331	520	400
130390045	32.8	300	661	917	163	147	331	520	400
130390046	32.8	300	661	917	163	147	331	520	400
130390047	32.8	300	661	917	163	147	331	520	400
130390048	32.8	300	661	917	163	147	331	520	400
130390049	32.8	300	661	917	163	147	331	520	400
130390050	32.8	300	661	917	163	147	331	520	400
130390051	32.8	300	661	917	163	147	331	520	400
130390052	32.8	300	661	917	163	147	331	520	400
130390053	32.8	300	661	917	163	147	331	520	400
130390054	32.2	312	677	865	178	149	333	528	417
130390055	32.2	312	677	865	178	149	333	528	417
130390056	32.2	312	677	865	178	149	333	528	417

33

GSE Lining Technology, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: 2/25/2011

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-063700	Chesapeake Containment Systems, Inc.	Plymouth NC US	GEO-320E-EBN-E-00	

Roll Number	ASTM D5261 Mass per Unit Area (oz/yd²)	ASTM D5199 Geotextile Thickness (mils)	ASTM D4632 Grab Strength (lbs) MD	ASTM D4632 Grab Strength (lbs) TD	ASTM D4632 Grab Elongation (%) MD	ASTM D4632 Grab Elongation (%) TD	ASTM D4533 Trapezoidal Tear (lbs) MD	ASTM D4533 Trapezoidal Tear (lbs) TD	Puncture Resistance ASTM D4833(lbs)
130390057	32.2	312	677	865	178	149	333	528	417
130390058	32.2	312	677	865	178	149	333	528	417
130390059	32.2	312	677	865	178	149	333	528	417
130390060	32.2	312	677	865	178	149	333	528	417
130390061	32.2	312	677	865	178	149	333	528	417
130390062	32.2	312	677	865	178	149	333	528	417
130390063	32.2	312	677	865	178	149	333	528	417
130390064	32.2	312	677	865	178	149	333	528	417
130390065	32.2	312	677	865	178	149	333	528	417
130390066	32.2	312	677	865	178	149	333	528	417
130390067	32.2	312	677	865	178	149	333	528	417
130390068	32.2	312	677	865	178	149	333	528	417
130390069	32.2	312	677	865	178	149	333	528	417
130390070	32.2	312	677	865	178	149	333	528	417
130390071	32.2	312	677	865	178	149	333	528	417
130390072	32.2	312	677	865	178	149	333	528	417
130390073	32.2	312	677	865	178	149	333	528	417
130390074	32.2	312	677	865	178	149	333	528	417
130390075	32.2	312	677	865	178	149	333	528	417
130390076	32.2	312	677	865	178	149	333	528	417
130390077	32.2	312	677	865	178	149	333	528	417
130390078	32.2	312	677	865	178	149	333	528	417
130390079	32.2	312	677	865	178	149	333	528	417
130390080	32.2	312	677	865	178	149	333	528	417
130390081	32.2	312	677	865	178	149	333	528	417
130390082	32.2	312	677	865	178	149	333	528	417
130390083	32.2	312	677	865	178	149	333	528	417
130390084	32.2	312	677	865	178	149	333	528	417
130390085	32.2	312	677	865	178	149	333	528	417
130390086	32.2	312	677	865	178	149	333	528	417
130390087	32.2	312	677	865	178	149	333	528	417
130390088	32.2	312	677	865	178	149	333	528	417
130390089	32.2	312	677	865	178	149	333	528	417
130390090	32.2	312	677	865	178	149	333	528	417

GSE Lining Technology, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: 2/25/2011

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-063700	Chesapeake Containment Systems, Inc.	Plymouth NC US	GEO-320E-EBN-E-00	

Roll Number	ASTM D5261 Mass per Unit Area (oz/yd²)	ASTM D5199 Geotextile Thickness (mils)	ASTM D4632 Grab Strength (lbs) MD	ASTM D4632 Grab Strength (lbs) TD	ASTM D4632 Grab Elongation (%) MD	ASTM D4632 Grab Elongation (%) TD	ASTM D4533 Trapezoidal Tear (lbs) MD	ASTM D4533 Trapezoidal Tear (lbs) TD	Puncture Resistance ASTM D4833(lbs)
130390091	32.2	312	677	865	178	149	333	528	417
130390092	32.2	312	677	865	178	149	333	528	417
130390093	32.2	312	677	865	178	149	333	528	417
130390094	35.9	304	775	916	163	125	427	506	454
130390095	35.9	304	775	916	163	125	427	506	454
130390096	35.9	304	775	916	163	125	427	506	454
130390097	35.9	304	775	916	163	125	427	506	454
130390098	35.9	304	775	916	163	125	427	506	454
130390099	35.9	304	775	916	163	125	427	506	454
130390100	35.9	304	775	916	163	125	427	506	454
130390101	35.9	304	775	916	163	125	427	506	454
130390102	35.9	304	775	916	163	125	427	506	454
130390103	35.9	304	775	916	163	125	427	506	454
130390104	35.9	304	775	916	163	125	427	506	454
130390105	35.9	304	775	916	163	125	427	506	454
130390106	35.9	304	775	916	163	125	427	506	454
130390107	35.9	304	775	916	163	125	427	506	454
130390108	35.9	304	775	916	163	125	427	506	454
130390109	35.9	304	775	916	163	125	427	506	454
130390110	35.9	304	775	916	163	125	427	506	454
130390111	35.9	304	775	916	163	125	427	506	454
130390112	35.9	304	775	916	163	125	427	506	454
130390113	35.9	304	775	916	163	125	427	506	454
130390114	35.9	304	775	916	163	125	427	506	454
130390115	35.9	304	775	916	163	125	427	506	454
130390116	35.9	304	775	916	163	125	427	506	454
130390117	35.9	304	775	916	163	125	427	506	454
130390118	35.9	304	775	916	163	125	427	506	454
130390119	35.9	304	775	916	163	125	427	506	454
130390120	35.9	304	775	916	163	125	427	506	454
130390121	35.9	304	775	916	163	125	427	506	454
130390122	35.9	304	775	916	163	125	427	506	454
130390123	35.9	304	775	916	163	125	427	506	454
130390124	35.9	304	775	916	163	125	427	506	454

39

GSE Lining Technology, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: 2/25/2011

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-063700	Chesapeake Containment Systems, Inc.	Plymouth NC US	GEO-320E-EBN-E-00	

Roll Number	ASTM D5261 Mass per Unit Area (oz/yd²)	ASTM D5199 Geotextile Thickness (mils)	ASTM D4632 Grab Strength (lbs) MD	ASTM D4632 Grab Strength (lbs) TD	ASTM D4632 Grab Elongation (%) MD	ASTM D4632 Grab Elongation (%) TD	ASTM D4533 Trapezoidal Tear (lbs) MD	ASTM D4533 Trapezoidal Tear (lbs) TD	Puncture Resistance ASTM D4833(lbs)
130390125	35.9	304	775	916	163	125	427	506	454
130390126	35.9	304	775	916	163	125	427	506	454
130390127	35.9	304	775	916	163	125	427	506	454
130390128	35.9	304	775	916	163	125	427	506	454
130390129	35.9	304	775	916	163	125	427	506	454
130390130	35.9	304	775	916	163	125	427	506	454
130390131	35.9	304	775	916	163	125	427	506	454
130390132	35.9	304	775	916	163	125	427	506	454
130390133	35.9	304	775	916	163	125	427	506	454
130390134	33.2	304	671	948	154	127	447	565	400
130390135	33.2	304	671	948	154	127	447	565	400
130390136	33.2	304	671	948	154	127	447	565	400
130390137	33.2	304	671	948	154	127	447	565	400
130390138	33.2	304	671	948	154	127	447	565	400
130390139	33.2	304	671	948	154	127	447	565	400
130390140	33.2	304	671	948	154	127	447	565	400
130390141	33.2	304	671	948	154	127	447	565	400
130390142	33.2	304	671	948	154	127	447	565	400
130390143	33.2	304	671	948	154	127	447	565	400
130390144	33.2	304	671	948	154	127	447	565	400
130390145	33.2	304	671	948	154	127	447	565	400
130390146	33.2	304	671	948	154	127	447	565	400
130390147	33.2	304	671	948	154	127	447	565	400
130390148	33.2	304	671	948	154	127	447	565	400
130390149	33.2	304	671	948	154	127	447	565	400
130390150	33.2	304	671	948	154	127	447	565	400
130390151	33.2	304	671	948	154	127	447	565	400
130390152	33.2	304	671	948	154	127	447	565	400
130390153	33.2	304	671	948	154	127	447	565	400
130390154	33.2	304	671	948	154	127	447	565	400
130390155	33.2	304	671	948	154	127	447	565	400
130390156	33.2	304	671	948	154	127	447	565	400
130390157	33.2	304	671	948	154	127	447	565	400
130390158	33.2	304	671	948	154	127	447	565	400

36

GSE Lining Technology, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: 2/25/2011

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-063700	Chesapeake Containment Systems, Inc.	Plymouth NC US	GEO-320E-EBN-E-00	

Roll Number	ASTM D5261 Mass per Unit Area (oz/yd²)	ASTM D5199 Geotextile Thickness (mils)	ASTM D4632 Grab Strength (lbs) MD	ASTM D4632 Grab Strength (lbs) TD	ASTM D4632 Grab Elongation (%) MD	ASTM D4632 Grab Elongation (%) TD	ASTM D4533 Trapezoidal Tear (lbs) MD	ASTM D4533 Trapezoidal Tear (lbs) TD	Puncture Resistance ASTM D4833(lbs)
130390159	33.2	304	671	948	154	127	447	565	400
130390160	33.2	304	671	948	154	127	447	565	400
130390161	33.2	304	671	948	154	127	447	565	400
130390162	33.2	304	671	948	154	127	447	565	400
130390163	33.2	304	671	948	154	127	447	565	400
130390164	33.2	304	671	948	154	127	447	565	400
130390165	33.2	304	671	948	154	127	447	565	400
130390166	33.2	304	671	948	154	127	447	565	400
130390167	33.2	304	671	948	154	127	447	565	400
130390168	33.2	304	671	948	154	127	447	565	400
130390169	33.2	304	671	948	154	127	447	565	400
130390170	33.2	304	671	948	154	127	447	565	400
130390171	33.2	304	671	948	154	127	447	565	400
130390172	33.2	304	671	948	154	127	447	565	400
130390173	33.2	304	671	948	154	127	447	565	400
130390174	34.9	313	808	948	170	118	516	565	454
130390175	34.9	313	808	948	170	118	516	565	454
130390176	34.9	313	808	948	170	118	516	565	454
130390177	34.9	313	808	948	170	118	516	565	454
130390178	34.9	313	808	948	170	118	516	565	454
130390179	34.9	313	808	948	170	118	516	565	454
130390180	34.9	313	808	948	170	118	516	565	454
130390186	34.9	313	808	948	170	118	516	565	454
130390187	34.9	313	808	948	170	118	516	565	454
130390188	34.9	313	808	948	170	118	516	565	454
130390189	34.9	313	808	948	170	118	516	565	454
130390190	34.9	313	808	948	170	118	516	565	454
130390191	34.9	313	808	948	170	118	516	565	454
130390192	34.9	313	808	948	170	118	516	565	454
130390193	34.9	313	808	948	170	118	516	565	454
130390194	34.9	313	808	948	170	118	516	565	454
130390195	34.9	313	808	948	170	118	516	565	454

3.7

ROLL TEST DATA REPORT

Report Date: 2/25/2011

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-063700	Chesapeake Containment Systems, Inc.	Plymouth NC US	GEO-320E-EBN-E-00	

Roll Number	ASTM D5261 Mass per Unit Area (oz/yd²)	ASTM D5199 Geotextile Thickness (mils)	ASTM D4632 Grab Strength (lbs) MD	ASTM D4632 Grab Strength (lbs) TD	ASTM D4632 Grab Elongation (%) MD	ASTM D4632 Grab Elongation (%) TD	ASTM D4533 Trapezoidal Tear (lbs) MD	ASTM D4533 Trapezoidal Tear (lbs) TD	Puncture Resistance ASTM D4833(lbs)
130390196	34.9	313	808	948	170	118	516	565	454

Laboratory Manager

This test report shall not be reproduced, except in full, without written approval of the laboratory.

8-ounce Geotextile Quality Assurance Certifications

1245 Eastland Avenue
Kingstree, SC 29556
Phone 843-382-4603
Fax 843-382-4604

Date: February 23, 2011

Project: # 63700 Domtar Paper Company LF No. 3-Phase 3 & 4

Ref: Ultraviolet (UV) Resistance

To Whom It May Concern:

The resistance of nonwoven needle punched geotextiles to ultraviolet light depends primarily on antioxident and carbon black package mixed with resin to prepare a formulation for fiber extrusion. As long as this formulation remains the same the UV resistance of a geotextiles does not change. Therefore, GSE performs UV testing only once per resin formulation. The testing is performed according to ASTM Test Method D 4355 and results are included on GSE geotextile specification sheet. Currently, all GSE geotextiles meet or exceed a value of 70% strength retained after 500 hours of UV exposure. GSE will meet or exceed this value for the referenced project.

Although GSE geotextiles are manufactured using one of the best available antioxident packages, we recommend covering the geotextiles within 15 days of exposure to direct Sunlight. This period does not include time during which geotextiles rolls remain on site covered in black shrink-wrap. Our recommendation is based on UV performance data published in technical literature indicating geotextile strength can decrease sharply after prolonged exposure to Sunlight.

Actual data from an independent laboratory can be supplied upon request.

Jane Allen
Laboratory Manager

GSE Roll Allocation

Order : SO-063700
Customer : Chesapeake Containment Systems, Inc.
Project Name : Domtar Paper Landfill No 3

Roll#	Product Code	Mfg Date	Length
130389893	GEO-080E-EBC-E-00	2/22/2011	600
130389894	GEO-080E-EBC-E-00	2/22/2011	600
130389895	GEO-080E-EBC-E-00	2/22/2011	600
130389896	GEO-080E-EBC-E-00	2/22/2011	600
130389897	GEO-080E-EBC-E-00	2/22/2011	600
130389898	GEO-080E-EBC-E-00	2/22/2011	600
130389899	GEO-080E-EBC-E-00	2/22/2011	600

GSE Lining Technology, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: 2/23/2011

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-063700	Chesapeake Containment Systems, Inc.	Plymouth NC US	GEO-080E-EBC-E-00	

Roll Number	ASTM D5261 Mass per Unit Area (oz/yd²)	ASTM D4491 Water Flow Rate (gpm/ft²)	ASTM D4491 Permittivity (sec-1)	ASTM D4751 AOS (mm)	ASTM D3786 Mullen Burst (psi)	ASTM D4632 Grab Strength (lbs) MD	ASTM D4632 Grab Strength (lbs) TD	ASTM D4632 Grab Elongation (%) MD	ASTM D4632 Grab Elongation (%) TD	ASTM D4533 Trapezoidal Tear (lbs) MD	ASTM D4533 Trapezoidal Tear (lbs) TD	Puncture Resistance ASTM D4833(lbs)
130389893	9.3	100	1.30	0.180	403	246	263	91	110	103	117	131
130389894	9.6	104	1.40	0.180	456	243	289	101	106	111	145	137
130389895	9.6	104	1.40	0.180	456	243	289	101	106	111	145	137
130389896	9.6	104	1.40	0.180	456	243	289	101	106	111	145	137
130389897	9.6	104	1.40	0.180	456	243	289	101	106	111	145	137
130389898	9.6	104	1.40	0.180	456	243	289	101	106	111	145	137
130389899	9.6	104	1.40	0.180	456	243	289	101	106	111	145	137

Laboratory Manager Jane Allen

This test report shall not be reproduced, except in full, without written approval of the laboratory.

Geomembrane Polyethylene Resin Certificate of Analysis

Formosa Plastics®

FORMOSA PLASTICS CORPORATION, TEXAS
201 FORMOSA DRIVE
PO BOX 700
POINT COMFORT TX 77978
PHONE:(888)FPCUSA3

Certificate of Analysis

CUSTOMER:GSE LINING TECHNOLOGY, INC.
UP TRACK 14732 WESTFIELD
HOUSTON TX 77070
PRODUCT :DF3812A
RAILCAR FPAX200295

S/O NO : EL1A713
CUSTOMER PO : 03-064540
DATE SHIPPED: 2/11/11
LOT NO : 11B1086
WEIGHT : 197,000.00
CUSTID:FT03112 SPIDM4

TEST ITEM	REFERENCE METHOD	TEST VALUE
Melt Index,g/10min	ASTM D1238	.070
HLMI, g/10 min.	ASTM D1238	10.8
Density, g/cm3	ASTM D1505	.9369

QC SUPERVISOR: JESSE CHANG

Report Date
6/2/2011

Quality Assurance Laboratory Test Results

Job Name: Domtar Paper Company LF. No. 3 - Phase 3 & 4
Sales Order: 63700

Required Testing: ASTM D 3895 -- Standard Test Method for Oxidative Induction Time of Polyolefins by Differential Scanning Calorimetry
ASTM D 5397 -- Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test

Frequency: D 3895 - 1/Resin Lot
D 5397 - Certify

Criteria: D 3895 - 140 Minutes
D 5397 - 1000 Hours

Product Code	Resin Lot Number	Test Results
HDT-060GE-BBB-B-W0	11B1086	PASS

Approved By:	Debra Gortemiller
Date Approved:	March 1, 2011

The above stated data shall not be reproduced except in full, without the written approval of the laboratory.

48

Chevron Phillips Chemical Company LP

CoA Date: 02/18/2011

Certificate of Analysis

Shipped To: GSE LINING TECHNOLOGY LLC
19103 GUNDLE ROAD
WESTFIELD TX 77090
USA

Recipient: Phouangsavanh
Fax:

CPC Delivery #: 88214976
PO #: 03-064539
Weight: 181900 LB
Ship Date: 02/18/2011
Package: BULK
Mode: Hopper Car
Car #: CHVX890506
Seal No: 257829

Product:
MARLEX POLYETHYLENE K306 BULK

Lot Number: 8201485

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10mi
HLMI Flow Rate	ASTM D1238	13.3	g/10mi
Density	D1505 or D4883	0.937	g/cm3
Production Date		12/18/2010	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP.
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Troy Griffin
Quality Systems Coordinator

For CoA questions contact Customer Service Representative at 800-231-1212

49

Formosa Plastics®

FORMOSA PLASTICS CORPORATION, TEXAS
201 FORMOSA DRIVE
PO BOX 700
POINT COMFORT TX 77978
PHONE:(888)FPCUSA3

Certificate of Analysis

CUSTOMER:GSE LINING TECHNOLOGY, INC.
UP TRACK 14732 WESTFIELD
HOUSTON TX 77070
PRODUCT :DF3812A
RAILCAR FPAX201125

S/O NO : EL1A714
CUSTOMER PO : 03-064540
DATE SHIPPED: 2/11/11
LOT NO : 11B1080
WEIGHT : 196,050.00
CUSTID:FT03112 SPIDM4

TEST ITEM	REFERENCE METHOD	TEST VALUE
Melt Index,g/10min	ASTM D1238	.080
HLMI, g/10 min.	ASTM D1238	10.6
Density, g/cm3	ASTM D1505	.9379

QC SUPERVISOR: JESSE CHANG

SD

Report Date
6/2/2011

Quality Assurance Laboratory Test Results

Job Name: Domtar Paper Company LF. No. 3 - Phase 3 & 4
Sales Order: 63700

Required Testing: ASTM D 3895 -- Standard Test Method for Oxidative Induction Time of Polyolefins by Differential Scanning Calorimetry
ASTM D 5397 -- Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test

Frequency: D 3895 - 1/Resin Lot
D 5397 - Certify

Criteria: D 3895 - 140 Minutes
D 5397 - 1000 Hours

Product Code	Resin Lot Number	Test Results
HDS-060AE-BBB-B-00	8210058	PASS
HDS-060AE-BBB-B-00	11B1080	PASS

Approved By:	Debra Gortemiller
Date Approved:	March 4, 2011

51

The above stated data shall not be reproduced except in full, without the written approval of the laboratory.

CoA Date: 02/18/2011

Certificate of Analysis

Shipped To: GSE LINING TECHNOLOGY LLC
19103 GUNDLE ROAD
WESTFIELD TX 77090
USA

Recipient: Phouangsavanh
Fax:

CPC Delivery #: 88214974
PO #: 03-064539
Weight: 184900 LB
Ship Date: 02/18/2011
Package: BULK
Mode: Hopper Car
Car #: PSPX002441
Seal No: 257478

Product:
MARLEX POLYETHYLENE K306 BULK

Lot Number: 8210058

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10mi
HLMI Flow Rate	ASTM D1238	10.9	g/10mi
Density	D1505 or D4883	0.936	g/cm3
Production Date		01/13/2011	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP.
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Troy Griffin
Quality Systems Coordinator

For CoA questions contact Customer Service Representative at 800-231-1212

52/52

Appendix G
Geomembrane Liner Installation Forms

Table of Contents

- Geomembrane Inventory Form
- Geomembrane Panel Placement Information
- Geomembrane Trial Seam Information
- Geomembrane Seaming Information
- Geomembrane Seam Nondestructive Testing Information
- Geomembrane Repair Information
- Geomembrane Seam Destructive Testing Information
- Subgrade Surface Acceptance Forms

Geomembrane Inventory Form

Geomembrane Inventory Form

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch
Project Num:	05794.49.001	**Material:**	60 mil HDPE
Location:	Plymouth, NC	**Installer:**	Chesapeake

Product Code	Batch No.	Roll No.	Width/ Length (ft)	Roll Area (sf)	QA or QC Certificate	Conformance Sample Taken	Measured Thickness (mils)
HDS-060AE-BBB-B-00	8210058	9139	22.5 x 560	12600	Yes		59,58,63,59,60
HDS-060AE-BBB-B-00	8210058	9132	22.5 x 560	12600	Yes	Yes	61,62,60,61,61
HDS-060AE-BBB-B-00	8210058	9145	22.5 x 560	12600	Yes		62,60,62,60,59
HDS-060AE-BBB-B-00	8210058	9144	22.5 x 560	12600	Yes	Yes	62,60,61,55,63
HDS-060AE-BBB-B-00	8210058	9143	22.5 x 560	12600	Yes		63,62,61,62,63
HDS-060AE-BBB-B-00	8210058	9142	22.5 x 560	12600	Yes		61,58,59,62,58
HDS-060AE-BBB-B-00	8210058	9147	22.5 x 560	12600	Yes		62,59,62,62,61
HDS-060AE-BBB-B-00	8210058	9140	22.5 x 560	12600	Yes		60,63,61,62,62
HDS-060AE-BBB-B-00	8210058	9148	22.5 x 560	12600	Yes		60,59,63,59,63
HDS-060AE-BBB-B-00	8210058	9138	22.5 x 560	12600	Yes		59,61,62,59,62
HDS-060AE-BBB-B-00	8210058	9137	22.5 x 560	12600	Yes		58,61,60,58,62
HDS-060AE-BBB-B-00	8210058	9136	22.5 x 560	12600	Yes		58,62,63,58,64
HDS-060AE-BBB-B-00	8210058	9135	22.5 x 560	12600	Yes		60,61,63,61,59
HDS-060AE-BBB-B-00	8210058	9134	22.5 x 560	12600	Yes		59,61,61,64,61
HDS-060AE-BBB-B-00	8210058	9133	22.5 x 560	12600	Yes		58,62,61,59,61
HDS-060AE-BBB-B-00	8210058	9141	22.5 x 560	12600	Yes		61,62,65,60,63
HDS-060AE-BBB-B-00	8210058	9155	22.5 x 560	12600	Yes		59,61,64,58,62
HDS-060AE-BBB-B-00	8210058	9146	22.5 x 560	12600	Yes		60,60,62,60,64
HDS-060AE-BBB-B-00	11B1080	9156	22.5 x 560	12600	Yes		62,60,61,63,59
HDS-060AE-BBB-B-00	8210058	9154	22.5 x 560	12600	Yes		62,65,59,61,61
HDS-060AE-BBB-B-00	8210058	9153	22.5 x 560	12600	Yes		60,59,60,63,62
HDS-060AE-BBB-B-00	8210058	9152	22.5 x 560	12600	Yes		59,63,63,61,63
HDS-060AE-BBB-B-00	8210058	9151	22.5 x 560	12600	Yes		60,62,63,59,65
HDS-060AE-BBB-B-00	8210058	9150	22.5 x 560	12600	Yes		59,61,62,58,64

Product Code	Batch No.	Roll No.	Width/ Length (ft)	Roll Area (sf)	QA or QC Certificate	Conformance Sample Taken	Measured Thickness (mils)
HDS-060AE-BBB-B-00	8210058	9149	22.5 x 560	12600	Yes		58,62,65,58,60
HDS-060AE-BBB-B-00	11B1080	9157	22.5 x 560	12600	Yes	Yes	60,60,62,61,61
HDT-060AE-BBB-B-W0	8201485	5300	22.5 x 520	11700	Yes	Yes	64,64,65,63,64
HDT-060GE-BBB-B-W0	11B1086	5204	22.5 x 520	11700	Yes	Yes	64,63,64,65,65
HDT-060GE-BBB-B-W0	11B1086	5205	22.5 x 520	11700	Yes		64,62,68,61,65
HDT-060GE-BBB-B-W0	11B1086	5206	22.5 x 520	11700	Yes		65,66,63,64,67
HDT-060GE-BBB-B-W0	11B1086	5207	22.5 x 520	11700	Yes		65,66,63,64,67
HDT-060GE-BBB-B-W0	11B1086	5208	22.5 x 520	11700	Yes	Yes	67,66,62,62,59

Geomembrane Panel Placement Information

Table 11

Geomembrane Panel Placement Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Panel Number	Liner Type Roll Num	Irreg	Date of Placement	Amb. Temp	Wind MPH	Weather	Width (ft)	Length (ft)	Area (Sq ft)	Comments
P 1	T 5207		4/4/2011	75	25-30 S	Clear	17	396	6732	
P 2	T 5207		4/4/2011	75	25-30 S	Clear	22	111	2442	
P 3	T 5206		4/4/2011	75	25-30 S	Clear	22	29	638	
P 4	S 9147		4/4/2011	80	25-30 E	Clear	22	354	7788	
P 5	S 9147		4/4/2011	80	25-30 E	Clear	22	216	4752	
P 6	S 9146		4/4/2011	80	25-30 E	Clear	22	137	3014	
P 7	S 9146		4/4/2011	80	25-30 E	Clear	22	350	7700	
P 8	S 9146		4/4/2011	80	25-30 E	Clear	22	75	1650	
P 9	S 9150		4/4/2011	80	25-30 E	Clear	22	279	6138	
P 10	S 9150		4/4/2011	84	25-30 S	Clear	22	285	6270	
P 11	S 9141		4/4/2011	84	25-30 S	Clear	22	62	1364	
P 12	S 9141		4/4/2011	84	25-30 S	Clear	22	345	7590	
P 13	T 5206		4/4/2011	84	25-30 S	Clear	22	33	726	
P 14	T 5206		4/4/2011	84	25-30 S	Clear	22	33	726	
P 15	T 5206		4/4/2011	84	25-30 S	Clear	22	33	726	
P 16	T 5206		4/4/2011	84	25-30 S	Clear	22	33	726	
P 17	T 5206		4/4/2011	84	25-30 S	Clear	22	33	726	
P 18	T 5206		4/4/2011	84	25-30 S	Clear	22	33	726	
P 19	T 5206		4/7/2011	65	12-17 W	Partly Cloudy	22	152	3344	
P 20	S 9134		4/7/2011	65	12-17 W	Partly Cloudy	22	344	7568	
P 21	S 9134		4/7/2011	65	12-17 W	Partly Cloudy	22	223	4906	
P 22	S 9142		4/7/2011	65	12-17 W	Partly Cloudy	22	123	2706	
P 23	S 9142		4/7/2011	65	12-17 W	Partly Cloudy	22	347	7634	
P 24	S 9142		4/7/2011	65	12-17 W	Partly Cloudy	22	95	2090	

Table 11

Geomembrane Panel Placement Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Panel Number	Liner Type Roll Num	Irreg	Date of Placement	Amb. Temp	Wind MPH	Weather	Width (ft)	Length (ft)	Area (Sq ft)	Comments
P 25	S 9139		4/7/2011	65	12-17 W	Partly Cloudy	22	253	5566	
P 26	S 9139		4/7/2011	70	10-15 W	Clear	22	314	6908	
P 27	S 9145		4/7/2011	70	10-15 W	Clear	22	353	7766	
P 28	S 9145		4/7/2011	70	10-15 W	Clear	22	38	836	
P 29	S 9145		4/7/2011	70	10-15 W	Clear	22	176	3872	
P 30	S 9155		4/7/2011	75	8-13 W	Clear	22	177	3894	
P 31	S 9155		4/7/2011	75	8-13 W	Clear	22	358	7876	
P 32	S 9154		4/7/2011	75	8-13 W	Clear	22	352	7744	
P 33	S 9154		4/7/2011	75	8-13 W	Clear	22	214	4708	
P 34	S 9152		4/7/2011	75	8-13 W	Clear	22	141	3102	
P 35	T 5206		4/7/2011	75	8-13 W	Clear	22	36	792	
P 36	T 5206		4/7/2011	75	8-13 W	Clear	22	36	792	
P 37	T 5208		4/7/2011	75	8-13 W	Clear	22	35	770	
P 38	T 5208		4/7/2011	75	8-13 W	Clear	22	34	748	
P 39	T 5208		4/7/2011	75	8-13 W	Clear	22	34	748	
P 40	T 5208		4/7/2011	70	5-10 W	Clear	22	32	704	
P 41	T 5208		4/7/2011	70	5-10 W	Clear	22	32	704	
P 42	T 5208		4/7/2011	70	5-10 W	Clear	22	32	704	
P 43	T 5208		4/7/2011	70	5-10 W	Clear	22	31	682	
P 44	T 5208		4/7/2011	70	5-10 W	Clear	22	30	660	
P 45	S 9152		4/8/2011	55	6-11 NE	Partly Cloudy	22	348	7656	
P 46	S 9152		4/8/2011	55	6-11 NE	Partly Cloudy	22	68	1496	
P 47	S 9143		4/8/2011	55	6-11 NE	Partly Cloudy	22	280	6160	
P 48	S 9143		4/8/2011	55	6-11 NE	Partly Cloudy	22	279	6138	

Table 11

Geomembrane Panel Placement Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Panel Number	Liner Type Roll Num	Irreg	Date of Placement	Amb. Temp	Wind MPH	Weather	Width (ft)	Length (ft)	Area (Sq ft)	Comments
P 49	S 9138		4/8/2011	55	6-11 NE	Partly Cloudy	22	69	1518	
P 50	S 9138		4/8/2011	55	6-11 NE	Partly Cloudy	22	347	7634	
P 51	S 9138		4/8/2011	60	4-9 SE	Clear	22	138	3036	
P 52	S 9153		4/8/2011	60	4-9 SE	Clear	22	209	4598	
P 53	T 5208		4/8/2011	60	4-9 SE	Clear	22	31	682	
P 54	T 5208		4/8/2011	60	4-9 SE	Clear	22	30	660	
P 55	T 5208		4/8/2011	60	4-9 SE	Clear	22	31	682	
P 56	T 5208		4/8/2011	60	4-9 SE	Clear	22	31	682	
P 57	T 5208		4/8/2011	60	4-9 SE	Clear	22	31	682	
P 58	T 5208		4/8/2011	60	4-9 SE	Clear	22	40	880	
P 59	T 5204		4/8/2011	65	8-13 SW	Clear	22	146	3212	
P 60	S 9153		4/13/2011	65	5-10 W	Partly Cloudy	22	351	7722	
P 61	S 9132		4/13/2011	65	5-10 W	Partly Cloudy	22	359	7898	
P 62	S 9132		4/13/2011	65	5-10 W	Partly Cloudy	22	194	4268	
P 63	S 9140		4/13/2011	65	5-10 W	Partly Cloudy	22	163	3586	
P 64	S 9140		4/13/2011	65	5-10 W	Partly Cloudy	22	355	7810	
P 65	S 9140		4/13/2011	65	5-10 W	Partly Cloudy	22	42	924	
P 66	S 9135		4/13/2011	65	5-10 W	Partly Cloudy	22	313	6886	
P 67	S 9135		4/13/2011	65	5-10 W	Partly Cloudy	22	245	5390	
P 68	S 9133		4/13/2011	65	5-10 W	Partly Cloudy	22	109	2398	
P 69	S 9133		4/13/2011	67	7-12 W	Cloudy	22	354	7788	
P 70	S 9133		4/13/2011	67	7-12 W	Cloudy	22	93	2046	
P 71	S 9137		4/13/2011	67	7-12 W	Cloudy	22	262	5764	
P 72	S 9137		4/13/2011	67	7-12 W	Cloudy	22	297	6534	

Table 11

Geomembrane Panel Placement Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Panel Number	Liner Type Roll Num	Irreg	Date of Placement	Amb. Temp	Wind MPH	Weather	Width (ft)	Length (ft)	Area (Sq ft)	Comments
P 73	S 9136		4/13/2011	67	7-12 W	Cloudy	22	58	1276	
P 74	S 9136		4/13/2011	67	7-12 W	Cloudy	22	354	7788	
P 75	T 5205		4/13/2011	67	7-12 W	Cloudy	22	25	550	
P 76	T 5205		4/13/2011	67	7-12 W	Cloudy	22	25	550	
P 77	T 5205		4/13/2011	67	7-12 W	Cloudy	22	25	550	
P 78	T 5205		4/13/2011	67	7-12 W	Cloudy	22	25	550	
P 79	T 5205		4/13/2011	67	7-12 W	Cloudy	22	25	550	
P 80	T 5205		4/13/2011	67	7-12 W	Cloudy	22	25	550	
P 81	T 5205		4/13/2011	67	7-12 W	Cloudy	22	25	550	
P 82	T 5205		4/13/2011	67	7-12 W	Cloudy	22	25	550	
P 83	T 5205		4/13/2011	67	7-12 W	Cloudy	22	25	550	
P 84	T 5205		4/13/2011	67	7-12 W	Cloudy	22	23	506	
P 85	T 5205		4/13/2011	67	7-12 W	Cloudy	21	228	4788	
P 86	S 9132		4/13/2011	65	5-10 W	Partly Cloudy	22	9	198	
P 87	S 9141		4/14/2011	59	1-6 N	Clear	22	127	2794	
P 88	S 9136		4/14/2011	59	1-6 N	Clear	22	142	3124	
P 89	S 9151		4/14/2011	59	1-6 N	Clear	22	116	2552	
P 90	S 9151		4/14/2011	59	1-6 N	Clear	22	378	8316	
P 91	S 9151		4/14/2011	59	1-6 N	Clear	22	68	1496	
P 92	S 9156		4/14/2011	59	1-6 N	Clear	22	310	6820	
P 93	S 9156		4/14/2011	59	1-6 N	Clear	22	253	5566	
P 94	S 9157		4/14/2011	59	1-6 N	Clear	22	125	2750	
P 95	S 9157		4/14/2011	59	1-6 N	Clear	22	378	8316	
P 96	T 5204		4/14/2011	67	12-17 N	Clear	22	24	528	

Table 11

Geomembrane Panel Placement Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Panel Number	Liner Type Roll Num	Irreg	Date of Placement	Amb. Temp	Wind MPH	Weather	Width (ft)	Length (ft)	Area (Sq ft)	Comments
P 97	T 5204		4/14/2011	67	12-17 N	Clear	22	23	506	
P 98	T 5204		4/14/2011	67	12-17 N	Clear	22	23	506	
P 99	T 5204		4/14/2011	67	12-17 N	Clear	22	23	506	
P 100	T 5204		4/14/2011	67	12-17 N	Clear	22	23	506	
P 101	S 9148		4/15/2011	65	16-21 E	Clear	22	269	5918	
P 102	T 5205		4/15/2011	65	16-21 E	Clear	22	22	484	
P 103	T 5205		4/15/2011	65	16-21 E	Clear	19	22	418	
P 104	T 5205		4/15/2011	65	16-21 E	Clear	22	19	418	
P 105	T 5205		4/15/2011	65	16-21 E	Clear	22	20	440	
P 106	T 5205		4/15/2011	65	16-21 E	Clear	22	20	440	
P 107	T 5205		4/15/2011	65	16-21 E	Clear	22	20	440	
P 108	T 5300		4/15/2011	65	16-21 E	Clear	22	20	440	
P 109	T 5300		4/15/2011	65	16-21 E	Clear	22	20	440	
P 110	T 5300		4/15/2011	65	16-21 E	Clear	22	20	440	
P 111	T 5300		4/15/2011	65	16-21 E	Clear	22	20	440	
P 112	T 5300		4/15/2011	65	16-21 E	Clear	22	20	440	
P 113	T 5300		4/15/2011	65	16-21 E	Clear	22	21	462	
P 114	T 5300		4/15/2011	65	16-21 E	Clear	22	21	462	
P 115	T 5300		4/15/2011	65	16-21 E	Clear	22	21	462	
P 116	T 5300		4/15/2011	65	16-21 E	Clear	22	43	946	
P 117	T 5300		4/15/2011	65	16-21 E	Clear	22	42	924	
P 118	S 9148		4/15/2011	65	16-21 E	Clear	22	68	1496	
P 119	T 5300		4/15/2011	65	16-21 E	Clear	22	20	440	
P 120	T 5300		4/15/2011	65	16-21 E	Clear	22	20	440	

Table 11

Geomembrane Panel Placement Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Panel Number	Liner Type Roll Num	Irreg	Date of Placement	Amb. Temp	Wind MPH	Weather	Width (ft)	Length (ft)	Area (Sq ft)	Comments
P 121	T 5300		4/15/2011	65	16-21 E	Clear	22	20	440	

Geomembrane Trial Seam Information

Table 12

Geomembrane Trial Seams Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Trial Num	Date	Time	Amb. Temp.	Weather	Seam Type	Oper	Mach	Set Speed	Set Temp	Peel Values (1)	Shear Values (2)	Pass Fail	Comments/Location
1	4/4/2011	1305	80	Clear	FU	PM	9		860	124-124-121-125	196-196-188-	P	Additional Peels-130, 127
2	4/4/2011	1330	80	Clear		RC	18		850	134-131-129-130	195-196-188-	P	Additional Peels-131, 128
3	4/4/2011	1350	80	Clear		MR	7		850	131-129-141-127	175-180-181-	P	Additional Peels-116, 123
4	4/4/2011	1758	80	Clear		PM	9		860	123-109-112-137	191-188-189-	P	Additional Peels-106, 121
5	4/6/2011	730	40	Clear		PM	17		550	130-127-126-	187-193-189-	P	
6	4/6/2011	740	40	Clear		RC	14		500	132-136-134-	194-191-195-	P	
7	4/7/2011	1045	65	Partly Cloudy		RC	18		850	123-117-124-119	156-156-149-	P	Additional Peels-119, 120
8	4/7/2011	1045	65	Partly Cloudy		MR	7		850	116-117-120-119	155-151-147-	P	Additional Peels-116, 119
9	4/7/2011	1035	65	Partly Cloudy		PM	9		860	126-114-123-116	147-150-148-	P	Additional Peels-119, 121
10	4/7/2011	1240	70	Clear		PM	9		850	126-136-124-136	156-168-173-	P	Additional Peels-129, 126
11	4/7/2011	1543	75	Clear		MR	7		850	131-139-124-170	170-159-177-	P	Additional Peels-167, 167
12	4/7/2011	1530	75	Clear		RC	18		850	141-136-119-121	169-171-170-	P	Additional Peels-120, 140
13	4/8/2011	830	55	Partly Cloudy		PM	9		860	128-125-136-177	183-177-172-	P	Additional Peels-131, 118
14	4/8/2011	810	55	Partly Cloudy		MR	7		850	121-125-130-121	165-167-171-	P	Additional Peels-120, 119
15	4/8/2011	855	55	Partly Cloudy		RC	18		850	117-119-119-145	182-176-174-	P	Additional Peels-141, 138
16	4/8/2011	1240	60	Clear		MR	7		850	111-126-138-136	179-184-181-	P	Additional Peels-132, 127
17	4/8/2011	1250	65	Clear		RC	18		850	157-136-161-129	169-174-174-	P	Additional Peels-122, 133
22	4/13/2011	1230	65	Partly Cloudy		PM	9		860	136-151-136-140	173-181-195-	P	Additional Peels-138, 140
23	4/13/2011	1241	65	Partly Cloudy		MR	7		850	126-124-128-122	180-175-179-	P	Additional Peels-125, 118
24	4/13/2011	1240	65	Partly Cloudy		RC	18		850	128-119-130-120	184-183-190-	P	Additional Peels-121, 126
25	4/13/2011	1715	65	Clear		PM	9		860	124-126-123-128	180-175-190-	P	Additional Peels-130, 132
26	4/13/2011	1620	67	Cloudy		RC	18		850	130-126-126-126	177-179-183-	P	Additional Peels-138, 129
27	4/14/2011	910	59	Clear		PM	9		860	146-139-144-141	169-174-183-	P	Additional Peels-140, 140
28	4/14/2011	930	59	Clear		MR	7		850	121-130-131-125	178-181-199-	P	Additional Peels-128, 129

Table 12

Geomembrane Trial Seams Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Trial Num	Date	Time	Amb. Temp.	Weather	Seam Type	Oper	Mach	Set Speed	Set Temp	Peel Values (1)	Shear Values (2)	Pass Fail	Comments/Location
29	4/14/2011	935	59	Clear		RC	18		850	132-130-131-135	189-167-180-	P	Additional Peels-136, 133
30	4/14/2011	1320	67	Clear		PM	17		500	116-121-117-	156-152-161-	P	
31	4/14/2011	1322	67	Clear		RC	14		530	119-120-122-	158-163-154-	P	
32	4/15/2011	1355	65	Clear		RC	18		850	121-128-129-120	190-195-192-	P	Additional Peels-131, 118
33	4/15/2011	1315	65	Clear		PM	9		860	117-139-115-126	181-193-186-	P	Additional Peels-120, 130
34	4/15/2011	1350	65	Clear		MR	7		850	135-132-125-130	167-174-171-	P	Additional Peels-121, 130
35	4/15/2011	1710	62	Clear		PM	17		500	134-127-132-	173-183-183-	P	
36	4/15/2011	1730	62	Clear		RC	14		530	126-136-130-	156-163-192-	P	

NOTES:
(1) The requirement for peel strength is a minimum value of 91 ppi for both a non-textured fusion weld and for a textured fusion weld; and 78 ppi for both a non-textured extrusion weld and for a textured extrusion weld.

(2) The requirement for shear strength is a minimum value of 120 ppi for non-textured and textured fusion and extrusion welds.

Geomembrane Seaming Information

Table 13

Geomembrane Seaming Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Num	Seam Type	Seam Date	Len	Oper	Mach	Set Speed	Time Start	Time Stop	Set Tem	Amb Tem	Weather	EOS Peel (1)	EOS Shear (2)	Comments/Location
S 1 / 3	FU	4/4/2011	22	PM	9	5.5	1638	1640	860	84	Clear	-	-	
S 1 / 4	FU	4/4/2011	345	PM	9	6.5	1320	1404	860	80	Clear	-	-	
S 1 / 13	FU	4/4/2011	30	RC	18	6.3	1534	1538	850	84	Clear	-	-	
S 1 / 1000	FU	4/4/2011	18	PM	9	5.5	1833	1836	860	80	Clear	-	-	
S 2 / 3	FU	4/4/2011	22	PM	9	5.5	1633	1636	860	84	Clear	-	-	
S 2 / 5	FU	4/4/2011	18	PM	9	6.5	1700	1702	860	80	Clear	-	-	
S 2 / 7	FU	4/4/2011	22	PM	9	6.5	1657	1700	860	84	Clear	-	-	
S 2 / 8	FU	4/4/2011	22	PM	9	6.5	1655	1657	860	84	Clear	-	-	
S 2 / 10	FU	4/4/2011	22	PM	9	6.5	1652	1655	860	84	Clear	-	-	
S 2 / 12	FU	4/4/2011	22	PM	9	6.5	1650	1652	860	84	Clear	-	-	
S 2 / 19	FU	4/8/2011	21	RC	18	6.2	1726	1729	850	64	Partly Cloudy	-	-	
S 2 / 1000	FU	4/4/2011	112	PM	9	5.5	1809	1829	860	80	Clear	-	-	
S 3 / 4	FU	4/4/2011	22	PM	9	6.5	1703	1706	860	80	Clear	-	-	
S 3 / 5	FU	4/4/2011	4	PM	9	6.5	1702	1703	860	80	Clear	-	-	
S 3 / 1000	FU	4/4/2011	25	PM	9	5.5	1829	1833	860	80	Clear	-	-	
S 4 / 5	FU	4/4/2011	208	RC	18	6.3	1335	1355	850	80	Clear	-	-	
S 4 / 6	FU	4/4/2011	138	RC	18	6.3	1405	1420	850	80	Clear	-	-	
S 4 / 13	FU	4/4/2011	22	RC	18	6.3	1640	1642	850	84	Clear	-	-	
S 5 / 6	FU	4/4/2011	22	RC	18	6.3	1401	1405	850	80	Clear	-	-	
S 5 / 7	FU	4/4/2011	207	PM	9	6.5	1411	1431	860	80	Clear	-	-	
S 6 / 7	FU	4/4/2011	138	RC	18	6.3	1431	1446	850	84	Clear	-	-	
S 6 / 14	FU	4/4/2011	22	RC	18	6.3	1642	1645	850	84	Clear	-	-	
S 7 / 8	FU	4/4/2011	70	RC	18	6.3	1433	1440	850	84	Clear	-	-	
S 7 / 9	FU	4/4/2011	274	RC	18	6.3	1440	1508	850	84	Clear	-	-	

Table 13

Geomembrane Seaming Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Num	Seam Type	Seam Date	Len	Oper	Mach	Set Speed	Time Start	Time Stop	Set Tem	Amb Tem	Weather	EOS Peel (1)	EOS Shear (2)	Comments/Location
S 7 / 15	FU	4/4/2011	22	RC	18	6.3	1645	1650	850	84	Clear	-	-	
S 8 / 9	FU	4/4/2011	22	RC	18	6.3	1426	1428	850	84	Clear	-	-	
S 8 / 10	FU	4/4/2011	70	MR	7	6.5	1439	1454	850	84	Clear	-	-	
S 9 / 10	FU	4/4/2011	214	MR	7	6.5	1454	1514	850	84	Clear	-	-	
S 9 / 11	FU	4/4/2011	60	MR	7	6.5	1514	1528	850	84	Clear	-	-	
S 9 / 16	FU	4/4/2011	22	RC	18	6.3	1650	1655	850	84	Clear	-	-	
S 10 / 11	FU	4/4/2011	22	RC	18	6.3	1518	1520	850	84	Clear	-	-	
S 10 / 12	FU	4/4/2011	283	PM	9	6.5	1525	1555	860	84	Clear	-	-	
S 11 / 12	FU	4/4/2011	60	PM	9	6.5	1555	1602	860	84	Clear	-	-	
S 11 / 17	FU	4/4/2011	22	RC	18	6.3	1655	1700	850	84	Clear	-	-	
S 12 / 18	FU	4/4/2011	22	RC	18	6.3	1700	1705	850	80	Clear	-	-	
S 12 / 20	FU	4/7/2011	338	RC	18	6.2	1055	1132	850	65	Partly Cloudy	-	-	
S 13 / 14	FU	4/4/2011	31	MR	7	6.5	1540	1543	850	84	Clear	-	-	
S 14 / 15	FU	4/4/2011	32	MR	7	6.5	1545	1550	850	84	Clear	-	-	
S 15 / 16	FU	4/4/2011	33	RC	18	6.3	1603	1609	850	84	Clear	-	-	
S 16 / 17	FU	4/4/2011	33	RC	18	6.3	1540	1545	850	84	Clear	-	-	
S 17 / 18	FU	4/4/2011	33	RC	18	6.3	1550	1555	850	84	Clear	-	-	
S 18 / 35	FU	4/7/2011	38	RC	18	6.2	1537	1547	850	75	Clear	-	-	
S 19 / 20	FU	4/7/2011	20	RC	18	6.2	1717	1720	850	70	Clear	-	-	
S 19 / 21	FU	4/7/2011	22	RC	18	6.2	1715	1717	850	70	Clear	-	-	
S 19 / 23	FU	4/7/2011	22	RC	18	6.2	1713	1715	850	70	Clear	-	-	
S 19 / 24	FU	4/7/2011	22	RC	18	6.2	1711	1713	850	70	Clear	-	-	
S 19 / 26	FU	4/7/2011	22	RC	18	6.2	1709	1711	850	70	Clear	-	-	
S 19 / 27	FU	4/7/2011	22	RC	18	6.2	1707	1709	850	70	Clear	-	-	

Table 13

Geomembrane Seaming Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Num	Seam Type	Seam Date	Len	Oper	Mach	Set Speed	Time Start	Time Stop	Set Tem	Amb Tem	Weather	EOS Peel (1)	EOS Shear (2)	Comments/Location
S 19 / 29	FU	4/7/2011	17	RC	18	6.2	1705	1707	850	70	Clear	-	-	
S 19 / 59	FU	4/8/2011	21	RC	18	6	1440	1442	850	65	Clear	-	-	
S 19 / 1000	FU	4/7/2011	148	PM	9	5.5	1732	1750	850	70	Clear	-	-	
S 20 / 21	FU	4/7/2011	219	MR	7	6	1100	1125	850	65	Partly Cloudy	-	-	
S 20 / 22	FU	4/7/2011	120	MR	7	6	1125	1140	850	65	Partly Cloudy	-	-	
S 20 / 35	FU	4/7/2011	22	RC	18	6.2	1627	1630	850	70	Clear	-	-	
S 21 / 22	FU	4/7/2011	22	PM	9	6	1057	1100	860	65	Partly Cloudy	-	-	
S 21 / 23	FU	4/7/2011	218	PM	9	6	1111	1134	860	65	Partly Cloudy	-	-	
S 22 / 23	FU	4/7/2011	120	PM	9	6	1134	1149	860	65	Partly Cloudy	-	-	
S 22 / 36	FU	4/7/2011	22	RC	18	6.2	1630	1635	850	70	Clear	-	-	
S 23 / 24	FU	4/7/2011	93	MR	7	6	1146	1200	850	65	Partly Cloudy	-	-	
S 23 / 25	FU	4/7/2011	247	MR	7	6	1200	1226	850	70	Clear	-	-	
S 23 / 37	FU	4/7/2011	22	RC	18	6.2	1635	1638	850	70	Clear	-	-	
S 24 / 25	FU	4/7/2011	22	RC	18	6.2	1140	1144	850	65	Partly Cloudy	-	-	
S 24 / 26	FU	4/7/2011	93	PM	9	6	1250	1302	850	70	Clear	-	-	
S 25 / 26	FU	4/7/2011	214	PM	9	6	1302	1326	850	70	Clear	-	-	
S 25 / 28	FU	4/7/2011	35	PM	9	6	1326	1330	850	75	Clear	-	-	
S 25 / 38	FU	4/7/2011	22	RC	18	6.2	1638	1641	850	70	Clear	-	-	
S 26 / 27	FU	4/7/2011	306	RC	18	6.2	1305	1343	850	70	Clear	-	-	
S 26 / 28	FU	4/7/2011	22	MR	7	6	1256	1300	850	70	Clear	-	-	
S 27 / 28	FU	4/7/2011	37	RC	18	6.2	1342	1345	850	75	Clear	-	-	
S 27 / 29	FU	4/7/2011	172	MR	7	6	1352	1412	850	75	Clear	-	-	
S 27 / 30	FU	4/7/2011	172	MR	7	6	1412	1440	850	75	Clear	-	-	
S 27 / 40	FU	4/7/2011	22	RC	18	6.2	1644	1647	850	70	Clear	-	-	

Table 13

Geomembrane Seaming Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Num	Seam Type	Seam Date	Len	Oper	Mach	Set Speed	Time Start	Time Stop	Set Tem	Amb Tem	Weather	EOS Peel (1)	EOS Shear (2)	Comments/Location
S 28 / 39	FU	4/7/2011	22	RC	18	6.2	1641	1644	850	70	Clear	-	-	
S 29 / 30	FU	4/7/2011	22	RC	18	6.2	1404	1407	850	75	Clear	-	-	
S 29 / 31	FU	4/7/2011	172	PM	9	6	1406	1425	850	75	Clear	-	-	
S 29 / 59	FU	4/8/2011	5	RC	18	6.2	1437	1438	850	65	Clear	-	-	
S 30 / 31	FU	4/7/2011	173	PM	9	6	1425	1445	850	75	Clear	-	-	
S 30 / 41	FU	4/7/2011	22	RC	18	6.2	1647	1650	850	70	Clear	-	-	
S 31 / 32	FU	4/7/2011	346	MR	7	6	1450	1545	850	75	Clear	-	-	
S 31 / 42	FU	4/7/2011	22	RC	18	6.2	1650	1653	850	70	Clear	-	-	
S 31 / 59	FU	4/8/2011	22	RC	18	6.2	1434	1437	850	65	Clear	-	-	
S 32 / 33	FU	4/7/2011	210	PM	9	6	1508	1529	850	75	Clear	-	-	
S 32 / 34	FU	4/7/2011	137	PM	9	6	1529	1548	850	75	Clear	-	-	
S 32 / 43	FU	4/7/2011	22	RC	18	6.2	1653	1656	850	70	Clear	-	-	
S 32 / 59	FU	4/8/2011	22	RC	18	6.2	1431	1434	850	65	Clear	-	-	
S 33 / 34	FU	4/7/2011	22	RC	18	6.2	1518	1522	850	75	Clear	-	-	
S 33 / 45	FU	4/8/2011	210	PM	9	6	850	910	860	55	Partly Cloudy	-	-	
S 33 / 59	FU	4/8/2011	22	RC	18	6.2	1428	1431	850	65	Clear	-	-	
S 34 / 44	FU	4/7/2011	22	RC	18	6.2	1656	1659	850	70	Clear	-	-	
S 34 / 45	FU	4/8/2011	138	PM	9	6	910	929	860	55	Partly Cloudy	-	-	
S 35 / 36	FU	4/7/2011	37	RC	18	6.2	1548	1552	850	75	Clear	-	-	
S 36 / 37	FU	4/7/2011	36	RC	18	6.2	1557	1603	850	70	Clear	-	-	
S 37 / 38	FU	4/7/2011	35	RC	18	6.2	1605	1611	850	70	Clear	-	-	
S 38 / 39	FU	4/7/2011	33	RC	18	6.2	1614	1619	850	70	Clear	-	-	
S 39 / 40	FU	4/7/2011	32	PM	9	6	1552	1556	850	70	Clear	-	-	
S 40 / 41	FU	4/7/2011	31	PM	9	6	1558	1601	850	70	Clear	-	-	

Table 13

Geomembrane Seaming Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Num	Seam Type	Seam Date	Len	Oper	Mach	Set Speed	Time Start	Time Stop	Set Tem	Amb Tem	Weather	EOS Peel (1)	EOS Shear (2)	Comments/Location
S 41 / 42	FU	4/7/2011	30	PM	9	6	1605	1609	850	70	Clear	-	-	
S 42 / 43	FU	4/7/2011	30	PM	9	6	1610	1614	850	70	Clear	-	-	
S 43 / 44	FU	4/7/2011	30	PM	9	6	1615	1618	850	70	Clear	-	-	
S 44 / 53	FU	4/8/2011	31	RC	18	5.8	1039	1042	850	60	Clear	-	-	
S 45 / 46	FU	4/8/2011	68	MR	7	6	920	930	850	55	Partly Cloudy	-	-	
S 45 / 47	FU	4/8/2011	280	MR	7	6	930	953	850	55	Partly Cloudy	-	-	
S 45 / 53	FU	4/8/2011	22	RC	18	5.8	1220	1223	850	60	Clear	-	-	
S 45 / 59	FU	4/8/2011	22	RC	18	6.2	1335	1338	850	65	Clear	-	-	
S 46 / 47	FU	4/8/2011	22	RC	18	5.8	911	912	850	55	Partly Cloudy	-	-	
S 46 / 48	FU	4/8/2011	68	RC	18	5.8	917	927	850	55	Partly Cloudy	-	-	
S 46 / 59	FU	4/8/2011	22	RC	18	6.2	1332	1335	850	65	Clear	-	-	
S 47 / 48	FU	4/8/2011	211	RC	18	5.8	927	947	850	55	Partly Cloudy	-	-	
S 47 / 49	FU	4/8/2011	69	RC	18	5.8	947	957	850	55	Partly Cloudy	-	-	
S 47 / 54	FU	4/8/2011	22	RC	18	5.8	1223	1242	850	60	Clear	-	-	
S 48 / 49	FU	4/8/2011	22	PM	9	6	938	942	860	55	Partly Cloudy	-	-	
S 48 / 50	FU	4/8/2011	278	PM	9	6	950	1019	860	55	Partly Cloudy	-	-	
S 48 / 59	FU	4/8/2011	22	RC	18	6.2	1329	1332	850	65	Clear	-	-	
S 49 / 50	FU	4/8/2011	68	PM	9	6	1019	1029	860	60	Clear	-	-	
S 49 / 55	FU	4/8/2011	22	MR	7	6	1245	1248	850	60	Clear	-	-	
S 50 / 51	FU	4/8/2011	138	MR	7	6	1025	1040	850	60	Clear	-	-	
S 50 / 52	FU	4/8/2011	209	MR	7	6	1040	1105	850	60	Clear	-	-	
S 50 / 56	FU	4/8/2011	22	MR	7	6	1248	1251	850	60	Clear	-	-	
S 50 / 58	FU	4/8/2011	14	RC	18	6.2	1326	1328	850	65	Clear	-	-	
S 50 / 59	FU	4/8/2011	8	RC	18	6.2	1328	1329	850	65	Clear	-	-	

Table 13

Geomembrane Seaming Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Num	Seam Type	Seam Date	Len	Oper	Mach	Set Speed	Time Start	Time Stop	Set Tem	Amb Tem	Weather	EOS Peel (1)	EOS Shear (2)	Comments/Location
S 51 / 52	FU	4/8/2011	22	RC	18	5.8	1025	1027	850	60	Clear	-	-	
S 51 / 58	FU	4/8/2011	22	RC	18	6.2	1323	1326	850	65	Clear	-	-	
S 51 / 60	FU	4/13/2011	139	PM	9	6.2	1243	1300	860	65	Partly Cloudy	-	-	
S 52 / 57	FU	4/8/2011	22	MR	7	6	1251	1254	850	65	Clear	-	-	
S 52 / 60	FU	4/13/2011	205	PM	9	6.2	1300	1320	860	65	Partly Cloudy	-	-	
S 53 / 54	FU	4/8/2011	29	RC	18	5.8	1046	1049	850	60	Clear	-	-	
S 54 / 55	FU	4/8/2011	30	RC	18	5.8	1056	1059	850	60	Clear	-	-	
S 55 / 56	FU	4/8/2011	31	RC	18	5.8	1106	1109	850	60	Clear	-	-	
S 56 / 57	FU	4/8/2011	31	RC	18	5.8	1113	1118	850	60	Clear	-	-	
S 57 / 75	FU	4/13/2011	25	MR	7	6	1540	1544	850	67	Cloudy	-	-	
S 58 / 59	FU	4/8/2011	21	MR	7	6	1354	1400	850	65	Clear	-	-	
S 58 / 85	FU	4/13/2011	21	PM	9	6.2	1653	1656	860	67	Cloudy	-	-	
S 58 / 1000	FU	4/8/2011	38	RC	18	6	1503	1507	850	65	Clear	-	-	
S 59 / 1000	FU	4/8/2011	146	RC	18	6	1507	1530	850	65	Clear	-	-	
S 60 / 61	FU	4/13/2011	343	MR	7	6	1250	1328	850	65	Partly Cloudy	-	-	
S 60 / 85	FU	4/13/2011	22	PM	9	6.2	1644	1648	860	67	Cloudy	-	-	
S 60 / 86	FU	4/13/2011	22	PM	9	6.2	1322	1325	860	65	Partly Cloudy	-	-	
S 61 / 62	FU	4/13/2011	193	RC	18	6.1	1305	1330	850	65	Partly Cloudy	-	-	
S 61 / 63	FU	4/13/2011	161	RC	18	6.1	1330	1349	850	65	Partly Cloudy	-	-	
S 61 / 76	FU	4/13/2011	22	RC	18	5.8	1650	1655	850	67	Cloudy	-	-	
S 61 / 85	FU	4/13/2011	22	PM	9	6.2	1642	1644	860	67	Cloudy	-	-	
S 61 / 86	FU	4/13/2011	9	MR	7	6	1328	1329	850	65	Partly Cloudy	-	-	
S 62 / 63	FU	4/13/2011	22	RC	18	6.1	1301	1301	850	65	Partly Cloudy	-	-	
S 62 / 64	FU	4/13/2011	192	PM	9	6.2	1335	1354	860	65	Partly Cloudy	-	-	

Table 13

Geomembrane Seaming Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch
Project Num:	05794.49.001	**Material:**	60 mil HDPE
Location:	Plymouth, NC	**Installer:**	Chesapeake

Checked By: O. Kaiser

Seam Num	Seam Type	Seam Date	Len	Oper	Mach	Set Speed	Time Start	Time Stop	Set Tem	Amb Tem	Weather	EOS Peel (1)	EOS Shear (2)	Comments/Location
S 62 / 85	FU	4/13/2011	22	PM	9	6.2	1640	1642	860	67	Cloudy	-	-	
S 63 / 64	FU	4/13/2011	162	PM	9	6.2	1354	1409	860	65	Partly Cloudy	-	-	
S 63 / 77	FU	4/13/2011	22	RC	18	5.8	1655	1658	850	67	Cloudy	-	-	
S 64 / 65	FU	4/13/2011	42	MR	7	6	1343	1349	850	65	Partly Cloudy	-	-	
S 64 / 66	FU	4/13/2011	313	MR	7	6	1349	1441	850	65	Partly Cloudy	-	-	
S 64 / 78	FU	4/13/2011	22	RC	18	5.8	1658	1701	850	67	Cloudy	-	-	
S 64 / 85	FU	4/13/2011	22	PM	9	6.2	1637	1640	860	67	Cloudy	-	-	
S 65 / 66	FU	4/13/2011	22	MR	7	6	1336	1341	850	65	Partly Cloudy	-	-	
S 65 / 67	FU	4/13/2011	42	RC	18	6.1	1400	1405	850	67	Cloudy	-	-	
S 65 / 85	FU	4/13/2011	22	PM	9	6.2	1635	1637	860	67	Cloudy	-	-	
S 66 / 67	FU	4/13/2011	203	RC	18	6.1	1405	1455	850	67	Cloudy	-	-	
S 66 / 68	FU	4/13/2011	108	RC	18	6.1	1455	1507	850	67	Cloudy	-	-	
S 66 / 79	FU	4/13/2011	22	RC	18	5.8	1701	1705	850	65	Clear	-	-	
S 67 / 68	FU	4/13/2011	22	RC	18	6.1	1356	1358	850	65	Partly Cloudy	-	-	
S 67 / 69	FU	4/13/2011	245	PM	9	6.2	1415	1441	860	67	Cloudy	-	-	
S 67 / 85	FU	4/13/2011	22	PM	9	6.2	1632	1635	860	67	Cloudy	-	-	
S 68 / 69	FU	4/13/2011	109	PM	9	6.2	1441	1457	860	67	Cloudy	-	-	
S 68 / 80	FU	4/13/2011	22	RC	18	5.8	1705	1708	850	65	Clear	-	-	
S 69 / 70	FU	4/13/2011	92	MR	7	6	1450	1515	850	67	Cloudy	-	-	
S 69 / 71	FU	4/13/2011	262	MR	7	6	1505	1530	850	67	Cloudy	-	-	
S 69 / 81	FU	4/13/2011	22	RC	18	5.8	1708	1711	850	65	Clear	-	-	
S 69 / 85	FU	4/13/2011	22	PM	9	6.2	1630	1632	860	67	Cloudy	-	-	
S 70 / 71	FU	4/13/2011	22	MR	7	6	1435	1437	850	67	Cloudy	-	-	
S 70 / 72	FU	4/13/2011	93	PM	9	6.2	1504	1514	860	67	Cloudy	-	-	

Table 13

Geomembrane Seaming Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Num	Seam Type	Seam Date	Len	Oper	Mach	Set Speed	Time Start	Time Stop	Set Tem	Amb Tem	Weather	EOS Peel (1)	EOS Shear (2)	Comments/Location
S 70 / 85	FU	4/13/2011	22	PM	9	6.2	1626	1630	860	67	Cloudy	-	-	
S 71 / 72	FU	4/13/2011	204	PM	9	6.2	1514	1536	860	67	Cloudy	-	-	
S 71 / 73	FU	4/13/2011	58	PM	9	6.2	1536	1542	860	67	Cloudy	-	-	
S 71 / 82	FU	4/13/2011	22	RC	18	5.8	1711	1715	850	65	Clear	-	-	
S 72 / 73	FU	4/13/2011	22	MR	7	6	1534	1536	850	67	Cloudy	-	-	
S 72 / 74	FU	4/13/2011	296	RC	18	6.1	1514	1547	850	67	Cloudy	-	-	
S 72 / 85	FU	4/13/2011	22	PM	9	6.2	1623	1626	860	67	Cloudy	-	-	
S 73 / 74	FU	4/13/2011	58	RC	18	6.1	1547	1555	850	67	Cloudy	-	-	
S 73 / 83	FU	4/13/2011	22	RC	18	5.8	1715	1720	850	65	Clear	-	-	
S 74 / 84	FU	4/13/2011	22	RC	18	5.8	1720	1723	850	65	Clear	-	-	
S 74 / 85	FU	4/13/2011	22	PM	9	6.2	1621	1623	860	67	Cloudy	-	-	
S 74 / 87	FU	4/14/2011	100	PM	9	6	940	949	860	59	Clear	-	-	
S 74 / 88	FU	4/14/2011	142	PM	9	6	949	1005	860	59	Clear	-	-	
S 74 / 89	FU	4/14/2011	115	PM	9	6	1005	1018	860	59	Clear	-	-	
S 75 / 76	FU	4/13/2011	25	MR	7	6	1547	1550	850	67	Cloudy	-	-	
S 75 / 86	FU	4/13/2011	22	RC	18	5.8	1645	1650	850	67	Cloudy	-	-	
S 76 / 77	FU	4/13/2011	25	MR	7	6	1553	1558	850	67	Cloudy	-	-	
S 77 / 78	FU	4/13/2011	25	MR	7	6	1559	1600	850	67	Cloudy	-	-	
S 78 / 79	FU	4/13/2011	25	PM	9	6.2	1547	1551	860	67	Cloudy	-	-	
S 79 / 80	FU	4/13/2011	25	PM	9	6.2	1552	1556	860	67	Cloudy	-	-	
S 80 / 81	FU	4/13/2011	25	PM	9	6.2	1557	1600	860	67	Cloudy	-	-	
S 81 / 82	FU	4/13/2011	25	PM	9	6.2	1601	1603	860	67	Cloudy	-	-	
S 82 / 83	FU	4/13/2011	25	RC	18	6.1	1557	1600	850	67	Cloudy	-	-	
S 83 / 84	FU	4/13/2011	23	RC	18	6.1	1604	1608	850	67	Cloudy	-	-	

Table 13

Geomembrane Seaming Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Num	Seam Type	Seam Date	Len	Oper	Mach	Set Speed	Time Start	Time Stop	Set Tem	Amb Tem	Weather	EOS Peel (1)	EOS Shear (2)	Comments/Location
S 84 / 96	FU	4/14/2011	24	PM	9	6	1108	1110	860	67	Clear	-	-	
S 85 / 87	FU	4/14/2011	21	RC	18	6.2	1207	1209	850	67	Clear	-	-	
S 85 / 1000	FU	4/13/2011	220	PM	9	5.5	1721	1750	860	65	Clear	-	-	
S 87 / 88	FU	4/14/2011	22	PM	9	6	925	928	860	59	Clear	-	-	
S 87 / 90	FU	4/14/2011	121	MR	7	6	939	954	850	59	Clear	-	-	
S 87 / 1000	FU	4/14/2011	22	RC	18	6.1	1201	1205	850	67	Clear	-	-	
S 88 / 89	FU	4/14/2011	22	PM	9	6	931	934	860	59	Clear	-	-	
S 88 / 90	FU	4/14/2011	141	MR	7	6	954	1013	850	59	Clear	-	-	
S 89 / 90	FU	4/14/2011	116	MR	7	6	1013	1025	850	59	Clear	-	-	
S 89 / 96	FU	4/14/2011	22	PM	9	6	1143	1146	860	67	Clear	-	-	
S 90 / 91	FU	4/14/2011	68	RC	18	6.2	958	1006	850	59	Clear	-	-	
S 90 / 92	FU	4/14/2011	310	RC	18	6.2	1006	1041	850	59	Clear	-	-	
S 90 / 97	FU	4/14/2011	22	PM	9	6	1146	1149	860	67	Clear	-	-	
S 90 / 1000	FU	4/14/2011	22	RC	18	6.1	1158	1201	850	67	Clear	-	-	
S 91 / 92	FU	4/14/2011	22	RC	18	6.2	954	956	850	59	Clear	-	-	
S 91 / 93	FU	4/14/2011	67	PM	9	6	1025	1030	860	59	Clear	-	-	
S 91 / 1000	FU	4/14/2011	22	RC	18	6.1	1156	1158	850	67	Clear	-	-	
S 92 / 93	FU	4/14/2011	186	PM	9	6	1030	1050	860	59	Clear	-	-	
S 92 / 94	FU	4/14/2011	123	PM	9	6	1050	1104	860	67	Clear	-	-	
S 92 / 98	FU	4/14/2011	22	PM	9	6	1149	1153	860	67	Clear	-	-	
S 93 / 94	FU	4/14/2011	22	MR	7	6	1034	1037	850	59	Clear	-	-	
S 93 / 95	FU	4/14/2011	253	MR	7	6	1043	1111	850	59	Clear	-	-	
S 93 / 1000	FU	4/14/2011	22	RC	18	6.1	1154	1156	850	67	Clear	-	-	
S 94 / 95	FU	4/14/2011	125	MR	7	6	1111	1125	850	67	Clear	-	-	

Table 13

Geomembrane Seaming Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Num	Seam Type	Seam Date	Len	Oper	Mach	Set Speed	Time Start	Time Stop	Set Tem	Amb Tem	Weather	EOS Peel (1)	EOS Shear (2)	Comments/Location
S 94 / 99	FU	4/14/2011	22	PM	9	6	1153	1155	860	67	Clear	-	-	
S 95 / 100	FU	4/14/2011	22	PM	9	6	1155	1158	860	67	Clear	-	-	
S 95 / 101	FU	4/15/2011	264	RC	18	6.1	1400	1431	850	65	Clear	-	-	
S 95 / 116	FU	4/15/2011	22	RC	18	6.1	1622	1625	850	65	Clear	-	-	
S 95 / 117	FU	4/15/2011	22	RC	18	6.1	1620	1622	850	65	Clear	-	-	
S 95 / 118	FU	4/15/2011	66	RC	18	6.1	1615	1620	850	65	Clear	-	-	
S 95 / 1000	FU	4/14/2011	22	RC	18	6.1	1152	1154	850	67	Clear	-	-	
S 96 / 97	FU	4/14/2011	23	PM	9	6	1111	1113	860	67	Clear	-	-	
S 97 / 98	FU	4/14/2011	23	PM	9	6	1114	1116	860	67	Clear	-	-	
S 98 / 99	FU	4/14/2011	23	PM	9	6	1118	1121	860	67	Clear	-	-	
S 99 / 100	FU	4/14/2011	22	PM	9	6	1124	1126	860	67	Clear	-	-	
S 100 / 102	FU	4/15/2011	22	RC	18	6.1	1435	1438	850	65	Clear	-	-	
S 101 / 102	FU	4/15/2011	22	RC	18	6.1	1505	1507	850	65	Clear	-	-	
S 101 / 104	FU	4/15/2011	22	PM	9	6	1552	1555	860	65	Clear	-	-	
S 101 / 105	FU	4/15/2011	22	PM	9	6	1549	1552	860	65	Clear	-	-	
S 101 / 106	FU	4/15/2011	22	PM	9	6	1546	1549	860	65	Clear	-	-	
S 101 / 107	FU	4/15/2011	22	PM	9	6	1544	1546	860	65	Clear	-	-	
S 101 / 108	FU	4/15/2011	22	PM	9	6	1541	1544	860	65	Clear	-	-	
S 101 / 109	FU	4/15/2011	22	PM	9	6	1539	1541	860	65	Clear	-	-	
S 101 / 110	FU	4/15/2011	22	PM	9	6	1537	1539	860	65	Clear	-	-	
S 101 / 111	FU	4/15/2011	22	PM	9	6	1535	1537	860	65	Clear	-	-	
S 101 / 112	FU	4/15/2011	22	PM	9	6	1532	1535	860	65	Clear	-	-	
S 101 / 113	FU	4/15/2011	22	PM	9	6	1530	1532	860	65	Clear	-	-	
S 101 / 114	FU	4/15/2011	22	PM	9	6	1528	1530	860	65	Clear	-	-	

Table 13

Geomembrane Seaming Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Num	Seam Type	Seam Date	Len	Oper	Mach	Set Speed	Time Start	Time Stop	Set Tem	Amb Tem	Weather	EOS Peel (1)	EOS Shear (2)	Comments/Location
S 101 / 115	FU	4/15/2011	22	PM	9	6	1525	1528	860	65	Clear	-	-	
S 101 / 116	FU	4/15/2011	22	RC	18	6.1	1455	1458	850	65	Clear	-	-	
S 102 / 103	FU	4/15/2011	22	PM	9	6.2	1432	1435	860	65	Clear	-	-	
S 103 / 104	FU	4/15/2011	19	PM	9	6.2	1438	1441	860	65	Clear	-	-	
S 104 / 105	FU	4/15/2011	19	PM	9	6.2	1442	1444	860	65	Clear	-	-	
S 105 / 106	FU	4/15/2011	20	PM	9	6.2	1446	1448	860	65	Clear	-	-	
S 106 / 107	FU	4/15/2011	20	RC	18	6.1	1442	1445	850	65	Clear	-	-	
S 107 / 108	FU	4/15/2011	20	RC	18	6.1	1448	1450	850	65	Clear	-	-	
S 108 / 109	FU	4/15/2011	20	RC	18	6.1	1455	1457	850	65	Clear	-	-	
S 109 / 110	FU	4/15/2011	20	RC	18	6.1	1500	1502	850	65	Clear	-	-	
S 110 / 111	FU	4/15/2011	20	PM	9	6.2	1450	1552	860	65	Clear	-	-	
S 111 / 112	FU	4/15/2011	20	PM	9	6.2	1453	1455	860	65	Clear	-	-	
S 112 / 113	FU	4/15/2011	20	PM	9	6.2	1459	1501	860	65	Clear	-	-	
S 113 / 114	FU	4/15/2011	21	PM	9	6.2	1503	1507	860	65	Clear	-	-	
S 114 / 115	FU	4/15/2011	21	PM	9	6.2	1508	1510	860	65	Clear	-	-	
S 115 / 116	FU	4/15/2011	21	RC	18	6.1	1458	1601	850	65	Clear	-	-	
S 116 / 117	FU	4/15/2011	43	PM	9	6	1600	1610	860	65	Clear	-	-	
S 117 / 118	FU	4/15/2011	22	RC	18	6.1	1604	1608	850	65	Clear	-	-	
S 117 / 119	FU	4/15/2011	20	PM	9	6.2	1625	1627	860	65	Clear	-	-	
S 118 / 119	FU	4/15/2011	22	PM	9	6.2	1648	1650	860	65	Clear	-	-	
S 118 / 120	FU	4/15/2011	22	PM	9	6.2	1650	1652	860	65	Clear	-	-	
S 118 / 121	FU	4/15/2011	22	PM	9	6.2	1652	1655	860	65	Clear	-	-	
S 118 / 1000	FU	4/15/2011	22	RC	18	6.1	1723	1728	850	62	Clear	-	-	
S 119 / 120	FU	4/15/2011	20	PM	9	6.2	1635	1637	860	65	Clear	-	-	

Table 13

Geomembrane Seaming Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Num	Seam Type	Seam Date	Len	Oper	Mach	Set Speed	Time Start	Time Stop	Set Tem	Amb Tem	Weather	EOS Peel (1)	EOS Shear (2)	Comments/Location
S 120 / 121	FU	4/15/2011	20	RC	18	6.1	1638	1640	850	65	Clear	-	-	
S 121 / 1000	FU	4/15/2011	20	RC	18	6.1	1719	1723	850	62	Clear	-	-	

NOTES:

(1) The requirement for peel strength is a minimum value of 91 ppi for both a non-textured fusion weld and for a textured fusion weld; and 78 ppi for both a non-textured extrusion weld and for a textured extrusion weld.

(2) The requirement for shear strength is a minimum value of 120 ppi for non-textured and textured fusion and extrusion welds.

Geomembrane Seam Nondestructive Testing Information

Table 14

Geomembrane Seams Non-Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Reference	Test Type	NDT Oper	Whole Seam	Part Label	Length	Testing Date	Time Start (1)	Time Stop (1)	Pressure Start (1)	Pressure Stop (1)	Pass/Fail	Comments
S 1/3	Air	TW	N			4/6/2011	715	720	30	30	P	
S 1/4	Air	TW	N	A	309	4/4/2011	1453	1458	30	30	P	
S 1/4	Air	TW	N	B	36	4/4/2011	1454	1459	30	30	P	
S 1/13	Air	TW	N			4/6/2011	827	832	30	30	P	
S 1/1000	Air	TW	N	A	7	4/6/2011	822	827	30	30	P	
S 1/1000	Air	TW	N	B	7	4/6/2011	822	827	30	30	P	
S 1/1000	Air	TW	N	C	4	4/6/2011	715	720	30	30	P	
S 2/3	Air	TW	N			4/6/2011	723	728	30	30	P	
S 2/5	Air	TW	N			4/6/2011	723	728	30	30	P	
S 2/7	Air	TW	N			4/6/2011	725	730	30	30	P	
S 2/8	Air	TW	N			4/6/2011	801	806	30	30	P	
S 2/10	Air	TW	N			4/6/2011	801	806	30	30	P	
S 2/12	Air	TW	N	A	8	4/6/2011	802	807	30	30	P	
S 2/12	Air	TW	N	B	14	4/6/2011	803	808	30	30	P	
S 2/19	Air	TW	N			4/8/2011	1325	1330	30	30	P	
S 2/1000	Air	TW	N	A	8	4/6/2011	806	811	30	30	P	
S 2/1000	Air	TW	N	B	22	4/6/2011	806	811	30	30	P	
S 2/1000	Air	TW	N	C	22	4/6/2011	759	804	30	30	P	
S 2/1000	Air	TW	N	D	23	4/6/2011	759	804	30	30	P	
S 2/1000	Air	TW	N	E	16	4/6/2011	727	732	30	30	P	
S 2/1000	Air	TW	N	F	7	4/6/2011	726	731	30	30	P	
S 2/1000	Air	TW	N	G	14	4/6/2011	721	726	30	30	P	
S 3/4	Air	TW	N			4/4/2011	1730	1735	30	30	P	

Table 14

Geomembrane Seams Non-Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Reference	Test Type	NDT Oper	Whole Seam	Part Label	Length	Testing Date	Time Start (1)	Time Stop (1)	Pressure Start (1)	Pressure Stop (1)	Pass/Fail	Comments
S 3/5	Air	TW	N			4/4/2011	1746	1751	30	30	P	
S 3/1000	Air	TW	N	A	9	4/6/2011	721	726	30	30	P	
S 3/1000	Air	TW	N	B	16	4/6/2011	719	724	30	30	P	
S 4/5	Air	TW	N			4/4/2011	1447	1452	30	30	P	
S 4/6	Air	TW	N			4/4/2011	1446	1451	30	30	P	
S 4/13	Air	TW	N			4/6/2011	837	842	30	30	P	
S 5/6	Air	TW	N			4/4/2011	1451	1456	30	30	P	
S 5/7	Air	TW	N			4/4/2011	1523	1528	30	30	P	
S 6/7	Air	TW	N			4/4/2011	1512	1517	30	30	P	
S 6/14	Air	TW	N			4/6/2011	845	850	30	30	P	
S 7/8	Air	TW	N			4/4/2011	1544	1549	30	30	P	
S 7/9	Air	TW	N			4/4/2011	1612	1617	30	30	P	
S 7/15	Air	TW	N			4/6/2011	857	902	30	30	P	
S 8/9	Air	TW	N			4/4/2011	1544	1549	30	30	P	
S 8/10	Air	TW	N			4/4/2011	1646	1651	30	30	P	
S 9/10	Air	TW	N			4/4/2011	1606	1611	30	30	P	
S 9/11	Air	TW	N			4/4/2011	1607	1612	30	30	P	
S 9/16	Air	TW	N			4/6/2011	901	906	30	30	P	
S 10/11	Air	TW	N			4/4/2011	1617	1622	30	30	P	
S 10/12	Air	TW	N			4/4/2011	1605	1610	30	30	P	
S 11/12	Air	TW	N			4/4/2011	1617	1622	30	30	P	
S 11/17	Air	TW	N			4/6/2011	902	907	30	30	P	
S 12/18	Air	TW	N			4/6/2011	907	912	30	30	P	

Table 14

Geomembrane Seams Non-Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Reference	Test Type	NDT Oper	Whole Seam	Part Label	Length	Testing Date	Time Start (1)	Time Stop (1)	Pressure Start (1)	Pressure Stop (1)	Pass/Fail	Comments
S 12/20	Air	HS	N			4/8/2011	1348	1353	30	30	P	
S 13/14	Air	TW	N			4/6/2011	848	853	30	30	P	
S 14/15	Air	TW	N			4/6/2011	856	901	30	30	P	
S 15/16	Air	TW	N			4/6/2011	901	906	30	30	P	
S 16/17	Air	TW	N			4/6/2011	903	908	30	30	P	
S 17/18	Air	TW	N			4/6/2011	910	915	30	30	P	
S 18/35	Air	HS	N			4/8/2011	1501	1506	30	30	P	
S 19/20	Air	JM	N			4/8/2011	1801	1806	30	30	P	
S 19/21	Air	TW	N			4/8/2011	1326	1331	30	30	P	
S 19/23	Air	HS	N			4/8/2011	1343	1348	30	30	P	
S 19/24	Air	HS	N			4/8/2011	1338	1343	30	30	P	
S 19/26	Air	HS	N			4/8/2011	1433	1438	30	30	P	
S 19/27	Air	HS	N			4/8/2011	1428	1433	30	30	P	
S 19/29	Air	HS	N			4/8/2011	1420	1425	30	30	P	
S 19/59	Air	JM	N			4/8/2011	1705	1710	30	30	P	
S 19/1000	Air	TM	N	A	29	4/8/2011	1405	1410	30	30	P	
S 19/1000	Air	TM	N	B	22	4/8/2011	1354	1359	30	30	P	
S 19/1000	Air	TW	N	C	22	4/8/2011	1342	1347	30	30	P	
S 19/1000	Air	TW	N	D	33	4/8/2011	1341	1346	30	30	P	
S 19/1000	Air	TW	N	E	22	4/8/2011	1331	1336	30	30	P	
S 19/1000	Air	TW	N	F	20	4/8/2011	1326	1331	30	30	P	
S 20/21	Air	HS	N			4/8/2011	1353	1358	30	30	P	
S 20/22	Air	HS	N			4/8/2011	1419	1424	30	30	P	

Table 14

Geomembrane Seams Non-Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Reference	Test Type	NDT Oper	Whole Seam	Part Label	Length	Testing Date	Time Start (1)	Time Stop (1)	Pressure Start (1)	Pressure Stop (1)	Pass/Fail	Comments
S 20/35	Air	HS	N			4/8/2011	1506	1511	30	30	P	
S 21/22	Air	HS	N			4/8/2011	1429	1434	30	30	P	
S 21/23	Air	HS	N			4/8/2011	1358	1403	30	30	P	
S 22/23	Air	HS	N			4/8/2011	1424	1429	30	30	P	
S 22/36	Air	HS	N			4/8/2011	1516	1521	30	30	P	
S 23/24	Air	HS	N			4/8/2011	1403	1408	30	30	P	
S 23/25	Air	HS	N			4/8/2011	1431	1439	30	30	P	
S 23/37	Air	HS	N			4/8/2011	1526	1531	30	30	P	
S 24/25	Air	HS	N			4/8/2011	1444	1449	30	30	P	
S 24/25	Air	HS	N			4/8/2011	1439	1444	30	30	P	
S 24/26	Air	HS	N			4/8/2011	1408	1412	30	30	P	
S 25/26	Air	HS	N			4/8/2011	1444	1449	30	30	P	
S 25/38	Air	HS	N			4/8/2011	1536	1541	30	30	P	
S 26/27	Air	HS	N			4/8/2011	1412	1417	30	30	P	
S 26/28	Air	HS	N			4/8/2011	1450	1455	30	30	P	
S 27/28	Air	HS	N			4/8/2011	1455	1500	30	30	P	
S 27/29	Air	JM	N			4/8/2011	1416	1421	30	30	P	
S 27/30	Air	JM	N	A	6	4/8/2011	1424	1429	30	30	P	
S 27/30	Air	JM	N	B	166	4/8/2011	1430	1435	30	30	P	
S 27/40	Air	HS	N			4/8/2011	1556	1601	30	30	P	
S 28/39	Air	HS	N			4/8/2011	1546	1551	30	30	P	
S 29/30	Air	JM	N			4/8/2011	1415	1420	30	30	P	
S 29/31	Air	JM	N			4/8/2011	1612	1618	30	30	P	

Table 14

Geomembrane Seams Non-Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Reference	Test Type	NDT Oper	Whole Seam	Part Label	Length	Testing Date	Time Start (1)	Time Stop (1)	Pressure Start (1)	Pressure Stop (1)	Pass/Fail	Comments
S 29/59	Air	JM	N			4/8/2011	1605	1610	30	30	P	
S 30/31	Air	JM	N			4/8/2011	1432	1437	30	30	P	
S 30/41	Air	HS	N			4/8/2011	1606	1611	30	30	P	
S 31/32	Air	HS	N			4/8/2011	1626	1631	30	30	P	
S 31/32	Air	JM	N			4/8/2011	1635	1640	30	30	P	
S 31/42	Air	HS	N			4/8/2011	1616	1621	30	30	P	
S 31/59	Air	JM	N			4/8/2011	1642	1647	30	30	P	
S 32/33	Air	JM	N			4/8/2011	1619	1624	30	30	P	
S 32/34	Air	JM	N			4/8/2011	1443	1448	30	30	P	
S 32/43	Air	HS	N			4/8/2011	1631	1636	30	30	P	
S 32/59	Air	JM	N			4/8/2011	1649	1654	30	30	P	
S 33/34	Air	JM	N			4/8/2011	1439	1441	30	30	P	
S 33/45	Air	JM	N			4/8/2011	1623	1628	30	30	P	
S 33/59	Air	JM	N			4/8/2011	1655	1700	30	30	P	
S 34/44	Air	HS	N			4/8/2011	1641	1646	30	30	P	
S 34/45	Air	JM	N			4/8/2011	1445	1450	30	30	P	
S 35/36	Air	HS	N			4/8/2011	1511	1516	30	30	P	
S 36/37	Air	HS	N			4/8/2011	1521	1526	30	30	P	
S 37/38	Air	HS	N			4/8/2011	1531	1536	30	30	P	
S 38/39	Air	HS	N			4/8/2011	1541	1546	30	30	P	
S 39/40	Air	HS	N			4/8/2011	1551	1556	30	30	P	
S 40/41	Air	HS	N			4/8/2011	1601	1606	30	30	P	
S 41/42	Air	HS	N			4/8/2011	1611	1616	30	30	P	

Table 14

Geomembrane Seams Non-Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Reference	Test Type	NDT Oper	Whole Seam	Part Label	Length	Testing Date	Time Start (1)	Time Stop (1)	Pressure Start (1)	Pressure Stop (1)	Pass/Fail	Comments
S 42/43	Air	HS	N			4/8/2011	1621	1626	30	30	P	
S 43/44	Air	HS	N			4/8/2011	1636	1641	30	30	P	
S 44/53	Air	HS	N			4/8/2011	1646	1651	30	30	P	
S 45/46	Air	JM	N			4/8/2011	1537	1543	30	30	P	
S 45/47	Air	JM	N			4/8/2011	1511	1516	30	30	P	
S 45/53	Air	HS	N			4/8/2011	1651	1651	30	30	P	
S 45/59	Air	JM	N			4/8/2011	1713	1718	30	30	P	
S 46/47	Air	JM	N			4/8/2011	1512	1517	30	30	P	
S 46/48	Air	JM	N			4/8/2011	1544	1549	30	30	P	
S 46/59	Air	JM	N			4/8/2011	1715	1720	30	30	P	
S 47/48	Air	JM	N			4/8/2011	1518	1523	30	30	P	
S 47/49	Air	JM	N	A	6	4/8/2011	1459	1504	30	30	P	
S 47/49	Air	JM	N	B	63	4/8/2011	1505	1510	30	30	P	
S 47/54	Air	HS	N			4/8/2011	1701	1706	30	30	P	
S 48/49	Air	JM	N			4/8/2011	1454	1459	30	30	P	
S 48/50	Air	JM	N			4/8/2011	1524	1529	30	30	P	
S 48/59	Air	JM	N			4/8/2011	1719	1724	30	30	P	
S 49/50	Air	JM	N			4/8/2011	1506	1511	30	30	P	
S 49/55	Air	HS	N			4/8/2011	1711	1716	30	30	P	
S 50/51	Air	TW	N			4/8/2011	1545	1550	30	30	P	
S 50/52	Air	JM	N			4/8/2011	1544	1549	30	30	P	
S 50/56	Air	HS	N	A	7	4/8/2011	1721	1726	30	30	P	
S 50/56	Air	HS	N	B	15	4/8/2011	1726	1731	30	30	P	

Table 14

Geomembrane Seams Non-Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Reference	Test Type	NDT Oper	Whole Seam	Part Label	Length	Testing Date	Time Start (1)	Time Stop (1)	Pressure Start (1)	Pressure Stop (1)	Pass/Fail	Comments
S 50/58	Air	JM	N			4/8/2011	1728	1733	30	30	P	
S 50/59	Air	JM	N			4/8/2011	1728	1733	30	30	P	
S 51/52	Air	JM	N			4/8/2011	1550	1555	30	30	P	
S 51/58	Air	JM	N			4/8/2011	1734	1739	30	30	P	
S 51/60	Air	HS	N			4/14/2011	1230	1235	30	30	P	
S 52/57	Air	HS	N			4/8/2011	1736	1741	30	30	P	
S 52/60	Air	HS	N			4/14/2011	1237	1242	30	30	P	
S 53/54	Air	HS	N			4/8/2011	1656	1701	30	30	P	
S 54/55	Air	HS	N			4/8/2011	1706	1711	30	30	P	
S 55/56	Air	HS	N			4/8/2011	1716	1721	30	30	P	
S 56/57	Air	HS	N			4/8/2011	1731	1736	30	30	P	
S 57/75	Air	HS	N			4/14/2011	1251	1256	30	30	P	
S 58/59	Air	JM	N			4/8/2011	1738	1743	30	30	P	
S 58/59	Air	JM	N			4/14/2011	1058	1104	30	30	P	
S 58/85	Air	JM	N			4/14/2011	1058	1104	30	30	P	
S 58/1000	Air	JM	N	A	29	4/8/2011	1751	1756	30	30	P	
S 58/1000	Air	JM	N	B	9	4/8/2011	1740	1745	30	30	P	
S 59/1000	Air	JM	N	A	15	4/8/2011	1742	1747	30	30	P	
S 59/1000	Air	JM	N	B	21	4/8/2011	1751	1756	30	30	P	
S 59/1000	Air	HS	N	C	22	4/8/2011	1753	1758	30	30	P	
S 59/1000	Air	HS	N	D	22	4/8/2011	1752	1757	30	30	P	
S 59/1000	Air	HS	N	E	22	4/8/2011	1746	1751	30	30	P	
S 59/1000	Air	HS	N	F	22	4/8/2011	1745	1750	30	30	P	

Table 14

Geomembrane Seams Non-Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Reference	Test Type	NDT Oper	Whole Seam	Part Label	Length	Testing Date	Time Start (1)	Time Stop (1)	Pressure Start (1)	Pressure Stop (1)	Pass/Fail	Comments
S 59/1000	Air	HS	N	G	22	4/8/2011	1740	1745	30	30	P	
S 60/61	Air	HS	N			4/14/2011	1231	1233	30	30	P	
S 60/85	Air	JM	N			4/14/2011	1115	1120	30	30	P	
S 60/86	Air	HS	N			4/14/2011	1243	1248	30	30	P	
S 61/62	Air	JM	N			4/14/2011	1342	1347	30	30	P	
S 61/63	Air	HS	N			4/14/2011	1304	1309	30	30	P	
S 61/76	Air	HS	N			4/14/2011	1311	1316	30	30	P	
S 61/85	Air	JM	N			4/14/2011	1220	1125	30	30	P	
S 61/86	Air	HS	N			4/14/2011	1244	1249	30	30	P	
S 62/63	Air	HS	N			4/14/2011	1332	1337	30	30	P	
S 62/64	Air	JM	N			4/14/2011	1348	1353	30	30	P	
S 62/85	Air	JM	N			4/14/2011	1124	1129	30	30	P	
S 63/64	Air	HS	N			4/14/2011	1305	1310	30	30	P	
S 63/77	Air	HS	N			4/14/2011	1312	1317	30	30	P	
S 64/65	Air	JM	N			4/14/2011	1354	1359	30	30	P	
S 64/66	Air	HS	N			4/14/2011	1411	1416	30	30	P	
S 64/78	Air	HS	N			4/14/2011	1318	1323	30	30	P	
S 64/85	Air	JM	N			4/14/2011	1128	1153	30	30	P	
S 65/66	Air	HS	N			4/14/2011	1342	1347	30	30	P	
S 65/67	Air	JM	N			4/14/2011	1355	1400	30	30	P	
S 65/85	Air	JM	N			4/14/2011	1130	1135	30	30	P	
S 66/67	Air	HS	N	A	146	4/14/2011	1340	1345	30	30	P	
S 66/67	Air	HS	N	B	57	4/14/2011	1350	1355	30	30	P	

Table 14

Geomembrane Seams Non-Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Reference	Test Type	NDT Oper	Whole Seam	Part Label	Length	Testing Date	Time Start (1)	Time Stop (1)	Pressure Start (1)	Pressure Stop (1)	Pass/Fail	Comments
S 66/68	Air	HS	N			4/14/2011	1358	1403	30	30	P	
S 66/79	Air	HS	N			4/14/2011	1326	1331	30	30	P	
S 67/68	Air	HS	N			4/14/2011	1352	1357	30	30	P	
S 67/69	Air	JM	N			4/14/2011	1402	1407	30	30	P	
S 67/85	Air	JM	N			4/14/2011	1154	1159	30	30	P	
S 68/69	Air	HS	N			4/14/2011	1404	1409	30	30	P	
S 68/80	Air	HS	N			4/14/2011	1418	1423	30	30	P	
S 69/70	Air	JM	N			4/14/2011	1403	1408	30	30	P	
S 69/71	Air	HS	N			4/14/2011	1431	1436	30	30	P	
S 69/81	Air	HS	N			4/14/2011	1425	1430	30	30	P	
S 69/85	Air	JM	N			4/14/2011	1156	1201	30	30	P	
S 70/71	Air	HS	N			4/14/2011	1447	1452	30	30	P	
S 70/72	Air	JM	N			4/14/2011	1409	1414	30	30	P	
S 70/85	Air	JM	N			4/14/2011	1250	1255	30	30	P	
S 71/72	Air	HS	N			4/14/2011	1447	1452	30	30	P	
S 71/73	Air	HS	N			4/14/2011	1432	1437	30	30	P	
S 71/82	Air	JM	N			4/14/2011	1506	1511	30	30	P	
S 72/73	Air	HS	N			4/14/2011	1439	1444	30	30	P	
S 72/74	Air	JM	N			4/14/2011	1411	1416	30	30	P	
S 72/85	Air	JM	N			4/14/2011	1255	1300	30	30	P	
S 73/74	Air	HS	N			4/14/2011	1440	1445	30	30	P	
S 73/83	Air	JM	N			4/14/2011	1513	1518	30	30	P	
S 74/84	Air	JM	N			4/14/2011	1510	1515	30	30	P	

Table 14

Geomembrane Seams Non-Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Reference	Test Type	NDT Oper	Whole Seam	Part Label	Length	Testing Date	Time Start (1)	Time Stop (1)	Pressure Start (1)	Pressure Stop (1)	Pass/Fail	Comments
S 74/85	Air	JM	N			4/14/2011	1257	1303	30	30	P	
S 74/87	Air	JM	N			4/14/2011	1415	1420	30	30	P	
S 74/88	Air	JM	N			4/14/2011	1445	1450	30	30	P	
S 74/89	Air	JM	N			4/14/2011	1500	1505	30	30	P	
S 75/76	Air	HS	N			4/14/2011	1257	1302	30	30	P	
S 75/86	Air	HS	N			4/14/2011	1250	1255	30	30	P	
S 76/77	Air	HS	N			4/14/2011	1258	1303	30	30	P	
S 77/78	Air	HS	N			4/14/2011	1318	1323	30	30	P	
S 78/79	Air	HS	N			4/14/2011	1325	1330	30	30	P	
S 79/80	Air	HS	N			4/14/2011	1412	1417	30	30	P	
S 80/81	Air	HS	N			4/14/2011	1419	1424	30	30	P	
S 81/82	Air	HS	N			4/14/2011	1425	1430	30	30	P	
S 82/83	Air	JM	N			4/14/2011	1506	1511	30	30	P	
S 83/84	Air	JM	N			4/14/2011	1510	1515	30	30	P	
S 84/96	Air	JM	N			4/14/2011	1515	1520	30	30	P	
S 85/87	Air	JM	N			4/14/2011	1303	1308	30	30	P	
S 85/1000	Air	JM	N	A	22	4/14/2011	1148	1153	30	30	P	
S 85/1000	Air	JM	N	B	22	4/14/2011	1145	1150	30	30	P	
S 85/1000	Air	JM	N	C	22	4/14/2011	1142	1147	30	30	P	
S 85/1000	Air	JM	N	D	22	4/14/2011	1140	1145	30	30	P	
S 85/1000	Air	JM	N	E	22	4/14/2011	1137	1142	30	30	P	
S 85/1000	Air	JM	N	F	22	4/14/2011	1134	1139	30	30	P	
S 85/1000	Air	JM	N	G	22	4/14/2011	1118	1123	30	30	P	

Table 14

Geomembrane Seams Non-Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Reference	Test Type	NDT Oper	Whole Seam	Part Label	Length	Testing Date	Time Start (1)	Time Stop (1)	Pressure Start (1)	Pressure Stop (1)	Pass/Fail	Comments
S 85/1000	Air	JM	N	H	22	4/14/2011	1111	1116	30	30	P	
S 85/1000	Air	JM	N	I	22	4/14/2011	1105	1110	30	30	P	
S 85/1000	Air	JM	N	J	22	4/14/2011	1103	1108	30	30	P	
S 87/88	Air	JM	N			4/14/2011	1447	1452	30	30	P	
S 87/90	Air	JM	N			4/14/2011	1419	1424	30	30	P	
S 87/1000	Air	JM	N			4/14/2011	1305	1310	30	30	P	
S 88/89	Air	JM	N			4/14/2011	1454	1459	30	30	P	
S 88/90	Air	JM	N			4/14/2011	1443	1448	30	30	P	
S 89/90	Air	JM	N			4/14/2011	1456	1501	30	30	P	
S 89/96	Air	TW	N			4/14/2011	1516	1521	30	30	P	
S 90/91	Air	JM	N			4/14/2011	1328	1333	30	30	P	
S 90/92	Air	JM	N			4/14/2011	1437	1442	30	30	P	
S 90/97	Air	JM	N			4/14/2011	1516	1521	30	30	P	
S 90/1000	Air	JM	N			4/14/2011	1309	1314	30	30	P	
S 91/92	Air	JM	N			4/14/2011	1334	1339	30	30	P	
S 91/93	Air	JM	N			4/14/2011	1323	1327	30	30	P	
S 91/1000	Air	JM	N			4/14/2011	1310	1315	30	30	P	
S 92/93	Air	JM	N	A	8	4/14/2011	1335	1340	30	30	P	
S 92/93	Air	JM	N	B	178	4/14/2011	1438	1443	30	30	P	
S 92/94	Air	JM	N			4/14/2011	1428	1433	30	30	P	
S 92/98	Air	JM	N			4/14/2011	1521	1526	30	30	P	
S 93/94	Air	JM	N			4/14/2011	1430	1435	30	30	P	
S 93/95	Air	JM	N			4/14/2011	1324	1329	30	30	P	

Table 14

Geomembrane Seams Non-Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Reference	Test Type	NDT Oper	Whole Seam	Part Label	Length	Testing Date	Time Start (1)	Time Stop (1)	Pressure Start (1)	Pressure Stop (1)	Pass/Fail	Comments
S 93/1000	Air	JM	N			4/14/2011	1315	1320	30	30	P	
S 94/95	Air	JM	N			4/14/2011	1423	1428	30	30	P	
S 94/99	Air	JM	N			4/14/2011	1523	1528	30	30	P	
S 95/100	Air	JM	N			4/14/2011	1528	1533	30	30	P	
S 95/101	Air	JM	N			4/15/2011	1450	1455	30	30	P	
S 95/116	Air	JM	N			4/15/2011	1629	1634	30	30	P	
S 95/117	Air	JM	N			4/15/2011	1627	1632	30	30	P	
S 95/118	Air	JM	N			4/15/2011	1623	1628	30	30	P	
S 95/1000	Air	JM	N			4/14/2011	1316	1321	30	30	P	
S 96/97	Air	JM	N			4/14/2011	1516	1521	30	30	P	
S 97/98	Air	JM	N			4/14/2011	1519	1524	30	30	P	
S 98/99	Air	JM	N			4/14/2011	1522	1527	30	30	P	
S 99/100	Air	JM	N			4/14/2011	1525	1530	30	30	P	
S 100/102	Air	JM	N			4/15/2011	1457	1502	30	30	P	
S 101/102	Air	JM	N			4/15/2011	1504	1509	30	30	P	
S 101/104	Air	JM	N			4/15/2011	1555	1600	30	30	P	
S 101/105	Air	JM	N			4/15/2011	1552	1557	30	30	P	
S 101/106	Air	JM	N			4/15/2011	1551	1556	30	30	P	
S 101/107	Air	JM	N			4/15/2011	1549	1554	30	30	P	
S 101/108	Air	JM	N			4/15/2011	1547	1552	30	30	P	
S 101/109	Air	JM	N			4/15/2011	1546	1551	30	30	P	
S 101/110	Air	JM	N			4/15/2011	1544	1549	30	30	P	
S 101/111	Air	JM	N			4/15/2011	1542	1547	30	30	P	

Table 14

Geomembrane Seams Non-Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Reference	Test Type	NDT Oper	Whole Seam	Part Label	Length	Testing Date	Time Start (1)	Time Stop (1)	Pressure Start (1)	Pressure Stop (1)	Pass/Fail	Comments
S 101/112	Air	JM	N			4/15/2011	1541	1546	30	30	P	
S 101/113	Air	JM	N			4/15/2011	1539	1544	30	30	P	
S 101/114	Air	JM	N			4/15/2011	1535	1540	30	30	P	
S 101/115	Air	JM	N			4/15/2011	1534	1539	30	30	P	
S 101/116	Air	JM	N			4/15/2011	1601	1606	30	30	P	
S 102/103	Air	JM	N			4/15/2011	1505	1510	30	30	P	
S 103/104	Air	JM	N			4/15/2011	1507	1512	30	30	P	
S 104/105	Air	JM	N			4/15/2011	1509	1514	30	30	P	
S 105/106	Air	JM	N			4/15/2011	1510	1515	30	30	P	
S 106/107	Air	JM	N			4/15/2011	1511	1516	30	30	P	
S 107/108	Air	JM	N			4/15/2011	1514	1519	30	30	P	
S 108/109	Air	JM	N			4/15/2011	1516	1521	30	30	P	
S 109/110	Air	JM	N			4/15/2011	1517	1521	30	30	P	
S 110/111	Air	JM	N			4/15/2011	1521	1526	30	30	P	
S 111/112	Air	JM	N			4/15/2011	1525	1530	30	30	P	
S 112/113	Air	JM	N			4/15/2011	1527	1532	30	30	P	
S 113/114	Air	JM	N			4/15/2011	1528	1533	30	30	P	
S 114/115	Air	JM	N			4/15/2011	1531	1536	30	30	P	
S 115/116	Air	JM	N			4/15/2011	1603	1608	30	30	P	
S 116/117	Air	JM	N	A	22	4/15/2011	1609	1614	30	30	P	
S 116/117	Air	JM	N	B	21	4/15/2011	1609	1614	30	30	P	
S 117/118	Air	JM	N			4/15/2011	1630	1618	30	30	P	
S 117/119	Air	JM	N			4/15/2011	1632	1637	30	30	P	

Table 14

Geomembrane Seams Non-Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Seam Reference	Test Type	NDT Oper	Whole Seam	Part Label	Length	Testing Date	Time Start (1)	Time Stop (1)	Pressure Start (1)	Pressure Stop (1)	Pass/Fail	Comments
S 118/119	Air	JM	N			4/15/2011	1650	1655	30	30	P	
S 118/120	Air	JM	N			4/15/2011	1653	1658	30	30	P	
S 118/121	Air	JM	N			4/15/2011	1655	1700	30	30	P	
S 118/1000	Air	JM	N			4/15/2011	1726	1731	30	30	P	
S 119/120	Air	JM	N			4/15/2011	1638	1643	30	30	P	
S 120/121	Air	JM	N			4/15/2011	1641	1646	30	30	P	
S 121/1000	Air	JM	N			4/15/2011	1726	1731	30	30	P	

NOTES:
(1) The maximum allowable pressure loss over a five-minute period is 2 psig.

Geomembrane Repair Information

Table 16

Geomembrane Repairs Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Repair Number	Panels	Cause (1)	Repair Date	Repair Type	Size (ft) W x L	Oper.	Mach.	Time	Passing NDT Oper/Dt	Comments/Location
R 1	1 - 1000 - -	TI	4/6/2011	Patch	2 x 2	RC	14	1057	JM 4/6/2011	
R 2	3 - 1000 - -	TI	4/6/2011	Patch	3 x 3	RC	14	1035	TW 4/6/2011	
R 3	1 - 3 - 4 -	CS	4/6/2011	Patch	3 x 3	RC	14	937	TW 4/6/2011	
R 4	3 - 4 - 5 -	CS	4/6/2011	Patch	2 x 2	RC	14	930	TW 4/6/2011	
R 5	2 - 5 - 7 -	CS	4/6/2011	Patch	2 x 2	RC	14	922	TW 4/6/2011	
R 6	2 - 7 - 8 -	CS	4/6/2011	Patch	2 x 2	RC	14	915	TW 4/6/2011	
R 7	2 - 8 - 10 -	CS	4/6/2011	Patch	2 x 6	RC	14	900	TW 4/6/2011	
R 8	7 - 8 - 9 -	CS	4/6/2011	Patch	2 x 2	PM	17	751	HS 4/6/2011	
R 9	8 - 9 - 10 -	CS	4/6/2011	Patch	2 x 2	PM	17	758	HS 4/6/2011	
R 10	5 - 6 - 7 -	CS	4/6/2011	Patch	2 x 2	PM	17	821	HS 4/6/2011	
R 11	4 - 5 - 6 -	CS	4/6/2011	Patch	2 x 2	PM	17	817	HS 4/6/2011	
R 12	1 - 4 - -	AT	4/6/2011	Patch	2 x 3	PM	17	904	TW 4/6/2011	
R 13	4 - 6 - 13 - 14	CS	4/6/2011	Patch	2 x 3	PM	17	924	TW 4/6/2011	
R 14	6 - 7 - 14 - 15	CS	4/6/2011	Patch	2 x 3	PM	17	946	TW 4/6/2011	
R 15	7 - 9 - 15 - 16	CS	4/6/2011	Patch	2 x 6	PM	17	1003	TW 4/6/2011	
R 15	9 - 11 - 16 - 17	CS	4/6/2011	Patch	2 x 2	PM	17	1008	TW 4/6/2011	
R 17	11 - 12 - 17 - 18	CS	4/6/2011	Patch	2 x 3	PM	17	1015	TW 4/6/2011	
R 18	9 - 10 - 11 -	CS	4/6/2011	Patch	2 x 2	PM	17	848	TW 4/6/2011	
R 19	10 - 11 - 12 -	CS	4/6/2011	Patch	2 x 2	PM	17	840	TW 4/6/2011	
R 20	1 - 4 - 13 -	CS	4/6/2011	Patch	2 x 4	PM	17	918	TW 4/6/2011	
R 21	2 - 1000 - -	TI	4/6/2011	Patch	2 x 2	RC	14	950	TW 4/6/2011	
R 22	2 - 1000 - -	TI	4/6/2011	Patch	2 x 2	RC	14	954	TW 4/6/2011	
R 23	2 - 1000 - -	TI	4/6/2011	Patch	2 x 2	RC	14	1000	TW 4/6/2011	
R 24	2 - 1000 - -	TI	4/6/2011	Patch	2 x 2	RC	14	1005	TW 4/6/2011	

Table 16

Geomembrane Repairs Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Repair Number	Panels	Cause (1)	Repair Date	Repair Type	Size (ft) W x L	Oper.	Mach.	Time	Passing NDT Oper/Dt	Comments/Location
R 25	2 - 1000 - -	TI	4/6/2011	Patch	3 x 3	RC	14	1011	TW 4/6/2011	
R 26	2 - 3 - 5 -	CS	4/6/2011	Patch	2 x 2	RC	14	931	TW 4/6/2011	
R 27	8 - 10 - -	FM	4/6/2011	Patch	2 x 6	RC	14	911	TW 4/6/2011	
R 28	2 - 3 - 1000 -	CS	4/6/2011	Patch	3 x 3	RC	14	1020	TW 4/6/2011	
R 29	17 - 18 - -	AT	4/6/2011	Patch	2 x 3	PM	17	1021	TW 4/6/2011	
R 30	16 - 17 - -	AT	4/6/2011	Patch	2 x 3	PM	17	1026	TW 4/6/2011	
R 31	2 - 10 - 12 -	CS	4/6/2011	Patch	2 x 3	RC	14	902	TW 4/6/2011	
R 32	2 - 12 - -	BO	4/6/2011	Patch	3 x 3	RC	14	904	TW 4/6/2011	
R 33	6 - 14 - -	OP	4/4/2011	Patch	2 x 22	RC	18	1630	TW 4/6/2011	
R 34	1 - 4 - -	DT	4/6/2011	Patch	2 x 6	PM	17	805	HS 4/6/2011	
R 35	5 - 6 - -	DT	4/6/2011	Patch	2 x 6	PM	17	818	HS 4/6/2011	
R 36	6 - 7 - -	DT	4/6/2011	Patch	2 x 6	PM	17	859	HS 4/6/2011	
R 37	7 - 9 - -	DT	4/6/2011	Patch	2 x 6	PM	17	854	TW 4/6/2011	
R 38	9 - 10 - -	DT	4/6/2011	Patch	2 x 6	PM	17	835	TW 4/6/2011	
R 39	10 - 12 - -	DT	4/6/2011	Patch	2 x 6	RC	14	900	TW 4/6/2011	
R 40	2 - 1000 - -	TI	4/6/2011	Patch	2 x 2	RC	14	1015	TW 4/6/2011	
R 41	2 - 1000 - -	OP	4/4/2011	Patch	2 x 19	PM	9	1826	TW 4/6/2011	
R 42	3 - 1000 - -	TI	4/6/2011	Patch	2 x 2	RC	14	1030	TW 4/6/2011	
R 43	3 - 1000 - -	OP	4/4/2011	Patch	2 x 19	PM	9	1846	TW 4/6/2011	
R 44	1 - 3 - 1000 -	CS	4/6/2011	Patch	2 x 2	RC	14	1040	TW 4/6/2011	
R 45	1 - 1000 - -	OP	4/4/2011	Patch	2 x 15	PM	9	1853	TW 4/6/2011	
R 46	1 - 3 - 1000 -	TI	4/6/2011	Patch	2 x 2	RC	14	1043	JM 4/6/2011	
R 47	1 - 1000 - -	OP	4/4/2011	Patch	2 x 8	PM	9	1836	TW 4/6/2011	
R 48	1 - 1000 - -	TI	4/6/2011	Patch	1 x 1	RC	14	1100	JM 4/6/2011	

Table 16

Geomembrane Repairs Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Repair Number	Panels	Cause (1)	Repair Date	Repair Type	Size (ft) W x L	Oper.	Mach.	Time	Passing NDT Oper/Dt	Comments/Location
R 49	1 - 1000 - -	TI	4/6/2011	Patch	2 x 2	RC	14	1103	JM 4/6/2011	
R 50	2 - 1000 - -	TI	4/9/2011	Patch	2 x 3	RC	14	757	JM 4/9/2011	
R 51	2 - 19 - 1000 -	CS	4/9/2011	Patch	2 x 2	RC	14	755	JM 4/9/2011	
R 52	2 - 12 - 19 - 20	CS	4/9/2011	Patch	3 x 6	RC	14	738	JM 4/9/2011	
R 53	19 - 20 - 21 -	CS	4/9/2011	Patch	2 x 2	RC	14	741	JM 4/9/2011	
R 54	19 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	759	JM 4/9/2011	
R 55	19 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	804	JM 4/9/2011	
R 56	19 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	809	JM 4/9/2011	
R 57	19 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	818	JM 4/9/2011	
R 58	19 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	1326	JM 4/9/2011	
R 59	19 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	1321	JM 4/9/2011	
R 60	19 - 1000 - -	DT	4/9/2011	Patch	2 x 6	RC	14	1315	JM 4/9/2011	
R 61	19 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	1309	JM 4/9/2011	
R 62	19 - 59 - 1000 -	CS	4/9/2011	Patch	3 x 3	RC	14	1305	JM 4/9/2011	
R 63	19 - 29 - 59 -	CS	4/9/2011	Patch	2 x 2	RC	14	933	JM 4/9/2011	
R 64	19 - 27 - 29 -	CS	4/9/2011	Patch	2 x 2	RC	14	910	JM 4/9/2011	
R 65	19 - 26 - 27 -	CS	4/9/2011	Patch	2 x 2	RC	14	900	JM 4/9/2011	
R 66	19 - 24 - 26 -	CS	4/9/2011	Patch	2 x 2	RC	14	849	JM 4/9/2011	
R 67	19 - 23 - 24 -	CS	4/9/2011	Patch	2 x 2	RC	14	832	JM 4/9/2011	
R 68	19 - 21 - 23 -	CS	4/9/2011	Patch	2 x 2	RC	14	826	JM 4/9/2011	
R 69	29 - 31 - 59 -	CS	4/9/2011	Patch	2 x 2	RC	14	944	JM 4/9/2011	
R 70	31 - 32 - 59 -	CS	4/9/2011	Patch	2 x 2	RC	14	957	JM 4/9/2011	
R 71	32 - 33 - 59 -	CS	4/9/2011	Patch	2 x 2	RC	14	1006	JM 4/9/2011	
R 72	33 - 45 - 59 -	CS	4/9/2011	Patch	2 x 3	RC	14	1017	JM 4/9/2011	

Table 16

Geomembrane Repairs Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Repair Number	Panels	Cause (1)	Repair Date	Repair Type	Size (ft) W x L	Oper.	Mach.	Time	Passing NDT Oper/Dt	Comments/Location
R 73	45 - 46 - 59 -	CS	4/9/2011	Patch	3 x 6	RC	14	1035	JM 4/9/2011	
R 74	46 - 48 - 59 -	CS	4/9/2011	Patch	2 x 2	RC	14	1042	JM 4/9/2011	
R 75	48 - 50 - 59 -	CS	4/9/2011	Patch	2 x 3	RC	14	1050	FR 4/9/2011	
R 76	50 - 58 - 59 -	CS	4/9/2011	Patch	2 x 6	RC	14	1051	FR 4/9/2011	
R 77	50 - 51 - 58 -	CS	4/9/2011	Patch	2 x 3	RC	14	1111	FR 4/9/2011	
R 78	46 - 47 - 48 -	CS	4/9/2011	Patch	2 x 2	PM	17	846	JM 4/9/2011	
R 79	45 - 46 - 47 -	CS	4/9/2011	Patch	2 x 2	PM	17	842	JM 4/9/2011	
R 80	50 - 51 - 52 -	CS	4/9/2011	Patch	2 x 2	PM	17	830	JM 4/9/2011	
R 81	52 - - -	DE	4/9/2011	Patch	2 x 1	PM	17	827	JM 4/9/2011	
R 82	48 - 49 - 50 -	CS	4/9/2011	Patch	2 x 2	PM	17	824	FR 4/9/2011	
R 83	47 - 48 - 49 -	CS	4/9/2011	Patch	2 x 2	PM	17	810	FR 4/9/2011	
R 84	47 - 49 - -	BO	4/9/2011	Patch	2 x 3	PM	17	814	FR 4/9/2011	
R 85	33 - 34 - 45 -	CS	4/9/2011	Patch	2 x 2	PM	17	800	FR 4/9/2011	
R 86	32 - 33 - 34 -	CS	4/9/2011	Patch	2 x 2	PM	17	756	FR 4/9/2011	
R 87	30 - 31 - -	DT	4/9/2011	Patch	2 x 6	PM	17	751	FR 4/9/2011	
R 88	31 - 32 - -	DE	4/9/2011	Patch	2 x 2	PM	17	803	FR 4/9/2011	
R 89	29 - 30 - 31 -	CS	4/9/2011	Patch	2 x 2	PM	17	749	FR 4/9/2011	
R 90	27 - 29 - 30 -	CS	4/9/2011	Patch	2 x 2	PM	17	731	FR 4/9/2011	
R 91	27 - 30 - -	BO	4/9/2011	Patch	2 x 3	PM	17	745	FR 4/9/2011	
R 92	27 - 29 - -	DT	4/9/2011	Patch	2 x 6	RC	14	917	JM 4/9/2011	
R 93	26 - 27 - -	DT	4/9/2011	Patch	2 x 6	PM	17	854	JM 4/9/2011	
R 94	24 - 25 - 26 -	CS	4/9/2011	Patch	2 x 2	PM	17	908	JM 4/9/2011	
R 95	23 - 24 - 25 -	CS	4/9/2011	Patch	2 x 2	PM	17	912	JM 4/9/2011	
R 96	21 - 23 - -	DT	4/9/2011	Patch	2 x 6	PM	17	957	FR 4/9/2011	

Table 16

Geomembrane Repairs Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Repair Number	Panels	Cause (1)	Repair Date	Repair Type	Size (ft) W x L	Oper.	Mach.	Time	Passing NDT Oper/Dt	Comments/Location
R 97	20 - 21 - -	DT	4/9/2011	Patch	2 x 6	PM	17	943	JM 4/9/2011	
R 98	12 - 20 - -	DT	4/9/2011	Patch	2 x 6	PM	17	927	JM 4/9/2011	
R 99	21 - 22 - 23 -	CS	4/9/2011	Patch	2 x 2	PM	17	1010	FR 4/9/2011	
R 100	20 - 21 - 22 -	CS	4/9/2011	Patch	2 x 2	PM	17	1005	FR 4/9/2011	
R 101	25 - 26 - -	DT	4/9/2011	Patch	2 x 6	PM	17	1011	FR 4/9/2011	
R 102	25 - 26 - 28 -	CS	4/9/2011	Patch	2 x 2	PM	17	1019	FR 4/9/2011	
R 103	26 - 27 - 28 -	CS	4/9/2011	Patch	2 x 2	PM	17	1021	FR 4/9/2011	
R 104	23 - 25 - -	DT	4/9/2011	Patch	2 x 6	PM	17	1025	FR 4/9/2011	
R 105	12 - 18 - 20 - 35	CS	4/9/2011	Patch	4 x 5	PM	17	1041	FR 4/9/2011	
R 106	20 - 22 - 35 - 36	CS	4/9/2011	Patch	3 x 3	PM	17	1050	FR 4/9/2011	
R 107	22 - 23 - 36 - 37	CS	4/9/2011	Patch	2 x 3	PM	17	1058	FR 4/9/2011	
R 108	23 - 25 - 37 - 38	CS	4/9/2011	Patch	2 x 3	PM	17	1107	FR 4/9/2011	
R 109	25 - 28 - 38 - 39	CS	4/9/2011	Patch	2 x 3	PM	17	1110	FR 4/9/2011	
R 110	31 - 32 - -	DT	4/9/2011	Patch	2 x 6	PM	17	1145	FR 4/9/2011	
R 111	27 - 28 - 39 - 40	CS	4/9/2011	Patch	2 x 3	PM	17	1117	FR 4/9/2011	
R 112	27 - 30 - 40 - 41	CS	4/9/2011	Patch	2 x 3	PM	17	1123	FR 4/9/2011	
R 113	30 - 31 - 41 - 42	CS	4/9/2011	Patch	2 x 3	PM	17	1130	FR 4/9/2011	
R 114	31 - 32 - 42 - 43	CS	4/9/2011	Patch	2 x 3	PM	17	1135	FR 4/9/2011	
R 115	32 - 34 - 43 - 44	CS	4/9/2011	Patch	2 x 2	PM	17	1105	FR 4/9/2011	
R 116	34 - 44 - -	DT	4/9/2011	Patch	2 x 6	PM	17	1158	FR 4/9/2011	
R 117	34 - 44 - 45 - 53	CS	4/9/2011	Patch	2 x 3	PM	17	1255	FR 4/9/2011	
R 118	45 - 47 - 53 - 54	CS	4/9/2011	Patch	2 x 3	PM	17	1302	FR 4/9/2011	
R 119	47 - 49 - 54 - 55	CS	4/9/2011	Patch	2 x 6	PM	17	1310	FR 4/9/2011	
R 120	49 - 50 - 55 - 56	CS	4/9/2011	Patch	2 x 6	PM	17	1328	FR 4/9/2011	

Table 16

Geomembrane Repairs Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Repair Number	Panels	Cause (1)	Repair Date	Repair Type	Size (ft) W x L	Oper.	Mach.	Time	Passing NDT Oper/Dt	Comments/Location
R 121	50 - 56 - -	BO	4/9/2011	Patch	2 x 6	PM	17	1335	FR 4/9/2011	
R 122	50 - 52 - 56 - 57	CS	4/9/2011	Patch	2 x 7	PM	17	1341	FR 4/9/2011	
R 123	85 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	1330	JM 4/9/2011	
R 124	58 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	1113	JM 4/9/2011	
R 125	57 - 75 - -	AT	4/14/2011	Patch	2 x 3	PM	17	1523	JM 4/15/2011	
R 126	58 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	1117	JM 4/9/2011	
R 127	58 - 59 - 1000 -	CS	4/9/2011	Patch	2 x 2	RC	14	1119	JM 4/9/2011	
R 128	59 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	1125	JM 4/9/2011	
R 129	59 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	1130	JM 4/9/2011	
R 130	59 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	1135	JM 4/9/2011	
R 131	59 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	1140	JM 4/9/2011	
R 132	59 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	1145	JM 4/9/2011	
R 133	59 - 1000 - -	TI	4/9/2011	Patch	2 x 2	RC	14	1300	JM 4/9/2011	
R 134	33 - 45 - -	DT	4/9/2011	Patch	2 x 6	RC	14	1340	JM 4/9/2011	
R 135	45 - 47 - -	DT	4/9/2011	Patch	2 x 6	RC	14	1405	JM 4/9/2011	
R 136	47 - 48 - -	DT	4/9/2011	Patch	2 x 6	PM	17	1400	JM 4/9/2011	
R 137	48 - 50 - -	DT	4/9/2011	Patch	2 x 6	RC	14	1358	JM 4/9/2011	
R 138	58 - 59 - -	DT	4/9/2011	Patch	2 x 6	RC	14	1348	JM 4/9/2011	
R 139	56 - 57 - -	DT	4/9/2011	Patch	2 x 6	PM	17	1347	FR 4/9/2011	
R 140	58 - 85 - 1000 -	CS	4/14/2011	Patch	5 x 8	RC	14	1400	TW 4/14/2011	
R 141	51 - 58 - 60 - 85	CS	4/14/2011	Patch	3 x 3	RC	14	1517	TW 4/14/2011	
R 142	51 - 60 - -	DT	4/14/2011	Patch	2 x 6	PM	17	1347	TW 4/14/2011	
R 143	51 - 52 - 60 -	CS	4/14/2011	Patch	2 x 2	PM	17	1350	TW 4/14/2011	
R 144	60 - 61 - -	DT	4/14/2011	Patch	2 x 6	RC	14	1527	TW 4/14/2011	

Table 16

Geomembrane Repairs Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Repair Number	Panels	Cause (1)	Repair Date	Repair Type	Size (ft) W x L	Oper.	Mach.	Time	Passing NDT Oper/Dt	Comments/Location
R 145	60 - 61 - 85 -	CS	4/14/2011	Patch	2 x 2	RC	14	1507	TW 4/14/2011	
R 146	85 - 1000 - -	TI	4/14/2011	Patch	2 x 2	RC	14	1405	TW 4/14/2011	
R 147	85 - 1000 - -	TI	4/14/2011	Patch	2 x 2	RC	14	1410	TW 4/14/2011	
R 148	85 - 1000 - -	TI	4/14/2011	Patch	2 x 2	RC	14	1415	TW 4/14/2011	
R 149	85 - 1000 - -	TI	4/14/2011	Patch	2 x 2	RC	14	1420	TW 4/14/2011	
R 150	85 - 1000 - -	TI	4/14/2011	Patch	2 x 2	RC	14	1425	TW 4/14/2011	
R 151	85 - 1000 - -	TI	4/14/2011	Patch	2 x 2	RC	14	1430	TW 4/14/2011	
R 152	85 - 1000 - -	TI	4/14/2011	Patch	2 x 2	RC	14	1435	TW 4/14/2011	
R 153	85 - 1000 - -	DT	4/14/2011	Patch	2 x 6	RC	14	1440	TW 4/14/2011	
R 154	85 - 1000 - -	TI	4/14/2011	Patch	2 x 2	RC	14	1615	TW 4/14/2011	
R 155	85 - 1000 - -	TI	4/14/2011	Patch	2 x 2	RC	14	1445	TW 4/14/2011	
R 156	72 - 74 - 85 -	CS	4/14/2011	Patch	2 x 2	RC	14	1605	TW 4/14/2011	
R 157	72 - 74 - -	DT	4/14/2011	Patch	2 x 6	RC	14	1610	TW 4/14/2011	
R 158	70 - 72 - 85 -	CS	4/14/2011	Patch	2 x 2	RC	14	1601	TW 4/14/2011	
R 159	69 - 70 - 85 -	CS	4/14/2011	Patch	2 x 2	RC	14	1558	TW 4/14/2011	
R 160	67 - 69 - 85 -	CS	4/14/2011	Patch	2 x 2	RC	14	1555	TW 4/14/2011	
R 161	65 - 67 - 85 -	CS	4/14/2011	Patch	2 x 2	RC	14	1505	TW 4/14/2011	
R 162	64 - 65 - 85 -	CS	4/14/2011	Patch	2 x 2	RC	14	1450	TW 4/14/2011	
R 163	62 - 64 - 85 -	CS	4/14/2011	Patch	2 x 2	RC	14	1455	TW 4/14/2011	
R 164	61 - 62 - 85 -	CS	4/14/2011	Patch	2 x 2	RC	14	1500	TW 4/14/2011	
R 165	61 - 62 - -	DT	4/14/2011	Patch	2 x 6	PM	17	1408	TW 4/15/2011	
R 166	61 - 62 - 63 -	CS	4/14/2011	Patch	2 x 2	PM	17	1415	TW 4/15/2011	
R 167	62 - 63 - 64 -	CS	4/14/2011	Patch	2 x 2	PM	17	1418	TW 4/15/2011	
R 168	63 - 64 - -	DT	4/14/2011	Patch	2 x 6	PM	17	1427	TW 4/15/2011	

Table 16

Geomembrane Repairs Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Repair Number	Panels	Cause (1)	Repair Date	Repair Type	Size (ft) W x L	Oper.	Mach.	Time	Passing NDT Oper/Dt	Comments/Location
R 169	52 - - -	DE	4/14/2011	Patch	2 x 9	PM	17	1537	TW 4/14/2011	
R 170	60 - 61 - -	DE	4/14/2011	Patch	2 x 2	PM	17	1440	TW 4/15/2011	
R 171	52 - 57 - 60 - 75	OP	4/14/2011	Patch	3 x 12	PM	17	1519	TW 4/15/2011	Also Panel 86
R 172	60 - 61 - 86 -	CS	4/14/2011	Patch	2 x 2	PM	17	1530	TW 4/15/2011	
R 173	61 - 75 - 76 - 86	CS	4/14/2011	Patch	2 x 3	PM	17	1534	JM 4/15/2011	
R 174	61 - 63 - 76 - 77	CS	4/14/2011	Patch	2 x 3	PM	17	1538	TW 4/15/2011	
R 175	63 - 64 - 77 - 78	CS	4/14/2011	Patch	2 x 3	PM	17	1541	TW 4/15/2011	
R 176	64 - 66 - 78 - 79	CS	4/14/2011	Patch	2 x 3	PM	17	1545	JM 4/15/2011	
R 177	64 - 66 - -	DT	4/14/2011	Patch	2 x 6	PM	17	1550	JM 4/15/2011	
R 178	66 - 68 - 79 - 80	CS	4/14/2011	Patch	2 x 3	PM	17	1610	JM 4/15/2011	
R 179	68 - 69 - 80 - 81	CS	4/14/2011	Patch	2 x 3	PM	17	1612	JM 4/15/2011	
R 180	69 - 71 - 81 - 82	CS	4/14/2011	Patch	2 x 4	PM	17	1730	JM 4/15/2011	
R 181	71 - 73 - 82 - 83	CS	4/14/2011	Patch	2 x 4	PM	17	1734	JM 4/15/2011	
R 182	71 - 72 - 73 -	CS	4/14/2011	Patch	2 x 2	PM	17	1703	JM 4/15/2011	
R 183	72 - 73 - 74 -	CS	4/14/2011	Patch	2 x 2	PM	17	1700	JM 4/15/2011	
R 184	67 - 68 - 69 -	CS	4/14/2011	Patch	2 x 2	PM	17	1619	JM 4/15/2011	
R 185	66 - 67 - 68 -	CS	4/14/2011	Patch	2 x 2	PM	17	1617	JM 4/15/2011	
R 186	66 - 67 - -	BO	4/14/2011	Patch	2 x 2	PM	17	1625	JM 4/15/2011	
R 187	67 - 69 - -	DT	4/14/2011	Patch	2 x 6	PM	17	1630	JM 4/15/2011	
R 188	66 - 67 - -	DT	4/14/2011	Patch	2 x 6	RC	14	1805	JM 4/15/2011	
R 189	64 - 65 - 66 -	CS	4/14/2011	Patch	2 x 2	RC	14	1551	TW 4/14/2011	
R 190	65 - 66 - 67 -	CS	4/14/2011	Patch	2 x 2	RC	14	1548	TW 4/14/2011	
R 191	69 - 70 - 71 -	CS	4/14/2011	Patch	2 x 2	RC	14	1800	JM 4/15/2011	
R 192	70 - 71 - 72 -	CS	4/14/2011	Patch	2 x 6	RC	14	1755	JM 4/15/2011	

Table 16

Geomembrane Repairs Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Repair Number	Panels	Cause (1)	Repair Date	Repair Type	Size (ft) W x L	Oper.	Mach.	Time	Passing NDT Oper/Dt	Comments/Location
R 193	74 - 87 - 88 -	CS	4/14/2011	Patch	2 x 2	RC	14	1740	JM 4/15/2011	
R 194	87 - 88 - 90 -	CS	4/14/2011	Patch	2 x 2	RC	14	1745	JM 4/14/2011	
R 195	88 - 90 - -	DT	4/14/2011	Patch	2 x 6	PM	17	1750	JM 4/14/2011	
R 196	71 - 72 - -	DT	4/14/2011	Patch	2 x 6	PM	17	1638	JM 4/15/2011	
R 197	69 - 71 - -	DT	4/14/2011	Patch	2 x 6	PM	17	1634	JM 4/15/2011	
R 198	73 - 74 - 83 - 84	CS	4/14/2011	Patch	2 x 4	PM	17	1737	JM 4/15/2011	
R 199	74 - 84 - 89 - 96	CS	4/14/2011	Patch	2 x 4	PM	17	1740	JM 4/15/2011	
R 200	89 - 90 - 96 - 97	CS	4/14/2011	Patch	2 x 4	PM	17	1743	JM 4/15/2011	
R 201	90 - 92 - 97 - 98	CS	4/14/2011	Patch	2 x 4	PM	17	1748	JM 4/15/2011	
R 202	92 - 94 - 98 - 99	CS	4/14/2011	Patch	2 x 4	PM	17	1754	JM 4/15/2011	
R 203	94 - 95 - 99 - 100	CS	4/14/2011	Patch	2 x 4	PM	17	1800	JM 4/15/2011	
R 204	99 - 100 - -	DT	4/14/2011	Patch	2 x 6	PM	17	1805	JM 4/15/2011	
R 205	93 - 94 - 95 -	CS	4/14/2011	Patch	2 x 2	PM	17	1813	TW 4/15/2011	
R 206	93 - 94 - -	DT	4/14/2011	Patch	2 x 6	PM	17	1817	TW 4/15/2011	
R 207	92 - 93 - 94 -	CS	4/14/2011	Patch	2 x 2	PM	17	1819	TW 4/15/2011	
R 208	88 - 89 - 90 -	CS	4/14/2011	Patch	2 x 2	PM	17	1656	TW 4/15/2011	
R 209	74 - 88 - 89 -	CS	4/14/2011	Patch	2 x 2	PM	17	1650	TW 4/15/2011	
R 210	92 - 93 - -	BO	4/14/2011	Patch	2 x 7	RC	14	1725	TW 4/15/2011	
R 211	91 - 92 - 93 -	CS	4/14/2011	Patch	2 x 2	RC	14	1718	TW 4/15/2011	
R 212	90 - 91 - 92 -	CS	4/14/2011	Patch	2 x 2	RC	14	1730	TW 4/14/2011	
R 213	93 - 95 - 1000 -	CS	4/14/2011	Patch	2 x 2	RC	14	1710	TW 4/14/2011	
R 214	91 - 93 - 1000 -	CS	4/14/2011	Patch	2 x 2	RC	14	1705	TW 4/14/2011	
R 215	90 - 91 - 1000 -	CS	4/14/2011	Patch	2 x 2	RC	14	1700	TW 4/14/2011	
R 216	87 - 90 - 1000 -	CS	4/14/2011	Patch	2 x 6	RC	14	1655	TW 4/14/2011	

Table 16

Geomembrane Repairs Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Repair Number	Panels	Cause (1)	Repair Date	Repair Type	Size (ft) W x L	Oper.	Mach.	Time	Passing NDT Oper/Dt	Comments/Location
R 217	85 - 87 - 1000 -	CS	4/14/2011	Patch	4 x 12	RC	14	1645	TW 4/14/2011	
R 218	74 - 85 - 87 -	CS	4/14/2011	Patch	2 x 3	RC	14	1622	TW 4/14/2011	
R 219	77 - 78 - -	DE	4/14/2011	Patch	2 x 2	PM	17	1712	TW 4/15/2011	
R 220	95 - 100 - 101 - 102	CS	4/15/2011	Patch	2 x 4	PM	17	1724	TW 4/15/2011	
R 221	101 - 102 - 103 - 104	CS	4/15/2011	Patch	3 x 4	PM	17	1728	TW 4/15/2011	
R 222	101 - 104 - 105 -	CS	4/15/2011	Patch	2 x 2	PM	17	1732	TW 4/15/2011	
R 223	101 - 105 - 106 -	CS	4/15/2011	Patch	2 x 2	PM	17	1736	TW 4/15/2011	
R 224	101 - 106 - 107 -	CS	4/15/2011	Patch	2 x 2	PM	17	1740	TW 4/15/2011	
R 225	101 - 107 - 108 -	CS	4/15/2011	Patch	2 x 2	PM	17	1743	TW 4/15/2011	
R 226	101 - 108 - 109 -	CS	4/15/2011	Patch	2 x 2	PM	17	1745	TW 4/15/2011	
R 227	101 - 109 - 110 -	CS	4/15/2011	Patch	2 x 2	PM	17	1748	TW 4/15/2011	
R 228	101 - 110 - 111 -	CS	4/15/2011	Patch	2 x 2	PM	17	1753	TW 4/15/2011	
R 229	101 - 111 - 112 -	CS	4/15/2011	Patch	2 x 2	PM	17	1756	TW 4/15/2011	
R 230	101 - 112 - 113 -	CS	4/15/2011	Patch	2 x 2	PM	17	1803	TW 4/15/2011	
R 231	101 - 113 - 114 -	CS	4/15/2011	Patch	2 x 2	PM	17	1819	TW 4/15/2011	
R 232	101 - 114 - 115 -	CS	4/15/2011	Patch	2 x 2	PM	17	1827	TW 4/15/2011	
R 233	101 - 115 - 116 -	CS	4/15/2011	Patch	2 x 2	PM	17	1835	TW 4/15/2011	
R 234	95 - 101 - 116 -	CS	4/15/2011	Patch	4 x 4	PM	17	1847	TW 4/15/2011	
R 235	95 - 116 - 117 -	CS	4/15/2011	Patch	2 x 2	RC	14	1842	TW 4/15/2011	
R 236	116 - 117 - -	FM	4/15/2011	Patch	3 x 4	RC	14	1852	TW 4/15/2011	
R 237	95 - 117 - 118 -	CS	4/15/2011	Patch	2 x 2	RC	14	1838	TW 4/15/2011	
R 238	117 - 118 - 119 -	CS	4/15/2011	Patch	2 x 2	RC	14	1836	TW 4/15/2011	
R 239	118 - 119 - 120 -	CS	4/15/2011	Patch	2 x 2	RC	14	1828	TW 4/15/2011	
R 240	118 - 120 - 121 -	CS	4/15/2011	Patch	2 x 2	RC	14	1818	TW 4/15/2011	

Table 16

Geomembrane Repairs Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

Repair Number	Panels	Cause (1)	Repair Date	Repair Type	Size (ft) W x L	Oper.	Mach.	Time	Passing NDT Oper/Dt	Comments/Location
R 241	118 - 121 - 1000 -	CS	4/15/2011	Patch	2 x 2	RC	14	1801	TW 4/15/2011	
R 242	95 - 118 - 1000 -	CS	4/15/2011	Patch	2 x 6	RC	14	1756	TW 4/15/2011	
R 243	95 - 118 - -	DT	4/15/2011	Patch	2 x 6	RC	14	1835	TW 4/15/2011	
R 244	113 - 114 - -	DT	4/15/2011	Patch	2 x 6	PM	17	1823	TW 4/15/2011	
R 245	121 - 1000 - -	TI	4/15/2011	Patch	2 x 2	RC	14	1817	TW 4/15/2011	

NOTES:
(1) Repair Type Summary

CS	Panel/Seam Intersections
DT	Destructive Seam Sample Locations
BO	Burnouts
OP	Improper Seam Overlap
SG	Subgrade Induced Repairs
AT	Non-Destructive Test Location
AB	Release of Trapped Air Bubble
DE	Panel Defects
IN	Installation Induced Repairs
RS	Cap Strips
TI	Repairs to Existing Liner-Tie-In
DL	Drainage Layer Placement Damage

Geomembrane Seam Destructive Testing Information

Table 15

Geomembrane Seams Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

DT Num	Seam Ref	Seam Type	Sample Date	DT Oper		Field - Peel (1)					Field - Shear (2)					Pass/Fail		Repair Ref	Comments/Location
						1	2	3	4	5	1	2	3	4	5	Field	Lab		
1	S 1 / 4	FU	4/4/2011	PM	Inner	119	116	114	115	116	158	158	156	159	155	P	P	34	Machine #9
					Outer	115	113	112	114	119									
2	S 5 / 6	FU	4/4/2011	RC	Inner	122	119	117	119	116	156	159	154	164	178	P	P	35	Machine #18
					Outer	125	117	109	121	119									
3	S 6 / 7	FU	4/4/2011	RC	Inner	106	106	121	123	122	154	148	159	166	172	P	P	36	Machine #18
					Outer	123	116	131	121	125									
4	S 7 / 9	FU	4/4/2011	RC	Inner	108	109	116	113	116	180	178	176	165	160	P	P	37	Machine #18
					Outer	118	104	109	104	110									
5	S 9 / 10	FU	4/4/2011	MR	Inner	114	113	122	130	108	154	164	154	148	164	P	P	38	Machine #7
					Outer	113	115	109	119	118									
6	S 10 / 12	FU	4/4/2011	PM	Inner	106	119	119	117	121	159	165	165	159	160	P	P	39	Machine #9
					Outer	114	119	109	116	120									
7	S 12 / 20	FU	4/7/2011	RC	Inner	106	119	134	131	134	146	149	166	175	169	P	P	98	Machine #18
					Outer	114	108	113	121	119									
8	S 20 / 21	FU	4/7/2011	MR	Inner	119	115	115	106	125	151	156	155	167	165	P	P	97	Machine #7
					Outer	120	122	120	114	127									
9	S 21 / 23	FU	4/7/2011	PM	Inner	114	116	114	117	116	164	168	152	148	175	P	P	96	Machine #9
					Outer	113	116	117	115	115									
10	S 23 / 25	FU	4/7/2011	MR	Inner	106	119	112	121	120	147	150	149	178	176	P	P	104	Machine #7
					Outer	114	119	114	123	119									
11	S 25 / 26	FU	4/7/2011	PM	Inner	121	123	120	120	123	174	176	178	164	154	P	P	101	Machine #9
					Outer	101	121	126	120	121									

Table 15

Geomembrane Seams Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

DT Num	Seam Ref	Seam Type	Sample Date	DT Oper		Field - Peel (1)					Field - Shear (2)					Pass/Fail		Repair Ref	Comments/Location
						1	2	3	4	5	1	2	3	4	5	Field	Lab		
12	S 26 / 27	FU	4/7/2011	RC	Inner	119	106	125	106	113	154	148	165	174	172	P	P	93	Machine #18
					Outer	118	114	127	116	125									
13	S 19 / 1000	FU	4/7/2011	PM	Inner	117	117	116	109	119	180	177	176	165	160	P	P	60	Machine #9
					Outer	100	115	115	104	113									
14	S 27 / 29	FU	4/7/2011	MR	Inner	122	101	110	113	106	159	165	165	178	171	P	P	92	Machine #7
					Outer	125	106	113	103	90									
15	S 30 / 31	FU	4/7/2011	PM	Inner	108	119	120	118	114	151	156	155	167	174	P	P	87	Machine #9
					Outer	118	117	120	120	113									
16	S 31 / 32	FU	4/7/2011	MR	Inner	120	106	113	108	106	164	168	152	148	175	P	P	110	Machine #7
					Outer	131	116	125	111	114									
17	S 34 / 44	FU	4/7/2011	RC	Inner	116	109	119	107	106	147	150	149	178	176	P	P	116	Machine #18
					Outer	105	104	113	109	114									
18	S 33 / 45	FU	4/8/2011	PM	Inner	122	123	122	119	119	174	176	178	164	154	P	P	134	Machine #9
					Outer	106	121	125	123	120									
19	S 45 / 47	FU	4/8/2011	MR	Inner	109	113	106	110	114	176	165	174	165	180	P	P	135	Machine #7
					Outer	114	103	90	120	113									
20	S 47 / 48	FU	4/8/2011	RC	Inner	111	129	108	108	106	176	170	160	149	179	P	P	136	Machine #18
					Outer	114	119	118	111	114									
21	S 48 / 50	FU	4/8/2011	PM	Inner	107	118	114	118	121	180	178	176	165	160	P	P	137	Machine #9
					Outer	109	119	116	118	120									
22	S 58 / 59	FU	4/8/2011	MR	Inner	116	108	106	124	141	154	154	154	148	164	P	P	138	Machine #7
					Outer	113	116	119	123	125									

Table 15

Geomembrane Seams Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

DT Num	Seam Ref	Seam Type	Sample Date	DT Oper		Field - Peel (1)					Field - Shear (2)					Pass/Fail		Repair Ref	Comments/Location
						1	2	3	4	5	1	2	3	4	5	Field	Lab		
23	S 56 / 57	FU	4/8/2011	RC	Inner	106	119	119	117	121	176	182	180	179	183	P	P	139	Machine #18
					Outer	114	119	109	116	120									
24	S 51 / 60	FU	4/13/2011	PM	Inner	106	119	134	131	134	171	171	170	179	181	P	P	142	Machine #9
					Outer	114	108	113	121	119									
25	S 60 / 61	FU	4/13/2011	MR	Inner	119	115	115	106	125	172	170	165	176	169	P	P	144	Machine #7
					Outer	120	122	120	114	127									
26	S 61 / 62	FU	4/13/2011	RC	Inner	114	116	114	117	116	167	165	163	167	178	P	P	165	Machine #18
					Outer	113	116	117	115	115									
27	S 63 / 64	FU	4/13/2011	PM	Inner	106	119	112	121	120	171	164	164	166	170	P	P	168	Machine #9
					Outer	114	119	114	123	119									
28	S 64 / 66	FU	4/13/2011	MR	Inner	121	123	120	101	110	176	177	170	177	173	P	P	177	Machine #7
					Outer	101	121	119	106	113									
29	S 66 / 67	FU	4/13/2011	RC	Inner	141	106	125	120	123	166	163	164	154	169	P	P	188	Machine #18
					Outer	128	114	127	121	119									
30	S 67 / 69	FU	4/13/2011	PM	Inner	116	117	116	119	120	168	166	167	164	169	P	P	187	Machine #9
					Outer	113	121	119	117	120									
31	S 69 / 71	FU	4/13/2011	MR	Inner	119	106	125	106	113	158	158	156	159	155	P	P	197	Machine #7
					Outer	118	114	127	116	125									
32	S 71 / 72	FU	4/13/2011	PM	Inner	117	117	116	109	119	156	159	154	164	178	P	P	196	Machine #9
					Outer	100	115	115	104	113									
33	S 72 / 74	FU	4/13/2011	RC	Inner	116	121	120	123	122	154	148	159	166	172	P	P	157	Machine #18
					Outer	123	116	131	121	125									

Table 15

Geomembrane Seams Destructive Testing Information

Project:	Domtar Phase 3 and 4 Construction	**RPR:**	Kim D. Pawlisch	**Checked By:**	O. Kaiser
Project Num:	05794.49.001	**Material:**	60 mil HDPE		
Location:	Plymouth, NC	**Installer:**	Chesapeake		

DT Num	Seam Ref	Seam Type	Sample Date	DT Oper		Field - Peel (1)					Field - Shear (2)					Pass/Fail		Repair Ref	Comments/Location
						1	2	3	4	5	1	2	3	4	5	Field	Lab		
34	S 85 / 1000	FU	4/14/2011	PM	Inner	108	109	118	113	116	180	178	176	165	160	P	P	153	Machine #9
					Outer	118	104	109	104	110									
35	S 88 / 90	FU	4/14/2011	MR	Inner	114	113	122	130	108	154	154	154	148	164	P	P	195	Machine #7
					Outer	113	115	109	119	118									
36	S 93 / 94	FU	4/14/2011	MR	Inner	114	119	114	123	119	165	163	164	177	170	P	P	206	Machine #7
					Outer	121	123	120	101	110									
37	S 99 / 100	FU	4/14/2011	PM	Inner	118	119	113	113	113	159	177	165	164	176	P	P	204	Machine #9
					Outer	125	101	115	109	125									
38	S 95 / 118	FU	4/15/2011	RC	Inner	119	116	114	115	116	158	158	156	159	155	P	P	243	Machine #18
					Outer	115	113	112	114	119									
39	S 113 / 114	FU	4/15/2011	PM	Inner	122	119	117	119	116	156	159	154	164	178	P	P	244	Machine #9
					Outer	125	117	109	121	119									

NOTES:
(1) The requirement for peel strength is a minimum value of 91 ppi for both a non-textured fusion weld and for a textured fusion weld; and 78 ppi for both a non-textured extrusion weld and for a textured extrusion weld.

(2) The requirement for shear strength is a minimum value of 120 ppi for non-textured and textured fusion and extrusion welds.

Subgrade Surface Acceptance Forms

SUBGRADE SURFACE ACCEPTANCE

Project Name: DomTAR Cell P3+4 Customer: RYAN

Project Number: _____ Date: 4-4-11

Location: Plymouth NC Partial: ✓ Final: _____

This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Chesapeake Containment Systems, Inc. does not accept responsibility for weather damage, compaction, elevation or moisture content, subsurface conditions, nor for the surface condition maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the Owner or Earthwork Contractor.

For Chesapeake Containment Systems, Inc.

_____

_____

For Contractor/Owner/Inspector:

_____

_____

Acceptance Number: P1 - P18 Area Accepted: 62,392

5

CHESAPEAKE
CONTAINMENT SYSTEMS, INC.

SUBGRADE SURFACE ACCEPTANCE

Project Name: Domtar Cell P3+4 Customer: Ryan

Project Number: _____ Date: 4-7-11

Location: Plymouth, NC, Partial: ✓ Final: _____

This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Chesapeake Containment Systems, Inc. does not accept responsibility for weather damage, compaction, elevation or moisture content, subsurface conditions, nor for the surface condition maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the Owner or Earthwork Contractor.

For Chesapeake Containment Systems, Inc.

_____

_____

For Contractor/Owner/Inspector:

_____

_____

Acceptance Number: P19 - P44 Area Accepted: 88,110 TOTAL = 158202

10

SUBGRADE SURFACE ACCEPTANCE

Project Name: Domtar Cell P3&4 Customer: Ryan

Project Number: _____ Date: 4-8-11

Location: Plymouth NC Partial: ✓ Final: _____

This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Chesapeake Containment Systems, Inc. does not accept responsibility for weather damage, compaction, elevation or moisture content, subsurface conditions, nor for the surface condition maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the Owner or Earthwork Contractor.

For Chesapeake Containment Systems, Inc.

_____

_____

For Contractor/Owner/Inspector:

_____

_____

Acceptance Number: P45 - P59 Area Accepted: 46420 total = 196922

2

SUBGRADE SURFACE ACCEPTANCE

Project Name: Domtar Cell P3+4 Customer: Ryan

Project Number: _____ Date: 4-13-11

Location: Plymouth, N.C. Partial: ✓ Final: _____

This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Chesapeake Containment Systems, Inc. does not accept responsibility for weather damage, compaction, elevation or moisture content, subsurface conditions, nor for the surface condition maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the Owner or Earthwork Contractor.

For Chesapeake Containment Systems, Inc.

For Contractor/Owner/Inspector:

Acceptance Number: P60 - P86 Area Accepted: 83,996 TOTAL = 280918

PJ

CHESAPEAKE
CONTAINMENT SYSTEMS, INC.

SUBGRADE SURFACE ACCEPTANCE

Project Name: Dominion Cell P3+4 Customer: RYAN

Project Number: _____ Date: 4-14-11

Location: Plymouth, NC. Partial: ✓ Final: _____

This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Chesapeake Containment Systems, Inc. does not accept responsibility for weather damage, compaction, elevation or moisture content, subsurface conditions, nor for the surface condition maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the Owner or Earthwork Contractor.

For Chesapeake Containment Systems, Inc.

_____

_____

For Contractor/Owner/Inspector:

_____

_____

Acceptance Number: P87-P100 Area Accepted: 44220 TOTAL = 325138

3

SUBGRADE SURFACE ACCEPTANCE

Project Name: Domtar Cell P3+4 Customer: Ryan

Project Number: _____ Date: 4-15-11

Location: Plymouth, NC Partial: _____ Final: ✓

This document only applies to the acceptability of surface conditions for installation of geosynthetic products. Chesapeake Containment Systems, Inc. does not accept responsibility for weather damage, compaction, elevation or moisture content, subsurface conditions, nor for the surface condition maintenance during deployment. Structural integrity of the subgrade and maintenance of these conditions are the responsibility of the Owner or Earthwork Contractor.

For Chesapeake Containment Systems, Inc.

_____

_____

For Contractor/Owner/Inspector:

_____

_____

Acceptance Number: P-101 - P121 Area Accepted: 17248 TOTAL = 342,386

4-14

Appendix H
GCL Installation Information

Table of Contents

- GCL Panel Layout Diagram
- GCL Panel Placement Form

GCL Panel Layout Diagram

LEGEND

- ANCHOR WENCH
- PANEL OUTLINE
- EXTRUSION WELD
- PATCH
- CAP PATCH
- PANEL NUMBER
- REPAIR #
- DESTRUCTIVE TEST
- FAILED DESTRUCTIVE TEST
- PIPE BOOT

CHESAPEAKE CONTAINMENT SYSTEMS, INC.
355 EARLS RD
MIDDLE RIVER, MD 21220
office 410.335.5886
fax 443.333.5935

Domtar Cell P3 & 4
Plymouth, NC

Date	4/21/11
Scale	1"=30'
Drawn	CCS
Approved	RCC

PL-01

REVISIONS

No.	Date	Description

3

GCL Panel Placement Form

CHESAPEAKE
CONTAINMENT SYSTEMS, INC.

GCL Placement Log (Field Use)

Project No.: P11-003 Material: GCL
Project Name: Domtar Cell
Project Start Date: 04/04/11 341,415
Project Location: Plymouth, NC

Date Deployed	Panel No.	Roll No.	Width (FT)	Length (FT)	Area (SQ. FT.)
4-Apr	1	5390	15	150	2250
4-Apr	2	5392	15	150	2250
4-Apr	3	5384	15	150	2250
4-Apr	4	5391	15	150	2250
4-Apr	5	5388	15	150	2250
4-Apr	6	5382	15	150	2250
4-Apr	7	5383	15	150	2250
4-Apr	8	5385	15	150	2250
4-Apr	9	5386	15	150	2250
4-Apr	10	5387	15	150	2250
4-Apr	11	5380	15	150	2250
4-Apr	12	5379	15	150	2250
4-Apr	13	5381	15	150	2250
4-Apr	14	5514	15	150	2250
4-Apr	15	5384	15	150	2250
4-Apr	16	5522	15	150	2250
4-Apr	17	5513	15	150	2250
4-Apr	18	5530	15	150	2250
4-Apr	19	5523	15	150	2250
4-Apr	20	5524	15	150	2250
4-Apr	21	5527	15	150	2250
4-Apr	22	5436	15	150	2250
4-Apr	23	5521	15	150	2250
4-Apr	24	5432	15	19	285
4-Apr	25	5432	15	20	300
4-Apr	26	5432	15	23	345

1

CHESAPEAKE
CONTAINMENT SYSTEMS, INC.

GCL Placement Log (Field Use)

Project No.: P11-003 Material: GCL
Project Name: Domtar Cell
Project Start Date: 04/04/11 341,415
Project Location: Plymouth, NC

Date Deployed	Panel No.	Roll No.	Width (FT)	Length (FT)	Area (SQ. FT.)
4-Apr	27	5432	15	23	345
4-Apr	28	5432	15	23	345
4-Apr	29	5432	15	23	345
4-Apr	30	5432	15	23	345
4-Apr	31	5432	15	23	345
4-Apr	32	5435	15	23	345
4-Apr	33	5435	15	23	345
4-Apr	34	5435	15	36	540
4-Apr	35	5435	15	36	540
4-Apr	36	5435	15	32	480
4-Apr	37	5424	15	4	60
4-Apr	38	5424	15	38	570
4-Apr	39	5424	15	38	570
4-Apr	40	5424	15	38	570
4-Apr	41	5424	15	28	420
4-Apr	42	5440	15	10	150
4-Apr	43	5440	15	38	570
4-Apr	44	5440	15	38	570
4-Apr	45	5440	15	38	570
7-Apr	46	7074	15	150	2250
7-Apr	47	7148	15	150	2250
7-Apr	48	7061	15	150	2250
7-Apr	49	5426	15	150	2250
7-Apr	50	5425	15	150	2250
7-Apr	51	5437	15	150	2250
7-Apr	52	5431	15	150	2250

CHESAPEAKE
CONTAINMENT SYSTEMS, INC.

GCL Placement Log (Field Use)

Project No.: P11-003 Material: GCL
Project Name: Domtar Cell
Project Start Date: 04/04/11 341,415
Project Location: Plymouth, NC

Date Deployed	Panel No.	Roll No.	Width (FT)	Length (FT)	Area (SQ. FT.)
7-Apr	53	5429	15	150	2250
7-Apr	54	5427	15	150	2250
7-Apr	55	5423	15	150	2250
7-Apr	56	5428	15	150	2250
7-Apr	57	5438	15	150	2250
7-Apr	58	5439	15	150	2250
7-Apr	59	5448	15	150	2250
7-Apr	60	5440	15	150	2250
7-Apr	61	5459	15	150	2250
7-Apr	62	5430	15	150	2250
7-Apr	63	5474	15	150	2250
7-Apr	64	5476	15	150	2250
7-Apr	65	5462	15	150	2250
7-Apr	66	5466	15	150	2250
7-Apr	67	5477	15	150	2250
7-Apr	68	5468	15	150	2250
7-Apr	69	5463	15	25	375
7-Apr	70	5463	15	25	375
7-Apr	71	5463	15	25	375
7-Apr	72	5463	15	25	375
7-Apr	73	5463	15	25	375
7-Apr	74	5463	15	25	375
7-Apr	75	5463	15	25	375
7-Apr	76	5463	15	10	150
7-Apr	77	5461	15	15	225
7-Apr	78	5461	15	25	375

CHESAPEAKE
CONTAINMENT SYSTEMS, INC.

GCL Placement Log (Field Use)

Project No.: P11-003 Material: GCL
Project Name: Domtar Cell
Project Start Date: 04/04/11 341,415
Project Location: Plymouth, NC

Date Deployed	Panel No.	Roll No.	Width (FT)	Length (FT)	Area (SQ. FT.)
7-Apr	79	5461	15	25	375
7-Apr	80	5461	15	13	195
7-Apr	81	5461	15	37	555
7-Apr	82	5461	15	37	555
7-Apr	83	5472	15	37	555
7-Apr	84	5472	15	37	555
7-Apr	85	5472	15	37	555
7-Apr	86	5472	15	37	555
7-Apr	87	5473	15	37	555
7-Apr	88	5473	15	37	555
7-Apr	89	5473	15	37	555
7-Apr	90	5473	15	37	555
7-Apr	91	5516	15	150	2250
7-Apr	92	5506	15	150	2250
7-Apr	93	5504	15	150	2250
7-Apr	94	5511	15	150	2250
7-Apr	95	5570	15	150	2250
7-Apr	96	5509	15	38	570
7-Apr	97	5560	15	38	570
7-Apr	98	5560	15	38	570
7-Apr	99	5560	15	38	570
7-Apr	100	5560	15	40	600
7-Apr	101	5560	15	8	120
7-Apr	102	5469	15	48	720
7-Apr	103	5469	15	48	720
7-Apr	104	5469	15	52	780

CHESAPEAKE
CONTAINMENT SYSTEMS, INC.

GCL Placement Log (Field Use)

Project No.: P11-003 Material: GCL
Project Name: Domtar Cell
Project Start Date: 04/04/11 341,415
Project Location: Plymouth, NC

Date Deployed	Panel No.	Roll No.	Width (FT)	Length (FT)	Area (SQ. FT.)
7-Apr	105	5471	15	150	2250
7-Apr	106	5475	15	150	2250
7-Apr	107	5497	15	150	2250
7-Apr	108	5512	15	150	2250
7-Apr	109	5501	15	38	570
7-Apr	110	5501	15	83	1245
8-Apr	111	5464	15	33	495
8-Apr	112	5504	15	150	2250
8-Apr	113	5505	15	150	2250
8-Apr	114	5507	15	150	2250
8-Apr	115	2808	15	86	1290
8-Apr	116	5496	15	150	2250
8-Apr	117	5500	15	150	2250
8-Apr	118	5502	15	54	810
8-Apr	119	5502	15	94	1410
8-Apr	120	5503	15	53	795
8-Apr	121	5503	15	88	1320
8-Apr	122	5503	15	8	120
8-Apr	123	5498	15	150	2250
8-Apr	124	5448	15	150	2250
8-Apr	125	5517	15	79	1185
8-Apr	126	5517	15	69	1035
8-Apr	127	5499	15	150	2250
8-Apr	128	5516	15	150	2250
8-Apr	129	5518	15	13	195
8-Apr	130	5518	15	134	2010

CHESAPEAKE
CONTAINMENT SYSTEMS, INC.

GCL Placement Log (Field Use)

Project No.: P11-003 Material: GCL
Project Name: Domtar Cell
Project Start Date: 04/04/11 341,415
Project Location: Plymouth, NC

Date Deployed	Panel No.	Roll No.	Width (FT)	Length (FT)	Area (SQ. FT.)
8-Apr	131	5495	15	150	2250
8-Apr	132	5519	15	97	1455
8-Apr	133	5519	15	52	780
8-Apr	134	5520	15	150	2250
8-Apr	135	5526	15	35	525
8-Apr	136	5526	15	35	525
8-Apr	137	5526	15	25	375
8-Apr	138	5526	15	25	375
8-Apr	139	5526	15	25	375
8-Apr	140	5526	15	25	375
8-Apr	141	5526	15	25	375
8-Apr	142	5526	15	4	60
8-Apr	143	5528	15	21	315
8-Apr	144	5528	15	25	375
8-Apr	145	5528	15	25	375
8-Apr	146	5528	15	25	375
13-Apr	147	5458	15	150	2250
13-Apr	148	5457	15	150	2250
13-Apr	149	5443	15	104	1560
13-Apr	150	5443	15	46	690
13-Apr	151	5525	15	150	2250
13-Apr	152	5515	15	150	2250
13-Apr	153	5528	15	24	360
13-Apr	154	5454	15	36	540
13-Apr	155	5454	15	112	1680
13-Apr	156	5449	15	150	2250

CHESAPEAKE
CONTAINMENT SYSTEMS, INC.

GCL Placement Log (Field Use)

Project No.: P11-003 Material: GCL
Project Name: Domtar Cell
Project Start Date: 04/04/11 341,415
Project Location: Plymouth, NC

Date Deployed	Panel No.	Roll No.	Width (FT)	Length (FT)	Area (SQ. FT.)
13-Apr	157	5447	15	139	2085
13-Apr	158	5447	15	10	150
13-Apr	159	5456	15	150	2250
13-Apr	160	5452	15	150	2250
13-Apr	161	5455	15	93	1395
13-Apr	162	5455	15	55	825
13-Apr	163	5446	15	150	2250
13-Apr	164	5445	15	150	2250
13-Apr	165	5444	15	51	765
13-Apr	166	5444	15	98	1470
13-Apr	167	5442	15	150	2250
13-Apr	168	5433	15	150	2250
13-Apr	169	5441	15	146	2190
13-Apr	170	5441	15	5	75
13-Apr	171	5451	15	150	2250
13-Apr	172	5453	15	107	1605
13-Apr	173	5453	15	42	630
13-Apr	174	5531	15	150	2250
13-Apr	175	5422	15	105	1575
13-Apr	176	5422	15	45	675
13-Apr	177	5421	15	150	2250
13-Apr	178	5419	15	150	2250
13-Apr	179	5415	15	62	930
13-Apr	180	5415	15	88	1320
13-Apr	181	5412	15	150	2250
13-Apr	182	5408	15	150	2250

CHESAPEAKE
CONTAINMENT SYSTEMS, INC.

GCL Placement Log (Field Use)

Project No.: P11-003 Material: GCL
Project Name: Domtar Cell
Project Start Date: 04/04/11 341,415
Project Location: Plymouth, NC

Date Deployed	Panel No.	Roll No.	Width (FT)	Length (FT)	Area (SQ. FT.)
13-Apr	183	5418	15	150	2250
13-Apr	184	5413	15	19	285
13-Apr	185	5413	15	131	1965
13-Apr	186	5416	15	122	1830
13-Apr	187	5416	15	28	420
13-Apr	188	5410	15	150	2250
13-Apr	189	5405	15	150	2250
13-Apr	190	5414	15	75	1125
13-Apr	191	5414	15	74	1110
13-Apr	192	5410	15	150	2250
13-Apr	193	5402	15	150	2250
13-Apr	194	5417	15	29	435
13-Apr	195	5417	15	119	1785
13-Apr	196	5393	15	150	2250
13-Apr	197	5336	15	131	1965
13-Apr	198	5336	15	19	285
13-Apr	199	5401	15	150	2250
13-Apr	200	5411	15	150	2250
13-Apr	201	5407	15	86	1290
14-Apr	202	5704	15	62	930
14-Apr	203	5467	15	150	2250
14-Apr	204	5465	15	150	2250
14-Apr	205	5409	15	150	2250
14-Apr	206	5398	15	40	600
14-Apr	207	5398	15	110	1650
14-Apr	208	5404	15	142	2130

CHESAPEAKE
CONTAINMENT SYSTEMS, INC.

GCL Placement Log (Field Use)

Project No.: P11-003 Material: GCL
Project Name: Domtar Cell
Project Start Date: 04/04/11 341,415
Project Location: Plymouth, NC

Date Deployed	Panel No.	Roll No.	Width (FT)	Length (FT)	Area (SQ. FT.)
14-Apr	209	5404	15	8	120
14-Apr	210	5406	15	150	2250
14-Apr	211	5403	15	150	2250
14-Apr	212	5397	15	94	1410
14-Apr	213	5397	15	56	840
14-Apr	214	5394	15	150	2250
14-Apr	215	5483	15	150	2250
14-Apr	216	5492	15	47	705
14-Apr	217	5492	15	100	1500
14-Apr	218	5395	15	150	2250
14-Apr	219	5399	15	150	2250
14-Apr	220	5482	15	150	2250
14-Apr	221	5491	15	150	2250
14-Apr	222	5490	15	150	2250
14-Apr	223	5401	15	150	2250
14-Apr	224	5493	15	100	1500
14-Apr	225	5493	15	50	750
14-Apr	226	5434	15	52	780
15-Apr	227	5434	15	70	1050
15-Apr	228	5484	15	150	2250
15-Apr	229	5494	15	150	2250
15-Apr	230	5484	15	70	1050
15-Apr	231	5484	15	80	1200
15-Apr	232	5487	15	62	930
15-Apr	233	5487	15	18	270
15-Apr	234	5487	15	18	270

CHESAPEAKE
CONTAINMENT SYSTEMS, INC.

GCL Placement Log (Field Use)

Project No.: P11-003 Material: GCL
Project Name: Domtar Cell
Project Start Date: 04/04/11 341,415
Project Location: Plymouth, NC

Date Deployed	Panel No.	Roll No.	Width (FT)	Length (FT)	Area (SQ. FT.)
15-Apr	235	5487	15	19	285
15-Apr	236	5487	15	19	285
15-Apr	237	5487	15	14	210
15-Apr	238	5485	15	17	255
15-Apr	239	5485	15	7	105
15-Apr	240	5485	15	17	255
15-Apr	241	5485	15	19	285
15-Apr	242	5485	15	19	285
15-Apr	243	5485	15	18	270
15-Apr	244	5485	15	18	270
15-Apr	245	5485	15	15	225
15-Apr	246	5485	15	19	285
15-Apr	247	5478	15	19	285
15-Apr	248	5478	15	17	255
15-Apr	249	5478	15	16	240
15-Apr	250	5478	15	18	270
15-Apr	251	5478	15	17	255
15-Apr	252	5478	15	16	240
15-Apr	253	5478	15	17	255
15-Apr	254	5478	15	32	480
15-Apr	255	5480	15	45	675
15-Apr	256	5480	15	76	1140
15-Apr	257	5480	15	29	435
15-Apr	258	5488	15	11	165
15-Apr	259	5488	15	38	570
15-Apr	260	5480	15	15	225

CHESAPEAKE
CONTAINMENT SYSTEMS, INC.

GCL Placement Log (Field Use)

Project No.: P11-003 Material: GCL
Project Name: Domtar Cell
Project Start Date: 04/04/11 341,415
Project Location: Plymouth, NC

Date Deployed	Panel No.	Roll No.	Width (FT)	Length (FT)	Area (SQ. FT.)
15-Apr	261	5480	15	15	225
15-Apr	262	5480	15	16	240
15-Apr	263	5480	15	14	210
15-Apr	264	5480	15	15	225

Appendix I
Conformance Test Results and Laboratory Seam Test Results

Table of Contents

- GCL Conformance Test Results
- Geomembrane Conformance Test and Thickness Measurement Results
- 60-mil HDPE Geomembrane Seam Project Acceptance Criteria
- Laboratory Destruction Seam Test Results

GCL Conformance Test Results

March 10, 2011

Mail To:

Kim Pawlisch
RMT
744 Heartland Trail
Madison, WI 53717

email: kim.pawlisch@rmtinc.com
cc email: nathan.braun@rmtinc.com

Bill To:

<= Same

Dear Mr. Pawlisch:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Domtar Paper Company Phase 3 & 4**
TRI Job Reference Number:	E2347-64-03
Material(s) Tested:	6, Bentoliner NSL GCL(s)
Test(s) Requested:	Mass/Unit Area (ASTM D 5993) Bentonite - Fluid Loss (ASTM D 5891) Bentonite - Swell Index (ASTM D 5890) Index Flux (ASTM D 5887)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

John M. Allen, P.E.
Division Director
Geosynthetic Services Division
www.GeosyntheticTesting.com

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

3

GCL TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: Bentoliner NSL GCL
Sample Identification: 502175379
TRI Log #: E2347-64-03

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Bentonite - Mass/Unit Area (ASTM D 5993, result @ 0% M.C.)													
Bentonite mass/unit area (lbs/ft^2)	0.84	0.85	0.98	0.86	0.83						0.87	0.06	0.75 min
Moisture Content (%)	10.4	10.4	10.3	10.5	10.4						10.4	0.1	
Bentonite - Fluid Loss (ASTM D 5891)													
Slurry temperature at test intiation:	24.9 ° C												
Fluid Loss (mL)	15.2										15		18 max
Note: Bentonite sample tested is taken from finished GCL product.													
Bentonite - Swell Index (ASTM D 5890)													
Water temperature at test intiation:	22.1 ° C												
Swell index (mL/2g)	27										27		24 min
Note: Bentonite sample tested is taken from finished GCL product.													
Index Flux (ASTM D 5887)													
Index Flux (m^3/m^2/sec)	2.9E-09										2.9E-09		1E-08 max
Hydraulic Conductivity (cm/sec)	1.9E-09										1.9E-09		

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

4

GCL TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: Bentoliner NSL GCL
Sample Identification: 502175404
TRI Log #: E2347-64-03

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Bentonite - Mass/Unit Area (ASTM D 5993, result @ 0% M.C.)													
Bentonite mass/unit area (lbs/ft^2)	0.83	0.82	0.88	0.80	0.78						0.82	0.04	0.75 min
Moisture Content (%)	10.1	10.1	10.1	10.2	10.0						10.1	0.1	
Bentonite - Fluid Loss (ASTM D 5891)													
Slurry temperature at test intiation:	25 ° C												
Fluid Loss (mL)	14.6										15		18 max
Note: Bentonite sample tested is taken from finished GCL product.													
Bentonite - Swell Index (ASTM D 5890)													
Water temperature at test intiation:	22.1 ° C												
Swell index (mL/2g)	27										27		24 min
Note: Bentonite sample tested is taken from finished GCL product.													
Index Flux (ASTM D 5887)													
Index Flux (m^3/m^2/sec)	3.1E-09										3.1E-09		1E-08 max
Hydraulic Conductivity (cm/sec)	2.4E-09										2.4E-09		

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

5

GCL TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: Bentoliner NSL GCL
Sample Identification: 502175429
TRI Log #: E2347-64-03

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Bentonite - Mass/Unit Area (ASTM D 5993, result @ 0% M.C.)													
Bentonite mass/unit area (lbs/ft^2)	0.84	0.77	0.83	0.87	0.84						0.83	0.04	0.75 min
Moisture Content (%)	8.2	10.4	10.4	10.3	10.5						10.0	1.0	
Bentonite - Fluid Loss (ASTM D 5891)													
Slurry temperature at test intiation:	24.9 ° C												
Fluid Loss (mL)	14.6										15		18 max
Note: Bentonite sample tested is taken from finished GCL product.													
Bentonite - Swell Index (ASTM D 5890)													
Water temperature at test intiation:	22.1 ° C												
Swell index (mL/2g)	26										26		24 min
Note: Bentonite sample tested is taken from finished GCL product.													
Index Flux (ASTM D 5887)													
Index Flux (m^3/m^2/sec)	3.3E-09										3.3E-09		1E-08 max
Hydraulic Conductivity (cm/sec)	2.5E-09										2.5E-09		

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

6

GCL TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: Bentoliner NSL GCL
Sample Identification: 502175454
TRI Log #: E2347-64-03

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Bentonite - Mass/Unit Area (ASTM D 5993, result @ 0% M.C.)													
Bentonite mass/unit area (lbs/ft^2)	0.92	0.81	0.87	0.83	0.82						**0.85**	0.05	0.75 min
Moisture Content (%)	11.1	11.0	11.0	11.0	11.1						**11.0**	0.1	
Bentonite - Fluid Loss (ASTM D 5891)													
Slurry temperature at test intiation:	26.9 ° C												
Fluid Loss (mL)	15										**15**		18 max
Note: Bentonite sample tested is taken from finished GCL product.													
Bentonite - Swell Index (ASTM D 5890)													
Water temperature at test intiation:	22.1 ° C												
Swell index (mL/2g)	27										**27**		24 min
Note: Bentonite sample tested is taken from finished GCL product.													
Index Flux (ASTM D 5887)													
Index Flux (m^3/m^2/sec)	2.5E-09										**2.5E-09**		1E-08 max
Hydraulic Conductivity (cm/sec)	1.6E-09										**1.6E-09**		

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

7

GCL TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: Bentoliner NSL GCL
Sample Identification: 502175480
TRI Log #: E2347-64-03

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Bentonite - Mass/Unit Area (ASTM D 5993, result @ 0% M.C.)													
Bentonite mass/unit area (lbs/ft^2)	0.90	0.81	0.83	0.83	0.82						0.84	0.04	0.75 min
Moisture Content (%)	10.7	10.8	10.8	10.8	10.6						10.7	0.1	
Bentonite - Fluid Loss (ASTM D 5891)													
Slurry temperature at test intiation: 27.7 ° C													
Fluid Loss (mL)	15.4										15		18 max
Note: Bentonite sample tested is taken from finished GCL product.													
Bentonite - Swell Index (ASTM D 5890)													
Water temperature at test intiation: 22 ° C													
Swell index (mL/2g)	27										27		24 min
Note: Bentonite sample tested is taken from finished GCL product.													
Index Flux (ASTM D 5887)													
Index Flux (m^3/m^2/sec)	2.5E-09										2.5E-09		1E-08 max
Hydraulic Conductivity (cm/sec)	1.8E-09										1.8E-09		

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

8

GCL TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: Bentoliner NSL GCL
Sample Identification: 502175505
TRI Log #: E2347-64-03

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Bentonite - Mass/Unit Area (ASTM D 5993, result @ 0% M.C.)													
Bentonite mass/unit area (lbs/ft^2)	0.81	0.77	0.84	0.76	0.90						0.82	0.06	0.75 min
Moisture Content (%)	11.0	11.0	10.9	11.2	11.1						11.0	0.1	
Bentonite - Fluid Loss (ASTM D 5891)													
Slurry temperature at test intiation: 27.8 ° C													
Fluid Loss (mL)	14.4										14		18 max
Note: Bentonite sample tested is taken from finished GCL product.													
Bentonite - Swell Index (ASTM D 5890)													
Water temperature at test intiation: 22 ° C													
Swell index (mL/2g)	27										27		24 min
Note: Bentonite sample tested is taken from finished GCL product.													
Index Flux (ASTM D 5887)													
Index Flux (m^3/m^2/sec)	1.8E-09										1.8E-09		1E-08 max
Hydraulic Conductivity (cm/sec)	1.2E-09										1.2E-09		

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

9

Geomembrane Conformance Test and Thickness Measurement Results

March 10, 2011
March 21, 2011 Updated with Stress Crack Resistance

Mail To:	**Bill To:**
Kim Pawlisch **RMT** 744 Heartland Trail Madison, WI 53717	**<= Same**

email: kim.pawlisch@rmtinc.com
cc email: nathan.braun@rmtinc.com

Dear Mr. Pawlisch:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Domtar Paper Company Phase 3 & 4**
TRI Job Reference Number:	E2352-48-10
Material(s) Tested:	26, GSE 60 mil Smooth HDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5199) Density (ASTM D 1505) Carbon Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)
Updating=====>	Stress Crack Resistance (ASTM D 5397)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

MPatel

Dr. Mansukh Patel
Sr. Laboratory Coordinator
Geosynthetic Services Division
www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

13

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Smooth HDPE Geomembrane
Sample Identification: 102159132
TRI Log #: E2352-48-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5199)													
Thickness (mils)	61	62	60	61	61	61	60	61	63	61	61	1	60 min
											60	<< min	54 min
Density (ASTM D 1505)													
Density (g/cm3)	0.946	0.946	0.946								0.946	0.000	0.940 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.67	2.72									2.70	0.04	2 - 3
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								8 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	155	139	146	154	155						150	7	126 min
TD Yield Strength (ppi)	151	163	160	172	151						159	9	126 min
MD Break Strength (ppi)	301	276	276	321	324						300	23	228 min
TD Break Strength (ppi)	325	292	318	285	300						304	17	228 min
MD Yield Elongation (%)	19	19	19	19	19						19	0	12 min
TD Yield Elongation (%)	17	17	17	17	17						17	0	12 min
MD Break Elongation (%)	811	791	766	853	861						817	40	700 min
TD Break Elongation (%)	925	826	901	773	854						856	61	700 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	138	412	135	143	141						194	122	90 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	51	54	54	51	51	54	49	50	51	51	52	2	42 min
TD Tear Strength (lbs)	46	51	50	48	50	50	48	48	49	47	49	2	42 min

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

14

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Smooth HDPE Geomembrane
Sample Identification: 102169132
TRI Log #: E2352-48-10

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.

SP-NCTL Stress Crack Resistance (ASTM D 5397, App)

SURFACTANT: CO-630
EXPOSURE PERIOD: **200 hrs**
DATE TEST STARTED: **11-Mar-11**
TEST TEMPERATURE: 50C

Transverse direction yield stress: 2630 (psi)
x 30% 789 (x 0.30)
x hinge thickness (in) 0.047 (80% of thickness)
x specimen width 0.124 (0.125")
Load 4.62 (lbs)

Mechanical Advantage 5
Lever Weight 0.3 (lbs)
Grip Weight 0.09 (lbs)

Applied load = (Load - Lever Weight + Grip Weight)/Mechanical Advantage = 0.88 lbs = 400 grams

Replicate No.:	1	2	3	4	5								
No. Hours to Failure:	>200	>200	>200	>200	>200						>200		200 min

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

15

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Smooth HDPE Geomembrane
Sample Identification: 102159144
TRI Log #: E2352-48-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5199)													
Thickness (mils)	62	60	61	55	63	64	62	64	60	58	61	3	60 min
											55	<< min	54 min
Density (ASTM D 1505)													
Density (g/cm3)	0.947	0.947	0.947								0.947	0.000	0.940 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.69	2.69									2.69	0.00	2 - 3
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								8 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	156	150	170	150	146						154	9	126 min
TD Yield Strength (ppi)	148	162	154	156	168						158	8	126 min
MD Break Strength (ppi)	304	275	287	294	276						287	12	228 min
TD Break Strength (ppi)	284	306	290	298	306						297	10	228 min
MD Yield Elongation (%)	19	19	17	19	19						19	1	12 min
TD Yield Elongation (%)	18	18	17	18	18						18	0	12 min
MD Break Elongation (%)	799	751	804	806	780						788	23	700 min
TD Break Elongation (%)	846	863	854	861	840						853	10	700 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	143	143	146	143	150						145	3	90 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	51	53	51	51	60	52	53	52	52	53	53	3	42 min
TD Tear Strength (lbs)	52	52	49	49	52	49	50	48	47	51	50	2	42 min

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

16

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Smooth HDPE Geomembrane
Sample identification: 102169144
TRI Log #: E2352-48-10

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
SP-NCTL Stress Crack Resistance (ASTM D 5397, App)													

SURFACTANT: CO-630
EXPOSURE PERIOD: **200 hrs**
DATE TEST STARTED: **11-Mar-11**
TEST TEMPERATURE: 50C

Transverse direction yield stress: 2565 (psi)
x 30% 770 (x 0.30)
x hinge thickness (in) 0.046 (80% of thickness)
x specimen width 0.124 (0.125")
Load 4.43 (lbs)

Mechanical Advantage 5
Lever Weight 0.3 (lbs)
Grip Weight 0.09 (lbs)

Applied load = (Load - Lever Weight + Grip Weight)/Mechanical Advantage = 0.84 lbs = 383 grams

Replicate No.:	1	2	3	4	5	MEAN	PROJ. SPEC.
No. Hours to Failure:	>200	>200	>200	>200	>200	>200	200 min

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

17

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Smooth HDPE Geomembrane
Sample Identification: 102159157
TRI Log #: E2352-48-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5199)													
Thickness (mils)	60	60	62	61	61	62	61	62	63	64	62 60	1 << min	60 min 54 min
Density (ASTM D 1505)													
Density (g/cm3)	0.946	0.946	0.946								0.946	0.000	0.940 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.63	2.68									2.66	0.04	2 - 3
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								8 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	160	164	158	159	143						157	8	126 min
TD Yield Strength (ppi)	150	164	160	163	158						159	6	126 min
MD Break Strength (ppi)	307	302	216	296	261						276	38	228 min
TD Break Strength (ppi)	267	311	293	248	270						278	24	228 min
MD Yield Elongation (%)	19	19	19	19	19						19	0	12 min
TD Yield Elongation (%)	17	17	17	17	17						17	0	12 min
MD Break Elongation (%)	798	794	596	776	735						740	84	700 min
TD Break Elongation (%)	773	879	825	699	768						789	68	700 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	143	134	143	137	136						139	4	90 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	50	51	55	53	52	53	53	49	51	51	52	2	42 min
TD Tear Strength (lbs)	48	47	51	48	48	48	51	47	50	51	49	2	42 min

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

18

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Smooth HDPE Geomembrane
Sample Identification: 102159157
TRI Log #: E2352-48-10

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.

SP-NCTL Stress Crack Resistance (ASTM D 5397, App)

SURFACTANT: CO-630
EXPOSURE PERIOD: **200 hrs**
DATE TEST STARTED: **11-Mar-11**
TEST TEMPERATURE: 50C

Transverse direction yield stress: 2632 (psi)
x 30% 790 (x 0.30)
x hinge thickness (in) 0.046 (80% of thickness)
x specimen width 0.124 (0.125")
Load 4.54 (lbs)

Mechanical Advantage 5
Lever Weight 0.3 (lbs)
Grip Weight 0.09 (lbs)

Applied load = (Load - Lever Weight + Grip Weight)/Mechanical Advantage = 0.87 lbs = 393 grams

Replicate No.:	1	2	3	4	5								
No. Hours to Failure:	>200	>200	>200	>200	>200						>200		200 min

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Smooth HDPE Geomembrane
Thickness (ASTM D 5199)
TRI Log #: E2352-48-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Sample Identification: 102159133													
Thickness (mils)	58	62	61	59	61	63	63	58	61	63	61 58	2 << min	60 min 54 min
Sample Identification: 102159134													
Thickness (mils)	59	61	61	64	61	61	66	59	63	61	62 59	2 << min	60 min 54 min
Sample Identification: 102159135													
Thickness (mils)	60	61	63	61	59	62	63	63	63	62	62 59	1 << min	60 min 54 min
Sample Identification: 102159136													
Thickness (mils)	58	62	63	58	64	60	62	60	59	61	61 58	2 << min	60 min 54 min
Sample Identification: 102159137													
Thickness (mils)	58	61	60	58	62	61	62	64	57	63	61 57	2 << min	60 min 54 min
Sample Identification: 102159138													
Thickness (mils)	59	61	62	59	62	62	58	57	62	62	60 57	2 << min	60 min 54 min
Sample Identification: 102159139													
Thickness (mils)	59	58	63	59	60	62	62	63	60	59	61 58	2 << min	60 min 54 min
Sample Identification: 102159140													
Thickness (mils)	60	63	61	62	62	61	59	62	62	64	62 59	1 << min	60 min 54 min
Sample Identification: 102159141													
Thickness (mils)	61	62	65	60	63	62	61	62	60	64	62 60	2 << min	60 min 54 min
Sample Identification: 102159142													
Thickness (mils)	61	58	59	62	58	58	62	59	58	61	60 58	2 << min	60 min 54 min

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Smooth HDPE Geomembrane
Thickness (ASTM D 5199)
TRI Log #: E2352-48-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Sample Identification: 102159143													
Thickness (mils)	63	62	61	62	63	62	59	61	63	62	62	1	60 min
											59	<< min	54 min
Sample Identification: 102159145													
Thickness (mils)	62	60	62	60	59	60	61	63	61	62	61	1	60 min
											59	<< min	54 min
Sample Identification: 102159146													
Thickness (mils)	60	60	62	60	64	62	64	61	59	63	61	2	60 min
											59	<< min	54 min
Sample Identification: 102159147													
Thickness (mils)	62	59	62	62	61	59	56	60	65	60	61	2	60 min
											56	<< min	54 min
Sample Identification: 102159148													
Thickness (mils)	60	59	63	59	63	63	60	60	58	63	61	2	60 min
											58	<< min	54 min
Sample Identification: 102159149													
Thickness (mils)	58	62	65	58	60	61	63	60	60	62	61	2	60 min
											58	<< min	54 min
Sample Identification: 102159150													
Thickness (mils)	59	61	62	58	64	61	59	58	62	62	61	2	60 min
											58	<< min	54 min
Sample Identification: 102159151													
Thickness (mils)	60	62	63	59	65	62	60	62	61	64	62	2	60 min
											59	<< min	54 min
Sample Identification: 102159152													
Thickness (mils)	59	63	63	61	63	62	60	64	58	63	62	2	60 min
											58	<< min	54 min
Sample Identification: 102159153													
Thickness (mils)	60	59	60	63	62	62	63	59	61	63	61	2	60 min
											59	<< min	54 min

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Smooth HDPE Geomembrane
Thickness (ASTM D 5199)
TRI Log #: E2352-48-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Sample Identification: 102159154													
Thickness (mils)	62	65	59	61	61	63	60	60	65	60	62	2	60 min
											59	<< min	54 min
Sample Identification: 102159155													
Thickness (mils)	59	61	64	58	62	61	61	62	59	63	61	2	60 min
											58	<< min	54 min
Sample Identification: 102159156													
Thickness (mils)	62	60	61	63	59	62	58	63	62	62	61	2	60 min
											58	<< min	54 min

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

22

March 11, 2011
March 25, 2011 Updated with Stress Crack Resistance

Mail To:

Kim Pawlisch
RMT
744 Heartland Trail
Madison, WI 53717

email: kim.pawlisch@rmtinc.com
cc email: nathan.braun@rmtinc.com

Bill To:

<= Same

Dear Mr. Pawlisch:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Domtar Paper Company Phase 3 & 4**
TRI Job Reference Number:	E2352-50-03
Material(s) Tested:	5, GSE 60 mil Textured HDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Density (ASTM D 1505) Carbon Content (ASTM D 4218) Carbon Dispersion (ASTM D 5596) Tensile (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)
Updating====>	Stress Crack Resistance (ASTM D 5397)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

MPatel

Dr. Mansukh Patel
Sr. Laboratory Coordinator
Geosynthetic Services Division
www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

23

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Textured HDPE Geomembrane
Sample Identification: 108155204
TRI Log #: E2352-50-03

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	64	63	64	65	65	63	66	68	63	68	65	2	60 min
											63	<< min	54 min
Density (ASTM D 1505)													
Density (g/cm3)	0.946	0.946	0.946								0.946	0.000	0.940 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.44	2.45									2.45	0.01	2 - 3
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								8 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	154	172	183	184	174						173	12	126 min
TD Yield Strength (ppi)	188	188	162	180	174						178	11	126 min
MD Break Strength (ppi)	199	241	231	234	215						224	17	90 min
TD Break Strength (ppi)	217	188	177	184	193						192	15	90 min
MD Yield Elongation (%)	21	22	23	23	24						23	1	12 min
TD Yield Elongation (%)	17	17	16	18	18						17	1	12 min
MD Break Elongation (%)	539	615	550	573	544						564	31	100 min
TD Break Elongation (%)	556	456	516	476	488						499	39	100 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	144	153	142	143	135						143	6	90 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	64	63	69	65	64	67	62	63	54	71	64	5	42 min
TD Tear Strength (lbs)	60	62	57	60	64	61	56	61	48	57	59	4	42 min

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

24

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Textured HDPE Geomembrane
Sample Identification: 108155204
TRI Log #: E2352-50-03

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
SP-NCTL Stress Crack Resistance (ASTM D 5397, App)													
SURFACTANT:	CO-630												
EXPOSURE PERIOD:	**200 hrs**												
DATE TEST STARTED:	**16-Mar-11**												
TEST TEMPERATURE:	50C												

Transverse direction yield stress: 2690 (psi)
x 30% 807 (x 0.30)
x hinge thickness (in) 0.059 (80% of thickness)
x specimen width 0.124 (0.125")
Load 5.92 (lbs)

Mechanical Advantage 5
Lever Weight 0.3 (lbs)
Grip Weight 0.09 (lbs)

Applied load = (Load - Lever Weight + Grip Weight)/Mechanical Advantage = 1.14 lbs = 519 grams

Replicate No.:	1	2	3	4	5	MEAN	PROJ. SPEC.
No. Hours to Failure:	>200	>200	>200	>200	>200	>200	200 min

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

25

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Textured HDPE Geomembrane
Sample Identification: 108165208
TRI Log #: E2352-50-03

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
Thickness (ASTM D 5994)													
Thickness (mils)	67	66	62	62	59	67	68	65	61	63	64 59	3 << min	60 min 54 min
Density (ASTM D 1505)													
Density (g/cm3)	0.945	0.945	0.945								0.945	0.000	0.940 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.46	2.44									2.45	0.01	2 - 3
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	1	1								8 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	175	185	184	172	173						178	6	126 min
TD Yield Strength (ppi)	176	180	171	176	172						175	4	126 min
MD Break Strength (ppi)	188	232	247	223	213						221	22	90 min
TD Break Strength (ppi)	201	188	193	230	185						199	18	90 min
MD Yield Elongation (%)	16	18	18	16	16						17	1	12 min
TD Yield Elongation (%)	19	24	21	20	22						21	2	12 min
MD Break Elongation (%)	500	541	588	541	506						535	35	100 min
TD Break Elongation (%)	514	458	454	598	459						496	62	100 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	154	151	149	147	151						150	3	90 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	58	59	62	59	63	61	57	60	57	67	60	3	42 min
TD Tear Strength (lbs)	61	56	62	60	59	56	64	64	59	59	60	3	42 min

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Textured HDPE Geomembrane
Sample Identification: 108165208
TRI Log #: E2352-50-03

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
SP-NCTL Stress Crack Resistance (ASTM D 5397, App)													
SURFACTANT:	CO-630												
EXPOSURE PERIOD:	200 hrs												
DATE TEST STARTED:	16-Mar-11												
TEST TEMPERATURE:	50C												
Replicate No.:	1	2	3	4	5								
No. Hours to Failure:	>200	>200	>200	>200	>200						>200		200 min

Transverse direction yield stress: 2679 (psi)
x 30% 804 (x 0.30)
x hinge thickness (in) 0.059 (80% of thickness)
x specimen width 0.124 (0.125")
Load 5.90 (lbs)

Mechanical Advantage 5
Lever Weight 0.3 (lbs)
Grip Weight 0.09 (lbs)

Applied load = (Load - Lever Weight + Grip Weight)/Mechanical Advantage = 1.14 lbs = 517 grams

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Textured HDPE Geomembrane
Thickness (ASTM D 5994)
TRI Log #: E2362-50-03

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Sample Identification: 108155205													
Thickness (mils)	64	62	68	61	65	62	66	62	63	65	64	2	60 min
											61	<< min	54 min
Sample Identification: 108155206													
Thickness (mils)	65	66	63	64	67	66	63	66	68	58	65	3	60 min
											58	<< min	54 min
Sample Identification: 108155207													
Thickness (mils)	67	65	64	66	68	63	64	65	63	68	65	2	60 min
											63	<< min	54 min

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

April 18, 2011
April 28, 2011 Updated with Stress Crack Resistance Result.

Mail To:

Kim Pawlisch
RMT
744 Heartland Trail
Madison, WI 53717

email: kim.pawlisch@rmtinc.com
cc email: nathan.braun@rmtinc.com

Bill To:

<= Same

Dear Mr. Pawlisch:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Domtar Paper Company Phase 3 & 4**
TRI Job Reference Number:	E2352-80-10
Material(s) Tested:	1, GSE 60 mil Textured HDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994)
	Density (ASTM D 1505)
	Carbon Content (ASTM D 4218)
	Carbon Dispersion (ASTM D 5596)
	Tensile (ASTM D 6693)
	Puncture Strength (ASTM D 4833)
	Tear Resistance (ASTM D 1004)
Updating=======>	Stress Crack Resistance (ASTM D 5397)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

MPatel

Dr. Mansukh Patel
Sr. Laboratory Coordinator
Geosynthetic Services Division
www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

29

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Textured HDPE Geomembrane
Sample Identification: 108155300
TRI Log #: E2352-80-10

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.	PROJ. SPEC.
	1	2	3	4	5	6	7	8	9	10			
Thickness (ASTM D 5994)													
Thickness (mils)	64	64	65	63	64	65	64	64	63	63	64 63	1 << min	60 min 54 min
Density (ASTM D 1505)													
Density (g/cm3)	0.945	0.945	0.945								0.945	0.000	0.940 min
Carbon Black Content (ASTM D 4218)													
% Carbon Black	2.61	2.62									2.62	0.01	2 - 3
Carbon Black Dispersion (ASTM D 5596)													
Rating - 1st field view	1	1	1	2	2								8 cat 1 or 2
Rating - 2nd field view	1	1	1	1	1								
Tensile Properties (ASTM D 6693, 2 ipm strain rate)													
MD Yield Strength (ppi)	182	186	187	188	178						184	4	126 min
TD Yield Strength (ppi)	182	184	183	192	187						186	4	126 min
MD Break Strength (ppi)	193	224	205	226	213						212	14	90 min
TD Break Strength (ppi)	128	188	187	144	183						166	28	90 min
MD Yield Elongation (%)	20	23	21	21	19						21	1	12 min
TD Yield Elongation (%)	19	24	21	21	21						21	2	12 min
MD Break Elongation (%)	476	546	516	548	506						519	30	100 min
TD Break Elongation (%)	391	490	490	165	466						401	138	100 min
Puncture Resistance (ASTM D 4833)													
Puncture Strength (lbs)	153	162	154	160	155						157	4	90 min
Tear Resistance (ASTM D 1004)													
MD Tear Strength (lbs)	63	64	63	65	71	64	67	59	66	67	65	3	42 min
TD Tear Strength (lbs)	61	65	62	61	69	60	62	60	61	66	63	3	42 min

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

30

GEOMEMBRANE TEST RESULTS

TRI Client: RMT
Project: Domtar Paper Company Phase 3 & 4

Material: GSE 60 mil Textured HDPE Geomembrane
Sample Identification: 108155300
TRI Log #: E2352-80-10

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.	PROJ. SPEC.
SP-NCTL Stress Crack Resistance (ASTM D 5397, App)													
SURFACTANT:	CO-630												
EXPOSURE PERIOD:	200 hrs												
DATE TEST STARTED:	18-Apr-11												
TEST TEMPERATURE:	50C												

Transverse direction yield stress: 2673 (psi)
x 30% 802 (x 0.30)
x hinge thickness (in) 0.059 (80% of thickness)
x specimen width 0.124 (0.125")
Load 5.89 (lbs)

Mechanical Advantage 5
Lever Weight 0.3 (lbs)
Grip Weight 0.09 (lbs)

Applied load = (Load - Lever Weight + Grip Weight)/Mechanical Advantage = 1.14 lbs = 515 grams

Replicate No.:	1	2	3	4	5	MEAN	PROJ. SPEC.
No. Hours to Failure:	>200	>200	>200	>200	>200	>200	200 min

MD Machine Direction TD Transverse Direction NA Not Available

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

GeosyntheticTesting.com
9063 Bee Caves Road / Austin, TX 78733 / 512 263 2101 / fax: 512 263 2558

60-mil HDPE Geomembrane Seam Project
Acceptance Criteria

Table 8-6
60-Mil Smooth or Textured High-Density Polyethylene Geomembrane Seam Acceptable Specifications

PROPERTY	TEST METHOD	UNITS	TYPE OF CRITERION	MINIMUM AVERAGE VALUE [1]	
				NONTEXTURED	TEXTURED
Shear Strength [2]	ASTM D 4437	ppi	Minimum	126	113
Shear Elongation	--	percent	Minimum	50	50
Peel Strength [2] Fusion	ASTM D 4437	ppi	Minimum	90	82
Peel Strength [2] Extrusion	ASTM D 4437	ppi	Minimum	78	70
Peel Separation [3]	--	percent	Maximum	10	10

(1) The average of all five specimen test results must meet these requirements. In addition, five out of the five test results must meet these requirements.
(2) Failure type in peel must be film-tear bond (FTB) for four out of five test specimens.
(3) Maximum acceptable value.

Laboratory Destruction Seam Test Results

RMT, Inc.

Destructive Seam Analysis (ASTM D6392)[1]

Date: 7-Apr-11

Project Name: Domtar | Project Number: 05794.49.003 | QA: HJW | QC: JPH

Sample #	Sheet or or Panel Number(s)	Thickness (mil)	Geomembrane Type	Seam Type	Sample Condition	SHEAR: Strain Rate (ipm)	SHEAR: Gauge Length (in.)	SHEAR: Strength @ Yield	SHEAR: Elongation @ Break	SHEAR: Break Code	SHEAR: Break Classification	PEEL (outer weld): Strain Rate (ipm)	PEEL (outer weld): Strength @ Yield	PEEL (outer weld): % Peel	PEEL (outer weld): Break Code	PEEL (outer weld): Break Classification	PEEL (inner weld): Strain Rate (ipm)	PEEL (inner weld): Strength @ Yield	PEEL (inner weld): % Peel	PEEL (inner weld): Break Code	PEEL (inner weld): Break Classification
DS-1		60	HDPE/T2-HDPE	DHW	2	2	2	153	>100	No Brk	FTB	2	143	0	SE1	FTB	2	128	0	SE1	FTB
								153	>100	No Brk	FTB		132	0	SE1	FTB		131	0	SE1	FTB
								151	>100	No Brk	FTB		143	0	SE1	FTB		130	0	SE1	FTB
								153	>100	No Brk	FTB		137	0	SE1	FTB		128	0	SE1	FTB
								153	>100	No Brk	FTB		133	0	SE1	FTB		121	0	SE1	FTB
							Ave.:	153				Ave.:	138				Ave.:	128			
DS-2	S 5/6	60	HDPE	DHW	0	2	2	147	>100	No Brk	FTB	2	124	0	SE1	FTB	2	121	0	SE1	FTB
								144	>100	No Brk	FTB		129	0	SE1	FTB		121	0	SE1	FTB
								143	>100	No Brk	FTB		137	0	SE1	FTB		123	0	SE1	FTB
								144	>100	No Brk	FTB		127	0	SE1	FTB		122	0	SE1	FTB
								141	>100	No Brk	FTB		131	0	SE1	FTB		123	0	SE1	FTB
							Ave.:	144				Ave.:	130				Ave.:	122			
DS-3	S 6/7	60	HDPE	DHW	0	2	2	150	>100	No Brk	FTB	2	128	0	SE1	FTB	2	112	0	SE1	FTB
								148	>100	No Brk	FTB		129	0	SE1	FTB		112	0	SE1	FTB
								148	>100	No Brk	FTB		130	0	SE1	FTB		111	0	SE1	FTB
								149	>100	No Brk	FTB		129	0	SE1	FTB		115	0	SE1	FTB
								149	>100	No Brk	FTB		129	0	SE1	FTB		114	0	SE1	FTB
							Ave.:	149				Ave.:	129				Ave.:	113			
DS-4	S 7/9	60	HDPE	DHW	0	2	2	151	>100	No Brk	FTB	2	115	0	SE1	FTB	2	132	0	SE1	FTB
								153	>100	No Brk	FTB		114	0	SE1	FTB		110	0	SE1	FTB
								152	>100	No Brk	FTB		115	0	SE1	FTB		113	0	SE1	FTB
								152	>100	No Brk	FTB		125	0	SE1	FTB		111	0	SE1	FTB
								154	>100	No Brk	FTB		119	0	SE1	FTB		109	0	SE1	FTB
							Ave.:	152				Ave.:	118				Ave.:	115			

Geomembrane Type Codes (at the seam):

HDPE = High Density Polyethylene

LLDPE = Linear Low Density Polyethylene

VLDPE = Very Low Density Polyethylene

PVC = Polyvinyl Chloride

XR-5 (EIA-R)

/T1 = Textured on one side.

/T2 = Textured on two sides.

[1] Unless otherwise noted, each coupon for the same sample had identical codes as the first coupon listed for that sample.

Seam Type Codes:

AD = Adhesive

BS = Bodied Solvent

DE = Dielectric

DHW = Dual Hot Wedge

EXT = Extrusion

SHW = Single Hot Wedge

SVT = Solvent

TH = Thermal

TP = Tape

VL = Vulcanized

Sample Condition Codes:

0 = No visual defects

1 = Dirt inside the weld(s)

2 = One or both panels scratched

3 = Visual defects in weld(s)

4 = Extrusion bead off-center

Break Classification:

FTB = Film-Tear Bond

Non-FTB = Non Film-Tear Bond

Break Codes:

AD = Adhesion Failure

AD1 = Adhesion Failure/Bead & Top Panel (EXT)

AD2 = Adhesion Failure/Bead & Bottom Panel (EXT)

AD-BRK = Brk. in bot. sheet after some adhesion failure (peel, EXT)

AD-BRK = Brk. in sheet or first seam after adhesion failure (SVT, DHW)

AD-DEL = Delamination after adhesion failure (peel, fabric-reinforced)

AD-WLD = Break through fillet (EXT)

BRK = Break in sheeting

BRK1 = Break in bottom sheeting (shear, EXT)

BRK2 = Break in top sheeting (EXT)

CL = Break at clamp edge

DEL = Delamination in the plane of scrim (peel, fabric-reinforced)

FP = Fabric Pull-Out/plies break (no test, fabric-reinforced)

HT = Break at the edge of hot tack (EXT, no test)

SE = Break at seam edge (SVT)

SE1 = Break at outer edge of seam (DHW)

SE1 = Break at seam edge in bottom sheet (shear, EXT)

SE2 = Break at inner edge of seam (DHW)

SE2 = Break at seam edge in top sheet (shear, EXT)

SE3 = Break at seam edge in bottom sheet (peel, EXT)

(B) = Break in buffed area

No Brk = No Break

RMT, Inc.

Destructive Seam Analysis (ASTM D6392)[1]

Date: 7-Apr-11

Project Name: Domtar | Project Number: 05794.49.003 | QA: HJW | QC: JPH

Sample #	Sheet or or Panel Number(s)	Thickness (mil)	Geomembrane Type	Seam Type	Sample Condition	SHEAR Strain Rate (ipm)	SHEAR Gauge Length (in.)	SHEAR Strength @ Yield	SHEAR Elongation @ Break	SHEAR Break Code	SHEAR Break Classification	PEEL (outer weld) Strain Rate (ipm)	PEEL (outer weld) Strength @ Yield	PEEL (outer weld) % Peel	PEEL (outer weld) Break Code	PEEL (outer weld) Break Classification	PEEL (inner weld) Strain Rate (ipm)	PEEL (inner weld) Strength @ Yield	PEEL (inner weld) % Peel	PEEL (inner weld) Break Code	PEEL (inner weld) Break Classification
DS-5	S 9/10	60	HDPE	DHW	0	2	2	153	>100	No Brk	FTB	2	113	0	SE1	FTB	2	127	0	SE1	FTB
								150	>100	No Brk	FTB		117	0	SE1	FTB		131	0	SE1	FTB
								151	>100	No Brk	FTB		117	0	SE1	FTB		124	0	SE1	FTB
								147	>100	No Brk	FTB		112	0	SE1	FTB		124	0	SE1	FTB
								152	>100	No Brk	FTB		115	0	SE1	FTB		125	0	SE1	FTB
							Ave.:	151				Ave.:	115				Ave.:	126			
DS-6	S 10/12	60	HDPE	DHW	0	2	2	153	>100	No Brk	FTB	2	133	0	SE1	FTB	2	131	0	SE1	FTB
								152	>100	No Brk	FTB		121	0	SE1	FTB		133	0	SE1	FTB
								152	>100	No Brk	FTB		131	0	SE1	FTB		117	0	SE1	FTB
								151	>100	No Brk	FTB		132	0	SE1	FTB		125	0	SE1	FTB
								152	>100	No Brk	FTB		130	0	SE1	FTB		126	0	SE1	FTB
							Ave.:	152				Ave.:	129				Ave.:	126			
							Ave.:					Ave.:					Ave.:				
							Ave.:					Ave.:					Ave.:				

Geomembrane Type Codes (at the seam):

HDPE = High Density Polyethylene

LLDPE = Linear Low Density Polyethylene

VLDPE = Very Low Density Polyethylene

PVC = Polyvinyl Chloride

XR-5 (EIA-R)

/T1 = Textured on one side.

/T2 = Textured on two sides.

[1] Unless otherwise noted, each coupon for the same sample had identical codes as the first coupon listed for that sample.

Seam Type Codes:

AD = Adhesive

BS = Bodied Solvent

DE = Dielectric

DHW = Dual Hot Wedge

EXT = Extrusion

SHW = Single Hot Wedge

SVT = Solvent

TH = Thermal

TP = Tape

VL = Vulcanized

Sample Condition Codes:

0 = No visual defects

1 = Dirt inside the weld(s)

2 = One or both panels scratched

3 = Visual defects in weld(s)

4 = Extrusion bead off-center

Break Classification:

FTB = Film-Tear Bond

Non-FTB = Non Film-Tear Bond

Break Codes:

AD = Adhesion Failure

AD1 = Adhesion Failure/Bead & Top Panel (EXT)

AD2 = Adhesion Failure/Bead & Bottom Panel (EXT)

AD-BRK = Brk. in bot. sheet after some adhesion failure (peel, EXT)

AD-BRK = Brk. in sheet or first seam after adhesion failure (SVT, DHW)

AD-DEL = Delamination after adhesion failure (peel, fabric-reinforced)

AD-WLD = Break through fillet (EXT)

BRK = Break in sheeting

BRK1 = Break in bottom sheeting (shear, EXT)

BRK2 = Break in top sheeting (EXT)

CL = Break at clamp edge

DEL = Delamination in the plane of scrim (peel, fabric-reinforced)

FP = Fabric Pull-Out/plies break (no test, fabric-reinforced)

HT = Break at the edge of hot tack (EXT, no test)

SE = Break at seam edge (SVT)

SE1 = Break at outer edge of seam (DHW)

SE1 = Break at seam edge in bottom sheet (shear, EXT)

SE2 = Break at inner edge of seam (DHW)

SE2 = Break at seam edge in top sheet (shear, EXT)

SE3 = Break at seam edge in bottom sheet (peel, EXT)

(B) = Break in buffed area

No Brk = No Break

RMT, Inc.

Destructive Seam Analysis (ASTM D6392)[1]

Date: 13-Apr-11

Project Name: Domtar | Project Number: 05794.49.003 | QA: HJW | QC: JPH

						SHEAR						PEEL (outer weld)					PEEL (inner weld)				
Sample #	Sheet or or Panel Number(s)	Thickness (mil)	Geomembrane Type	Seam Type	Sample Condition	Strain Rate (ipm)	Gauge Length (in.)	Strength @ Yield	Elongation @ Break	Break Code	Break Classification	Strain Rate (ipm)	Strength @ Yield	% Peel	Break Code	Break Classification	Strain Rate (ipm)	Strength @ Yield	% Peel	Break Code	Break Classification
DS-7	S 12/20	60	HDPE	DHW	0	2	2	160	>100	No Brk	FTB	2	126	0	SE1	FTB	2	127	0	SE1	FTB
								161	>100	No Brk	FTB		131	0	SE1	FTB		129	0	SE1	FTB
								156	>100	No Brk	FTB		130	0	SE1	FTB		129	0	SE1	FTB
								160	>100	No Brk	FTB		127	0	SE1	FTB		129	0	SE1	FTB
								158	>100	No Brk	FTB		121	0	SE1	FTB		123	0	SE1	FTB
							Ave.:	159				Ave.:	127				Ave.:	127			
DS-8	S 20/21	60	HDPE	DHW	0	2	2	159	>100	No Brk	FTB	2	125	0	SE1	FTB	2	125	0	SE1	FTB
								158	>100	No Brk	FTB		129	0	SE1	FTB		131	0	SE1	FTB
								160	>100	No Brk	FTB		133	0	SE1	FTB		123	0	SE1	FTB
								161	>100	No Brk	FTB		134	0	SE1	FTB		125	0	SE1	FTB
								160	>100	No Brk	FTB		129	0	SE1	FTB		133	0	SE1	FTB
							Ave.:	160				Ave.:	130				Ave.:	127			
DS-9	S 21/23	60	HDPE	DHW	0	2	2	159	>100	No Brk	FTB	2	120	0	SE1	FTB	2	142	0	SE1	FTB
								158	>100	No Brk	FTB		122	0	SE1	FTB		128	0	SE1	FTB
								159	>100	No Brk	FTB		125	0	SE1	FTB		133	0	SE1	FTB
								157	>100	No Brk	FTB		127	0	SE1	FTB		117	0	SE1	FTB
								159	>100	No Brk	FTB		122	0	SE1	FTB		129	0	SE1	FTB
							Ave.:	158				Ave.:	123				Ave.:	130			
DS-10	S 23/25	60	HDPE	DHW	0	2	2	158	>100	No Brk	FTB	2	114	0	SE1	FTB	2	117	0	SE1	FTB
								159	>100	No Brk	FTB		116	0	SE1	FTB		113	0	SE1	FTB
								159	>100	No Brk	FTB		125	0	SE1	FTB		115	0	SE1	FTB
								158	>100	No Brk	FTB		120	0	SE1	FTB		117	0	SE1	FTB
								154	>100	No Brk	FTB		140	0	SE1	FTB		118	0	SE1	FTB
							Ave.:	158				Ave.:	123			FTB	Ave.:	116			

Geomembrane Type Codes (at the seam):

HDPE = High Density Polyethylene

LLDPE = Linear Low Density Polyethylene

VLDPE = Very Low Density Polyethylene

PVC = Polyvinyl Chloride

XR-5 (EIA-R)

/T1 = Textured on one side.

/T2 = Textured on two sides.

[1] Unless otherwise noted, each coupon for the same sample had identical codes as the first coupon listed for that sample.

Seam Type Codes:

AD = Adhesive

BS = Bodied Solvent

DE = Dielectric

DHW = Dual Hot Wedge

EXT = Extrusion

SHW = Single Hot Wedge

SVT = Solvent

TH = Thermal

TP = Tape

VL = Vulcanized

Sample Condition Codes:

0 = No visual defects

1 = Dirt inside the weld(s)

2 = One or both panels scratched

3 = Visual defects in weld(s)

4 = Extrusion bead off-center

Break Classification:

FTB = Film-Tear Bond

Non-FTB = Non Film-Tear Bond

Break Codes:

AD = Adhesion Failure

AD1 = Adhesion Failure/Bead & Top Panel (EXT)

AD2 = Adhesion Failure/Bead & Bottom Panel (EXT)

AD-BRK = Brk. in bot. sheet after some adhesion failure (peel, EXT)

AD-BRK = Brk. in sheet or first seam after adhesion failure (SVT, DHW)

AD-DEL = Delamination after adhesion failure (peel, fabric-reinforced)

AD-WLD = Break through fillet (EXT)

BRK = Break in sheeting

BRK1 = Break in bottom sheeting (shear, EXT)

BRK2 = Break in top sheeting (EXT)

CL = Break at clamp edge

DEL = Delamination in the plane of scrim (peel, fabric-reinforced)

FP = Fabric Pull-Out/plies break (no test, fabric-reinforced)

HT = Break at the edge of hot tack (EXT, no test)

SE = Break at seam edge (SVT)

SE1 = Break at outer edge of seam (DHW)

SE1 = Break at seam edge in bottom sheet (shear, EXT)

SE2 = Break at inner edge of seam (DHW)

SE2 = Break at seam edge in top sheet (shear, EXT)

SE3 = Break at seam edge in bottom sheet (peel, EXT)

(B) = Break in buffed area

No Brk = No Break

RMT, Inc.

Destructive Seam Analysis (ASTM D6392)[1]

Date: 13-Apr-11

Project Name: Domtar | Project Number: 05794.49.003 | QA: HJW | QC: JPH

Sample #	Sheet or or Panel Number(s)	Thickness (mil)	Geomembrane Type	Seam Type	Sample Condition	SHEAR						PEEL (outer weld)					PEEL (inner weld)				
						Strain Rate (ipm)	Gauge Length (in.)	Strength @ Yield	Elongation @ Break	Break Code	Break Classification	Strain Rate (ipm)	Strength @ Yield	% Peel	Break Code	Break Classification	Strain Rate (ipm)	Strength @ Yield	% Peel	Break Code	Break Classification
DS-11	S 25/26	60	HDPE	DHW	0	2	2	156	>100	No Brk	FTB	2	122	0	SE1	FTB	2	126	0	SE1	FTB
								155	>100	No Brk	FTB		118	0	SE1	FTB		132	0	SE1	FTB
								156	>100	No Brk	FTB		117	0	SE1	FTB		125	0	SE1	FTB
								155	>100	No Brk	FTB		118	0	SE1	FTB		134	0	SE1	FTB
								154	>100	No Brk	FTB		121	0	SE1	FTB		124	0	SE1	FTB
							Ave.:	155				Ave.:	119				Ave.:	128			
DS-12	S 26/27	60	HDPE	DHW	0	2	2	153	>100	No Brk	FTB	2	117	0	SE1	FTB	2	108	0	SE1	FTB
								153	>100	No Brk	FTB		124	0	SE1	FTB		105	0	SE1	FTB
								151	>100	No Brk	FTB		118	0	SE1	FTB		109	0	SE1	FTB
								152	>100	No Brk	FTB		123	0	SE1	FTB		111	0	SE1	FTB
								149	>100	No Brk	FTB		115	0	SE1	FTB		115	0	SE1	FTB
							Ave.:	152				Ave.:	119				Ave.:	110			
DS-13	S 19/1000	60	HDPE/T2-HDPE/T2	DHW	0	2	2	169	>100	No Brk	FTB	2	125	0	SE1	FTB	2	146	0	SE1	FTB
								167	>100	No Brk	FTB		107	0	SE1	FTB		130	0	SE1	FTB
								166	>100	No Brk	FTB		124	0	SE1	FTB		122	0	SE1	FTB
								165	>100	No Brk	FTB		120	0	SE1	FTB		124	0	SE1	FTB
								159	>100	No Brk	FTB		119	0	SE1	FTB		123	8	AD-BRK	FTB
							Ave.:	165				Ave.:	119				Ave.:	129			
DS-14	S 27/29	60	HDPE	DHW	0	2	2	153	>100	No Brk	FTB	2	123	0	SE1	FTB	2	117	0	SE1	FTB
								152	>100	No Brk	FTB		119	0	SE1	FTB		113	0	SE1	FTB
								151	>100	No Brk	FTB		126	0	SE1	FTB		118	0	SE1	FTB
								151	>100	No Brk	FTB		143	0	SE1	FTB		118	0	SE1	FTB
								158	>100	No Brk	FTB		144	0	SE1	FTB		118	0	SE1	FTB
							Ave.:	153				Ave.:	131			FTB	Ave.:	117			

Geomembrane Type Codes (at the seam):

HDPE = High Density Polyethylene
LLDPE = Linear Low Density Polyethylene
VLDPE = Very Low Density Polyethylene
PVC = Polyvinyl Chloride
XR-5 (EIA-R)
/T1 = Textured on one side.
/T2 = Textured on two sides.

[1] Unless otherwise noted, each coupon for the same sample had identical codes as the first coupon listed for that sample.

Seam Type Codes:

AD = Adhesive
BS = Bodied Solvent
DE = Dielectric
DHW = Dual Hot Wedge
EXT = Extrusion
SHW = Single Hot Wedge
SVT = Solvent
TH = Thermal
TP = Tape
VL = Vulcanized

Sample Condition Codes:

0 = No visual defects
1 = Dirt inside the weld(s)
2 = One or both panels scratched
3 = Visual defects in weld(s)
4 = Extrusion bead off-center

Break Classification:

FTB = Film-Tear Bond
Non-FTB = Non Film-Tear Bond

Break Codes:

AD = Adhesion Failure
AD1 = Adhesion Failure/Bead & Top Panel (EXT)
AD2 = Adhesion Failure/Bead & Bottom Panel (EXT)
AD-BRK = Brk. in bot. sheet after some adhesion failure (peel, EXT)
AD-BRK = Brk. in sheet or first seam after adhesion failure (SVT, DHW)
AD-DEL = Delamination after adhesion failure (peel, fabric-reinforced)
AD-WLD = Break through fillet (EXT)
BRK = Break in sheeting
BRK1 = Break in bottom sheeting (shear, EXT)
BRK2 = Break in top sheeting (EXT)
CL = Break at clamp edge
DEL = Delamination in the plane of scrim (peel, fabric-reinforced)
FP = Fabric Pull-Out/plies break (no test, fabric-reinforced)
HT = Break at the edge of hot tack (EXT, no test)
SE = Break at seam edge (SVT)
SE1 = Break at outer edge of seam (DHW)
SE1 = Break at seam edge in bottom sheet (shear, EXT)
SE2 = Break at inner edge of seam (DHW)
SE2 = Break at seam edge in top sheet (shear, EXT)
SE3 = Break at seam edge in bottom sheet (peel, EXT)
(B) = Break in buffed area
No Brk = No Break

RMT, Inc.

Destructive Seam Analysis (ASTM D6392)[1]

Date: 13-Apr-11

Project Name: Domtar | Project Number: 05794.49.003 | QA: HJW | QC: JPH

						SHEAR						PEEL (outer weld)					PEEL (inner weld)				
Sample #	Sheet or or Panel Number(s)	Thickness (mil)	Geomembrane Type	Seam Type	Sample Condition	Strain Rate (ipm)	Gauge Length (in.)	Strength @ Yield	Elongation @ Break	Break Code	Break Classification	Strain Rate (ipm)	Strength @ Yield	% Peel	Break Code	Break Classification	Strain Rate (ipm)	Strength @ Yield	% Peel	Break Code	Break Classification
DS-15	S 30/31	60	HDPE	DHW	0	2	2	158	>100	No Brk	FTB	2	123	0	SE1	FTB	2	116	0	SE1	FTB
								155	>100	No Brk	FTB		121	0	SE1	FTB		116	0	SE1	FTB
								153	>100	No Brk	FTB		120	0	SE1	FTB		129	0	SE1	FTB
								154	>100	No Brk	FTB		123	0	SE1	FTB		121	0	SE1	FTB
								155	>100	No Brk	FTB		122	0	SE1	FTB		127	0	SE1	FTB
							Ave.:	155				Ave.:	122				Ave.:	122			
DS-16	S 31/32	60	HDPE	DHW	0	2	2	158	>100	No Brk	FTB	2	128	0	SE1	FTB	2	123	0	SE1	FTB
								154	>100	No Brk	FTB		118	0	SE1	FTB		115	0	SE1	FTB
								153	>100	No Brk	FTB		130	0	SE1	FTB		137	0	SE1	FTB
								152	>100	No Brk	FTB		117	0	SE1	FTB		135	0	SE1	FTB
								152	>100	No Brk	FTB		128	0	SE1	FTB		132	0	SE1	FTB
							Ave.:	154				Ave.:	124				Ave.:	128			
DS-17	S 34/44	60	HDPE/T2-HDPE	DHW	0	2	2	154	>100	No Brk	FTB	2	134	0	SE1	FTB	2	137	0	SE1	FTB
								146	>100	No Brk	FTB		135	0	SE1	FTB		135	0	SE1	FTB
								150	>100	No Brk	FTB		142	0	SE1	FTB		137	0	SE1	FTB
								150	>100	No Brk	FTB		145	0	SE1	FTB		141	0	SE1	FTB
								149	>100	No Brk	FTB		141	0	SE1	FTB		139	0	SE1	FTB
							Ave.:	150				Ave.:	139				Ave.:	138			
DS-18	S 53/45	60	HDPE	DHW	0	2	2	153	>100	No Brk	FTB	2	126	0	SE1	FTB	2	137	0	SE1	FTB
								156	>100	No Brk	FTB		127	0	SE1	FTB		135	0	SE1	FTB
								152	>100	No Brk	FTB		122	0	SE1	FTB		131	0	SE1	FTB
								153	>100	No Brk	FTB		140	0	SE1	FTB		130	0	SE1	FTB
								152	>100	No Brk	FTB		129	0	SE1	FTB		129	0	SE1	FTB
							Ave.:	153				Ave.:	129			FTB	Ave.:	132			

Geomembrane Type Codes (at the seam):

HDPE = High Density Polyethylene

LLDPE = Linear Low Density Polyethylene

VLDPE = Very Low Density Polyethylene

PVC = Polyviny: Chloride

XR-5 (EIA-R)

/T1 = Textured on one side.

/T2 = Textured on two sides.

[1] Unless otherwise noted, each coupon for the same sample had identical codes as the first coupon listed for that sample.

Seam Type Codes:

AD = Adhesive

BS = Bodied Solvent

DE = Dielectric

DHW = Dual Hot Wedge

EXT = Extrusion

SHW = Single Hot Wedge

SVT = Solvent

TH = Thermal

TP = Tape

VL = Vulcanized

Sample Condition Codes:

0 = No visual defects

1 = Dirt inside the weld(s)

2 = One or both panels scratched

3 = Visual defects in weld(s)

4 = Extrusion bead off-center

Break Classification:

FTB = Film-Tear Bond

Non-FTB = Non Film-Tear Bond

Break Codes:

AD = Adhesion Failure

AD1 = Adhesion Failure/Bead & Top Panel (EXT)

AD2 = Adhesion Failure/Bead & Bottom Panel (EXT)

AD-BRK = Brk. in bot. sheet after some adhesion failure (peel, EXT)

AD-BRK = Brk. in sheet or first seam after adhesion failure (SVT, DHW)

AD-DEL = Delamination after adhesion failure (peel, fabric-reinforced)

AD-WLD = Break through fillet (EXT)

BRK = Break in sheeting

BRK1 = Break in bottom sheeting (shear, EXT)

BRK2 = Break in top sheeting (EXT)

CL = Break at clamp edge

DEL = Delamination in the plane of scrim (peel, fabric-reinforced)

FP = Fabric Pull-Out/plies break (no test, fabric-reinforced)

HT = Break at the edge of hot tack (EXT, no test)

SE = Break at seam edge (SVT)

SE1 = Break at outer edge of seam (DHW)

SE1 = Break at seam edge in bottom sheet (shear, EXT)

SE2 = Break at inner edge of seam (DHW)

SE2 = Break at seam edge in top sheet (shear, EXT)

SE3 = Break at seam edge in bottom sheet (peel, EXT)

(B) = Break in buffed area

No Brk = No Break

RMT, Inc.

Destructive Seam Analysis (ASTM D6392)[1]

Date: 13-Apr-11

Project Name: Domtar | Project Number: 05794.49.003 | QA: HJW | QC: JPH

Sample #	Sheet or Panel Number(s)	Thickness (mil)	Geomembrane Type	Seam Type	Sample Condition	SHEAR Strain Rate (ipm)	SHEAR Gauge Length (in.)	SHEAR Strength @ Yield	SHEAR Elongation @ Break	SHEAR Break Code	SHEAR Break Classification	PEEL (outer weld) Strain Rate (ipm)	PEEL (outer weld) Strength @ Yield	PEEL (outer weld) % Peel	PEEL (outer weld) Break Code	PEEL (outer weld) Break Classification	PEEL (inner weld) Strain Rate (ipm)	PEEL (inner weld) Strength @ Yield	PEEL (inner weld) % Peel	PEEL (inner weld) Break Code	PEEL (inner weld) Break Classification
DS-19	S 45/47	60	HDPE	DHW	0	2	2	155	>100	No Brk	FTB	2	133	0	SE1	FTB	2	125	0	SE1	FTB
								154	>100	No Brk	FTB		138	0	SE1	FTB		125	0	SE1	FTB
								154	>100	No Brk	FTB		139	0	SE1	FTB		125	0	SE1	FTB
								153	>100	No Brk	FTB		138	0	SE1	FTB		135	0	SE1	FTB
								154	>100	No Brk	FTB		136	0	SE1	FTB		124	0	SE1	FTB
							Ave.:	154				Ave.:	137				Ave.:	127			
DS-20	S 47/48	60	HDPE	DHW	0	2	2	152	>100	No Brk	FTB	2	127	0	SE1	FTB	2	112	0	SE1	FTB
								154	>100	No Brk	FTB		121	0	SE1	FTB		114	0	SE1	FTB
								150	>100	No Brk	FTB		120	0	SE1	FTB		116	0	SE1	FTB
								151	>100	No Brk	FTB		120	0	SE1	FTB		115	0	SE1	FTB
								151	>100	No Brk	FTB		121	0	SE1	FTB		117	0	SE1	FTB
							Ave.:	152				Ave.:	122				Ave.:	115			
DS-21	S 48/50	60	HDPE	DHW	0	2	2	155	>100	No Brk	FTB	2	122	0	SE1	FTB	2	125	0	SE1	FTB
								154	>100	No Brk	FTB		117	0	SE1	FTB		125	0	SE1	FTB
								153	>100	No Brk	FTB		116	0	SE1	FTB		124	0	SE1	FTB
								154	>100	No Brk	FTB		127	0	SE1	FTB		126	0	SE1	FTB
								153	>100	No Brk	FTB		121	0	SE1	FTB		119	0	SE1	FTB
							Ave.:	154				Ave.:	121				Ave.:	124			
DS-22	S 58/59	60	HDPE/T2-HDPE/T2	DHW	0	2	2	165	>100	No Brk	FTB	2	138	0	SE1	FTB	2	134	0	SE1	FTB
								161	>100	No Brk	FTB		136	0	SE1	FTB		129	0	SE1	FTB
								165	>100	No Brk	FTB		128	0	SE1	FTB		145	0	SE1	FTB
								163	>100	No Brk	FTB		120	0	SE1	FTB		138	0	SE1	FTB
								159	>100	No Brk	FTB		114	0	SE1	FTB		132	0	SE1	FTB
							Ave.:	163				Ave.:	127			FTB	Ave.:	136			

Geomembrane Type Codes (at the seam):

HDPE = High Density Polyethylene

LLDPE = Linear Low Density Polyethylene

VLDPE = Very Low Density Polyethylene

PVC = Polyvinyl Chloride

XR-5 (EIA-R)

/T1 = Textured on one side.

/T2 = Textured on two sides.

[1] Unless otherwise noted, each coupon for the same sample had identical codes as the first coupon listed for that sample.

Seam Type Codes:

AD = Adhesive

BS = Bodied Solvent

DE = Dielectric

DHW = Dual Hot Wedge

EXT = Extrusion

SHW = Single Hot Wedge

SVT = Solvent

TH = Thermal

TP = Tape

VL = Vulcanized

Sample Condition Codes:

0 = No visual defects

1 = Dirt inside the weld(s)

2 = One or both panels scratched

3 = Visual defects in weld(s)

4 = Extrusion bead off-center

Break Classification:

FTB = Film-Tear Bond

Non-FTB = Non Film-Tear Bond

Break Codes:

AD = Adhesion Failure

AD1 = Adhesion Failure/Bead & Top Panel (EXT)

AD2 = Adhesion Failure/Bead & Bottom Panel (EXT)

AD-BRK = Brk. in bot. sheet after some adhesion failure (peel, EXT)

AD-BRK = Brk. in sheet or first seam after adhesion failure (SVT, DHW)

AD-DEL = Delamination after adhesion failure (peel, fabric-reinforced)

AD-WLD = Break through fillet (EXT)

BRK = Break in sheeting

BRK1 = Break in bottom sheeting (shear, EXT)

BRK2 = Break in top sheeting (EXT)

CL = Break at clamp edge

DEL = Delamination in the plane of scrim (peel, fabric-reinforced)

FP = Fabric Pull-Out/plies break (no test, fabric-reinforced)

HT = Break at the edge of hot tack (EXT, no test)

SE = Break at seam edge (SVT)

SE1 = Break at outer edge of seam (DHW)

SE1 = Break at seam edge in bottom sheet (shear, EXT)

SE2 = Break at inner edge of seam (DHW)

SE2 = Break at seam edge in top sheet (shear, EXT)

SE3 = Break at seam edge in bottom sheet (peel, EXT)

(B) = Break in buffed area

No Brk = No Break

RMT, Inc.

Destructive Seam Analysis (ASTM D6392)[1]

Date: 13-Apr-11

Project Name: Domtar | Project Number: 05794.49.003 | QA: HJW | QC: JPH

Sample #	Sheet or or Panel Number(s)	Thickness (mil)	Geomembrane Type	Seam Type	Sample Condition	SHEAR Strain Rate (ipm)	SHEAR Gauge Length (in.)	SHEAR Strength @ Yield	SHEAR Elongation @ Break	SHEAR Break Code	SHEAR Break Classification	PEEL (outer weld) Strain Rate (ipm)	PEEL (outer weld) Strength @ Yield	PEEL (outer weld) % Peel	PEEL (outer weld) Break Code	PEEL (outer weld) Break Classification	PEEL (inner weld) Strain Rate (ipm)	PEEL (inner weld) Strength @ Yield	PEEL (inner weld) % Peel	PEEL (inner weld) Break Code	PEEL (inner weld) Break Classification
DS-23	S 56/57	60	HDPE/T2-HDPE/T2	DHW	0	2	2	160	>100	No Brk	FTB	2	115	0	SE1	FTB	2	117	0	SE1	FTB
								158	>100	No Brk	FTB		121	0	SE1	FTB		113	0	SE1	FTB
								159	>100	No Brk	FTB		120	0	SE1	FTB		120	0	SE1	FTB
								161	>100	No Brk	FTB		127	0	SE1	FTB		142	0	SE1	FTB
								160	>100	No Brk	FTB		131	0	SE1	FTB		131	0	SE1	FTB
							Ave.:	160				Ave.:	123				Ave.:	125			
							Ave.:					Ave.:					Ave.:				
							Ave.:					Ave.:					Ave.:				
							Ave.:					Ave.:				FTB	Ave.:				

Geomembrane Type Codes (at the seam):

HDPE = High Density Polyethylene

LLDPE = Linear Low Density Polyethylene

VLDPE = Very Low Density Polyethylene

PVC = Polyvinyl Chloride

XR-5 (EIA-R)

/T1 = Textured on one side.

/T2 = Textured on two sides.

[1] Unless otherwise noted, each coupon for the same sample had identical codes as the first coupon listed for that sample.

Seam Type Codes:

AD = Adhesive

BS = Bodied Solvent

DE = Dielectric

DHW = Dual Hot Wedge

EXT = Extrusion

SHW = Single Hot Wedge

SVT = Solvent

TH = Thermal

TP = Tape

VL = Vulcanized

Sample Condition Codes:

0 = No visual defects

1 = Dirt inside the weld(s)

2 = One or both panels scratched

3 = Visual defects in weld(s)

4 = Extrusion bead off-center

Break Classification:

FTB = Film-Tear Bond

Non-FTB = Non Film-Tear Bond

Break Codes:

AD = Adhesion Failure

AD1 = Adhesion Failure/Bead & Top Panel (EXT)

AD2 = Adhesion Failure/Bead & Bottom Panel (EXT)

AD-BRK = Brk. in bot. sheet after some adhesion failure (peel, EXT)

AD-BRK = Brk. in sheet or first seam after adhesion failure (SVT, DHW)

AD-DEL = Delamination after adhesion failure (peel, fabric-reinforced)

AD-WLD = Break through fillet (EXT)

BRK = Break in sheeting

BRK1 = Break in bottom sheeting (shear, EXT)

BRK2 = Break in top sheeting (EXT)

CL = Break at clamp edge

DEL = Delamination in the plane of scrim (peel, fabric-reinforced)

FP = Fabric Pull-Out/plies break (no test, fabric-reinforced)

HT = Break at the edge of hot tack (EXT, no test)

SE = Break at seam edge (SVT)

SE1 = Break at outer edge of seam (DHW)

SE1 = Break at seam edge in bottom sheet (shear, EXT)

SE2 = Break at inner edge of seam (DHW)

SE2 = Break at seam edge in top sheet (shear, EXT)

SE3 = Break at seam edge in bottom sheet (peel, EXT)

(B) = Break in buffed area

No Brk = No Break

RMT, Inc.

Destructive Seam Analysis (ASTM D6392)[1]

Date: 15-Apr-11

Project Name: Domtar | Project Number: 05794.49.003 | QA: HJW | QC: JPH

Sample #	Sheet or or Panel Number(s)	Thickness (mil)	Geomembrane Type	Seam Type	Sample Condition	SHEAR Strain Rate (ipm)	SHEAR Gauge Length (in.)	SHEAR Strength @ Yield	SHEAR Elongation @ Break	SHEAR Break Code	SHEAR Break Classification	PEEL (outer weld) Strain Rate (ipm)	PEEL (outer weld) Strength @ Yield	PEEL (outer weld) % Peel	PEEL (outer weld) Break Code	PEEL (outer weld) Break Classification	PEEL (inner weld) Strain Rate (ipm)	PEEL (inner weld) Strength @ Yield	PEEL (inner weld) % Peel	PEEL (inner weld) Break Code	PEEL (inner weld) Break Classification
DS-24	S51/60	60	HDPE	DHW	0	2	2	154	>100	No Brk	FTB	2	119	0	SE1	FTB	2	135	0	SE1	FTB
								154	>100	No Brk	FTB		123	0	SE1	FTB		144	0	SE1	FTB
								154	>100	No Brk	FTB		127	0	SE1	FTB		127	0	SE1	FTB
								155	>100	No Brk	FTB		122	0	SE1	FTB		122	0	SE1	FTB
								154	>100	No Brk	FTB		122	0	SE1	FTB		121	0	SE1	FTB
							Ave.:	154				Ave.:	123				Ave.:	130			
DS-25	S60/61	60	HDPE	DHW	0	2	2	154	>100	No Brk	FTB	2	143	0	SE1	FTB	2	107	0	SE1	FTB
								154	>100	No Brk	FTB		134	0	SE1	FTB		117	0	SE1	FTB
								154	>100	No Brk	FTB		129	0	SE1	FTB		115	0	SE1	FTB
								151	>100	No Brk	FTB		116	0	SE1	FTB		111	0	SE1	FTB
								152	>100	No Brk	FTB		112	0	SE1	FTB		115	0	SE1	FTB
							Ave.:	153				Ave.:	127				Ave.:	113			
DS-26	S61/62	60	HDPE	DHW	0	2	2	151	>100	No Brk	FTB	2	118	0	SE1	FTB	2	111	0	SE1	FTB
								152	>100	No Brk	FTB		119	0	SE1	FTB		126	0	SE1	FTB
								150	>100	No Brk	FTB		120	0	SE1	FTB		124	0	SE1	FTB
								150	>100	No Brk	FTB		123	0	SE1	FTB		135	0	SE1	FTB
								149	>100	No Brk	FTB		118	0	SE1	FTB		126	0	SE1	FTB
							Ave.:	150				Ave.:	120				Ave.:	124			
DS-27	S63/64	60	HDPE	DHW	0	2	2	151	>100	No Brk	FTB	2	118	0	SE1	FTB	2	123	0	SE1	FTB
								151	>100	No Brk	FTB		120	0	SE1	FTB		121	0	SE1	FTB
								151	>100	No Brk	FTB		117	0	SE1	FTB		122	0	SE1	FTB
								152	>100	No Brk	FTB		118	0	SE1	FTB		118	0	SE1	FTB
								150	>100	No Brk	FTB		117	0	SE1	FTB		123	0	SE1	FTB
							Ave.:	151				Ave.:	118			FTB	Ave.:	121			

Geomembrane Type Codes (at the seam):

HDPE = High Density Polyethylene
LLDPE = Linear Low Density Polyethylene
VLDPE = Very Low Density Polyethylene
PVC = Polyvinyl Chloride
XR-5 (EIA-R)
/T1 = Textured on one side.
/T2 = Textured on two sides.

[1] Unless otherwise noted, each coupon for the same sample had identical codes as the first coupon listed for that sample.

Seam Type Codes:

AD = Adhesive
BS = Bodied Solvent
DE = Dielectric
DHW = Dual Hot Wedge
EXT = Extrusion
SHW = Single Hot Wedge
SVT = Solvent
TH = Thermal
TP = Tape
VL = Vulcanized

Sample Condition Codes:

0 = No visual defects
1 = Dirt inside the weld(s)
2 = One or both panels scratched
3 = Visual defects in weld(s)
4 = Extrusion bead off-center

Break Classification:

FTB = Film-Tear Bond
Non-FTB = Non Film-Tear Bond

Break Codes:

AD = Adhesion Failure
AD1 = Adhesion Failure/Bead & Top Panel (EXT)
AD2 = Adhesion Failure/Bead & Bottom Panel (EXT)
AD-BRK = Brk. in bot. sheet after some adhesion failure (peel, EXT)
AD-BRK = Brk. in sheet or first seam after adhesion failure (SVT, DHW)
AD-DEL = Delamination after adhesion failure (peel, fabric-reinforced)
AD-WLD = Break through fillet (EXT)
BRK = Break in sheeting
BRK1 = Break in bottom sheeting (shear, EXT)
BRK2 = Break in top sheeting (EXT)
CL = Break at clamp edge
DEL = Delamination in the plane of scrim (peel, fabric-reinforced)
FP = Fabric Pull-Out/plies break (no test, fabric-reinforced)
HT = Break at the edge of hot tack (EXT, no test)
SE = Break at seam edge (SVT)
SE1 = Break at outer edge of seam (DHW)
SE1 = Break at seam edge in bottom sheet (shear, EXT)
SE2 = Break at inner edge of seam (DHW)
SE2 = Break at seam edge in top sheet (shear, EXT)
SE3 = Break at seam edge in bottom sheet (peel, EXT)
(B) = Break in buffed area
No Brk = No Break

RMT, Inc.

Destructive Seam Analysis (ASTM D6392)[1]

Date: 15-Apr-11

Project Name: Domtar | Project Number: 05794.49.003 | QA: HJW | QC: JPH

Sample #	Sheet or or Panel Number(s)	Thickness (mil)	Geomembrane Type	Seam Type	Sample Condition	SHEAR Strain Rate (ipm)	SHEAR Gauge Length (in.)	SHEAR Strength @ Yield	SHEAR Elongation @ Break	SHEAR Break Code	SHEAR Break Classification	PEEL (outer weld) Strain Rate (ipm)	PEEL (outer weld) Strength @ Yield	PEEL (outer weld) % Peel	PEEL (outer weld) Break Code	PEEL (outer weld) Break Classification	PEEL (inner weld) Strain Rate (ipm)	PEEL (inner weld) Strength @ Yield	PEEL (inner weld) % Peel	PEEL (inner weld) Break Code	PEEL (inner weld) Break Classification
DS-28	S64/66	60	HDPE	DHW	0	2	2	151	>100	No Brk	FTB	2	135	0	SE1	FTB	2	136	0	SE1	FTB
								147	>100	No Brk	FTB		125	0	SE1	FTB		126	0	SE1	FTB
								148	>100	No Brk	FTB		127	0	SE1	FTB		120	0	SE1	FTB
								150	>100	No Brk	FTB		131	0	SE1	FTB		129	0	SE1	FTB
								149	>100	No Brk	FTB		122	0	SE1	FTB		118	0	SE1	FTB
							Ave.:	149				Ave.:	128				Ave.:	126			
DS-30	S67/69	60	HDPE	DHW	0	2	2	152	>100	No Brk	FTB	2	108	0	SE1	FTB	2	119	0	SE1	FTB
								153	>100	No Brk	FTB		126	0	SE1	FTB		121	0	SE1	FTB
								151	>100	No Brk	FTB		130	0	SE1	FTB		131	0	SE1	FTB
								150	>100	No Brk	FTB		112	0	SE1	FTB		119	0	SE1	FTB
								150	>100	No Brk	FTB		114	0	SE1	FTB		113	0	SE1	FTB
							Ave.:	151				Ave.:	118				Ave.:	121			
DS-31	S69/71	60	HDPE	DHW	0	2	2	152	>100	No Brk	FTB	2	139	0	SE1	FTB	2	140	0	SE1	FTB
								149	>100	No Brk	FTB		137	0	SE1	FTB		115	0	SE1	FTB
								151	>100	No Brk	FTB		144	0	SE1	FTB		131	0	SE1	FTB
								150	>100	No Brk	FTB		137	0	SE1	FTB		116	0	SE1	FTB
								151	>100	No Brk	FTB		131	0	SE1	FTB		134	0	SE1	FTB
							Ave.:	151				Ave.:	138				Ave.:	127			
DS-32	S71/72	60	HDPE	DHW	0	2	2	153	>100	No Brk	FTB	2	130	0	SE1	FTB	2	129	0	SE1	FTB
								153	>100	No Brk	FTB		111	0	SE1	FTB		122	0	SE1	FTB
								152	>100	No Brk	FTB		133	0	SE1	FTB		122	0	SE1	FTB
								152	>100	No Brk	FTB		128	0	SE1	FTB		117	0	SE1	FTB
								151	>100	No Brk	FTB		133	0	SE1	FTB		124	0	SE1	FTB
							Ave.:	152				Ave.:	127			FTB	Ave.:	123			

Geomembrane Type Codes (at the seam):

HDPE = High Density Polyethylene
LLDPE = Linear Low Density Polyethylene
VLDPE = Very Low Density Polyethylene
PVC = Polyvinyl Chloride
XR-5 (EIA-R)
/T1 = Textured on one side.
/T2 = Textured on two sides.

[1] Unless otherwise noted, each coupon for the same sample had identical codes as the first coupon listed for that sample.

Seam Type Codes:

AD = Adhesive
BS = Bodied Solvent
DE = Dielectric
DHW = Dual Hot Wedge
EXT = Extrusion
SHW = Single Hot Wedge
SVT = Solvent
TH = Thermal
TP = Tape
VL = Vulcanized

Sample Condition Codes:

0 = No visual defects
1 = Dirt inside the weld(s)
2 = One or both panels scratched
3 = Visual defects in weld(s)
4 = Extrusion bead off-center

Break Classification:

FTB = Film-Tear Bond
Non-FTB = Non Film-Tear Bond

Break Codes:

AD = Adhesion Failure
AD1 = Adhesion Failure/Bead & Top Panel (EXT)
AD2 = Adhesion Failure/Bead & Bottom Panel (EXT)
AD-BRK = Brk. in bot. sheet after some adhesion failure (peel, EXT)
AD-BRK = Brk. in sheet or first seam after adhesion failure (SVT, DHW)
AD-DEL = Delamination after adhesion failure (peel, fabric-reinforced)
AD-WLD = Break through fillet (EXT)
BRK = Break in sheeting
BRK1 = Break in bottom sheeting (shear, EXT)
BRK2 = Break in top sheeting (EXT)
CL = Break at clamp edge
DEL = Delamination in the plane of scrim (peel, fabric-reinforced)
FP = Fabric Pull-Out/plies break (no test, fabric-reinforced)
HT = Break at the edge of hot tack (EXT, no test)
SE = Break at seam edge (SVT)
SE1 = Break at outer edge of seam (DHW)
SE1 = Break at seam edge in bottom sheet (shear, EXT)
SE2 = Break at inner edge of seam (DHW)
SE2 = Break at seam edge in top sheet (shear, EXT)
SE3 = Break at seam edge in bottom sheet (peel, EXT)
(B) = Break in buffed area
No Brk = No Break

RMT, Inc.

Destructive Seam Analysis (ASTM D6392)[1]

Date: 15-Apr-11

Project Name: Domtar | Project Number: 05794.49.003 | QA: HJW | QC: JPH

						SHEAR						PEEL (outer weld)					PEEL (inner weld)				
Sample #	Sheet or or Panel Number(s)	Thickness (mil)	Geomembrane Type	Seam Type	Sample Condition	Strain Rate (ipm)	Gauge Length (in.)	Strength @ Yield	Elongation @ Break	Break Code	Break Classification	Strain Rate (ipm)	Strength @ Yield	% Peel	Break Code	Break Classification	Strain Rate (ipm)	Strength @ Yield	% Peel	Break Code	Break Classification
DS-33	S72/74	60	HDPE	DHW	0	2	2	153	>100	No Brk	FTB	2	127	0	SE1	FTB	2	126	0	SE1	FTB
								151	>100	No Brk	FTB		119	0	SE1	FTB		136	0	SE1	FTB
								150	>100	No Brk	FTB		126	0	SE1	FTB		121	0	SE1	FTB
								149	>100	No Brk	FTB		127	0	SE1	FTB		118	0	SE1	FTB
								150	>100	No Brk	FTB		130	0	SE1	FTB		120	0	SE1	FTB
							Ave.:	151				Ave.:	126				Ave.:	124			
DS-34	S85/1000	60	HDPE/T2-HDPE/T2	DHW	0	2	2	157	>100	No Brk	FTB	2	129	0	SE1	FTB	2	126	0	SE1	FTB
								155	>100	No Brk	FTB		127	0	SE1	FTB		129	0	SE1	FTB
								152	>100	No Brk	FTB		134	0	SE1	FTB		124	0	SE1	FTB
								152	>100	No Brk	FTB		127	0	SE1	FTB		130	0	SE1	FTB
								154	>100	No Brk	FTB		142	0	SE1	FTB		129	0	SE1	FTB
							Ave.:	154				Ave.:	132				Ave.:	128			
							Ave.:					Ave.:					Ave.:				
							Ave.:					Ave.:					Ave.:				

Geomembrane Type Codes (at the seam):

HDPE = High Density Polyethylene

LLDPE = Linear Low Density Polyethylene

VLDPE = Very Low Density Polyethylene

PVC = Polyvinyl Chloride

XR-5 (EIA-R)

/T1 = Textured on one side.

/T2 = Textured on two sides.

[1] Unless otherwise noted, each coupon for the same sample had identical codes as the first coupon listed for that sample.

Seam Type Codes:

AD = Adhesive

BS = Bodied Solvent

DE = Dielectric

DHW = Dual Hot Wedge

EXT = Extrusion

SHW = Single Hot Wedge

SVT = Solvent

TH = Thermal

TP = Tape

VL = Vulcanized

Sample Condition Codes:

0 = No visual defects

1 = Dirt inside the weld(s)

2 = One or both panels scratched

3 = Visual defects in weld(s)

4 = Extrusion bead off-center

Break Classification:

FTB = Film-Tear Bond

Non-FTB = Non Film-Tear Bond

Break Codes:

AD = Adhesion Failure

AD1 = Adhesion Failure/Bead & Top Panel (EXT)

AD2 = Adhesion Failure/Bead & Bottom Panel (EXT)

AD-BRK = Brk. in bot. sheet after some adhesion failure (peel, EXT)

AD-BRK = Brk. in sheet or first seam after adhesion failure (SVT, DHW)

AD-DEL = Delamination after adhesion failure (peel, fabric-reinforced)

AD-WLD = Break through fillet (EXT)

BRK = Break in sheeting

BRK1 = Break in bottom sheeting (shear, EXT)

BRK2 = Break in top sheeting (EXT)

CL = Break at clamp edge

DEL = Delamination in the plane of scrim (peel, fabric-reinforced)

FP = Fabric Pull-Out/plies break (no test, fabric-reinforced)

HT = Break at the edge of hot tack (EXT, no test)

SE = Break at seam edge (SVT)

SE1 = Break at outer edge of seam (DHW)

SE1 = Break at seam edge in bottom sheet (shear, EXT)

SE2 = Break at inner edge of seam (DHW)

SE2 = Break at seam edge in top sheet (shear, EXT)

SE3 = Break at seam edge in bottom sheet (peel, EXT)

(B) = Break in buffed area

No Brk = No Break

RMT, Inc.

Destructive Seam Analysis (ASTM D6392)[1]

Date: 18-Apr-11

Project Name: Domtar | Project Number: 05794.49.003 | QA: HJW | QC: JPH

Sample #	Sheet or or Panel Number(s)	Thickness (mil)	Geomembrane Type	Seam Type	Sample Condition	SHEAR Strain Rate (ipm)	SHEAR Gauge Length (in.)	SHEAR Strength @ Yield	SHEAR Elongation @ Break	SHEAR Break Code	SHEAR Break Classification	PEEL (outer weld) Strain Rate (ipm)	PEEL (outer weld) Strength @ Yield	PEEL (outer weld) % Peel	PEEL (outer weld) Break Code	PEEL (outer weld) Break Classification	PEEL (inner weld) Strain Rate (ipm)	PEEL (inner weld) Strength @ Yield	PEEL (inner weld) % Peel	PEEL (inner weld) Break Code	PEEL (inner weld) Break Classification
DS-29	S66/67	60	HDPE	DHW	0	2	2	156	>100	No Brk	FTB	2	123	0	SE1	FTB	2	142	0	SE1	FTB
								154	>100	No Brk	FTB		117	0	SE1	FTB		124	0	SE1	FTB
								156	>100	No Brk	FTB		115	0	SE1	FTB		132	0	SE1	FTB
								157	>100	No Brk	FTB		123	0	SE1	FTB		129	0	SE1	FTB
								154	>100	No Brk	FTB		123	0	SE1	FTB		130	0	SE1	FTB
							Ave.:	155				Ave.:	120				Ave.:	131			
DS-35	S88/90	60	HDPE	DHW	0	2	2	154	>100	No Brk	FTB	2	133	0	SE1	FTB	2	114	0	SE1	FTB
								154	>100	No Brk	FTB		135	0	SE1	FTB		119	0	SE1	FTB
								155	>100	No Brk	FTB		140	0	SE1	FTB		121	0	SE1	FTB
								156	>100	No Brk	FTB		141	0	SE1	FTB		131	0	SE1	FTB
								155	>100	No Brk	FTB		140	0	SE1	FTB		129	0	SE1	FTB
							Ave.:	155				Ave.:	138				Ave.:	123			
DS-36	S93/94	60	HDPE	DHW	0	2	2	150	>100	No Brk	FTB	2	126	0	SE1	FTB	2	140	0	SE1	FTB
								151	>100	No Brk	FTB		136	0	SE1	FTB		137	0	SE1	FTB
								152	>100	No Brk	FTB		138	0	SE1	FTB		142	0	SE1	FTB
								156	>100	No Brk	FTB		144	0	SE1	FTB		143	0	SE1	FTB
								154	>100	No Brk	FTB		135	0	SE1	FTB		141	0	SE1	FTB
							Ave.:	153				Ave.:	136				Ave.:	141			
DS-37	S99/100	60	HDPE/T2-HDPE/T2	DHW	0	2	2	156	>100	No Brk	FTB	2	117	0	SE1	FTB	2	124	0	SE1	FTB
								157	>100	No Brk	FTB		117	0	SE1	FTB		126	0	SE1	FTB
								156	>100	No Brk	FTB		114	0	SE1	FTB		124	0	SE1	FTB
								156	>100	No Brk	FTB		116	0	SE1	FTB		118	0	SE1	FTB
								154	>100	No Brk	FTB		115	0	SE1	FTB		119	0	SE1	FTB
							Ave.:	156				Ave.:	116			FTB	Ave.:	122			

Geomembrane Type Codes (at the seam):

HDPE = High Density Polyethylene
LLDPE = Linear Low Density Polyethylene
VLDPE = Very Low Density Polyethylene
PVC = Polyvinyl Chloride
XR-5 (EIA-R)
/T1 = Textured on one side.
/T2 = Textured on two sides.

[1] Unless otherwise noted, each coupon for the same sample had identical codes as the first coupon listed for that sample.

Seam Type Codes:

AD = Adhesive
BS = Bodied Solvent
DE = Dielectric
DHW = Dual Hot Wedge
EXT = Extrusion
SHW = Single Hot Wedge
SVT = Solvent
TH = Thermal
TP = Tape
VL = Vulcanized

Sample Condition Codes:

0 = No visual defects
1 = Dirt inside the weld(s)
2 = One or both panels scratched
3 = Visual defects in weld(s)
4 = Extrusion bead off-center

Break Classification:

FTB = Film-Tear Bond
Non-FTB = Non Film-Tear Bond

Break Codes:

AD = Adhesion Failure
AD1 = Adhesion Failure/Bead & Top Panel (EXT)
AD2 = Adhesion Failure/Bead & Bottom Panel (EXT)
AD-BRK = Brk. in bot. sheet after some adhesion failure (peel, EXT)
AD-BRK = Brk. in sheet or first seam after adhesion failure (SVT, DHW)
AD-DEL = Delamination after adhesion failure (peel, fabric-reinforced)
AD-WLD = Break through fillet (EXT)
BRK = Break in sheeting
BRK1 = Break in bottom sheeting (shear, EXT)
BRK2 = Break in top sheeting (EXT)
CL = Break at clamp edge
DEL = Delamination in the plane of scrim (peel, fabric-reinforced)
FP = Fabric Pull-Out/plies break (no test, fabric-reinforced)
HT = Break at the edge of hot tack (EXT, no test)
SE = Break at seam edge (SVT)
SE1 = Break at outer edge of seam (DHW)
SE1 = Break at seam edge in bottom sheet (shear, EXT)
SE2 = Break at inner edge of seam (DHW)
SE2 = Break at seam edge in top sheet (shear, EXT)
SE3 = Break at seam edge in bottom sheet (peel, EXT)
(B) = Break in buffed area
No Brk = No Break

RMT, Inc.

Destructive Seam Analysis (ASTM D6392)[1]

Date: 18-Apr-11

Project Name: Domtar | Project Number: 05794.49.003 | QA: HJW | QC: JPH

Sample #	Sheet or Panel Number(s)	Thickness (mil)	Geomembrane Type	Seam Type	Sample Condition	SHEAR						PEEL (outer weld)					PEEL (inner weld)				
						Strain Rate (ipm)	Gauge Length (in.)	Strength @ Yield	Elongation @ Break	Break Code	Break Classification	Strain Rate (ipm)	Strength @ Yield	% Peel	Break Code	Break Classification	Strain Rate (ipm)	Strength @ Yield	% Peel	Break Code	Break Classification
DS-38	S95/118	60	HDPE	DHW	0	2	2	156	>100	No Brk	FTB	2	141	0	SE1	FTB	2	120	0	SE1	FTB
								157	>100	No Brk	FTB		135	0	SE1	FTB		126	0	SE1	FTB
								156	>100	No Brk	FTB		127	0	SE1	FTB		128	0	SE1	FTB
								157	>100	No Brk	FTB		128	0	SE1	FTB		128	0	SE1	FTB
								156	>100	No Brk	FTB		130	0	SE1	FTB		129	0	SE1	FTB
							Ave.:	156				Ave.:	132				Ave.:	126			
DS-39	S113/114	60	HDPE/T2-HDPE/T2	DHW	0	2	2	166	>100	No Brk	FTB	2	131	0	SE1	FTB	2	128	0	SE1	FTB
								166	>100	No Brk	FTB		128	0	SE1	FTB		131	0	SE1	FTB
								168	>100	No Brk	FTB		135	0	SE1	FTB		133	0	SE1	FTB
								164	>100	No Brk	FTB		136	0	SE1	FTB		126	0	SE1	FTB
								163	>100	No Brk	FTB		133	0	SE1	FTB		124	0	SE1	FTB
							Ave.:	165				Ave.:	133				Ave.:	128			
							Ave.:					Ave.:					Ave.:				
							Ave.:					Ave.:					Ave.:				

Geomembrane Type Codes (at the seam):

HDPE = High Density Polyethylene
LLDPE = Linear Low Density Polyethylene
VLDPE = Very Low Density Polyethylene
PVC = Polyvinyl Chloride
XR-5 (EIA-R)
/T1 = Textured on one side.
/T2 = Textured on two sides.

[1] Unless otherwise noted, each coupon for the same sample had identical codes as the first coupon listed for that sample.

Seam Type Codes:

AD = Adhesive
BS = Bodied Solvent
DE = Dielectric
DHW = Dual Hot Wedge
EXT = Extrusion
SHW = Single Hot Wedge
SVT = Solvent
TH = Thermal
TP = Tape
VL = Vulcanized

Sample Condition Codes:

0 = No visual defects
1 = Dirt inside the weld(s)
2 = One or both panels scratched
3 = Visual defects in weld(s)
4 = Extrusion bead off-center

Break Classification:

FTB = Film-Tear Bond
Non-FTB = Non Film-Tear Bond

Break Codes:

AD = Adhesion Failure
AD1 = Adhesion Failure/Bead & Top Panel (EXT)
AD2 = Adhesion Failure/Bead & Bottom Panel (EXT)
AD-BRK = Brk. in bot. sheet after some adhesion failure (peel, EXT)
AD-BRK = Brk. in sheet or first seam after adhesion failure (SVT, DHW)
AD-DEL = Delamination after adhesion failure (peel, fabric-reinforced)
AD-WLD = Break through fillet (EXT)
BRK = Break in sheeting
BRK1 = Break in bottom sheeting (shear, EXT)
BRK2 = Break in top sheeting (EXT)
CL = Break at clamp edge
DEL = Delamination in the plane of scrim (peel, fabric-reinforced)
FP = Fabric Pull-Out/plies break (no test, fabric-reinforced)
HT = Break at the edge of hot tack (EXT, no test)
SE = Break at seam edge (SVT)
SE1 = Break at outer edge of seam (DHW)
SE1 = Break at seam edge in bottom sheet (shear, EXT)
SE2 = Break at inner edge of seam (DHW)
SE2 = Break at seam edge in top sheet (shear, EXT)
SE3 = Break at seam edge in bottom sheet (peel, EXT)
(B) = Break in buffed area
No Brk = No Break

Appendix J
Submittal Information

Table of Contents

- Select Aggregate Fill and Aggregate Base Coarse Submittal
- Select Granular Fill Submittal
- Pump Station Manhole Shop Drawing

Select Aggregate Fill and Aggregate Base Coarse Submittal

Domtar Paper Company, LLC, Landfill No. 3 Phase 3 & 4 Construction
Plymouth, NC

RMT, Inc., Submittal Review Comments

Ryan Incorporated Central – Submittal 003 – Stone Certifications

- Gravel Layer Fill (DOT No. 67- Coarse Aggregate)
- Aggregate Base Course

☒ NO EXCEPTION TAKEN	☐ MAKE CORRECTIONS NOTED
☐ REJECTED	
☐ SUBMIT SPECIFIED ITEM	☐ REVISED AND RESUBMIT

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades, and performing his work in a safe and satisfactory manner.

Job No. 05794.49.001 Date 2/21/11

By K. D. Parker

Letter of Transmittal

Ryan Incorporated Central

Mailing Address:
P.O. Box 206
Janesville, WI 53547
Phone: 608.754.2291

Physical Address:
2700 East Racine St.
Janesville, WI 53545
Fax: 608.757.2387

To: RMT
744 Heartland Trail
Madison, WI 53717

Attn: Todd Martin

Date: 2/18/11
Project: Domtar LF Ph 3 and 4
Location: Plymouth, NC
RE: SUBMITTAL 003
Stone

We are sending you: X Herewith ___ Delivered By Hand ___ Under Separate Cover
Following Items: ___ Plans X Specifications ___ Shop Drawings ___ Samples
___ Subcontract ___ Change Order ___ Other
VIA: Email

COPIES	DATE	DESCRIPTION
1		Stone Certifications

These are transmitted as indicated below:

___ For Your Use
X For Approval
___ For Bids Due ___
___ As Requested
___ For Review And Comment

___ Approved As Noted
___ Approved For Construction
___ Returned For Corrections
___ For Signature & Return
___

___ Return ___ Signed Documents
___ Submit ___ Copies For ___
___ Resubmit ___ Copies For ___

Remarks:

IF ENCLOSURES ARE NOT AS INDICATED, PLEASE NOTIFY US AT ONCE.

Signed:

Joseph D. VanRemortel, P.E.
Contract Administrator

Email: *joe.vanremortel@ryancentral.com*

4

REPORT OF PETROGRAPHIC EXAMINATION OF AGGREGATES FOR CONCRETE

Source: Hanson Aggregates, Rocky Mount Quarry
Rocky Mount, Edgecombe County, NC

Test Method: ASTM C 295-90, Petrographic Examination of Aggregate for Concrete

Date: December 26, 2003

Sample Description:

The rock being mined at this site consists of three distinctly different rock types. In order to give a complete description, three samples were collected from the stockpile at the primary crushing station at the quarry on October 14, 2003 by a professional geologist. These samples were compared to other rocks found throughout the active mining area to assure that they were representative of current production as well as recent and near future production. One sample was a gray granitic rock, one was a pink granitic rock, and a third was a black fine grained mafic rock. Upon observation of the material currently being mined, it was decided that the mafic material made up a very small percentage of the total product. This sample is described in hand sample only.

Petrographic Examination:

Two standard petrographic thin sections were prepared from the two granitic samples. These thin sections were labeled as RMP (Rocky Mount Pink) and RMG (Rocky Mount Gray). They were examined by a Licensed Geologist to determine the individual mineral constituents, the texture and grain size, and any other noted features. The hand samples was also examined for similar features. A third sample, consisting of the mafic rock, was only examined in hand sample.

Since this deposit consists of three distinctly different rock types, they will be described separately. The final crushed product consists of varying percentages of the three rock types, but can be roughly estimated as follows;

pink granite: 49%
gray granite: 49%
black mafic rock: <2%

Rocky Mount Pink Granite:

This rock can be classified as a ***granite*** and consists of the following mineral constituents (approximate percentages):

plagioclase feldspar 25%	muscovite (sericite) 2%
potassium feldspar 30%	epidote <2%
quartz 40%	amphibole <2%
opaques / sulfides (trace)	

The rock is a coarse grained granite with good intergranular bonds. There is some alteration of feldspar to sericite. Some of the quartz exhibits undulating extinction.

Rocky Mount Gray Granite:

This rock can be classified as a ***granodiorite*** and consists of the following mineral constituents (approximate percentages):

plagioclase feldspar 36%
potassium feldspar 10%
quartz 22%
biotite 25%
muscovite 5%
sericite 2%

The rock is medium grained with good intergranular bonds. There is some alteration of feldspar to sericite. Some quartz shows undulatory extinction.

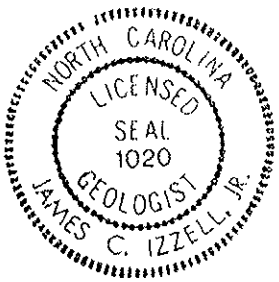
Rocky Mount Black Mafic Rock:

This rock can be classified as a metamorphosed diabase. It comes from small dikes throughout the deposit, but makes up a very small percentage of the total deposit. It consists of plagioclase feldspar, biotite, and some amphibole. It is very fine grained and foliated.

Summary (entire deposit):

-No potentially alkali-silica or alkali-carbonate reactive constituents are present.
-No flat or elongated component was observed.
-No external coatings were observed on the aggregate.
-The aggregate is considered to be sound and durable.

James C. Izzell, Jr., PG
NC Licensed Geologist #1020



Hanson
HEIDELBERGCEMENT Group

Hanson Aggregates Mideast
Southeast Area
North Carolina Territory Office
2300 Gateway Centre Boulevard
Morrisville, NC 27560-9626
Tel 919 380 2610
Fax 919 380 2616
www.hanson.com

February 18, 2011

Please accept this letter as certification that Hanson Aggregates Southeast is on the North Carolina Department of Transportation's approved source list. All materials are routinely tested to ensure that stringent specifications are upheld at the time that the material leaves our quarry site and that they meet NC DOT Specifications and ASTM C-33 Standards.

Sincerely

Philip M. Lawler
QC/QA Manager

Contractor: Ryan Central (Joe Vanremortel)

Project: **Domtar Landfill Phase 3 & 4**

Quarry Site: **Rocky Mount Quarry (CA 065)**

Product: **ABC & #67 aggregate**

NORTH CAROLINA
WAKE COUNTY

Sworn to and subscribed before me
this 18th day of February, 2011.

Notary Public

My Commission Expires 4/27/15

DEANNA L. RILEY
NOTARY PUBLIC
ORANGE COUNTY, NC

1

Hanson
HEIDELBERGCEMENT Group

Product Quality Summary Report

Rocky Mount Quarry CA065
ABC & #67 Average Gradation & Consensus Properties
Ryan Central (Joe Vanremortal)

Period 08/18/2010 - 02/18/2011
Plant E017-ROCKY MOUNT

Product	20017 ABC	20067 #67
Specification	ABC	#67
1 1/2" (37.5mm)	100	
1" (25mm)	94	100
3/4" (19mm)	82	95
1/2" (12.5mm)	67	51
3/8" (9.5mm)	60	29
#4 (4.75mm)	46	8
#8 (2.36mm)		3
#10 (2mm)	34	
#40 (0.425mm)	19	
#200 (75um)	6.8	
PAN (0um)	0.0	0.0
Wash Loss (#200/75um)		0.6
D15/D85	0.01	
Soil Mortar #200	20	
Soil Mortar #40	56	

8

Hanson
HEIDELBERGCEMENT Group

Product Quality Summary Report

Rocky Mount Quarry CA065
ABC & #67 Average Gradation & Consensus Properties
Ryan Central (Joe Vanremortal)

Period	08/18/2010 - 02/18/2011
Plant	E017-ROCKY MOUNT
Comments	Sales Contact: Chris Morgan 252-230-6031 Chris.Morgan@Hanson.com Technical Contact: Chip Lawler 919-417-4656 Chip.Lawler@Hanson.com
Query	Query Selections Date Created 02/18/2011 Date Range 08/18/2010 - 02/18/2011 Plant ROCKY MOUNT Sample Type Shipping

Select Granular Fill Submittal

Letter of Transmittal

Ryan Incorporated Central

Mailing Address:
P.O. Box 206
Janesville, WI 53547
Phone: 608.754.2291

Physical Address:
2700 East Racine St.
Janesville, WI 53545
Fax: 608.757.2387

To: RMT
744 Heartland Trail
Madison, WI 53717

Attn: Todd Martin

Date: 2/25/11
Project: Domtar LF Ph 3 and 4
Location: Plymouth, NC
RE: SUBMITTAL 005
Sand

We are sending you: X Herewith ___ Delivered By Hand ___ Under Separate Cover
Following Items: ___ Plans X Specifications ___ Shop Drawings ___ Samples
___ Subcontract ___ Change Order ___ Other
VIA: Email

COPIES	DATE	DESCRIPTION
1		Sand data and certification (drainage layer sand)

These are transmitted as indicated below:

___ For Your Use
X For Approval
___ For Bids Due ___
___ As Requested
___ For Review And Comment

___ Approved As Noted
___ Approved For Construction
___ Returned For Corrections
___ For Signature & Return
___ _____

___ Return ___ Signed Documents
___ Submit ___ Copies For ___
___ Resubmit ___ Copies For ___

Remarks: _____

IF ENCLOSURES ARE NOT AS INDICATED, PLEASE NOTIFY US AT ONCE.

Signed: _____

Joseph D. VanRemortel, P.E.
Contract Administrator

Email: *joe.vanremortel@ryancentral.com*

13

American Materials Company, LLC
P.O. Box 88
Clinton, NC 28329
Phone: (910) 592-1753 Fax: (910) 592-6461

Ryan Incorporated Central
Attn: Joe Vanremortel
2700 East Racine Street
Janesville, WI 53545

January 18, 2011

Please accept this letter as certification that American Materials Company is on the North Carolina Department of Transportation's approved source list. All materials are routinely tested to ensure that stringent specifications are upheld at the time that the material leaves our mine site. The below listed aggregate(s) meet North Carolina DOT, and ASTM C-33 Specifications.

Respectfully Submitted,

Tony Harris
General Manager

Attn: Joe Vanremortel, Ryan Incorporated Central
Quarry Site: **Pinner Mine,** Greenville, North Carolina
Project: Domtar, Cells 3 and 4, Plymouth Landfill

Product: **2S Processed Natural Concrete Sand**

NORTH CAROLINA
SAMPSON COUNTY

Sworn to and subscribed before me
this 18th day of February, 2011.

Notary Public

My Commission Expires May 4, 2013

American Materials Company LLC

4605 Old River Road
Greenville, NC 27834
Phone: 252-752-2124 Fax: 252-413-0954

Mine: Pinner

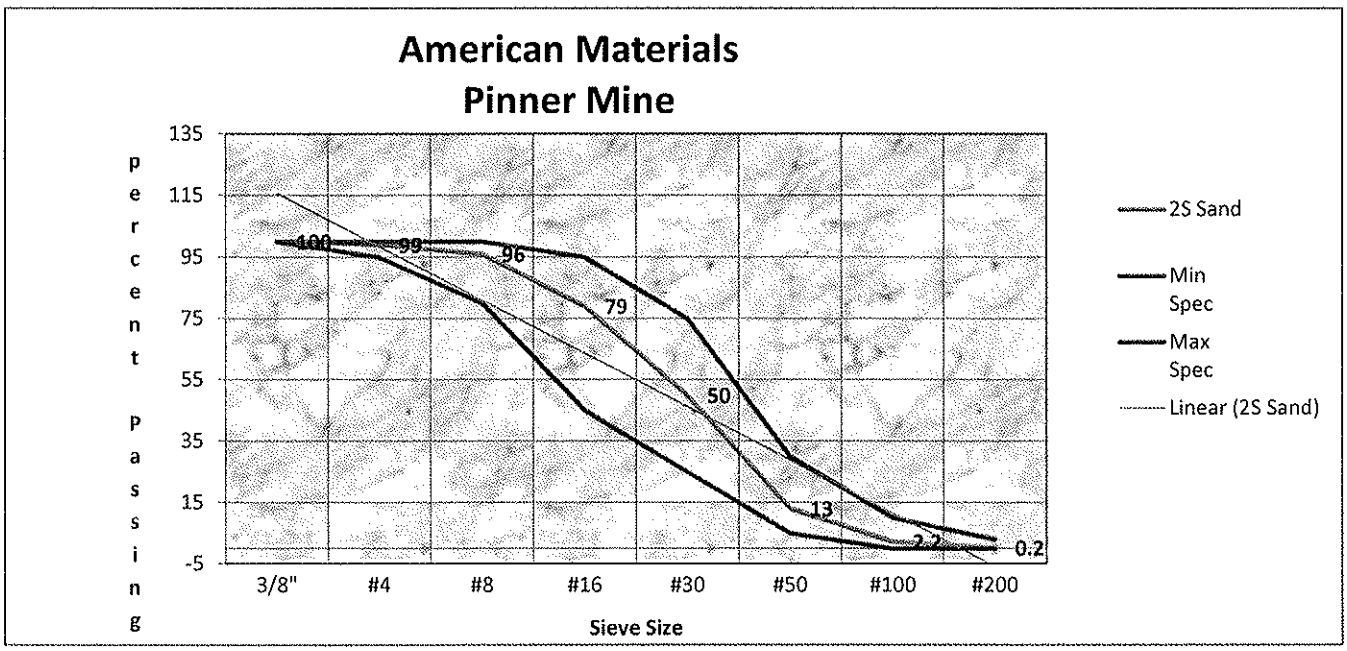
Date: Friday, February 18, 2011

Product Size: 2S Sand

Sieve Size	Percent Passing	Min Spec	Max Spec	Sieve Size
3/8"	100	100	100	3/8"
#4	99	95	100	#4
#8	96	80	100	#8
#16	79	45	95	#16
#30	50	25	75	#30
#50	13	5	30	#50
#100	2.2	0	10	#100
#200	0.2	0	3	#200
FM	2.60			
Moist:	4.4			

Pinner Mine FA-253

	Sp. Gr	Strength Ratio 3 Day	Strength Ratio 7 Day	%Abs	Rodded (PCF)	Loose (PCF)	Voids%	Deliterious Sub	Base F.M.	Washed #200	Color
2'S	2.630	108.2	127.2	0.3	102.5	93.8	37.4	0.2	2.55	1.0	1

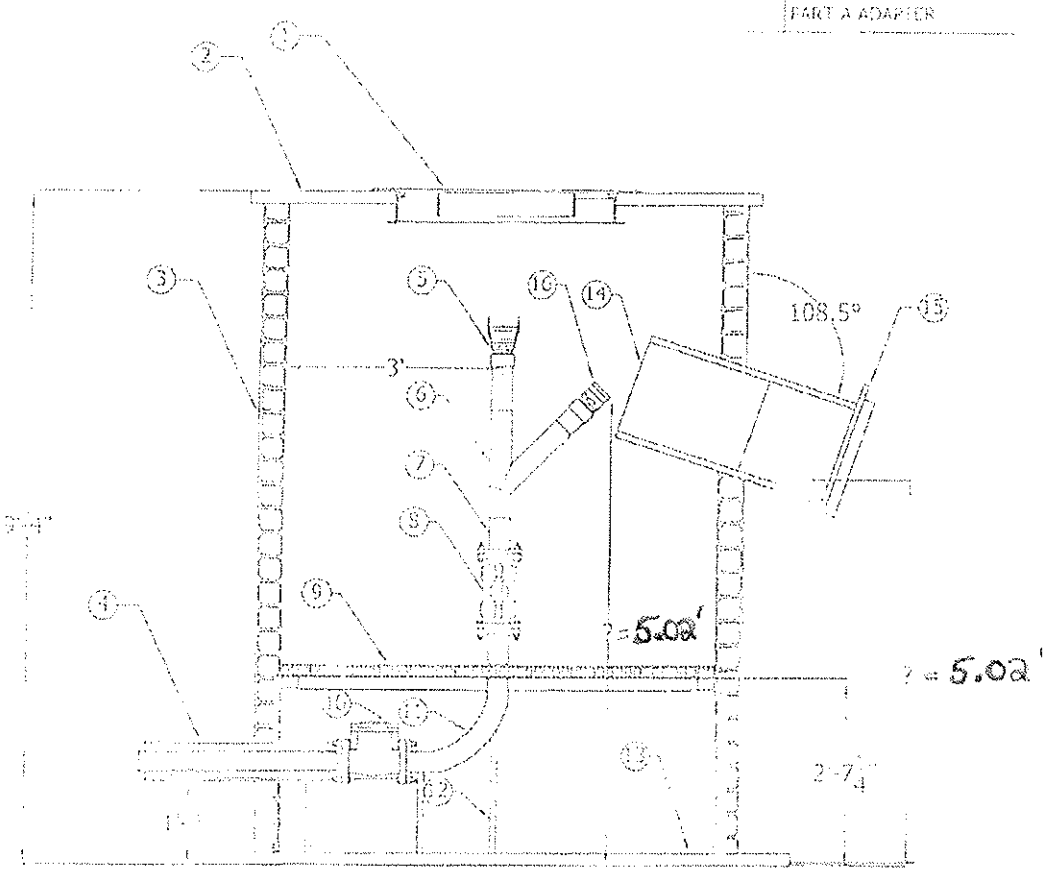


Questions concerning this information, please contact Tony Harris at 910-990-7928.

Pump Station Manhole Shop Drawing

Materials

1	36" ALUMINUM HALLIDAY HATCH S1P3636	9	72" DIA REMOVABLE FIBERGLASS GRATE WITH 2" X 2" HDPE SUPPT STOCK RING
2	2" THICK HDPE 85" DIA SHEET STOCK TOP	10	3" ASAHI FLANGED PVC SWING CHECK VALVE
3	72" I.D. GLASS 250 WEHOLITE PIPE	11	3" SDR 11 HDPE ARC BEND 90° ELBOW
4	6" SDR 17 X 3" SDR 11 HDPE PIPE STUBS	12	1" THICK HDPE SHEET STOCK BRACING AS REQUIRED
5	3" HDPE TO SS PIPT TRANSITION FITTING, SS PT COUPLING PART A AND SS PART V	13	2" THICK HDPE SHEET STOCK BASE 97" X 97"
6	3" SDR 11 HDPE TYE TYP. OF 2	14	3" SDR 11 HDPE PIPE
7	3" SDR 11 FLANGE ADAPTER, BACK UP RING, GASKET AND 2-CS BOLT PACK TYP.	15	16" SDR 17 HDPE FLANGE ADAPTER AND DUCTILE IRON BACK UP RING
		16	3" HDPE TO SS PIPT TRANSITION FITTING AND SS PT COUPLING PART A ADAPTER



SIDE CUT VIEW

FORREE SUPPLY CO., INC. 9194 KIRBY McCORMICK DRIVE GERMANTOWN, WI 53022 (262)255-3030 FAX(262)255-4004	CONTRACTOR: RYAN INC	DRAWING TITLE: LEACHATE PUMP STATION MANHOLE	REV. #
	PROJECT NAME: DUMTAR PAPER CO		
	DATE: 02/18/11		
NO. DATE BY DESCRIPTION	DRAWN BY: CPC SHEET: 1 OF 1	DRAWING NO: 51611	

20/20

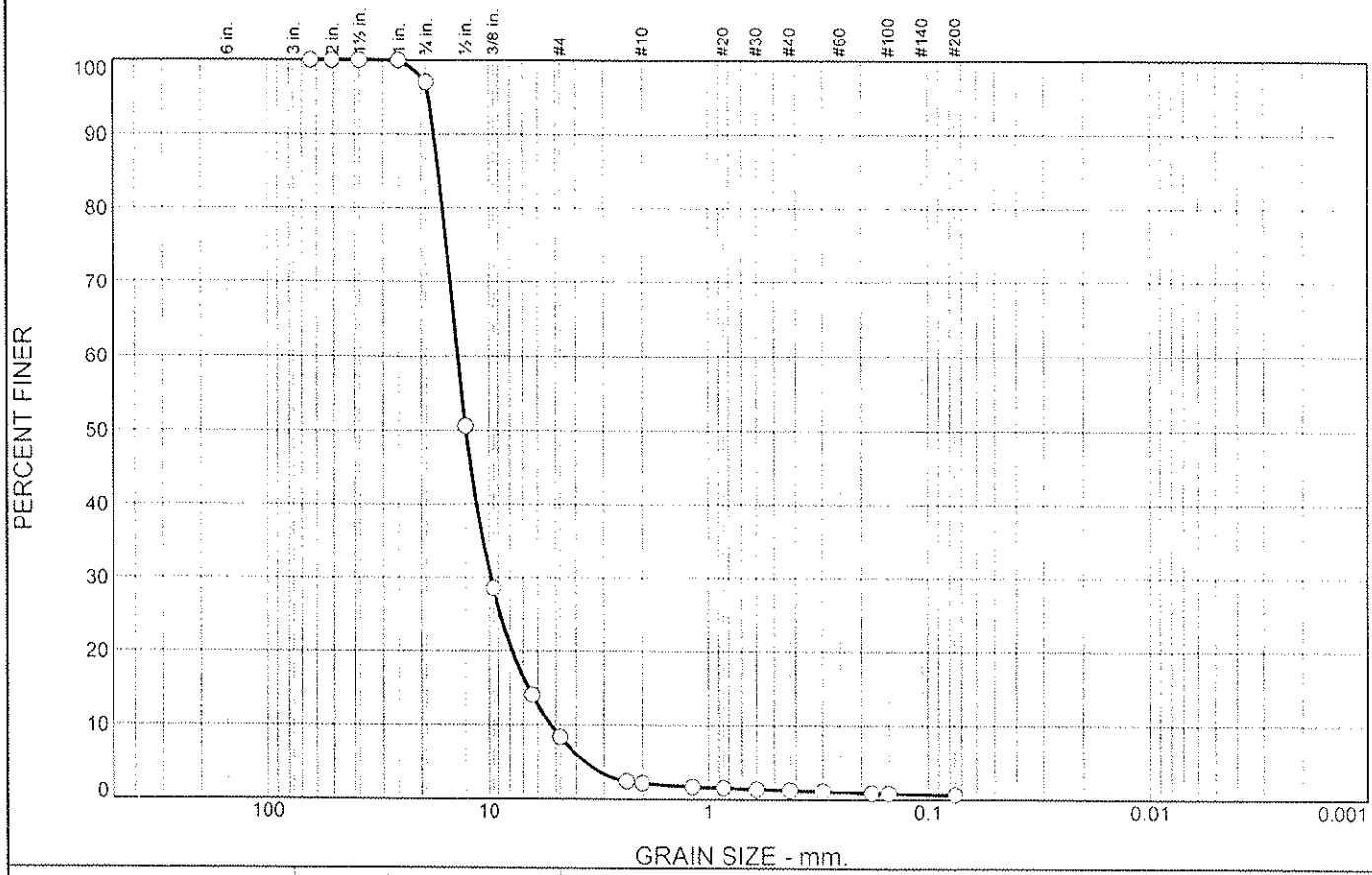
Appendix K
Graded Granular Filter Laboratory Test Results

Table of Contents

- Select Aggregate Fill (No. 67 Stone) Test Results
- Select Granular Fill (Sand) Test Results
- Pipe Bedding Stone Test Results

Select Aggregate Fill (No. 67 Stone) Test Results

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.9	88.7	6.2	1.0	0.5	0.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	97.1		
.5	50.6		
.375	28.6		
.25	14.0		
#4	8.4		
#8	2.4		
#10	2.2		
#16	1.7		
#20	1.5		
#30	1.4		
#40	1.2		
#50	1.1		
#80	0.9		
#100	0.8		
#200	0.7		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 17.4570 D_{85}= 16.6701 D_{60}= 13.7262
D_{50}= 12.6287 D_{30}= 9.7777 D_{15}= 6.6035
D_{10}= 5.2254 C_u= 2.63 C_c= 1.33

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Select Aggregate Fill
Sample Number: Sample 03-24-11

Date: 03-28-11

RMT, Inc.

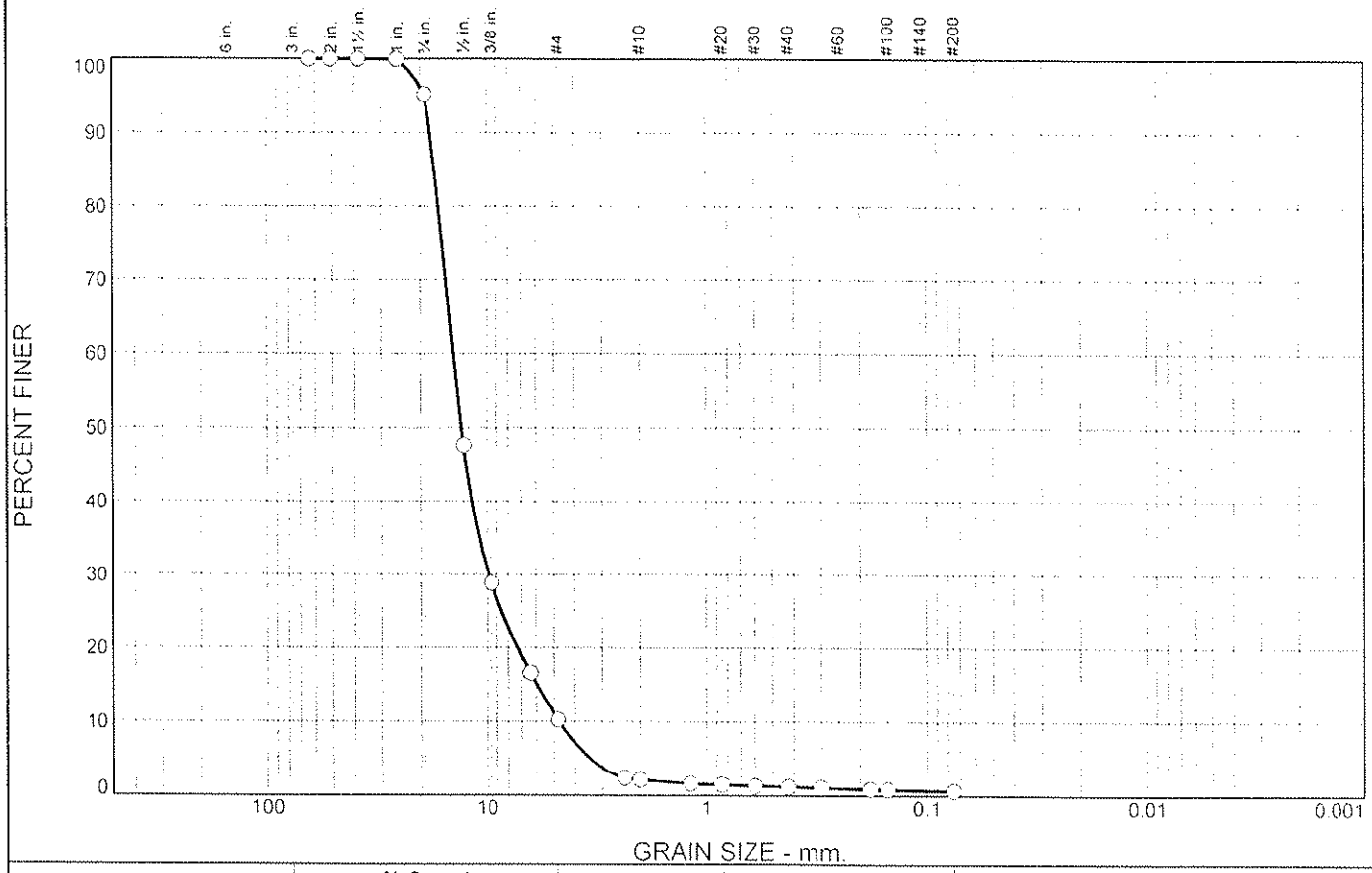
Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.7	85.1	8.0	1.0	0.5	0.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	95.3		
.5	47.5		
.375	28.9		
.25	16.6		
#4	10.2		
#8	2.4		
#10	2.2		
#16	1.7		
#20	1.5		
#30	1.4		
#40	1.2		
#50	1.1		
#80	0.9		
#100	0.9		
#200	0.7		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 17.8877 D_{85}= 17.0721 D_{60}= 14.0912
D_{50}= 12.9918 D_{30}= 9.7906 D_{15}= 5.9333
D_{10}= 4.6889 C_u= 3.01 C_c= 1.45

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Select Aggregate Fill
Sample Number: Sample 03-25-11

Date: 03-28-11

RMT, Inc.

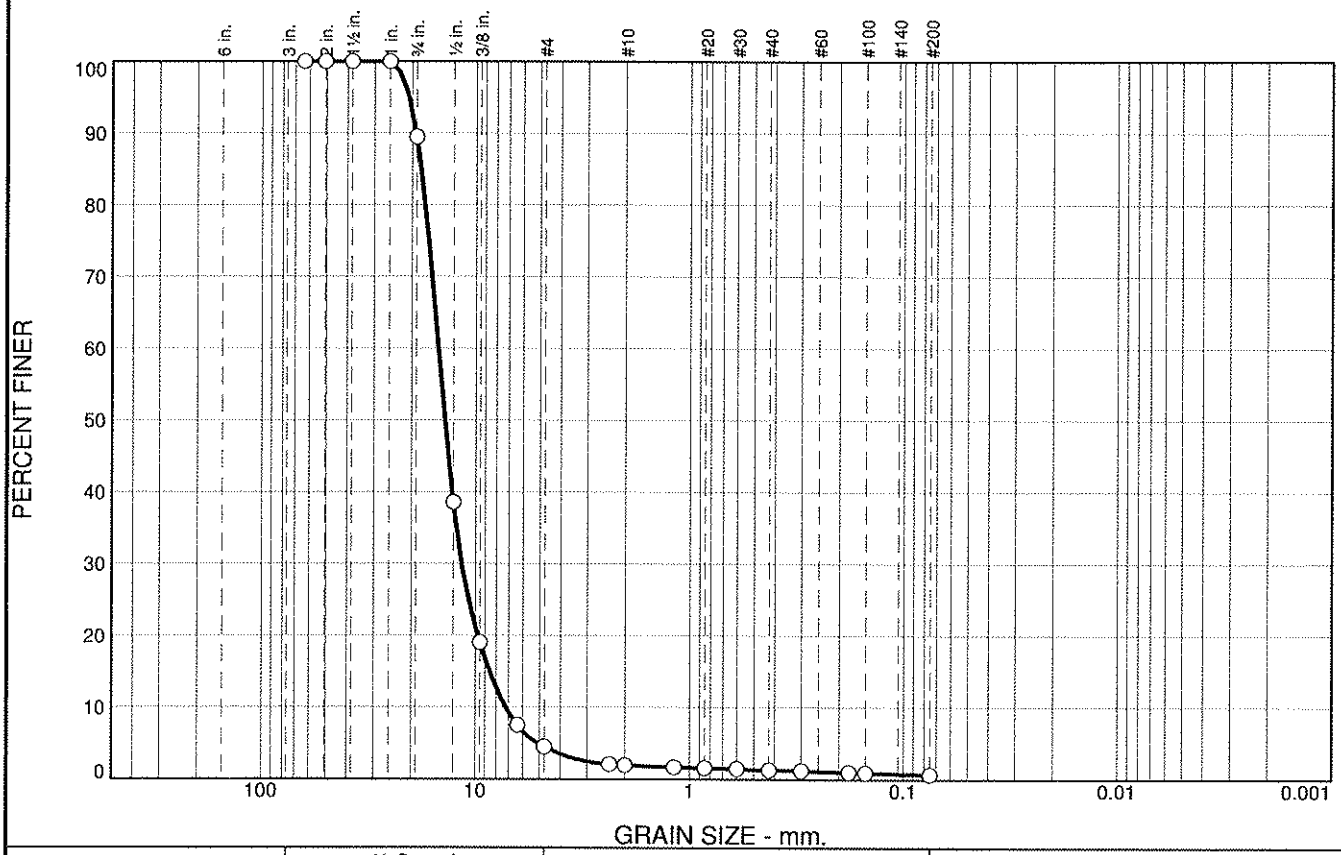
Madison, Wisconsin

Client:
Project: Domtar
Project No: 05794.49.003
Figure:

Tested By: HJW Checked By: JPH

4

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	10.5	85.0	2.6	0.6	0.7	0.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	89.5		
.5	38.6		
.375	19.1		
.25	7.5		
#4	4.5		
#8	2.0		
#10	1.9		
#16	1.7		
#20	1.6		
#30	1.4		
#40	1.3		
#50	1.2		
#80	1.0		
#100	0.9		
#200	0.6		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 19.1685 D_{85}= 18.1841 D_{60}= 14.9974
D_{50}= 13.9478 D_{30}= 11.5619 D_{15}= 8.5739
D_{10}= 7.2161 C_u= 2.08 C_c= 1.24

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Select Aggregate Fill
Sample Number: Sample 03-29-11

Date: 03-31-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

RMT, Inc.

Constant Head Permeability Test (ASTM D2434)

QC: HJW

QA: JPH

Project Name:	Domtar		
Project #:	05794.49.003	USCS Description:	Poorly graded gravel
Sample Name:	Select Aggregate Fill, Sample 03-29-11	USCS Classification:	GP
Visual Descript:	Poorly graded gravel	Average k_v =	6.6E+00 cm./sec.

Sample Diameter (in):	4.00		
Sample Height (in):	4.63		
Specific Gravity:	2.70		
Tare & Wet Soil (g):	2478.60		
Tare & Dry Soil (g):	2454.90	Sample Type:	Remolded
Tare (g):	429.40	Beaker Tare Wt. (g):	392.32

	Initial Values		Final Values
Mold & Wet Soil (g):	4797.00	Mold & Wet Soil (g):	4833.00
Mold & Dry Soil (g):	4780.17	Mold & Dry Soil (g):	4780.17
Tare of Mold (g):	3342.00	Tare of Mold (g):	3342.00
Wet Density (pcf):	95.37	Wet Density (pcf):	97.73
Dry Density (pcf):	94.27	Dry Density (pcf):	94.27
% Saturation:	4.01%	% Saturation:	12.60%
% Moisture:	1.17%	% Moisture:	3.67%

Date			Time		Flow Vol	Flow	Head			k_v *
YY	MM	DD	Sec.	Temp.	Readings	Vol.	Bottom	Top	h	cm/sec
2011	3	31	60	26	612.9	220.58	78.05	78.10	0.05	6.6E+00
2011	3	31	60	26	612.8	220.48	78.05	78.10	0.05	6.6E+00
2011	3	31	60	26	610.7	218.38	78.05	78.10	0.05	6.6E+00
2011	3	31	60	26	610.7	218.38	78.05	78.10	0.05	6.6E+00

k_v = QL/Aht cm./sec.

Q = 219.46 ml. (ave. measured flow volume)

L = 3.313 in. (flow length)

A = 12.57 sq. in. (area of sample)

h = 0.05 cm. (ave. head)

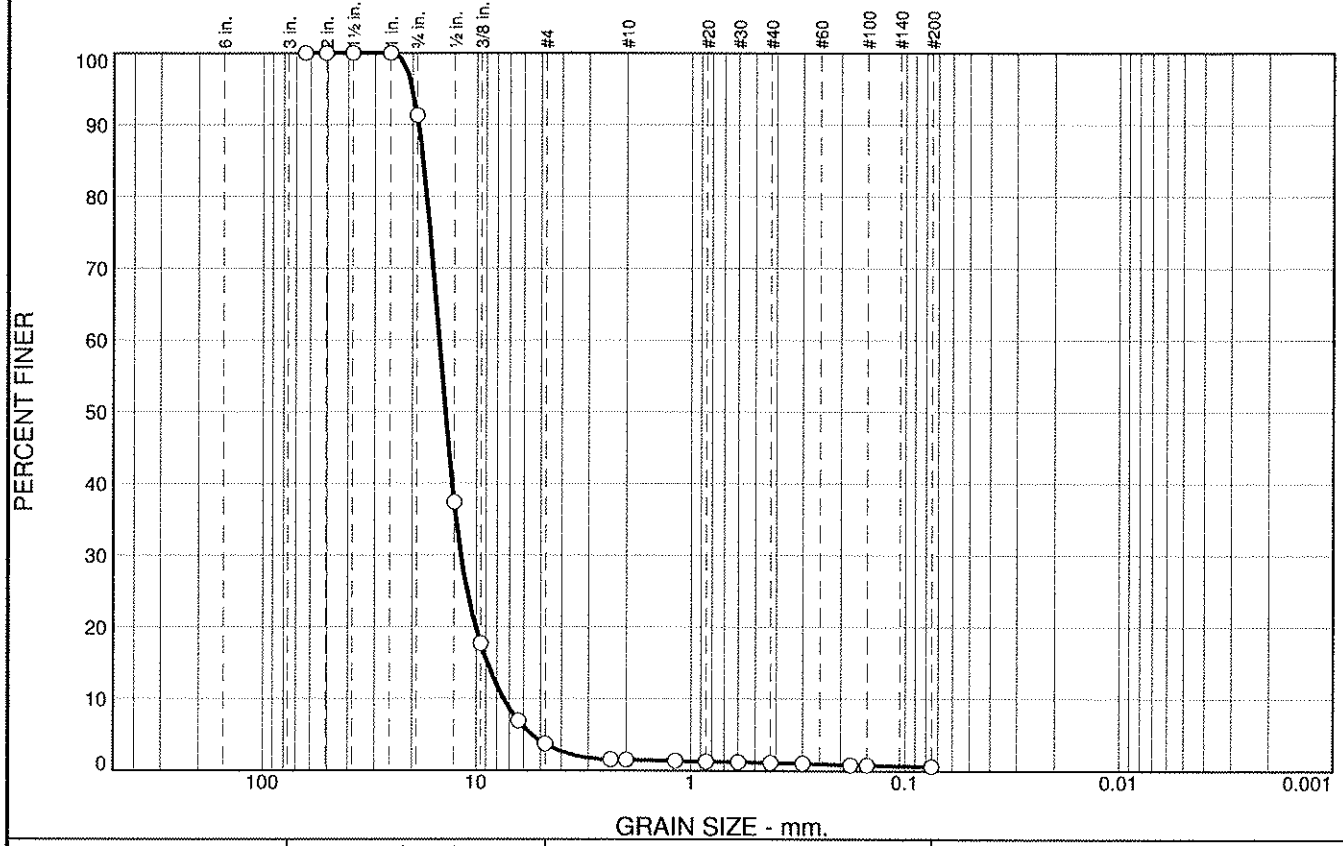
t = 60.00 sec. (average run time)

i = 0.01 (average gradient)

k_v = 6.6E+00 cm/sec (ave. k value)

* k_v adjusted for temperature

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	8.6	87.7	2.2	0.4	0.5	0.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	91.4		
.5	37.4		
.375	17.7		
.25	6.9		
#4	3.7		
#8	1.5		
#10	1.5		
#16	1.4		
#20	1.3		
#30	1.2		
#40	1.1		
#50	1.0		
#80	0.8		
#100	0.8		
#200	0.6		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 18.7625 D_{85}= 17.8919 D_{60}= 14.9643
D_{50}= 13.9866 D_{30}= 11.7773 D_{15}= 8.8535
D_{10}= 7.4385 C_u= 2.01 C_c= 1.25

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Select Aggregate Fill
Sample Number: Sample 03-30-11

Date: 03-31-11

RMT, Inc.

Madison, Wisconsin

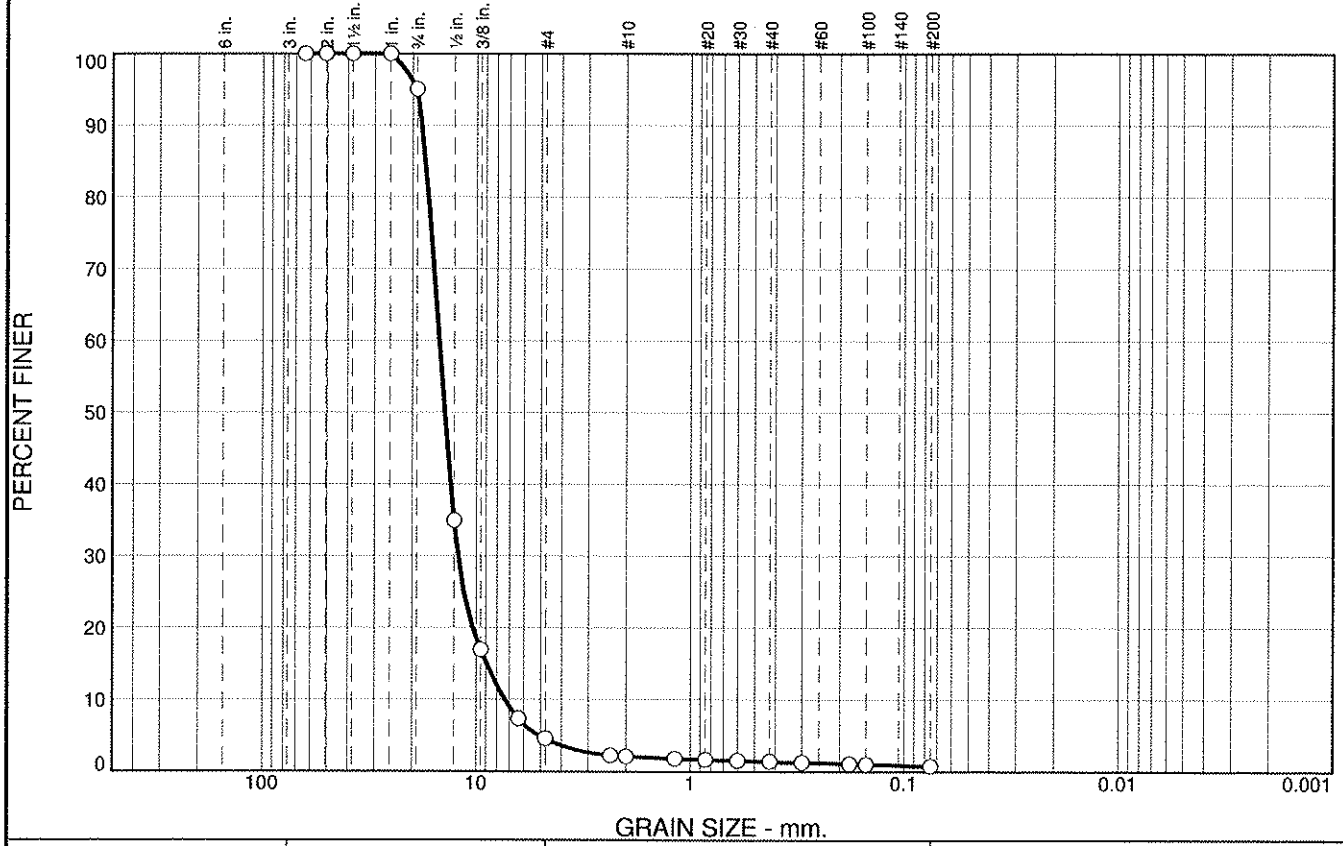
Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

1

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.9	90.5	2.5	0.7	0.6	0.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	95.1		
.5	34.9		
.375	17.0		
.25	7.4		
#4	4.6		
#8	2.2		
#10	2.1		
#16	1.8		
#20	1.7		
#30	1.5		
#40	1.4		
#50	1.3		
#80	1.1		
#100	1.0		
#200	0.8		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 18.1317 D_{85}= 17.4452 D_{60}= 14.9533
D_{50}= 14.0922 D_{30}= 12.1299 D_{15}= 8.9247
D_{10}= 7.3331 C_u= 2.04 C_c= 1.34

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Select Aggregate Fill
Sample Number: Sample 03-31-11

Date: 04-01-11

RMT, Inc.

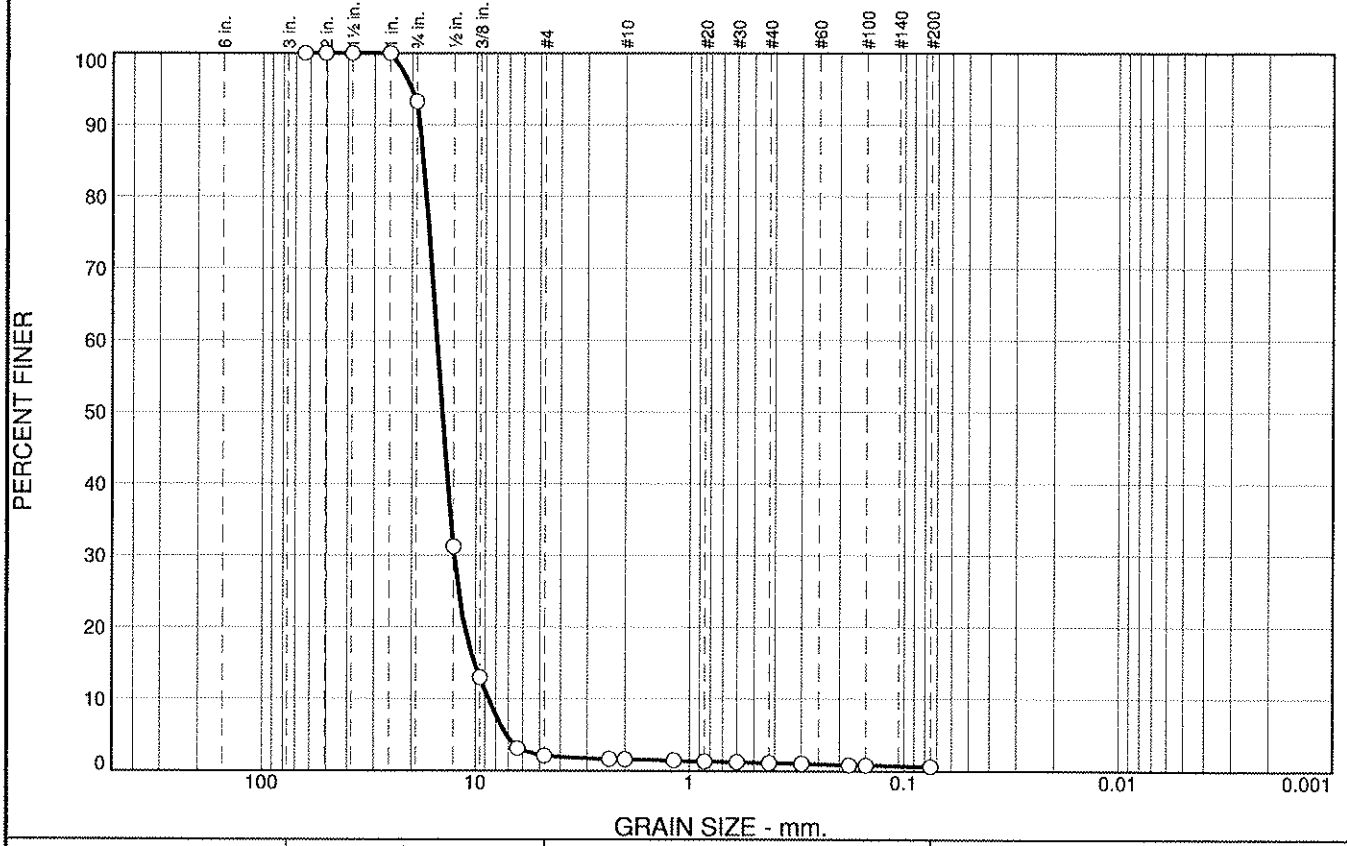
Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.7	91.2	0.5	0.5	0.5	0.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	93.3		
.5	31.3		
.375	13.0		
.25	3.1		
#4	2.1		
#8	1.6		
#10	1.6		
#16	1.4		
#20	1.3		
#30	1.2		
#40	1.1		
#50	1.0		
#80	0.8		
#100	0.8		
#200	0.6		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 18.4535 D_{85}= 17.7380 D_{60}= 15.2239
D_{50}= 14.3781 D_{30}= 12.5668 D_{15}= 10.0905
D_{10}= 8.6553 C_u= 1.76 C_c= 1.20

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Select Aggregate Fill
Sample Number: Sample 04-01-11

Date: 04-04-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

RMT, Inc.

Constant Head Permeability Test (ASTM D2434)

QC: HJW

QA: JPH

Project Name:	Domtar		
Project #:	05794.49.003	USCS Description:	Poorly graded gravel
Sample Name:	Select Aggregate Fill, Sample 04-01-11	USCS Classification:	GP
Visual Descript:	Poorly graded gravel	Average k_v =	8.8E+00 cm./sec.

Sample Diameter (in):	4.00		
Sample Height (in):	4.63		
Specific Gravity:	2.70		
Tare & Wet Soil (g):	2400.60		
Tare & Dry Soil (g):	2379.00	Sample Type:	Remolded
Tare (g):	428.90	Beaker Tare Wt. (g):	392.32

	Initial Values		Final Values
Mold & Wet Soil (g):	4809.00	Mold & Wet Soil (g):	4841.00
Mold & Dry Soil (g):	4792.95	Mold & Dry Soil (g):	4792.95
Tare of Mold (g):	3344.00	Tare of Mold (g):	3344.00
Wet Density (pcf):	96.03	Wet Density (pcf):	98.12
Dry Density (pcf):	94.97	Dry Density (pcf):	94.97
% Saturation:	3.86%	% Saturation:	11.57%
% Moisture:	1.11%	% Moisture:	3.32%

Date			Time		Flow Vol	Flow	Head			k_v *
YY	MM	DD	Sec.	Temp.	Readings	Vol.	Bottom	Top	h	cm/sec
2011	4	4	60	27	691.6	299.28	87.75	87.80	0.05	8.8E+00
2011	4	4	60	27	691.8	299.48	87.75	87.80	0.05	8.8E+00
2011	4	4	60	27	691.6	299.28	87.75	87.80	0.05	8.8E+00
2011	4	4	60	27	691.8	299.48	87.75	87.80	0.05	8.8E+00

k_v = QL/Aht cm./sec.

Q = 299.38 ml. (ave. measured flow volume)

L = 3.313 in. (flow length)

A = 12.57 sq. in. (area of sample)

h = 0.05 cm. (ave. head)

t = 60.00 sec. (average run time)

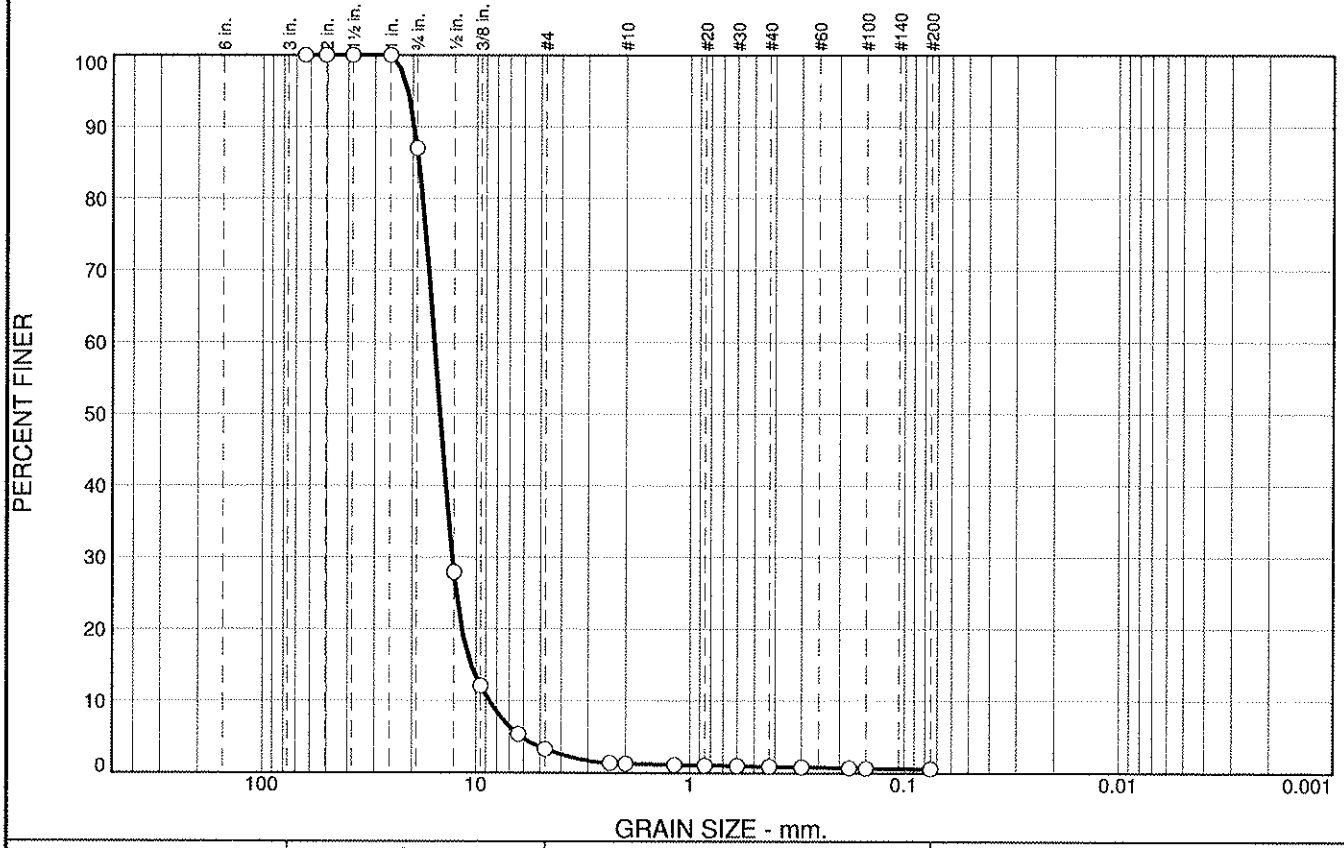
i = 0.01 (average gradient)

k_v = 8.8E+00 cm/sec (ave. k value)

* k_v adjusted for temperature

10

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	13.0	83.7	2.0	0.4	0.4	0.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	87.0		
.5	27.9		
.375	12.1		
.25	5.4		
#4	3.3		
#8	1.4		
#10	1.3		
#16	1.1		
#20	1.0		
#30	1.0		
#40	0.9		
#50	0.8		
#80	0.7		
#100	0.7		
#200	0.5		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 19.6496 D_{85}= 18.7021 D_{60}= 15.7676
D_{50}= 14.8365 D_{30}= 12.9302 D_{15}= 10.5100
D_{10}= 8.6628 C_u= 1.82 C_c= 1.22

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Select Aggregate Fill
Sample Number: Sample 04-04-11

Date: 04-06-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

11

RMT, Inc.

Constant Head Permeability Test (ASTM D2434)

QC: HJW

QA: JPH

Project Name:	Domtar		
Project #:	05794.49.003	USCS Description:	Poorly graded gravel
Sample Name:	Select Aggregate Fill, Sample 04-04-11	USCS Classification:	GP
Visual Descript:	Poorly graded gravel	Average k_v =	9.1E+00 cm./sec.

Sample Diameter (in):	4.00		
Sample Height (in):	4.63		
Specific Gravity:	2.70		
Tare & Wet Soil (g):	2497.20		
Tare & Dry Soil (g):	2468.00	Sample Type:	Remolded
Tare (g):	429.14	Beaker Tare Wt. (g):	392.32

	Initial Values		Final Values
Mold & Wet Soil (g):	4771.00	Mold & Wet Soil (g):	4795.00
Mold & Dry Soil (g):	4750.88	Mold & Dry Soil (g):	4750.88
Tare of Mold (g):	3346.00	Tare of Mold (g):	3346.00
Wet Density (pcf):	93.40	Wet Density (pcf):	94.98
Dry Density (pcf):	92.08	Dry Density (pcf):	92.08
% Saturation:	4.66%	% Saturation:	10.22%
% Moisture:	1.43%	% Moisture:	3.14%

Date			Time		Flow Vol	Flow	Head			k_v *
YY	MM	DD	Sec.	Temp.	Readings	Vol.	Bottom	Top	h	cm/sec
2011	4	6	60	28	708.7	316.38	90.55	90.60	0.05	9.1E+00
2011	4	6	60	28	709.1	316.78	90.55	90.60	0.05	9.1E+00
2011	4	6	60	28	709.8	317.48	90.55	90.60	0.05	9.1E+00
2011	4	6	60	28	709.9	317.58	90.55	90.60	0.05	9.1E+00

k_v = QL/Aht cm./sec.

Q = 317.06 ml. (ave. measured flow volume)

L = 3.313 in. (flow length)

A = 12.57 sq. in. (area of sample)

h = 0.05 cm. (ave. head)

t = 60.00 sec. (average run time)

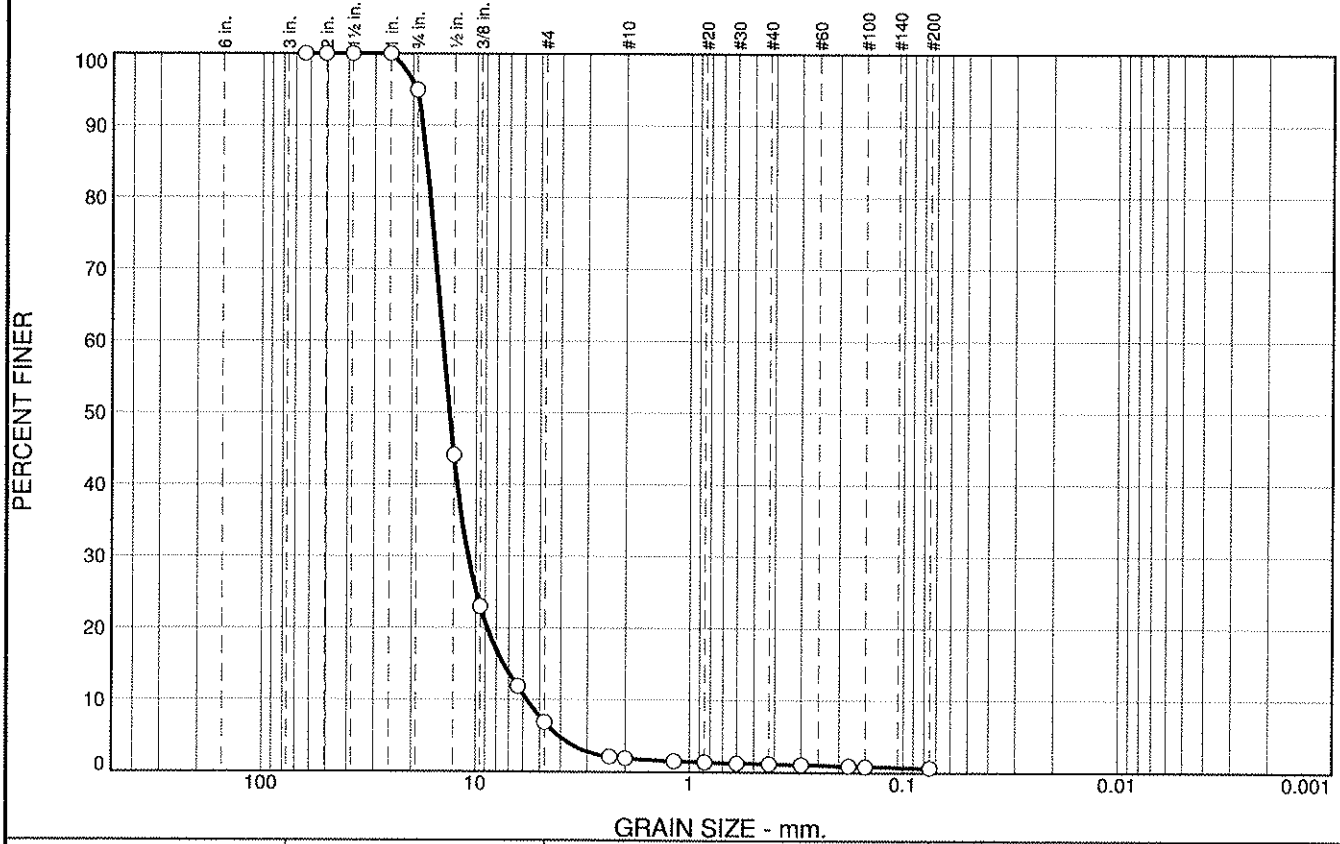
i = 0.01 (average gradient)

k_v = 9.1E+00 cm/sec (ave. k value)

* k_v adjusted for temperature

12

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.0	88.1	5.0	0.8	0.5	0.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	95.0		
.5	44.1		
.375	23.0		
.25	11.9		
#4	6.9		
#8	2.1		
#10	1.9		
#16	1.5		
#20	1.4		
#30	1.3		
#40	1.1		
#50	1.1		
#80	0.9		
#100	0.8		
#200	0.6		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 17.9890 D_{85}= 17.1930 D_{60}= 14.3319
D_{50}= 13.3252 D_{30}= 10.8380 D_{15}= 7.4068
D_{10}= 5.7406 C_u= 2.50 C_c= 1.43

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Select Aggregate Fill
Sample Number: Sample 04-05-11

Date: 04-07-11

RMT, Inc.

Madison, Wisconsin

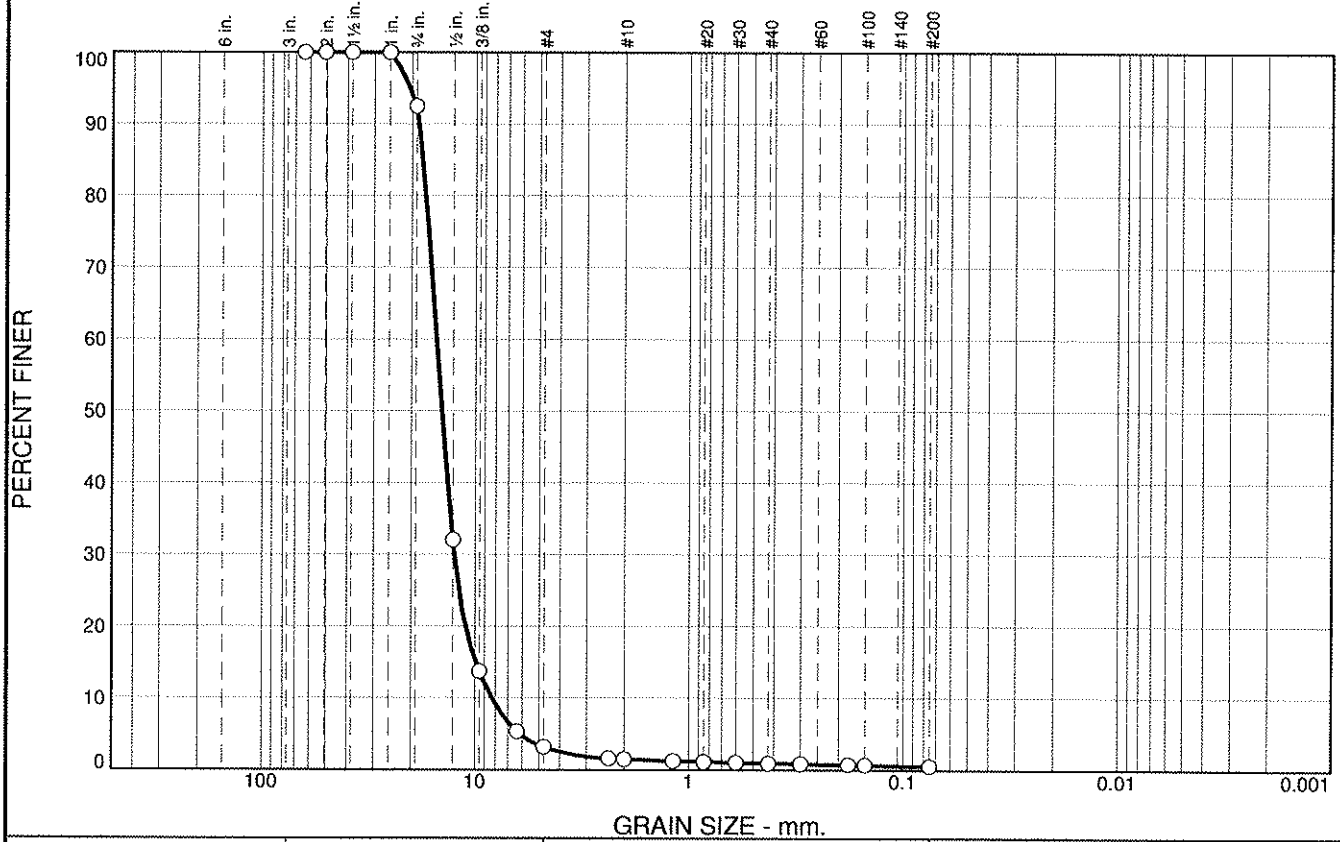
Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

13

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	7.5	89.3	1.7	0.6	0.4	0.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	92.5		
.5	32.1		
.375	13.8		
.25	5.4		
#4	3.2		
#8	1.6		
#10	1.5		
#16	1.2		
#20	1.1		
#30	1.0		
#40	0.9		
#50	0.8		
#80	0.7		
#100	0.7		
#200	0.5		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 18.5797 D_{85}= 17.8255 D_{60}= 15.2187
D_{50}= 14.3472 D_{30}= 12.4759 D_{15}= 9.8950
D_{10}= 8.2994 C_u= 1.83 C_c= 1.23

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Select Aggregate Fill
Sample Number: Sample 04-06-11

Date: 04-07-11

RMT, Inc.

Madison, Wisconsin

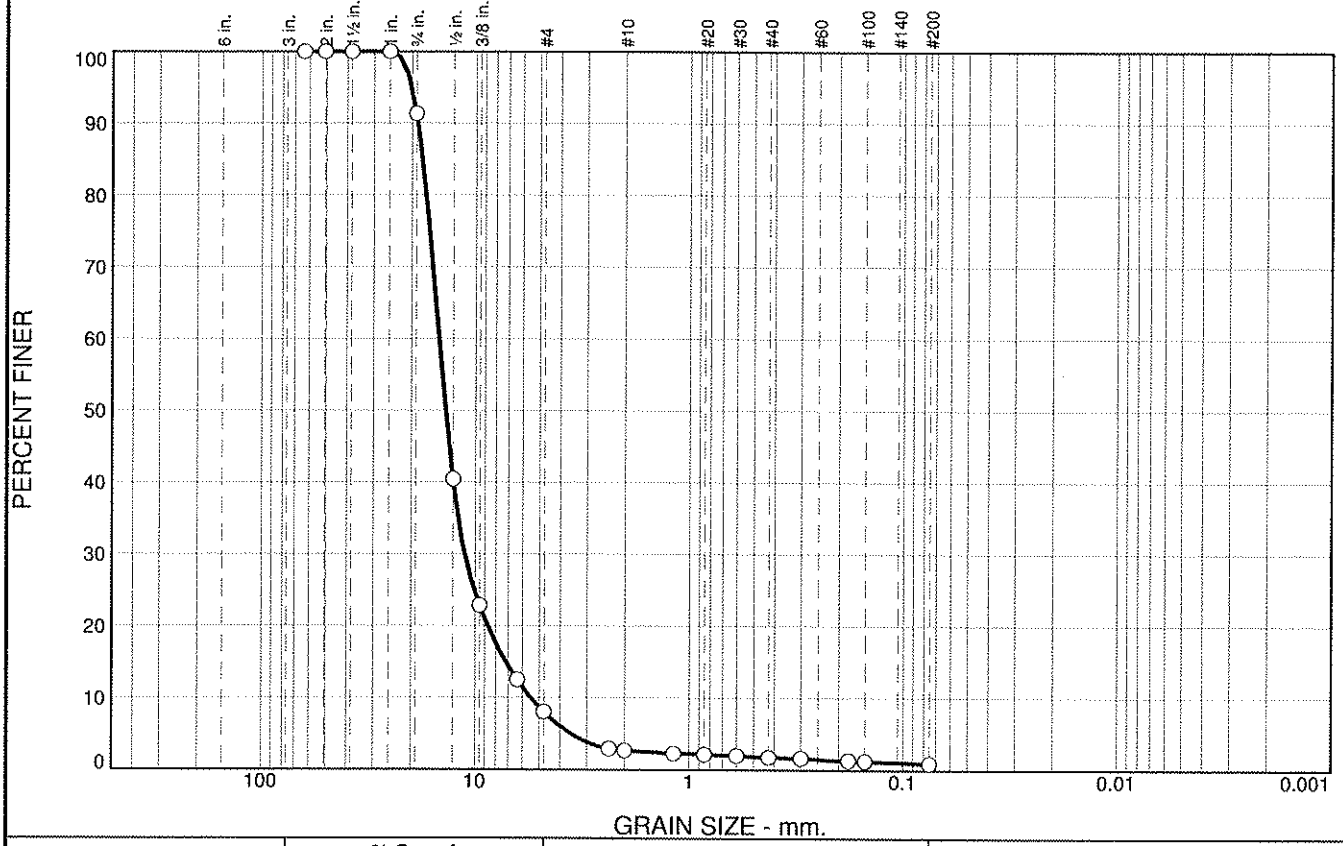
Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

14

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	8.6	83.3	5.4	0.9	0.9	0.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	91.4		
.5	40.5		
.375	22.9		
.25	12.5		
#4	8.1		
#8	2.9		
#10	2.7		
#16	2.3		
#20	2.1		
#30	2.0		
#40	1.8		
#50	1.6		
#80	1.3		
#100	1.2		
#200	0.9		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 18.7454 D_{85}= 17.8454 D_{60}= 14.8007
D_{50}= 13.7607 D_{30}= 11.1531 D_{15}= 7.1762
D_{10}= 5.4582 C_u= 2.71 C_c= 1.54

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Select Aggregate Fill
Sample Number: Sample 04-08-11

Date: 04-13-11

RMT, Inc.

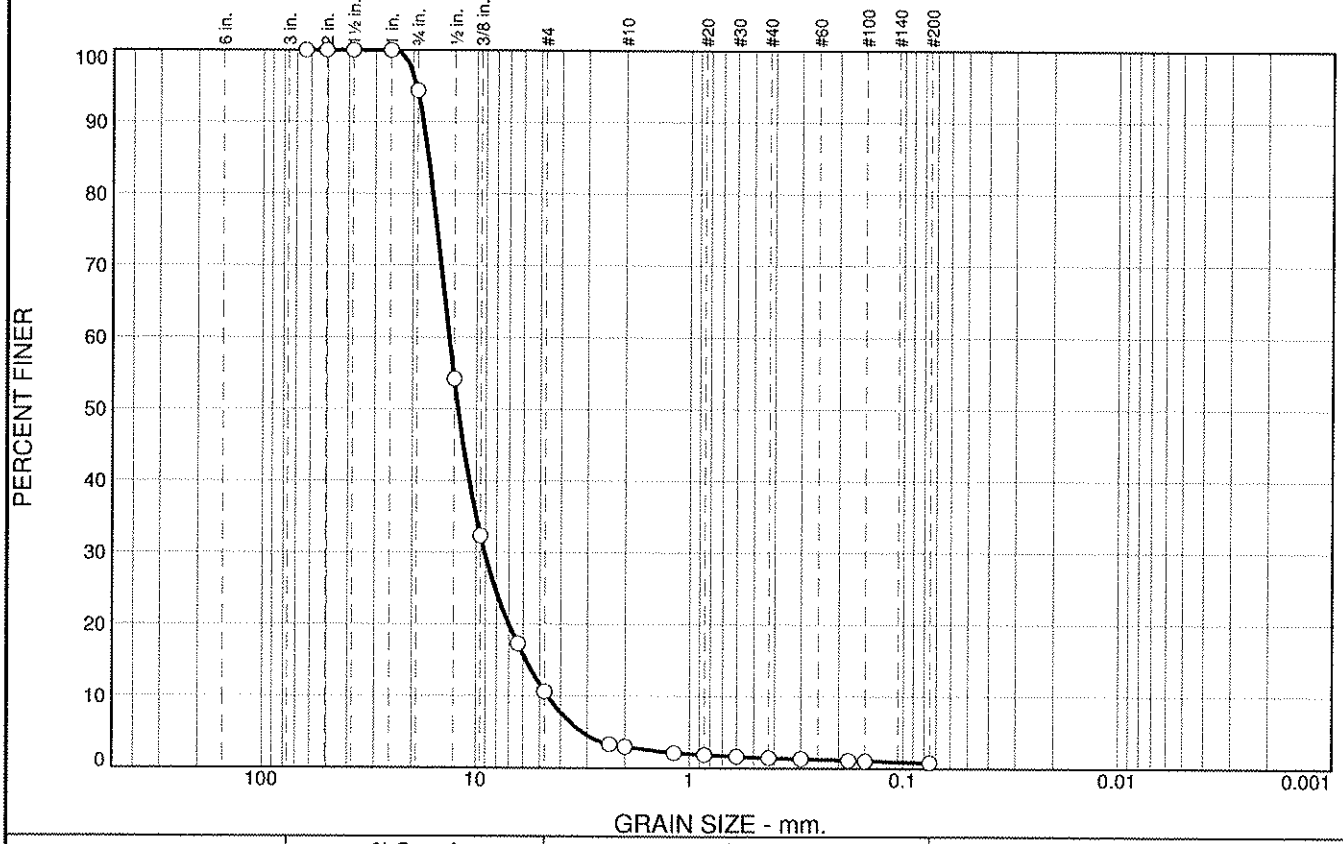
Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.6	83.8	7.6	1.5	0.7	0.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	94.4		
.5	54.2		
.375	32.4		
.25	17.3		
#4	10.6		
#8	3.3		
#10	3.0		
#16	2.1		
#20	1.9		
#30	1.6		
#40	1.5		
#50	1.3		
#80	1.1		
#100	1.0		
#200	0.8		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 17.8834 D_{85}= 16.8981 D_{60}= 13.4190
D_{50}= 12.1532 D_{30}= 9.1047 D_{15}= 5.7966
D_{10}= 4.5893 C_u= 2.92 C_c= 1.35

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Select Aggregate Fill
Sample Number: Sample 04-11-11

Date: 04-13-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

16

RMT, Inc.

Constant Head Permeability Test (ASTM D2434)

QC: HJW

QA: JPH

Project Name:	Domtar		
Project #:	05794.49.003	USCS Description:	Poorly graded gravel
Sample Name:	Select Aggregate Fill, Sample 4-11-11	USCS Classification:	GP
Visual Descript:	Poorly graded gravel	Average k_v =	8.2E+00 cm./sec.

Sample Diameter (in):	4.00		
Sample Height (in):	4.63		
Specific Gravity:	2.70		
Tare & Wet Soil (g):	2259.50		
Tare & Dry Soil (g):	2251.00	Sample Type:	Remolded
Tare (g):	429.50	Beaker Tare Wt. (g):	392.32

	Initial Values		Final Values
Mold & Wet Soil (g):	4797.00	Mold & Wet Soil (g):	4840.00
Mold & Dry Soil (g):	4790.27	Mold & Dry Soil (g):	4790.27
Tare of Mold (g):	3347.00	Tare of Mold (g):	3347.00
Wet Density (pcf):	95.04	Wet Density (pcf):	97.86
Dry Density (pcf):	94.60	Dry Density (pcf):	94.60
% Saturation:	1.61%	% Saturation:	11.91%
% Moisture:	0.47%	% Moisture:	3.45%

Date			Time		Flow Vol	Flow	Head			k_v *
YY	MM	DD	Sec.	Temp.	Readings	Vol.	Bottom	Top	h	cm/sec
2011	4	13	60	28	676.7	284.38	86.80	86.85	0.05	8.2E+00
2011	4	13	60	28	676.3	283.98	86.80	86.85	0.05	8.2E+00
2011	4	13	60	28	675.7	283.38	86.80	86.85	0.05	8.2E+00
2011	4	13	60	28	676.1	283.78	86.80	86.85	0.05	8.2E+00

k_v = QL/Aht cm./sec.

Q = 283.88 ml. (ave. measured flow volume)

L = 3.313 in. (flow length)

A = 12.57 sq. in. (area of sample)

h = 0.05 cm. (ave. head)

t = 60.00 sec. (average run time)

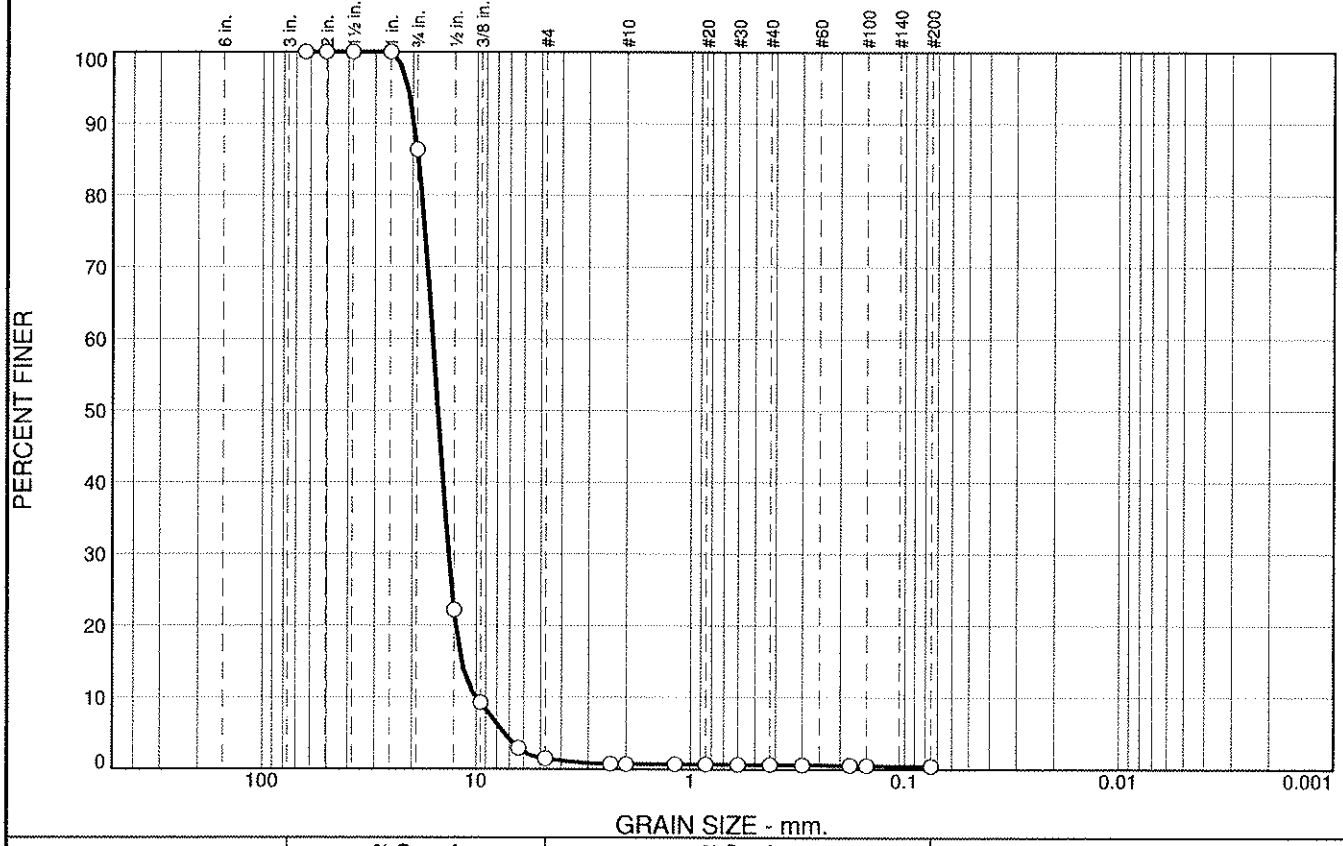
i = 0.01 (average gradient)

k_v = 8.2E+00 cm/sec (ave. k value)

* k_v adjusted for temperature

17

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	13.6	84.9	0.8	0.1	0.2	0.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	86.4		
.5	22.2		
.375	9.2		
.25	2.9		
#4	1.5		
#8	0.7		
#10	0.7		
#16	0.7		
#20	0.7		
#30	0.7		
#40	0.6		
#50	0.6		
#80	0.5		
#100	0.5		
#200	0.4		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 19.7232 D_{85}= 18.8265 D_{60}= 16.0740
D_{50}= 15.2096 D_{30}= 13.4925 D_{15}= 11.6450
D_{10}= 10.0141 C_u= 1.61 C_c= 1.13

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Select Aggregate Fill
Sample Number: Sample 04-14-11

Date: 04-20-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

RMT, Inc.

Constant Head Permeability Test (ASTM D2434)

QC: HJW

QA: JPH

Project Name:	Domtar		
Project #:	05794.49.003	USCS Description:	Poorly graded gravel
Sample Name:	Select Aggregate Fill, Sample 04-14-11	USCS Classification:	GP
Visual Descript:	Poorly graded gravel	Average k_v =	9.4E+00 cm./sec.

Sample Diameter (in):	4.00		
Sample Height (in):	4.63		
Specific Gravity:	2.70		
Tare & Wet Soil (g):	2223.30		
Tare & Dry Soil (g):	2221.50	Sample Type:	Remolded
Tare (g):	429.41	Beaker Tare Wt. (g):	392.32

	Initial Values		Final Values
Mold & Wet Soil (g):	4731.00	Mold & Wet Soil (g):	4774.00
Mold & Dry Soil (g):	4729.61	Mold & Dry Soil (g):	4729.61
Tare of Mold (g):	3346.00	Tare of Mold (g):	3346.00
Wet Density (pcf):	90.78	Wet Density (pcf):	93.60
Dry Density (pcf):	90.69	Dry Density (pcf):	90.69
% Saturation:	0.32%	% Saturation:	10.10%
% Moisture:	0.10%	% Moisture:	3.21%

Date			Time		Flow Vol	Flow	Head			k_v *
YY	MM	DD	Sec.	Temp.	Readings	Vol.	Bottom	Top	h	cm/sec
2011	4	19	60	26	704.1	311.78	90.80	90.85	0.05	9.4E+00
2011	4	19	60	26	705.2	312.88	90.80	90.85	0.05	9.4E+00
2011	4	19	60	26	705.4	313.08	90.80	90.85	0.05	9.4E+00
2011	4	19	60	26	705.0	312.68	90.80	90.85	0.05	9.4E+00

k_v = QL/Aht cm./sec.

Q = 312.61 ml. (ave. measured flow volume)

L = 3.313 in. (flow length)

A = 12.57 sq. in. (area of sample)

h = 0.05 cm. (ave. head)

t = 60.00 sec. (average run time)

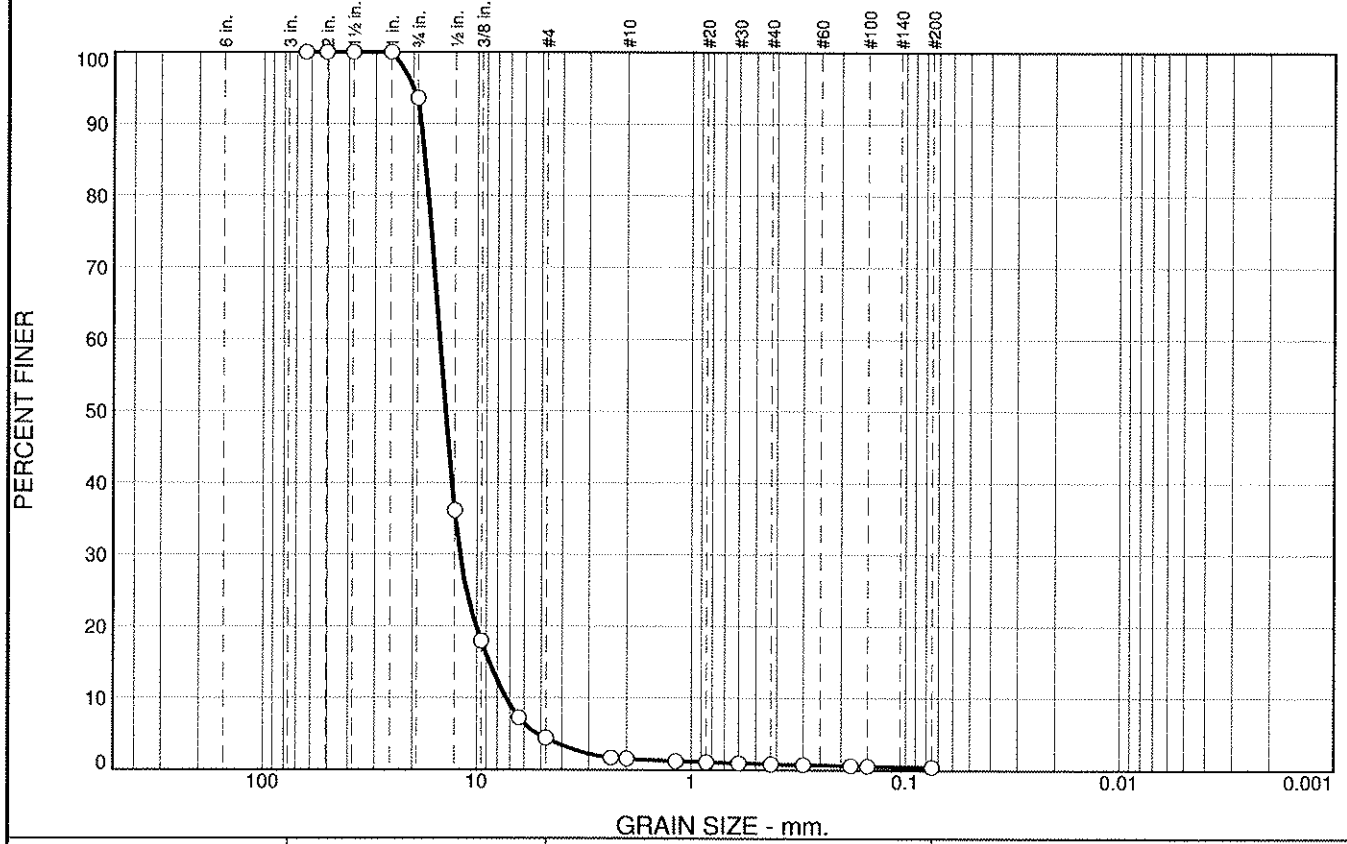
i = 0.01 (average gradient)

k_v = 9.4E+00 cm/sec (ave. k value)

* k_v adjusted for temperature

19

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.4	89.2	2.9	0.7	0.4	0.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	93.6		
.5	36.2		
.375	18.0		
.25	7.2		
#4	4.4		
#8	1.7		
#10	1.5		
#16	1.2		
#20	1.1		
#30	0.9		
#40	0.8		
#50	0.7		
#80	0.6		
#100	0.5		
#200	0.4		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 18.3566 D_{85}= 17.6053 D_{60}= 14.9515
D_{50}= 14.0428 D_{30}= 11.9435 D_{15}= 8.7114
D_{10}= 7.2853 C_u= 2.05 C_c= 1.31

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Select Aggregate Fill
Sample Number: Sample 04-18-11

Date: 04-20-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar

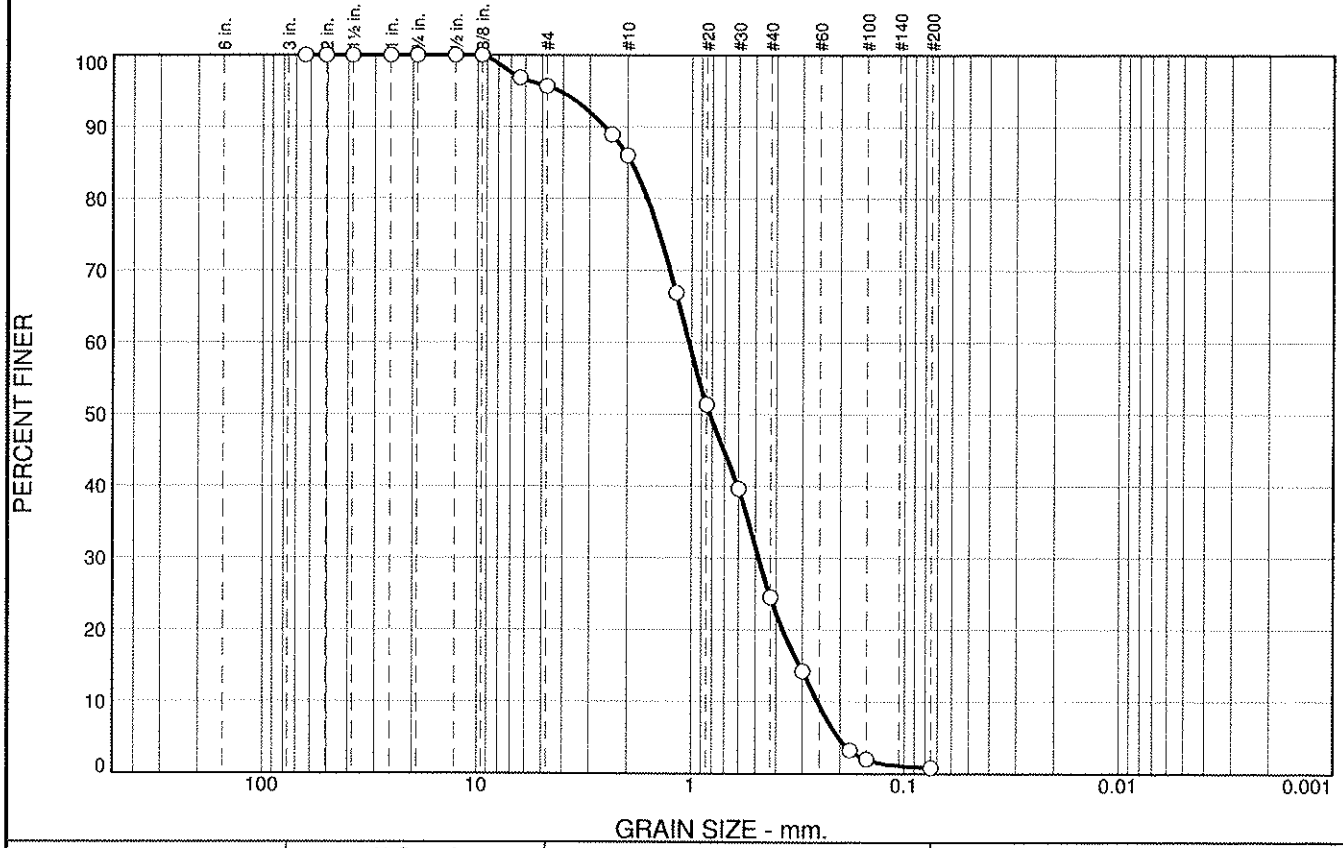
Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

20

Select Granular Fill (Sand) Test Results

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.3	9.6	61.5	23.8	0.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	96.9		
#4	95.7		
#8	88.9		
#10	86.1		
#16	66.9		
#20	51.4		
#30	39.7		
#40	24.6		
#50	14.2		
#80	3.2		
#100	2.0		
#200	0.8		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.5486 D_{85}= 1.9091 D_{60}= 1.0264
D_{50}= 0.8195 D_{30}= 0.4821 D_{15}= 0.3090
D_{10}= 0.2544 C_u= 4.04 C_c= 0.89

Classification

USCS= SP AASHTO=

Remarks

Source of Sample: Select Granular Fill
Sample Number: Sample 03-30-11

Date: 03-31-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

RMT, Inc.

Constant Head Permeability Test (ASTM D2434)

QC: HJW

QA: JPH

Project Name:	Domtar		
Project #:	05794.49.003	USCS Description:	Poorly graded sand
Sample Name:	Select Granular Fill, Sample 03-30-11	USCS Classification:	SP
Visual Descript:	Poorly graded sand	Average k_v =	4.8E-02 cm./sec.

Sample Diameter (in):	4.00		
Sample Height (in):	4.63		
Specific Gravity:	2.70		
Tare & Wet Soil (g):	854.70		
Tare & Dry Soil (g):	834.10	Sample Type:	Remolded
Tare (g):	292.81	Beaker Tare Wt. (g):	392.32

	Initial Values		Final Values
Mold & Wet Soil (g):	5000.00	Mold & Wet Soil (g):	5245.00
Mold & Dry Soil (g):	4939.43	Mold & Dry Soil (g):	4939.43
Tare of Mold (g):	3348.00	Tare of Mold (g):	3348.00
Wet Density (pcf):	108.28	Wet Density (pcf):	124.34
Dry Density (pcf):	104.31	Dry Density (pcf):	104.31
% Saturation:	16.70%	% Saturation:	84.28%
% Moisture:	3.81%	% Moisture:	19.20%

Date			Time		Flow Vol	Flow	Head			k_v *
YY	MM	DD	Sec.	Temp.	Readings	Vol.	Bottom	Top	h	cm/sec
2011	3	31	60	26	529.4	137.08	93.10	97.40	4.3	4.8E-02
2011	3	31	60	26	529.6	137.28	93.10	97.40	4.3	4.8E-02
2011	3	31	60	26	529.5	137.18	93.10	97.40	4.3	4.8E-02
2011	3	31	60	26	529.1	136.78	93.10	97.40	4.3	4.8E-02

k_v = QL/Aht cm./sec.

Q = 137.08 ml. (ave. measured flow volume)

L = 3.313 in. (flow length)

A = 12.57 sq. in. (area of sample)

h = 4.30 cm. (ave. head)

t = 60.00 sec. (average run time)

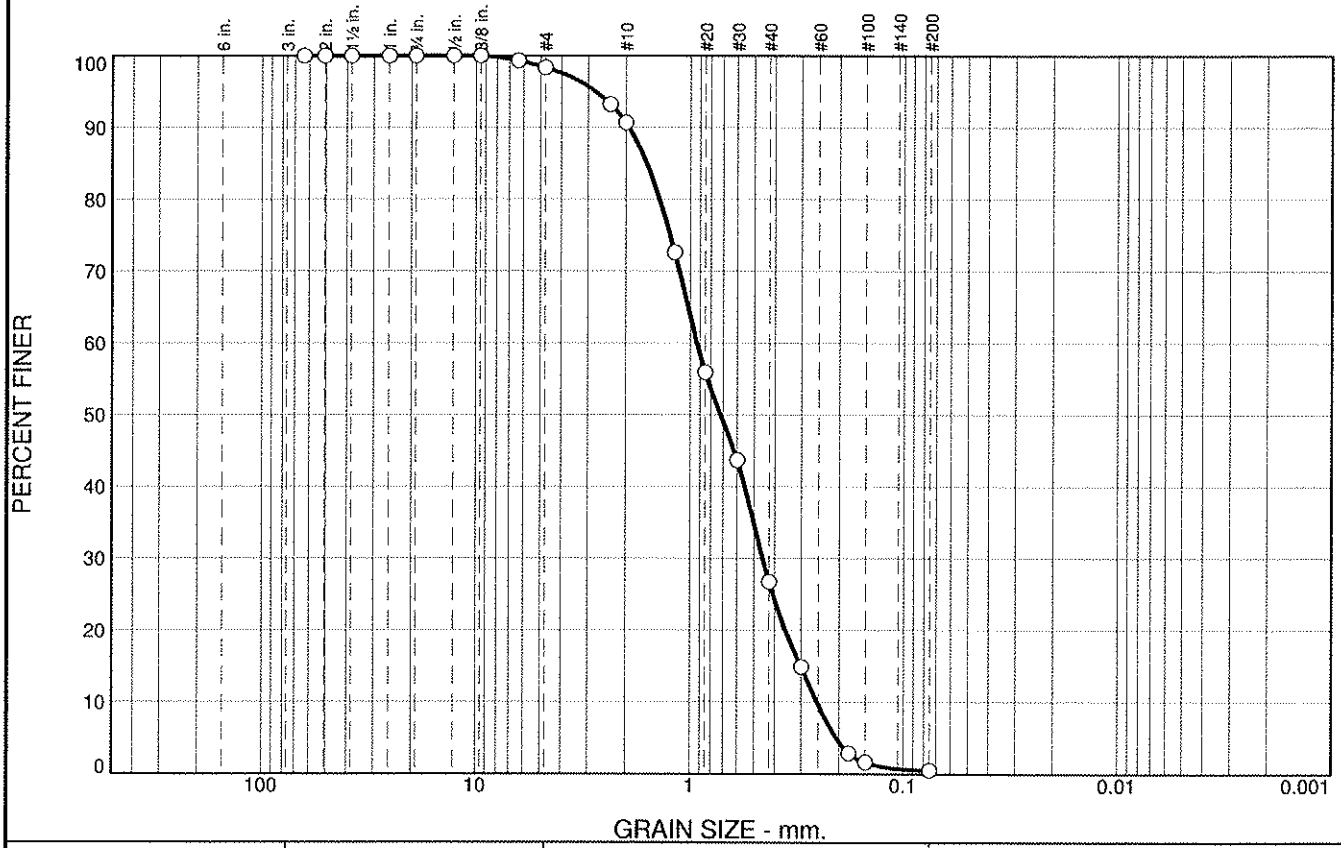
i = 0.51 (average gradient)

k_v = 4.8E-02 cm/sec (ave. k value)

* k_v adjusted for temperature

24

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.6	7.7	63.9	26.3	0.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	99.3		
#4	98.4		
#8	93.2		
#10	90.7		
#16	72.7		
#20	56.0		
#30	43.7		
#40	26.8		
#50	14.9		
#80	2.9		
#100	1.6		
#200	0.5		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.9316 D_{85}= 1.5969 D_{60}= 0.9278
D_{50}= 0.7183 D_{30}= 0.4549 D_{15}= 0.3011
D_{10}= 0.2528 C_u= 3.67 C_c= 0.88

Classification

USCS= SP AASHTO=

Remarks

Source of Sample: Select Granular Fill
Sample Number: Sample 03-31-11

Date: 04-01-11

RMT, Inc.

Madison, Wisconsin

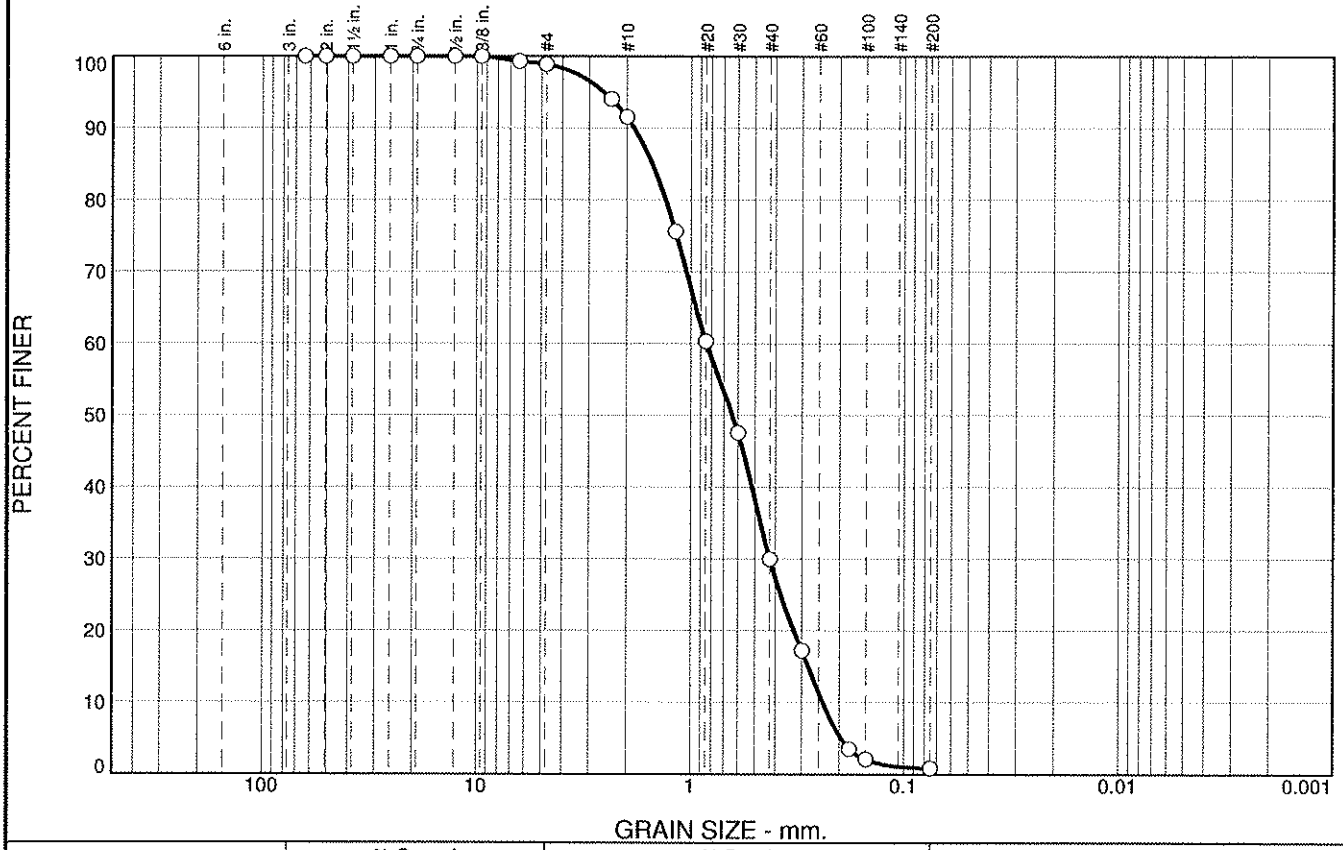
Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

25

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	7.3	61.6	29.2	0.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	99.3		
#4	98.9		
#8	94.1		
#10	91.6		
#16	75.7		
#20	60.3		
#30	47.6		
#40	30.0		
#50	17.3		
#80	3.5		
#100	2.1		
#200	0.8		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.8441 D_{85}= 1.5160 D_{60}= 0.8428
D_{50}= 0.6361 D_{30}= 0.4249 D_{15}= 0.2799
D_{10}= 0.2388 C_u= 3.53 C_c= 0.90

Classification

USCS= SP AASHTO=

Remarks

Source of Sample: Select Granular Fill
Sample Number: Sample 04-01-11

Date: 04-04-11

RMT, Inc.

Madison, Wisconsin

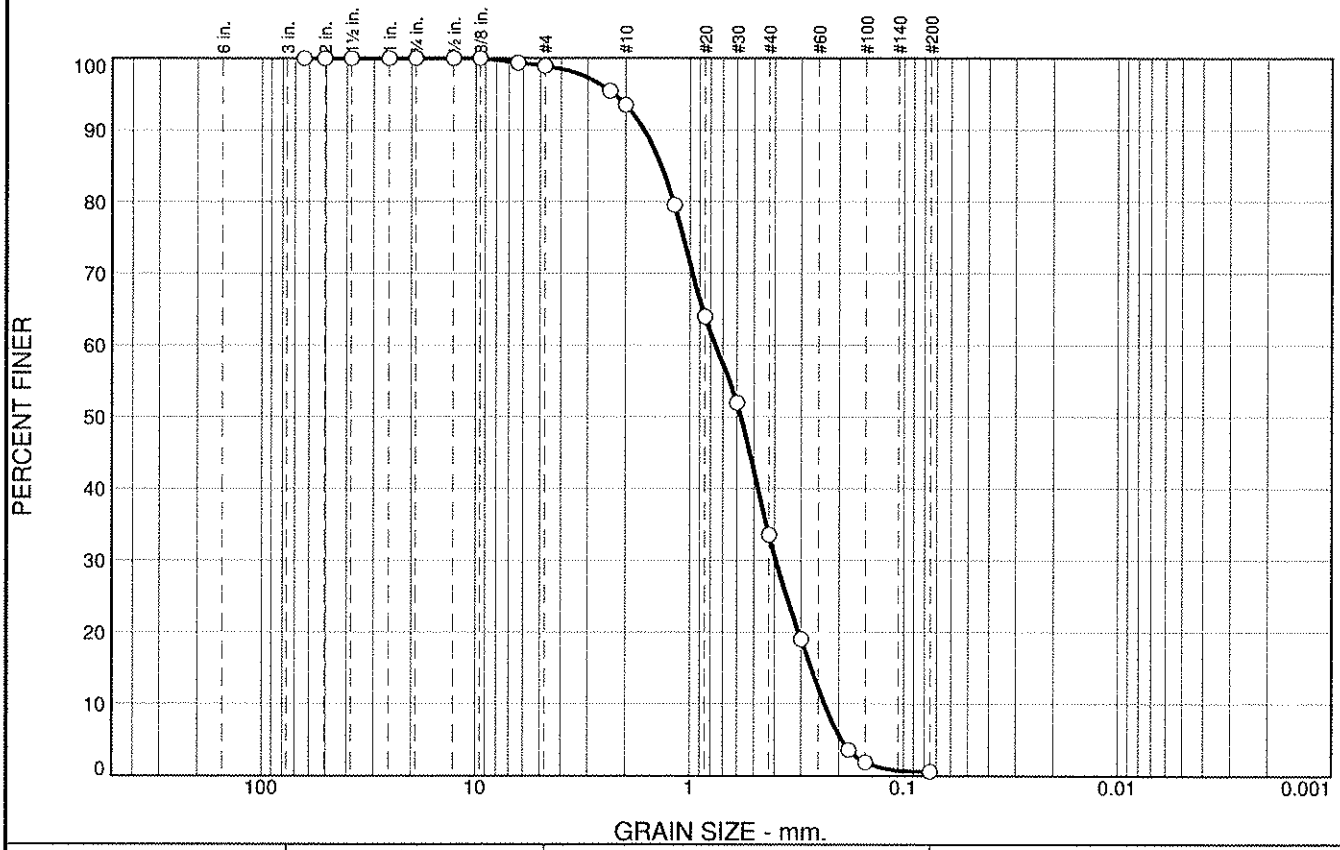
Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

26

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	5.4	59.9	33.0	0.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	99.4		
#4	98.9		
#8	95.4		
#10	93.5		
#16	79.6		
#20	64.0		
#30	52.0		
#40	33.6		
#50	19.1		
#80	3.6		
#100	1.9		
#200	0.6		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.6364 D_{85}= 1.3600 D_{60}= 0.7587
D_{50}= 0.5748 D_{30}= 0.3945 D_{15}= 0.2690
D_{10}= 0.2330 C_u= 3.26 C_c= 0.88

Classification

USCS= SP AASHTO=

Remarks

Source of Sample: Select Granular Fill
Sample Number: Sample 04-04-11

Date: 04-06-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

27

RMT, Inc. | QC: HJW

Constant Head Permeability Test (ASTM D2434) | QA: JPH

Project Name:	Domtar		
Project #:	05794.49.003	USCS Description:	Poorly graded sand
Sample Name:	Select Granular Fill, Sample 04-04-11	USCS Classification:	SP
Visual Descript:	Poorly graded sand	Average k_v =	2.8E-02 cm./sec.

Sample Diameter (in):	4.00		
Sample Height (in):	4.63		
Specific Gravity:	2.70		
Tare & Wet Soil (g):	758.10		
Tare & Dry Soil (g):	728.31	Sample Type:	Remolded
Tare (g):	293.38	Beaker Tare Wt. (g):	392.32

	Initial Values		Final Values
Mold & Wet Soil (g):	5041.00	Mold & Wet Soil (g):	5210.00
Mold & Dry Soil (g):	4932.35	Mold & Dry Soil (g):	4932.35
Tare of Mold (g):	3346.00	Tare of Mold (g):	3346.00
Wet Density (pcf):	111.10	Wet Density (pcf):	122.18
Dry Density (pcf):	103.98	Dry Density (pcf):	103.98
% Saturation:	29.81%	% Saturation:	76.18%
% Moisture:	6.85%	% Moisture:	17.50%

Date			Time		Flow Vol	Flow	Head			k_v *
YY	MM	DD	Sec.	Temp.	Readings	Vol.	Bottom	Top	h	cm/sec
2011	4	6	60	28	551.2	158.88	94.40	102.50	8.1	2.8E-02
2011	4	6	60	28	552.6	160.28	94.40	102.50	8.1	2.8E-02
2011	4	6	60	28	552.8	160.48	94.40	102.50	8.1	2.9E-02
2011	4	6	60	28	552.8	160.48	94.40	102.50	8.1	2.9E-02

k_v = QL/Aht cm./sec.

Q = 160.03 ml. (ave. measured flow volume)

L = 3.313 in. (flow length)

A = 12.57 sq. in. (area of sample)

h = 8.10 cm. (ave. head)

t = 60.00 sec. (average run time)

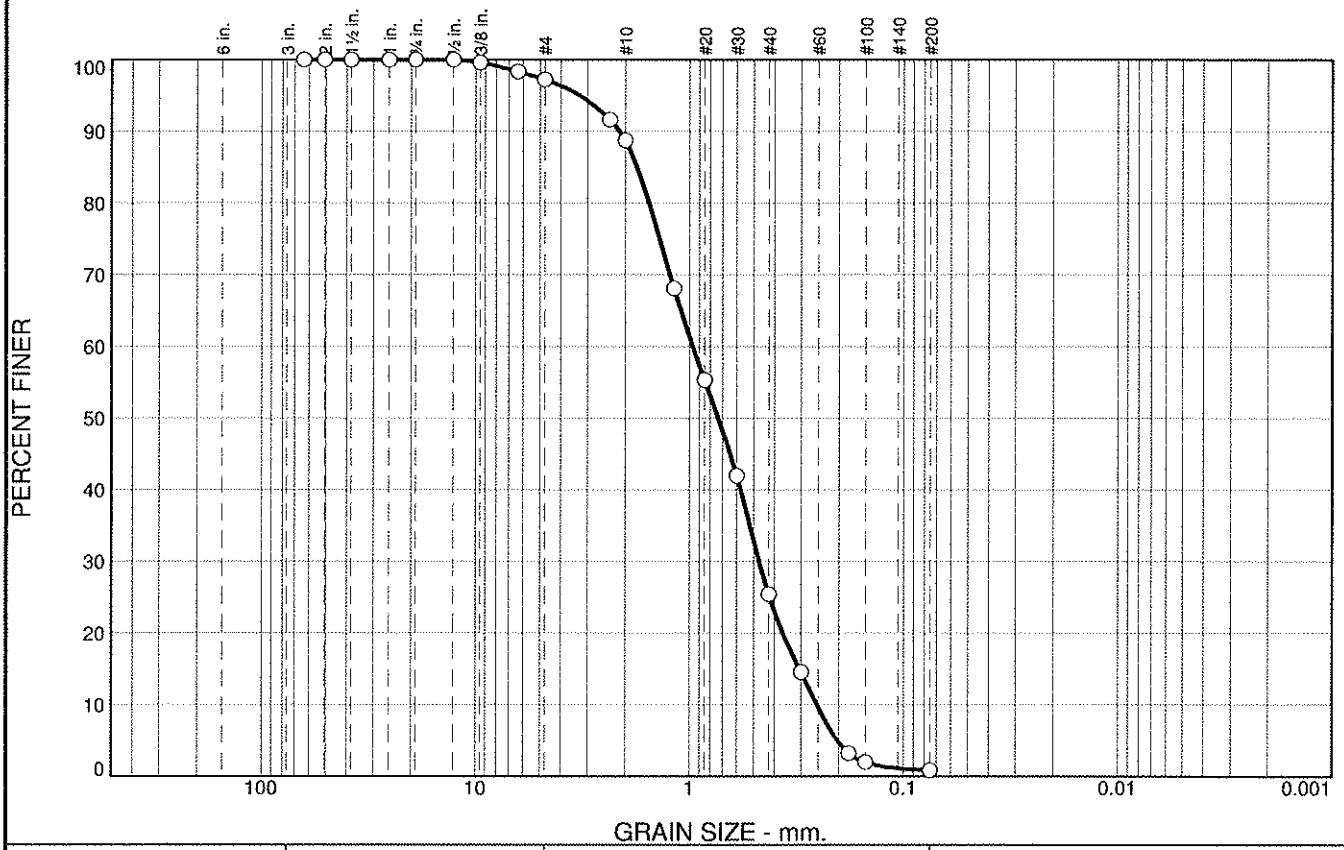
i = 0.96 (average gradient)

k_v = 2.8E-02 cm/sec (ave. k value)

* k_v adjusted for temperature

28

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.8	8.4	63.4	24.5	0.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
.25	98.4		
#4	97.2		
#8	91.6		
#10	88.8		
#16	68.1		
#20	55.4		
#30	42.0		
#40	25.4		
#50	14.5		
#80	3.2		
#100	2.0		
#200	0.9		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.1234 D_{85}= 1.7614 D_{60}= 0.9644
D_{50}= 0.7319 D_{30}= 0.4702 D_{15}= 0.3051
D_{10}= 0.2529 C_u= 3.81 C_c= 0.91

Classification

USCS= SP AASHTO=

Remarks

Source of Sample: Select Granular Fill
Sample Number: Sample 04-06-11

Date: 04-07-11

RMT, Inc.

Madison, Wisconsin

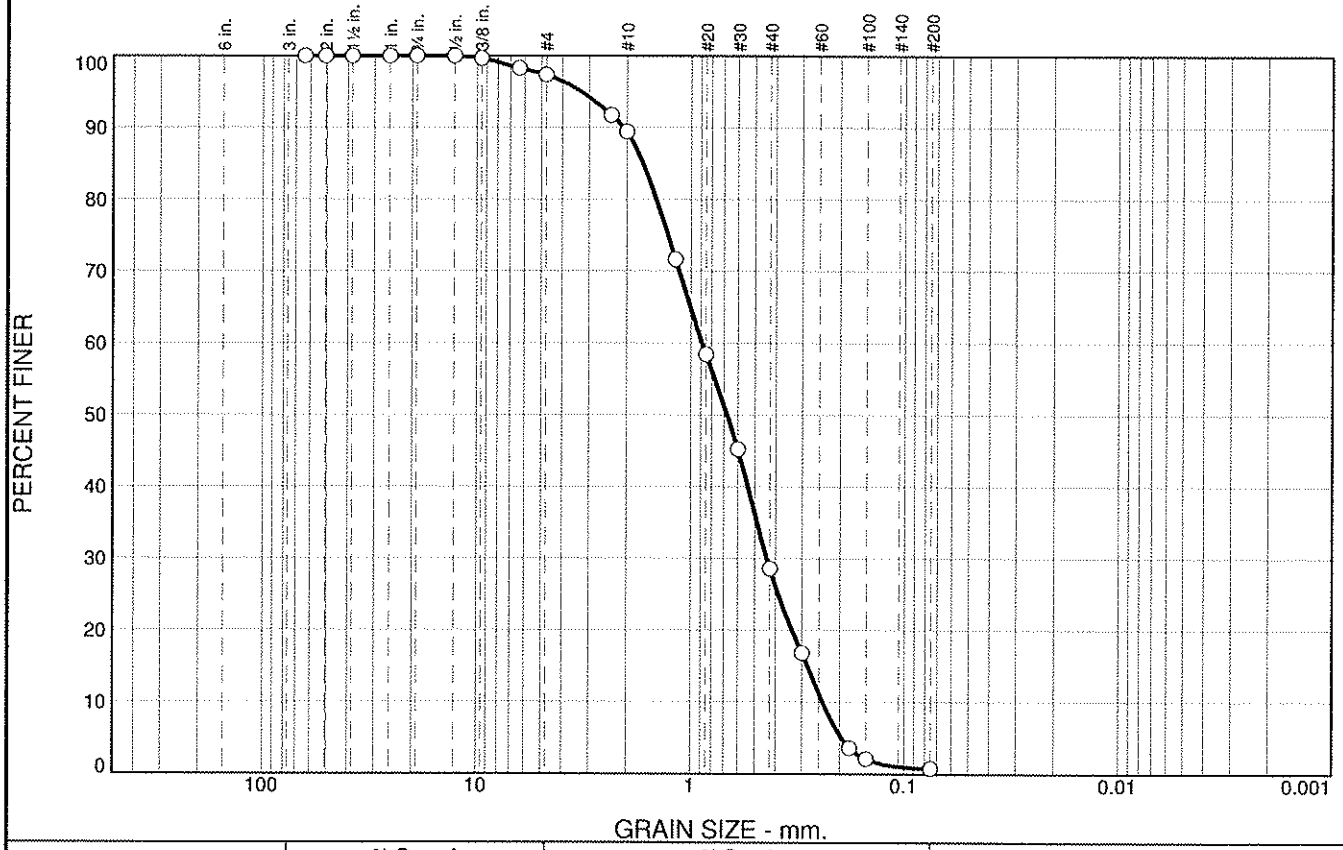
Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

29

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.6	7.9	60.9	27.8	0.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	99.6		
.25	98.3		
#4	97.4		
#8	91.8		
#10	89.5		
#16	71.7		
#20	58.5		
#30	45.3		
#40	28.6		
#50	16.9		
#80	3.6		
#100	2.1		
#200	0.8		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.0618 D_{85}= 1.6769 D_{60}= 0.8854
D_{50}= 0.6732 D_{30}= 0.4388 D_{15}= 0.2824
D_{10}= 0.2393 C_u= 3.70 C_c= 0.91

Classification

USCS= SP AASHTO=

Remarks

Source of Sample: Select Granular Fill
Sample Number: Sample 04-11-11

Date: 04-13-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

RMT, Inc.

Constant Head Permeability Test (ASTM D2434)

QC: HJW

QA: JPH

Project Name:	Domtar		
Project #:	05794.49.003	USCS Description:	Poorly graded sand
Sample Name:	Select Granular Fill, Sample 4-11-11	USCS Classification:	SP
Visual Descript:	Poorly graded sand	Average k_v =	2.4E-02 cm./sec.

Sample Diameter (in):	4.00		
Sample Height (in):	4.63		
Specific Gravity:	2.70		
Tare & Wet Soil (g):	775.90		
Tare & Dry Soil (g):	756.58	Sample Type:	Remolded
Tare (g):	267.30	Beaker Tare Wt. (g):	392.32

	Initial Values		Final Values
Mold & Wet Soil (g):	5001.00	Mold & Wet Soil (g):	5212.00
Mold & Dry Soil (g):	4938.09	Mold & Dry Soil (g):	4938.09
Tare of Mold (g):	3345.00	Tare of Mold (g):	3345.00
Wet Density (pcf):	108.54	Wet Density (pcf):	122.38
Dry Density (pcf):	104.42	Dry Density (pcf):	104.42
% Saturation:	17.38%	% Saturation:	75.67%
% Moisture:	3.95%	% Moisture:	17.19%

Date			Time		Flow Vol	Flow	Head			k_v *
YY	MM	DD	Sec.	Temp.	Readings	Vol.	Bottom	Top	h	cm/sec
2011	4	13	60	28	590.3	197.98	90.00	101.70	11.7	2.4E-02
2011	4	13	60	28	590.6	198.28	90.00	101.70	11.7	2.4E-02
2011	4	13	60	28	590.4	198.08	90.00	101.70	11.7	2.4E-02
2011	4	13	60	28	591.1	198.78	90.00	101.70	11.7	2.4E-02

k_v = QL/Aht cm./sec.

Q = 198.28 ml. (ave. measured flow volume)

L = 3.313 in. (flow length)

A = 12.57 sq. in. (area of sample)

h = 11.70 cm. (ave. head)

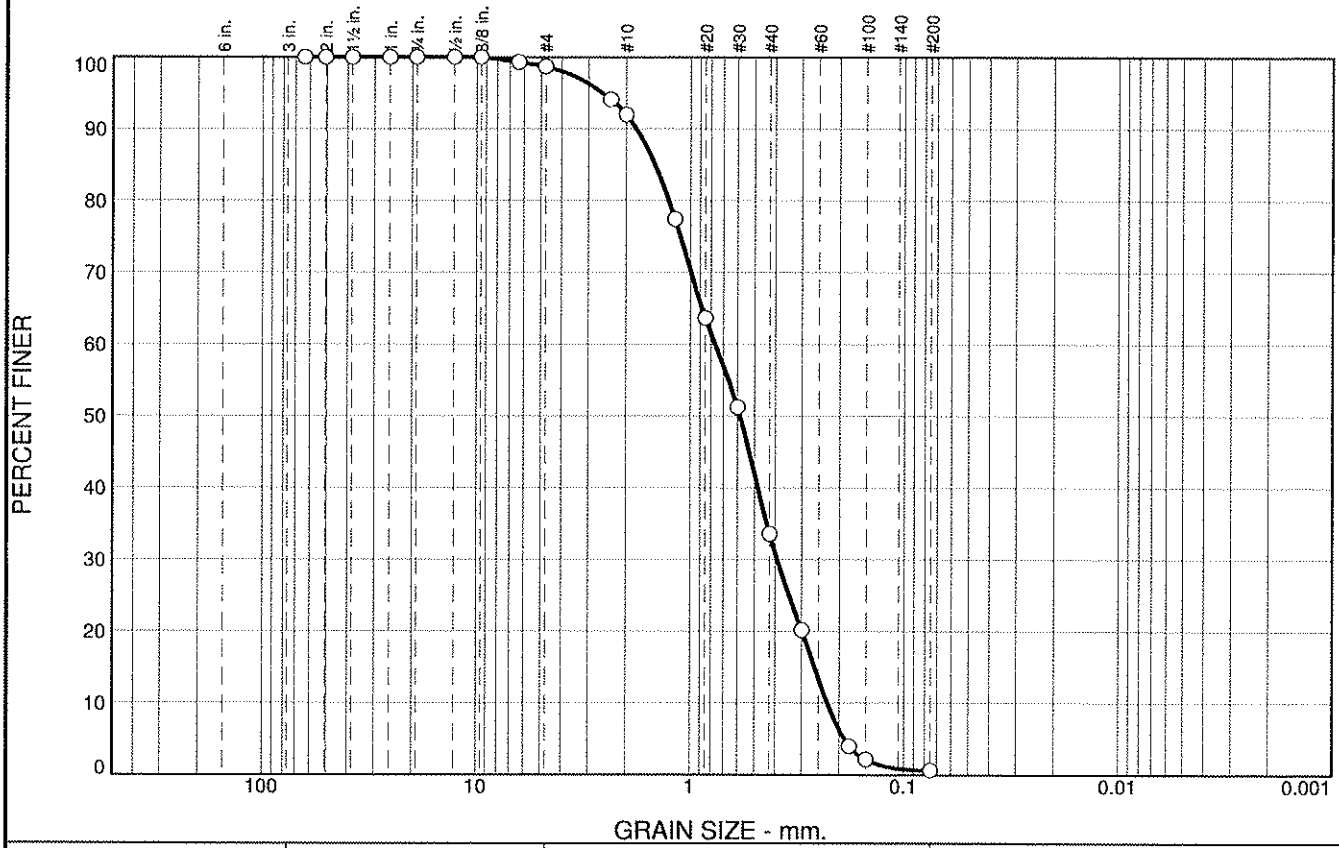
t = 60.00 sec. (average run time)

i = 1.39 (average gradient)

k_v = 2.4E-02 cm/sec (ave. k value)

* k_v adjusted for temperature

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	6.7	58.4	33.0	0.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	100.0		
.5	100.0		
.375	100.0		
.25	99.3		
#4	98.7		
#8	94.1		
#10	92.0		
#16	77.5		
#20	63.7		
#30	51.2		
#40	33.6		
#50	20.2		
#80	4.0		
#100	2.1		
#200	0.6		

* (no specification provided)

Material Description

Poorly graded sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.7888 D_{85}= 1.4644 D_{60}= 0.7651
D_{50}= 0.5837 D_{30}= 0.3914 D_{15}= 0.2607
D_{10}= 0.2265 C_u= 3.38 C_c= 0.88

Classification

USCS= SP AASHTO=

Remarks

Source of Sample: Select Granular Fill
Sample Number: Sample 04-18-11

Date: 04-20-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar

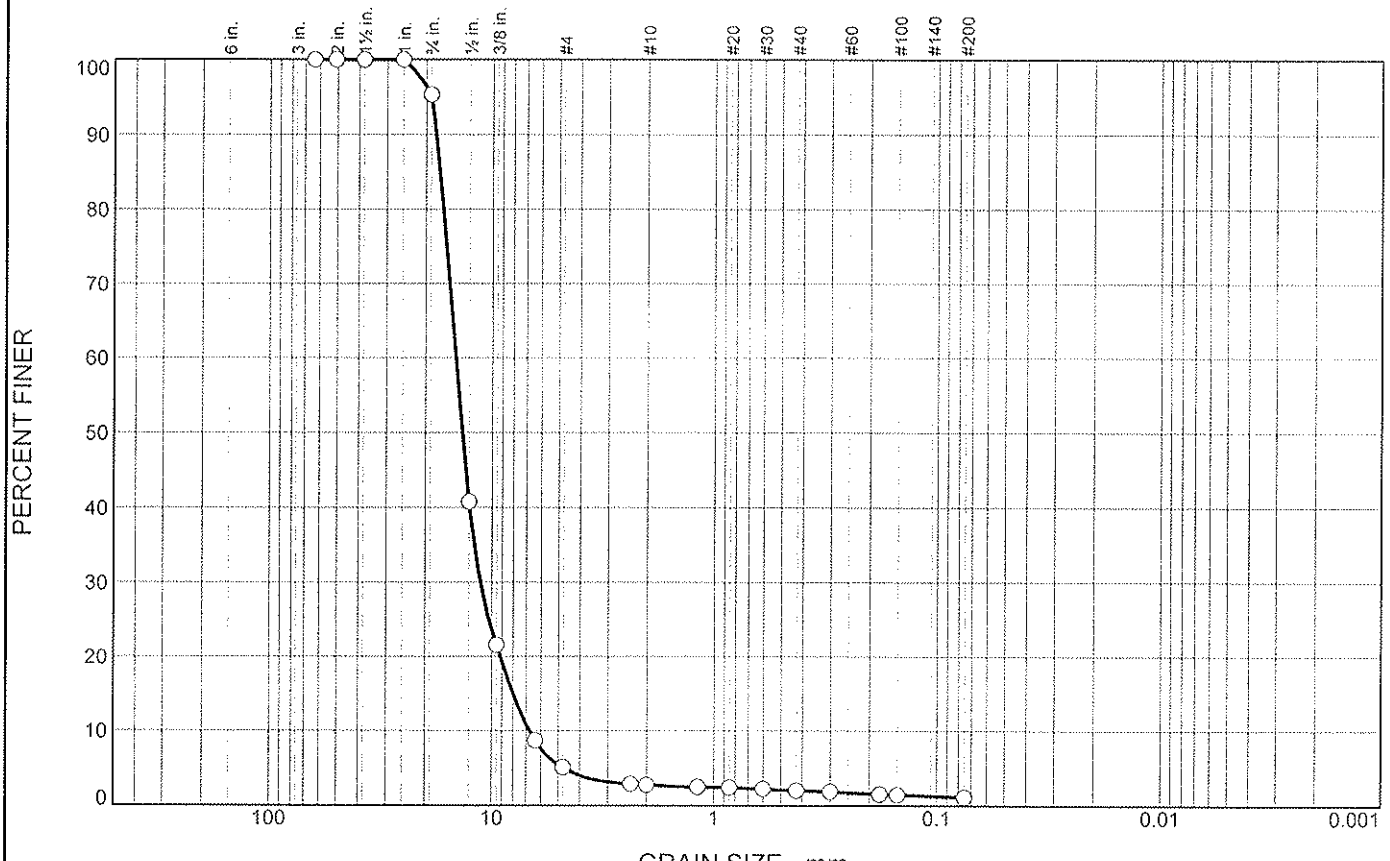
Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

32

Pipe Bedding Stone Test Results

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.6	90.3	2.3	0.8	0.8	1.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	95.4		
.5	40.8		
.375	21.5		
.25	8.7		
#4	5.1		
#8	2.9		
#10	2.8		
#16	2.5		
#20	2.4		
#30	2.2		
#40	2.0		
#50	1.9		
#80	1.6		
#100	1.5		
#200	1.2		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 17.9974 D_{85}= 17.2628 D_{60}= 14.5851
D_{50}= 13.6390 D_{30}= 11.2573 D_{15}= 8.0021
D_{10}= 6.7464 C_u= 2.16 C_c= 1.29

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Pipe Bedding Stone
Sample Number: Sample Pt. 182

Date: 04-21-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW **Checked By:** JPH

RMT, Inc.

QC: HJW

Constant Head Permeability Test (ASTM D2434)

QA: JPH

Project Name:	Domtar		
Project #:	05794.49.003	USCS Description:	Poorly graded gravel
Sample Name:	Pipe Bedding Stone, Sample Pt. 182	USCS Classification:	GP
Visual Descript:	Poorly graded gravel	Average k_v =	9.4E+00 cm./sec.

Sample Diameter (in):	4.00		
Sample Height (in):	4.63		
Specific Gravity:	2.70		
Tare & Wet Soil (g):	2464.50		
Tare & Dry Soil (g):	2446.20	Sample Type:	Remolded
Tare (g):	429.39	Beaker Tare Wt. (g):	392.32

	Initial Values		Final Values
Mold & Wet Soil (g):	4803.00	Mold & Wet Soil (g):	4841.00
Mold & Dry Soil (g):	4789.89	Mold & Dry Soil (g):	4789.89
Tare of Mold (g):	3345.00	Tare of Mold (g):	3345.00
Wet Density (pcf):	95.57	Wet Density (pcf):	98.06
Dry Density (pcf):	94.71	Dry Density (pcf):	94.71
% Saturation:	3.15%	% Saturation:	12.26%
% Moisture:	0.91%	% Moisture:	3.54%

Date			Time		Flow Vol	Flow	Head			k_v *
YY	MM	DD	Sec.	Temp.	Readings	Vol.	Bottom	Top	h	cm/sec
2011	4	21	60	26	705.9	313.58	91.50	91.55	0.05	9.4E+00
2011	4	21	60	26	706.2	313.88	91.50	91.55	0.05	9.4E+00
2011	4	21	60	26	705.3	312.98	91.50	91.55	0.05	9.4E+00
2011	4	21	60	26	706.0	313.68	91.50	91.55	0.05	9.4E+00

$k_v = QL/Aht$ cm./sec.

Q = 313.53 ml. (ave. measured flow volume)

L = 3.313 in. (flow length)

A = 12.57 sq. in. (area of sample)

h = 0.05 cm. (ave. head)

t = 60.00 sec. (average run time)

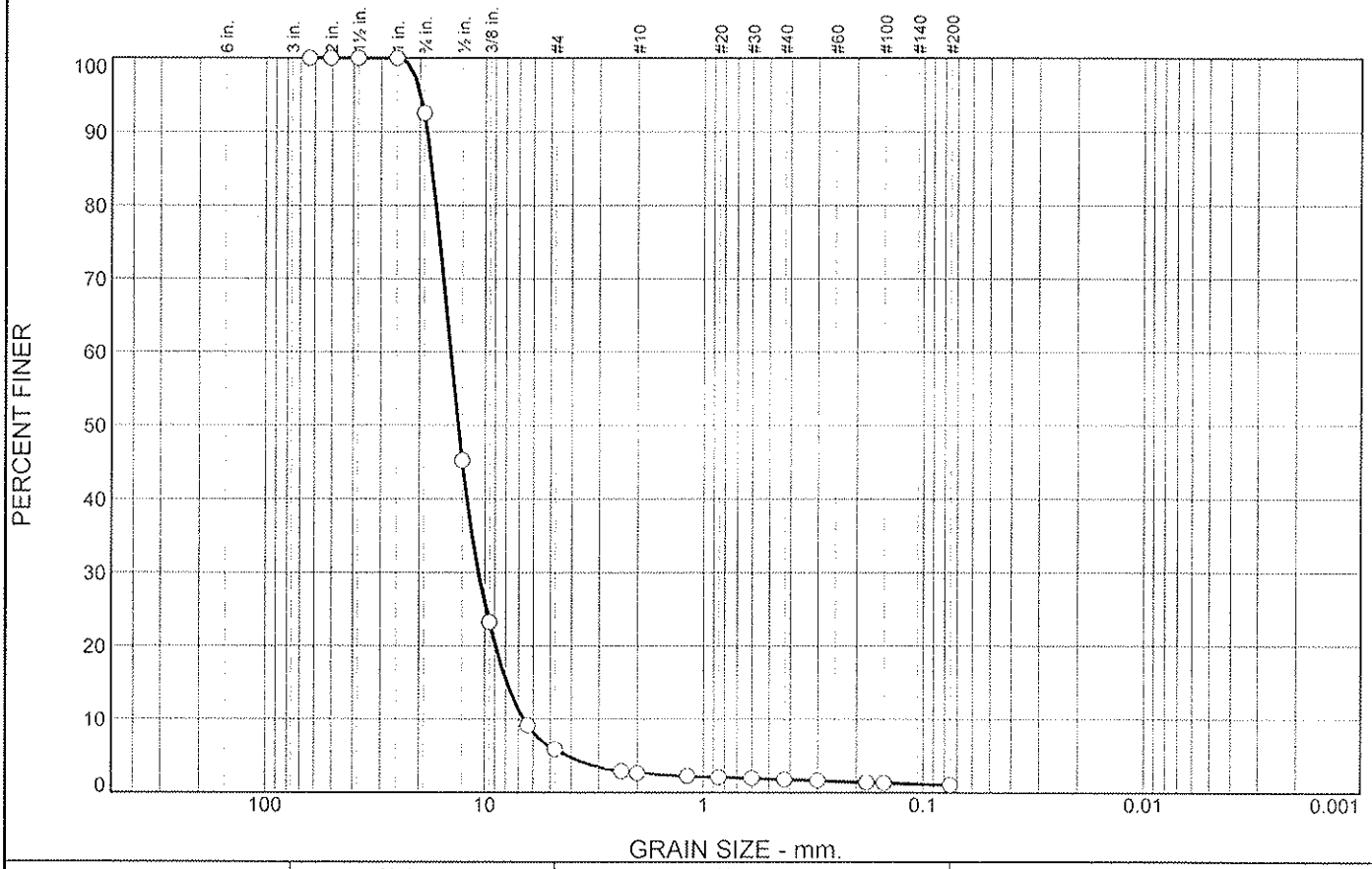
i = 0.01 (average gradient)

k_v = 9.4E+00 cm/sec (ave. k value)

* k_v adjusted for temperature

36

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	7.4	86.7	3.2	0.9	0.7	1.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	92.6		
.5	45.2		
.375	23.3		
.25	9.2		
#4	5.9		
#8	2.9		
#10	2.7		
#16	2.3		
#20	2.1		
#30	2.0		
#40	1.8		
#50	1.7		
#80	1.4		
#100	1.4		
#200	1.1		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 18.4477 D_{85}= 17.5156 D_{60}= 14.3298
D_{50}= 13.2387 D_{30}= 10.6589 D_{15}= 7.8935
D_{10}= 6.6201 C_u= 2.16 C_c= 1.20

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Pipe Bedding Stone
Sample Number: Sample Pt. 186

Date: 04-21-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 Figure:

Tested By: HJW Checked By: JPH

37

RMT, Inc. | QC: HJW

Constant Head Permeability Test (ASTM D2434) | QA: JPH

Project Name:	Domtar		
Project #:	05794.49.003	USCS Description:	Poorly graded gravel
Sample Name:	Pipe Bedding Stone, Sample Pt. 186	USCS Classification:	GP
Visual Descript:	Poorly graded gravel	Average k_v =	9.2E+00 cm./sec.

Sample Diameter (in):	4.00		
Sample Height (in):	4.63		
Specific Gravity:	2.70		
Tare & Wet Soil (g):	2407.60		
Tare & Dry Soil (g):	2378.90	Sample Type:	Remolded
Tare (g):	424.80	Beaker Tare Wt. (g):	392.32

	Initial Values		Final Values
Mold & Wet Soil (g):	4800.00	Mold & Wet Soil (g):	4827.00
Mold & Dry Soil (g):	4778.97	Mold & Dry Soil (g):	4778.97
Tare of Mold (g):	3347.00	Tare of Mold (g):	3347.00
Wet Density (pcf):	95.24	Wet Density (pcf):	97.01
Dry Density (pcf):	93.86	Dry Density (pcf):	93.86
% Saturation:	4.99%	% Saturation:	11.39%
% Moisture:	1.47%	% Moisture:	3.35%

Date			Time		Flow Vol	Flow	Head			k_v *
YY	MM	DD	Sec.	Temp.	Readings	Vol.	Bottom	Top	h	cm/sec
2011	4	21	60	27	706.2	313.88	91.30	91.35	0.05	9.2E+00
2011	4	21	60	27	706.5	314.18	91.30	91.35	0.05	9.2E+00
2011	4	21	60	27	706.0	313.68	91.30	91.35	0.05	9.2E+00
2011	4	21	60	27	706.4	314.08	91.30	91.35	0.05	9.2E+00

k_v = QL/Aht cm./sec.

Q = 313.96 ml. (ave. measured flow volume)

L = 3.313 in. (flow length)

A = 12.57 sq. in. (area of sample)

h = 0.05 cm. (ave. head)

t = 60.00 sec. (average run time)

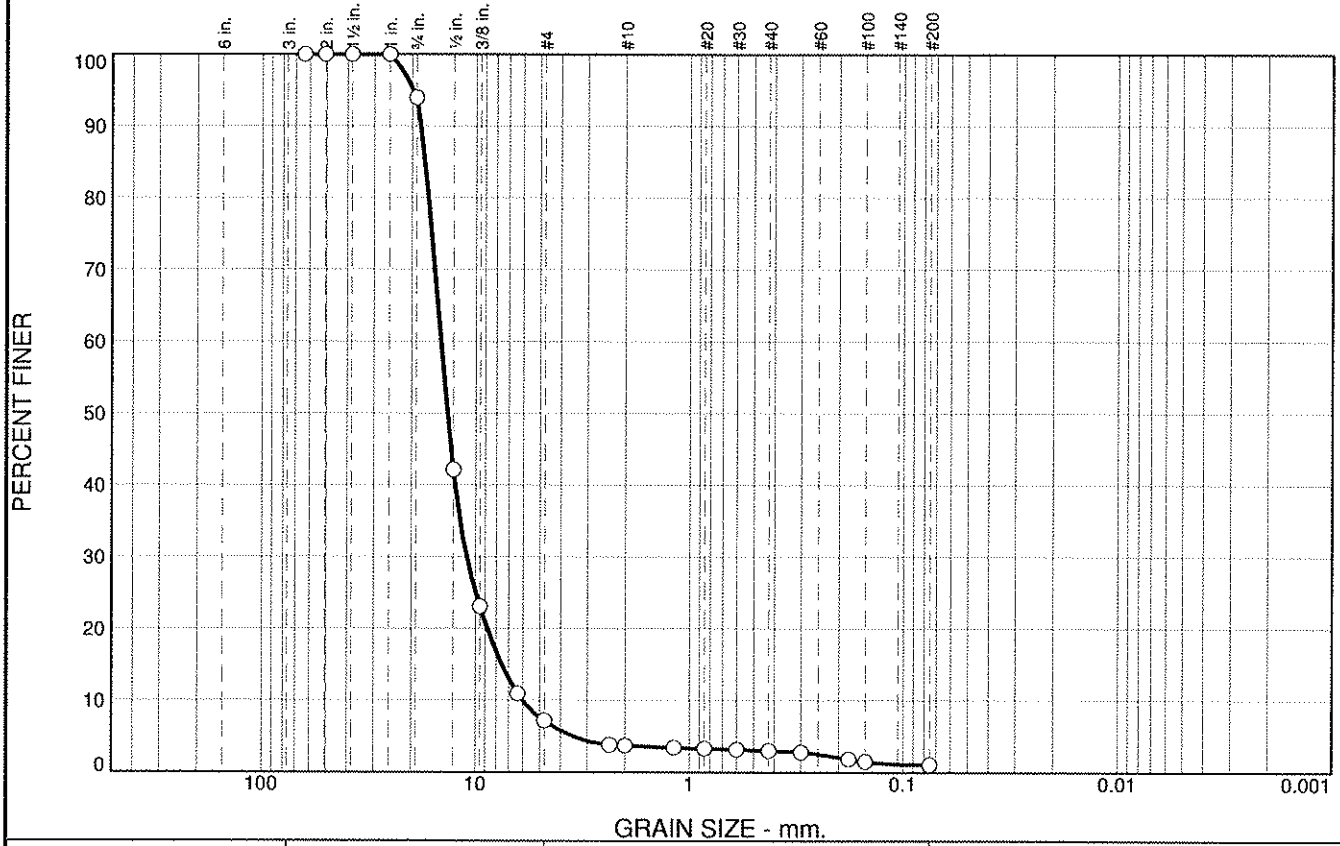
i = 0.01 (average gradient)

k_v = 9.2E+00 cm/sec (ave. k value)

* k_v adjusted for temperature

38

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.0	86.8	3.5	0.7	1.9	1.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2.5	100.0		
2.0	100.0		
1.5	100.0		
1.0	100.0		
.75	94.0		
.5	42.2		
.375	23.1		
.25	11.0		
#4	7.2		
#8	3.8		
#10	3.7		
#16	3.4		
#20	3.3		
#30	3.2		
#40	3.0		
#50	2.8		
#80	1.9		
#100	1.5		
#200	1.1		

* (no specification provided)

Material Description

Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 18.2147 D_{85}= 17.4092 D_{60}= 14.5469
D_{50}= 13.5427 D_{30}= 10.9756 D_{15}= 7.5355
D_{10}= 6.0154 C_u= 2.42 C_c= 1.38

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Pipe Bedding Stone
Sample Number: Sample Pt. 314

Date: 04-27-11

RMT, Inc.

Madison, Wisconsin

Client:
Project: Domtar

Project No: 05794.49.003 **Figure:**

Tested By: HJW **Checked By:** JPH

39

Appendix L
Leachate Collection Pipe Cleaning Report and Videos

Table of Contents

- Leachate Collection Pipe Cleaning Report
- Leachate Collection Pipe Videos 1, 2, and 3

Leachate Collection Pipe Cleaning Report

JETCLEAN AMERICA

HIGH PRESSURE WATER JETTING
VIDEO PIPELINE INSPECTION
NO DIG POINT REPAIRS
WWW.JETCLEANAMERICA.COM

19019 FERN MEADOW LOOP
LUTZ, FL 33558
TEL: 800-226-8013 FAX: 813-926-4616
JETCLEANAMERICA@YAHOO.COM

Domtar Paper Company
Plymouth, NC Complex
Landfill New & Existing Cells
LCS Maintenance

Work Performed
May 2011

Conducted By:
Jetclean America
800-226-8013

JETCLEAN AMERICA

HIGH PRESSURE WATER JETTING
VIDEO PIPELINE INSPECTION
NO DIG POINT REPAIRS
WWW.JETCLEANAMERICA.COM

19019 FERN MEADOW LOOP
LUTZ, FL 33558
TEL: 800-226-8013 FAX: 813-926-4616
JETCLEANAMERICA@YAHOO.COM

REPORT

DATE : 5/27/2011
TO : Wynne Shaw – Domtar Paper Company
FROM : Ralph Calistri (jetcleanamerica@yahoo.com)
SUBJECT : Domtar - Plymouth, NC Complex

Jetclean America completed the leachate collection system high-pressure jetcleaning (existing cell only) and explosion-proof video-inspection work (new & existing cells) at the above location on 5/10/2011.

HIGH-PRESSURE JETCLEANING:

The jetting log (below) documents where high-pressure water-jetting efforts were conducted and what the achieved distances in each pipe were. All pipes were cleaned through to the sumps with no blockages or problems encountered during jetcleaning efforts.

DOMTAR PAPER COMPANY - PLYMOUTH, NC COMPLEX
LEACHATE COLLECTION SYSTEM JETTING LOG
JETTING PERFORMED BY JETCLEAN AMERICA
MAY 2011

LOCATION	ACHIEVED DISTANCE (ft)
Existing Cell	
Cleanout 1	380
Cleanout 2	465
Cleanout 3	695
Cleanout 4	270
Cleanout 5	278
Cleanout 6	278
Cleanout 7	277
Cleanout 8	710
Cleanout 9	280
Cleanout 10	475
Cleanout 11	140
Cleanout 12	140
Cleanout 13	700
Cleanout 14	457
Cleanout 15	340
Cleanout 16	125
Cleanout 17	781
Cleanout 18	123

Cleanout 19	860
Cleanout 20	865
Cleanout 21	860

EXPLOSION-PROOF VIDEO-INSPECTION:

After jetcleaning was completed, the above piping, as well as the new piping in the recent expansion cell, was video-inspected as far as possible utilizing explosion-proof video-inspection equipment (see included DVD's, Pipe Graphic Reports, and CCTV Survey Listing). The inspection camera was submerged under leachate in some areas of the piping which may obscure visibility (evidenced by orange or black video picture). All areas of the piping viewed with the inspection camera appear to be in good condition, with no specific defects noted. In any areas where video quality was obscured by high liquid levels, the fact that both the inspection camera and the high-pressure jetting nozzle were not restricted in any way would support the contention that the leachate collection system in those areas is also in good working order.

Please call us with questions or concerns.

Regards,

Ralph Calistri

Jetclean America

CCTV Surveys List for Domtar Paper

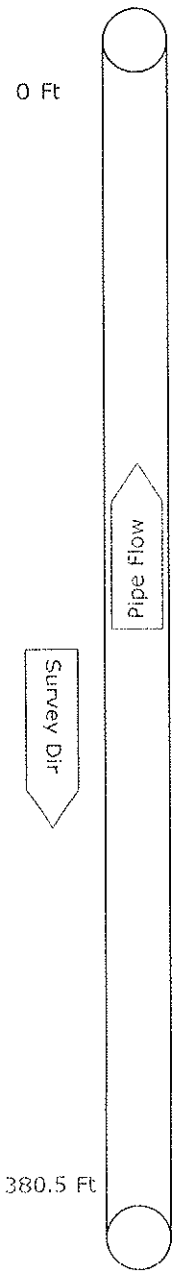
Number of surveys in this list is 21 as of Thursday, May 12, 2011

Unit of measure: ft

Setup	Date	Street	Start MH	Finish MH	Dir	Size inch	Pre Clean	Vid Cassette	Scheduled Length	Surveyed Length
1	5/10/2011	Domtar Paper Company	CO 1	CO 1A	U	6	Y	1	380.0	380.5
2	5/10/2011	Domtar Paper Company	CO 2	CO 2A	D	6	Y	1	465.0	451.1
3	5/10/2011	Domtar Paper Company	CO 3	CO 3A	D	6	Y	1	695.0	459.3
4	5/10/2011	Domtar Paper Company	CO 4	CO 4A	D	6	Y	1	270.0	268.6
5	5/10/2011	Domtar Paper Company	CO 5	CO 5A	D	6	Y	1	278.0	277.0
6	5/10/2011	Domtar Paper Company	CO 6	CO 6A	D	6	Y	1	278.0	277.1
7	5/10/2011	Domtar Paper Company	CO 7	CO 7A	D	6	Y	1	277.0	276.1
8	5/10/2011	Domtar Paper Company	CO 8	CO 8A	D	6	Y	1	710.0	324.2
9	5/10/2011	Domtar Paper Company	CO 9	CO 9A	D	6	Y	1	280.0	279.0
10	5/10/2011	Domtar Paper Company	CO 10	CO 10A	D	6	Y	1	475.0	451.0
11	5/10/2011	Domtar Paper Company	CO 11	CO 11A	D	6	Y	1	140.0	138.1
12	5/10/2011	Domtar Paper Company	CO 12	CO 12A	D	6	Y	1	140.0	137.9
13	5/10/2011	Domtar Paper Company	CO 13	CO 13A	D	6	Y	1	700.0	463.9
14	5/10/2011	Domtar Paper Company	CO 14	CO 14A	D	6	Y	1	457.0	454.8
15	5/10/2011	Domtar Paper Company	CO 15	CO 15A	D	6	Y	1	340.0	336.3
16	5/10/2011	Domtar Paper Company	CO 16	CO 16A	D	6	Y	1	125.0	123.0
17	5/10/2011	Domtar Paper Company	CO 17	CO 17A	D	6	Y	1	781.0	464.3
18	5/10/2011	Domtar Paper Company	CO 18	CO 18A	D	6	Y	1	123.0	120.0
19	5/10/2011	Domtar Paper Company	CO 19	CO 19A	D	6	Y	1	860.0	458.1
20	5/10/2011	Domtar Paper Company	CO 20	CO 20A	D	6	Y	2	865.0	452.1
21	5/10/2011	Domtar Paper Company	CO 21	CO 21A	D	6	Y	2	860.0	457.5
								Total Scheduled Length	9,499.0	
								Total Length Surveyed		7,049.9

Pipe Graphic Report of PLR CO 1A X for Domtar Paper

Work Order		**Contract**		**Video** 1	**Setup** 1
Facility		**Operator** David		**Van Ref** NC-1	**Surveyed On** 05/10/2011
Street Name	Domtar Paper Company	**City**			
Location type	Footpath				
Surface					
Survey purpose	Assessment of complete remedial or renovation works			**Weather** Dry	
Pipe Use	LEACHATE	**Schedule length**	380.0 Ft	**From** CO 1	**Depth** Ft
Shape	Circular	**Size** 6 **by**	ins	**To** CO 1A	**Depth** Ft
Material	hdpe	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean** Y	**Last cleaned** 5/9/2011
General note					
Location note					



0.0 Ft Manhole/Node [CO 1]
Water level 0

299.0 Ft Camera Submerged Begin

380.5 Ft Survey abandoned [CABLE RESISTANCE END]

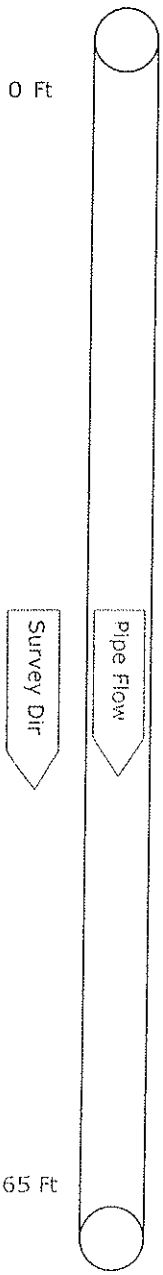
Pipe Graphic Report of PLR CO 2 X **for** Domtar Paper

Work Order	***Contract***	***Video*** 1	***Setup*** 2
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011
Street Name	Domtar Paper Company	***City***	
Location type	Footpath		
Surface			
Survey purpose	Assessment of complete remedial or renovation works	***Weather***	Dry

Pipe Use	LEACHATE	***Schedule length***	465.0 Ft	***From*** CO 2	***Depth*** Ft
Shape	Circular	***Size*** 6 ***by***	ins	***To*** CO 2A	***Depth*** Ft
Material	hdpe	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned*** 5/9/2011

General note

Location note



0 Ft

0.0 Ft Manhole/Node [CO 2]
Water level 0

407.0 Ft Camera Submerged Begin

465 Ft

451.1 Ft Survey abandoned [CABLE RESISTANCE]

8

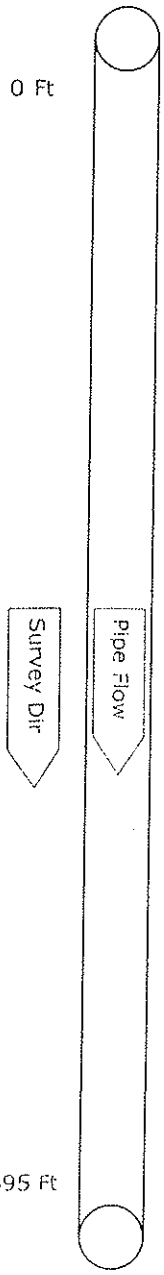
Pipe Graphic Report of PLR CO 3 X for Domtar Paper

Work Order	***Contract***	***Video*** 1	***Setup*** 3
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011
Street Name Domtar Paper Company	***City***		
Location type Footpath			
Surface			
Survey purpose Assessment of complete remedial or renovation works		***Weather*** Dry	

Pipe Use LEACHATE	***Schedule length*** 695.0 Ft	***From*** CO 3 ***Depth*** Ft
Shape Circular	***Size*** 6 ***by*** ins	***To*** CO 3A ***Depth*** Ft
Material hdpe	***Joint spacing*** Ft	***Direction*** Downstream
Lining	***Year laid***	***Pre-clean*** Y ***Last cleaned***

General note

Location note



0 Ft — Start of Survey

0.0 Ft — Manhole/Node [CO 3]

Water level 0

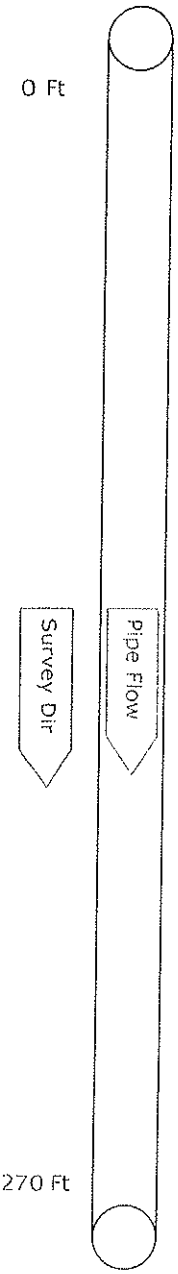
695 Ft

459.3 Ft — Survey abandoned [CABLE RESISTANCE]

9

Pipe Graphic Report of PLR CO 4 X for Domtar Paper

Work Order	***Contract***	***Video*** 1	***Setup*** 4
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011
Street Name Domtar Paper Company	***City***		
Location type Footpath			
Surface			
Survey purpose Assessment of complete remedial or renovation works		***Weather*** Dry	
Pipe Use LEACHATE	***Schedule length*** 270.0 Ft	***From*** CO 4	***Depth*** Ft
Shape Circular	***Size*** 6 ***by*** ins	***To*** CO 4A	***Depth*** Ft
Material hdpe	***Joint spacing*** Ft	***Direction*** Downstream	
Lining	***Year laid***	***Pre-clean*** Y	***Last cleaned*** 5/9/2011
General note			
Location note			



0 Ft — 0.0 Ft — Manhole/Node [CO 4]
Water level 0

39.0 Ft — Camera Submerged Begin

270 Ft — 268.6 Ft — Survey abandoned [END]

10

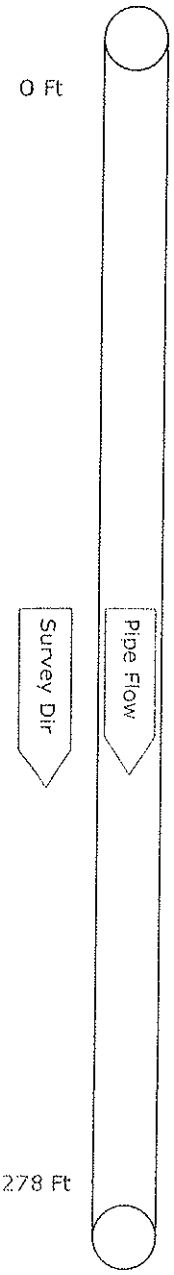
Pipe Graphic Report of PLR CO 5 X **for** Domtar Paper

Work Order	***Contract***	***Video*** 1	***Setup*** 5
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011
Street Name	Domtar Paper Company	***City***	
Location type	Footpath		
Surface			
Survey purpose	Assessment of complete remedial or renovation works	***Weather*** Dry	

Pipe Use LEACHATE	***Schedule length*** 278.0 Ft	***From*** CO 5 ***Depth*** Ft
Shape Circular	***Size*** 6 ***by*** ins	***To*** CO 5A ***Depth*** Ft
Material hdpe	***Joint spacing*** Ft	***Direction*** Downstream
Lining	***Year laid***	***Pre-clean*** Y ***Last cleaned***

General note

Location note



0 Ft

0.0 Ft Manhole/Node [CO 5]
Water level 0

42.0 Ft Camera Submerged Begin

278 Ft

277.0 Ft Survey abandoned [CABLE RESISTANCE END]

Pipe Graphic Report of PLR CO 6 X **for** Domtar Paper

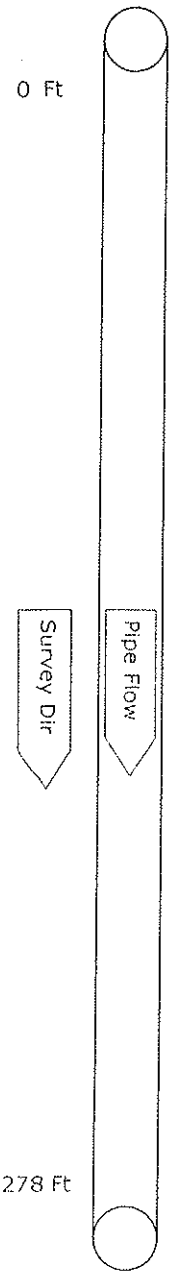
Work Order	***Contract***	***Video*** 1	***Setup*** 6
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011

Street Name	Domtar Paper Company	***City***			
Location type	Footpath				
Surface					
Survey purpose	Assessment of complete remedial or renovation works			***Weather***	Dry

Pipe Use	LEACHATE	***Schedule length***	278.0 Ft	***From***	CO 6	***Depth***	Ft
Shape	Circular	***Size*** 6	***by*** ins	***To***	CO 6A	***Depth***	Ft
Material	hdpe	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***		***Pre-clean***	Y	***Last cleaned***	

General note

Location note



0 Ft — 0.0 Ft — Manhole/Node [CO 6]
Water level 0

48.0 Ft — Camera Submerged Begin

278 Ft — 277.1 Ft — Survey abandoned [CABLE RESISTANCE END]

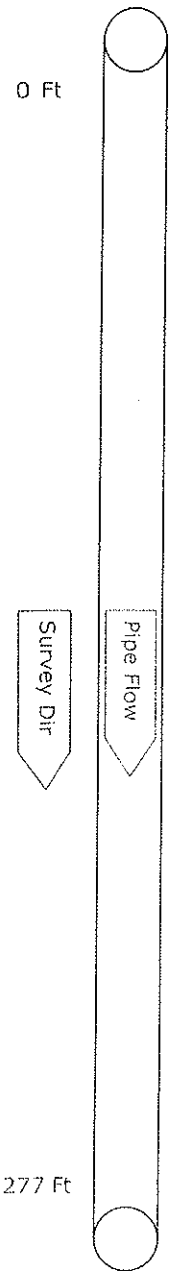
Pipe Graphic Report of PLR CO 7 X **for** Domtar Paper

Work Order	***Contract***	***Video*** 1	***Setup*** 7
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011
Street Name	Domtar Paper Company	***City***	
Location type	Footpath		
Surface			
Survey purpose	Assessment of complete remedial or renovation works	***Weather***	Dry

Pipe Use	LEACHATE	***Schedule length***	277.0 Ft	***From*** CO 7	***Depth*** Ft
Shape	Circular	***Size*** 6 ***by***	ins	***To*** CO 7A	***Depth*** Ft
Material	hdpe	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned***

General note

Location note



0.0 Ft Manhole/Node [CO 7]
Water level 0

50.0 Ft Camera Submerged Begin

276.1 Ft Survey abandoned [CABLE RESISTANCE END]

Pipe Graphic Report of PLR CO 8 X **for** Domtar Paper

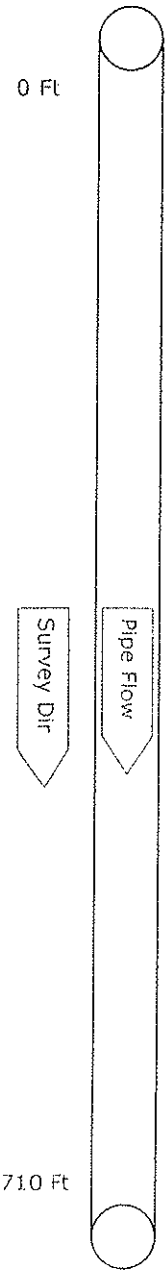
Work Order	***Contract***	***Video*** 1	***Setup*** 8
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011

Street Name	Domtar Paper Company	***City***	
Location type	Footpath		
Surface			
Survey purpose	Assessment of complete remedial or renovation works	***Weather***	Dry

Pipe Use	LEACHATE	***Schedule length***	710.0 Ft	***From*** CO 8	***Depth*** Ft
Shape	Circular	***Size*** 6 ***by***	ins	***To*** CO 8A	***Depth*** Ft
Material	hdpe	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned*** 5/9/2011

General note

Location note



0 Ft — Start of Survey

0.0 Ft — Manhole/Node [CO 8]

Water level 0

710 Ft

324.2 Ft — Survey abandoned [CABLE RESISTANCE]

Pipe Graphic Report of PLR CO 9 X for Domtar Paper

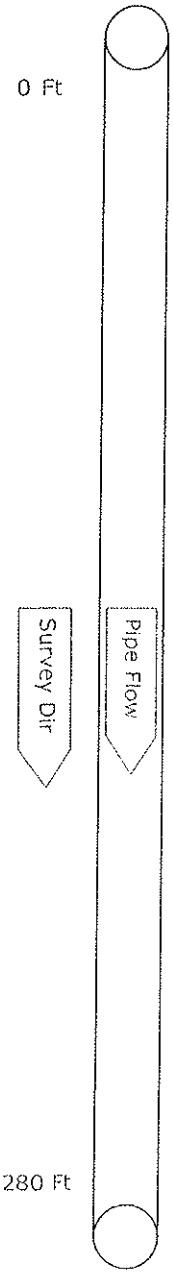
Work Order	**Contract**	**Video** 1	**Setup** 9
Facility	**Operator** David	**Van Ref** NC-1	**Surveyed On** 05/10/2011

Street Name	Domtar Paper Company **City**
Location type	Footpath
Surface	
Survey purpose	Assessment of complete remedial or renovation works **Weather** Dry

Pipe Use	LEACHATE	**Schedule length**	280.0 Ft	**From** CO 9	**Depth** Ft
Shape	Circular	**Size** 6 **by**	ins	**To** CO 9A	**Depth** Ft
Material	hdpe	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean** Y	**Last cleaned**

General note

Location note



0.0 Ft Manhole/Node [CO 9]
Water level 0

75.0 Ft Camera Submerged Begin

279.0 Ft Survey abandoned [END]

Pipe Graphic Report of PLR CO 10 X **for** Domtar Paper

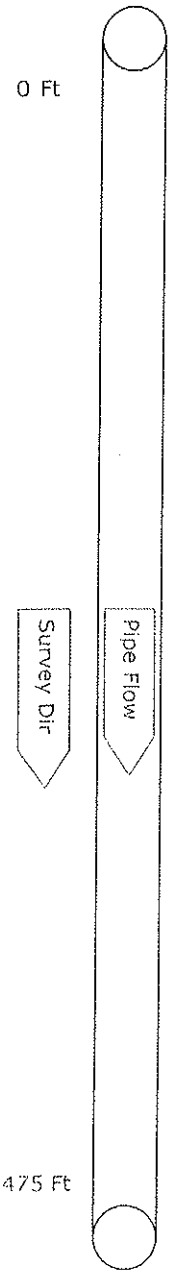
Work Order	***Contract***	***Video*** 1	***Setup*** 10
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011

Street Name	Domtar Paper Company ***City***
Location type	Footpath
Surface	
Survey purpose	Assessment of complete remedial or renovation works ***Weather*** Dry

Pipe Use	LEACHATE	***Schedule length*** 475.0 Ft	***From*** CO 10	***Depth***	Ft
Shape	Circular	***Size*** 6 ***by*** ins	***To*** CO 10A	***Depth***	Ft
Material	hdpe	***Joint spacing*** Ft	***Direction*** Downstream		
Lining		***Year laid***	***Pre-clean*** Y	***Last cleaned*** 5/9/2011	

General note

Location note



0.0 Ft Manhole/Node [CO 10]
Water level 0

45.0 Ft Camera Submerged Begin

451.0 Ft Survey abandoned [CABLE RESISTANCE]

Pipe Graphic Report of PLR CO 11 X **for** Domtar Paper

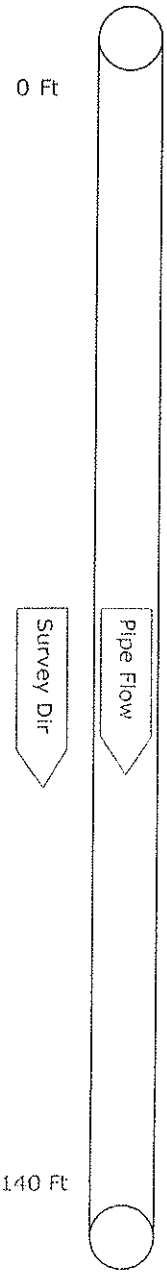
Work Order	***Contract***	***Video*** 1	***Setup*** 11
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011

Street Name	Domtar Paper Company ***City***
Location type	Footpath
Surface	
Survey purpose	Assessment of complete remedial or renovation works ***Weather*** Dry

Pipe Use	LEACHATE	***Schedule length***	140.0 Ft	***From*** CO 11	***Depth*** Ft
Shape	Circular	***Size*** 6 ***by***	ins	***To*** CO 11A	***Depth*** Ft
Material	hdpe	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned***

General note

Location note



0.0 Ft Manhole/Node [CO 11]
Water level 0

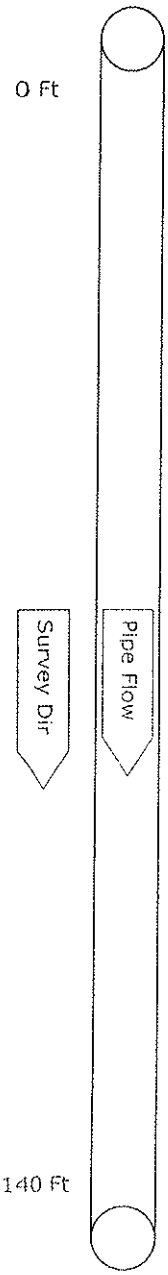
56.0 Ft Camera Submerged Begin

138.1 Ft Survey abandoned [END]

17

Pipe Graphic Report of PLR CO 12 X **for** Domtar Paper

Work Order		***Contract***		***Video*** 1	***Setup*** 12
Facility		***Operator*** David		***Van Ref*** NC-1	***Surveyed On*** 05/10/2011
Street Name	Domtar Paper Company	***City***			
Location type	Footpath				
Surface					
Survey purpose	Assessment of complete remedial or renovation works			***Weather*** Dry	
Pipe Use	LEACHATE	***Schedule length***	140.0 Ft	***From*** CO 12	***Depth*** Ft
Shape	Circular	***Size*** 6 ***by***	ins	***To*** CO 12A	***Depth*** Ft
Material	hdpe	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned***
General note					
Location note					



0.0 Ft Manhole/Node [CO 12]
Water level 0

87.0 Ft Camera Submerged Begin

137.9 Ft Survey abandoned [END]

18

Pipe Graphic Report of PLR CO 13 X **for** Domtar Paper

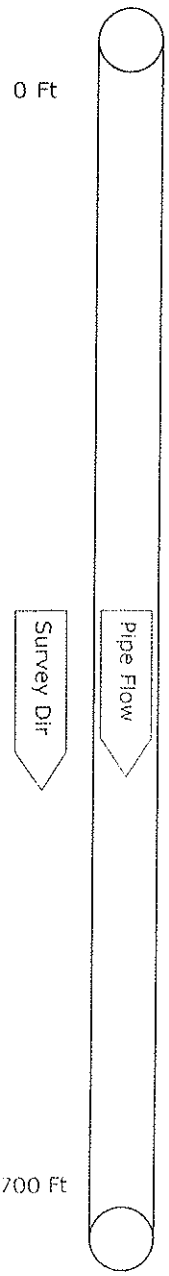
Work Order	***Contract***	***Video*** 1	***Setup*** 13
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011

Street Name	Domtar Paper Company ***City***
Location type	Footpath
Surface	
Survey purpose	Assessment of complete remedial or renovation works ***Weather*** Dry

Pipe Use	LEACHATE	***Schedule length***	700.0 Ft	***From*** CO 13	***Depth*** Ft
Shape	Circular	***Size*** 6 ***by***	ins	***To*** CO 13A	***Depth*** Ft
Material	hdpe	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned*** 5/9/2011

General note

Location note



0.0 Ft	Manhole/Node [CO 13] Water level 0
61.0 Ft	Camera Submerged Begin
463.9 Ft	Survey abandoned [CABLE RESISTANCE]

Pipe Graphic Report of PLR CO 14 X **for** Domtar Paper

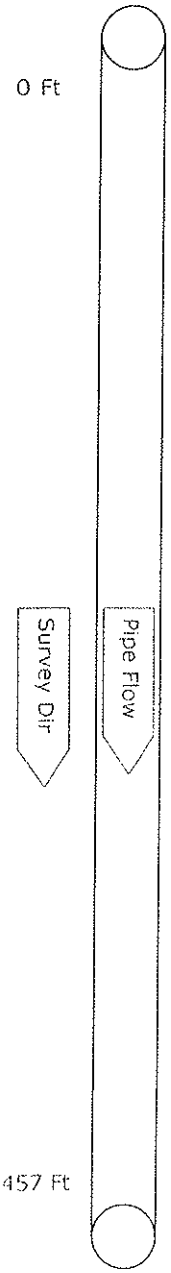
Work Order	***Contract***	***Video*** 1	***Setup*** 14
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011

Street Name	Domtar Paper Company ***City***
Location type	Footpath
Surface	
Survey purpose	Assessment of complete remedial or renovation works ***Weather*** Dry

Pipe Use	LEACHATE	***Schedule length*** 457.0 Ft	***From*** CO 14	***Depth***	Ft
Shape	Circular	***Size*** 6 ***by*** ins	***To*** CO 14A	***Depth***	Ft
Material	hdpe	***Joint spacing*** Ft	***Direction*** Downstream		
Lining		***Year laid***	***Pre-clean*** Y	***Last cleaned***	

General note

Location note

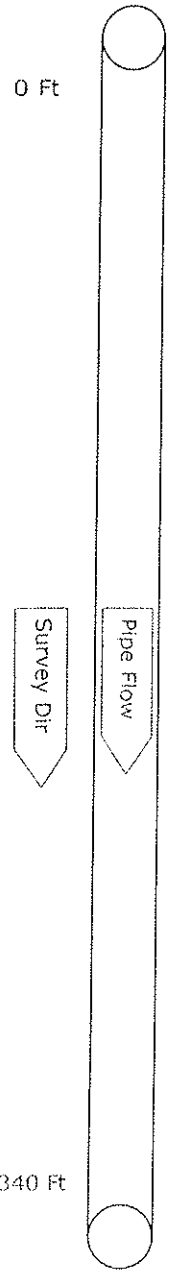


0.0 Ft	Manhole/Node [CO 14] Water level 0
62.0 Ft	Camera Submerged Begin
71.0 Ft	Camera Submerged End
454.8 Ft	Survey abandoned [CABLE RESISTANCE]

20

Pipe Graphic Report of PLR CO 15 X **for** Domtar Paper

Work Order	***Contract***	***Video*** 1	***Setup*** 15
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011
Street Name Domtar Paper Company	***City***		
Location type LANDFILL			
Surface			
Survey purpose Assessment of complete remedial or renovation works		***Weather*** Dry	
Pipe Use LEACHATE	***Schedule length*** 340.0 Ft	***From*** CO 15	***Depth*** Ft
Shape Circular	***Size*** 6 ***by*** ins	***To*** CO 15A	***Depth*** Ft
Material hdpe	***Joint spacing*** Ft	***Direction*** Downstream	
Lining	***Year laid***	***Pre-clean*** Y	***Last cleaned***
General note			
Location note			



0.0 Ft Start of Survey
Manhole/Node [CO 15]
Water level 0

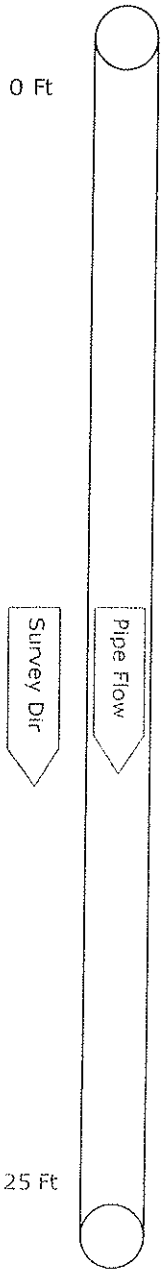
173.0 Ft Camera Submerged Begin

336.3 Ft Survey abandoned [END]

21

Pipe Graphic Report of PLR CO 16 X **for** Domtar Paper

Work Order		***Contract***		***Video*** 1	***Setup*** 16
Facility		***Operator*** David		***Van Ref*** NC-1	***Surveyed On*** 05/10/2011
Street Name	Domtar Paper Company	***City***			
Location type	LANDFILL				
Surface					
Survey purpose	Assessment of complete remedial or renovation works			***Weather*** Dry	
Pipe Use	LEACHATE	***Schedule length***	125.0 Ft	***From*** CO 16	***Depth*** Ft
Shape	Circular	***Size*** 6	***by*** ins	***To*** CO 16A	***Depth*** Ft
Material	hdpe	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned***
General note					
Location note					



0 Ft — 0.0 Ft — Start of Survey
Manhole/Node [CO 16]
Water level 0

64.0 Ft — Camera Submerged Begin

125 Ft — 123.0 Ft — Survey abandoned [END PIPE]

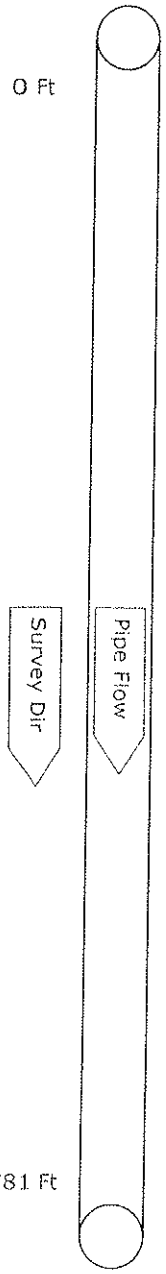
Pipe Graphic Report of PLR CO 17 X **for** Domtar Paper

Work Order	***Contract***	***Video*** 1	***Setup*** 17
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011
Street Name Domtar Paper Company	***City***		
Location type LANDFILL			
Surface			
Survey purpose Assessment of complete remedial or renovation works		***Weather*** Dry	

Pipe Use LEACHATE	***Schedule length*** 781.0 Ft	***From*** CO 17 ***Depth*** Ft
Shape Circular	***Size*** 6 ***by*** ins	***To*** CO 17A ***Depth*** Ft
Material hdpe	***Joint spacing*** Ft	***Direction*** Downstream
Lining	***Year laid***	***Pre-clean*** Y ***Last cleaned***

General note

Location note



0 Ft — Start of Survey

0.0 Ft — Manhole/Node [CO 17]

Water level 0

50.0 Ft — Camera Submerged Begin

99.0 Ft — Camera Submerged End

781 Ft

464.3 Ft — Survey abandoned [CABLE RESISTANCE]

23

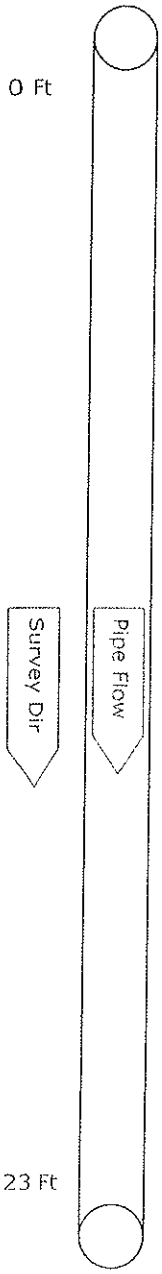
Pipe Graphic Report of PLR CO 18 X **for** Domtar Paper

Work Order	***Contract***	***Video*** 1	***Setup*** 18
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011
Street Name Domtar Paper Company	***City***		
Location type LANDFILL			
Surface			
Survey purpose Assessment of complete remedial or renovation works		***Weather*** Dry	

Pipe Use LEACHATE	***Schedule length*** 123.0 Ft	***From*** CO 18 ***Depth*** Ft
Shape Circular	***Size*** 6 ***by*** ins	***To*** CO 18A ***Depth*** Ft
Material hdpe	***Joint spacing*** Ft	***Direction*** Downstream
Lining	***Year laid***	***Pre-clean*** Y ***Last cleaned***

General note

Location note



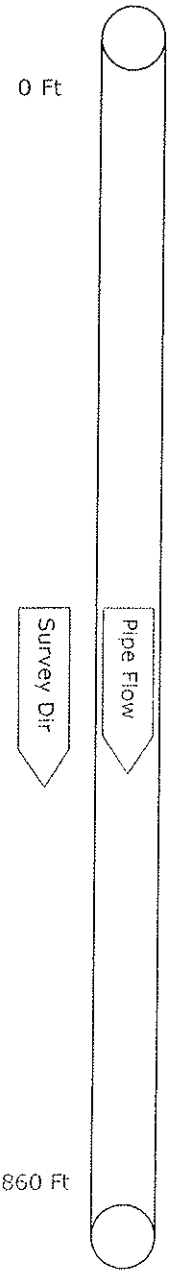
0.0 Ft Start of Survey
Manhole/Node [CO 18]
Water level 0

120.0 Ft Survey abandoned [END PIPE]

24

Pipe Graphic Report of PLR CO 19 X **for** Domtar Paper

Work Order		***Contract***		***Video*** 1	***Setup*** 19
Facility		***Operator*** David		***Van Ref*** NC-1	***Surveyed On*** 05/10/2011
Street Name	Domtar Paper Company	***City***			
Location type	LANDFILL				
Surface					
Survey purpose	Assessment of complete remedial or renovation works			***Weather*** Dry	
Pipe Use	LEACHATE	***Schedule length***	860.0 Ft	***From*** CO 19	***Depth*** Ft
Shape	Circular	***Size*** 6 ***by***	ins	***To*** CO 19A	***Depth*** Ft
Material	hdpe	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned***
General note					
Location note					



0 Ft — Start of Survey

0.0 Ft — Manhole/Node [CO 19]

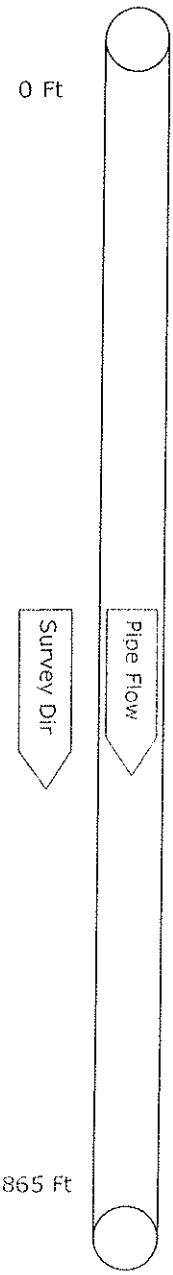
Water level 0

860 Ft

458.1 Ft — Survey abandoned [CABLE RESISTANCE]

Pipe Graphic Report of PLR CO 20 X **for** Domtar Paper

Work Order		***Contract***		***Video*** 2	***Setup*** 20
Facility		***Operator*** David		***Van Ref*** NC-1	***Surveyed On*** 05/10/2011
Street Name	Domtar Paper Company	***City***			
Location type	LANDFILL				
Surface					
Survey purpose	Assessment of complete remedial or renovation works			***Weather*** Dry	
Pipe Use	LEACHATE	***Schedule length***	865.0 Ft	***From*** CO 20	***Depth*** Ft
Shape	Circular	***Size*** 6 ***by***	ins	***To*** CO 20A	***Depth*** Ft
Material	hdpe	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned***
General note					
Location note					



0 Ft — Start of Survey

0.0 Ft — Manhole/Node [CO 20]

Water level 0

865 Ft

452.1 Ft — Survey abandoned [CABLE RESISTANCE]

26

Pipe Graphic Report of PLR CO 21 X **for** Domtar Paper

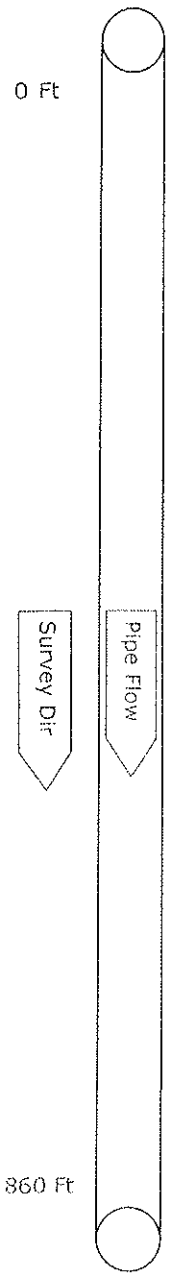
Work Order	***Contract***	***Video*** 2	***Setup*** 21
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/10/2011

Street Name	Domtar Paper Company	***City***	
Location type	LANDFILL		
Surface			
Survey purpose	Assessment of complete remedial or renovation works	***Weather***	Dry

Pipe Use	LEACHATE	***Schedule length***	860.0 Ft	***From*** CO 21	***Depth*** Ft
Shape	Circular	***Size*** 6 ***by***	ins	***To*** CO 21A	***Depth*** Ft
Material	hdpe	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid***		***Pre-clean*** Y	***Last cleaned***

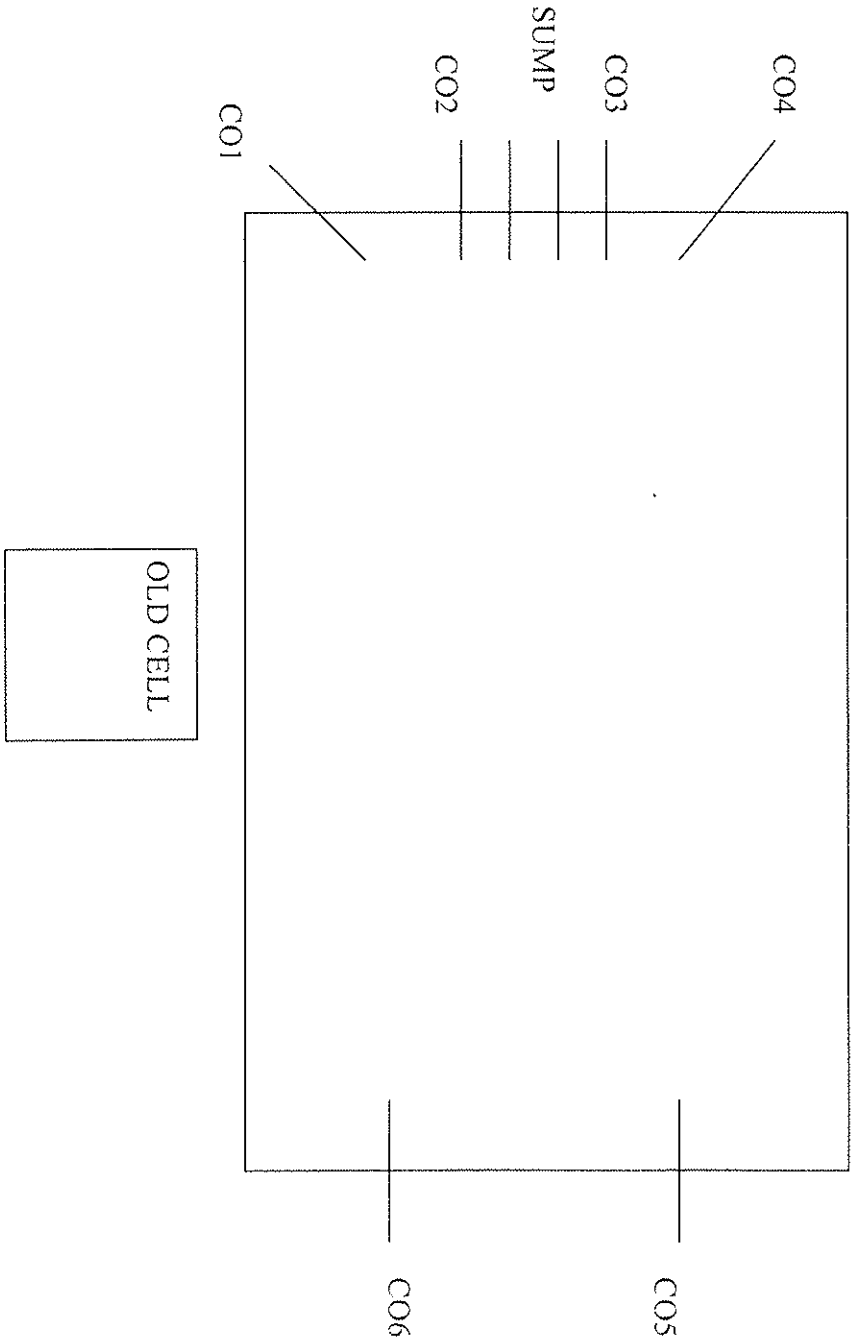
General note

Location note



	Start of Survey
0.0 Ft	Manhole/Node [CO 21]
	Water level 0
65.0 Ft	Camera Submerged Begin
80.0 Ft	Camera Submerged End
457.5 Ft	Survey abandoned [CABLE RESISTANCE]

2011 DOMTAR NEW CELL



CCTV Surveys List for Domtar Paper

Number of surveys in this list is 6 as of Thursday, May 12, 2011

Unit of measure: ft

Setup	Date	Street	Start MH	Finish MH	Dir	Size inch	Pre Clean	Vid Cassette	Scheduled Length	Surveyed Length
1	5/11/2011	Domtar New Cell	CO 1	CO 1A	D	6	N	3		116.7
2	5/11/2011	Domtar New Cell	CO 2	CO 2A	U	6	N	3		478.9
3	5/11/2011	Domtar New Cell	CO 3	CO 3A	U	6	N	3		460.5
4	5/11/2011	Domtar New Cell	CO 4	CO SUMP	D	6	N	3		275.6
5	5/11/2011	Domtar New Cell	CO 5	CO 5A	D	6	N	3		454.6
6	5/11/2011	Domtar New Cell	CO 6	CO 6A	D	6	N	3		478.5
								Total Scheduled Length	0.0	
								Total Length Surveyed		2,264.8

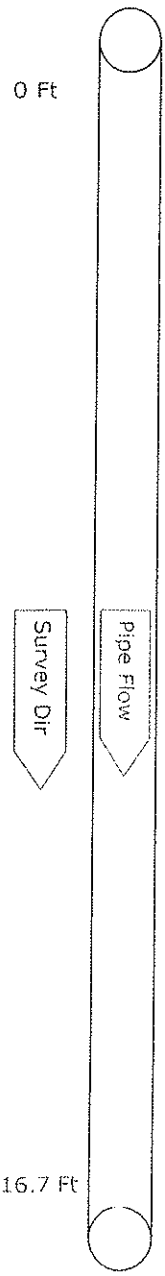
Pipe Graphic Report of PLR CO 1 X **for** Domtar Paper

Work Order	***Contract***	***Video*** 3	***Setup*** 1
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/11/2011
Street Name Domtar New Cell	***City***		
Location type LANDFILL			
Surface			
Survey purpose Pre-acceptance - normally new sewers for adoption or private line goin		***Weather*** Dry	

Pipe Use LEACHATE	***Schedule length***	Ft	***From*** CO 1	***Depth***	Ft
Shape Circular	***Size*** 6 ***by***	ins	***To*** CO 1A	***Depth***	Ft
Material hdpe	***Joint spacing***	Ft	***Direction*** Downstream		
Lining	***Year laid*** 2011		***Pre-clean*** N	***Last cleaned***	

General note

Location note



0 Ft	Start of Survey
0.0 Ft	Manhole/Node [CO 1]
	Water level 0
24.0 Ft	Camera Submerged Begin
116.7 Ft	Survey abandoned [END PIPE]

30

Pipe Graphic Report of PLR CO 2A X **for** Domtar Paper

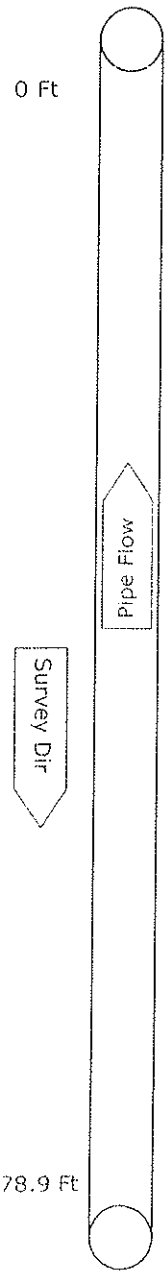
Work Order	***Contract***	***Video*** 3	***Setup*** 2
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/11/2011

Street Name	Domtar New Cell ***City***
Location type	LANDFILL
Surface	
Survey purpose	Pre-acceptance - normally new sewers for adoption or private line goin ***Weather*** Dry

Pipe Use	LEACHATE	***Schedule length*** Ft	***From***	CO 2	***Depth*** Ft
Shape	Circular	***Size*** 6 ***by*** ins	***To***	CO 2A	***Depth*** Ft
Material	hdpe	***Joint spacing*** Ft	***Direction***	Upstream	
Lining		***Year laid*** 2011	***Pre-clean***	N	***Last cleaned***

General note

Location note



	Start of Survey
0.0 Ft	Manhole/Node [CO 2]
	Water level 0
17.0 Ft	Camera Submerged Begin
273.0 Ft	Camera Submerged End
478.9 Ft	Survey abandoned [CABLE RESISTANCE]

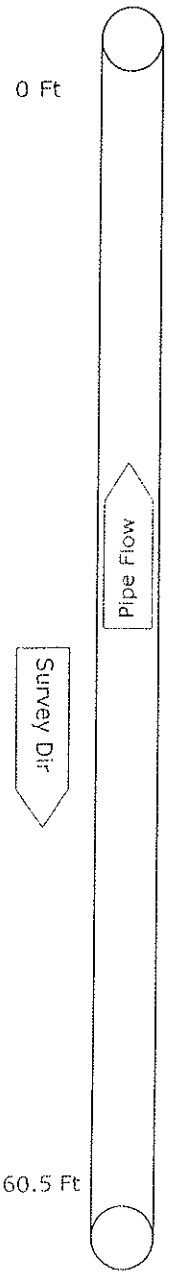
Pipe Graphic Report of PLR CO 3A X **for** Domtar Paper

Work Order	***Contract***	***Video*** 3	***Setup*** 3
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/11/2011
Street Name Domtar New Cell	***City***		
Location type LANDFILL			
Surface			
Survey purpose Pre-acceptance - normally new sewers for adoption or private line goin		***Weather*** Dry	

Pipe Use LEACHATE	***Schedule length*** Ft	***From*** CO 3 ***Depth*** Ft
Shape Circular	***Size*** 6 ***by*** ins	***To*** CO 3A ***Depth*** Ft
Material hdpe	***Joint spacing*** Ft	***Direction*** Upstream
Lining	***Year laid*** 2011	***Pre-clean*** N ***Last cleaned***

General note

Location note



	Start of Survey
0.0 Ft	Manhole/Node [CO 3]
	Water level 0
14.0 Ft	Camera Submerged Begin
83.0 Ft	Camera Submerged End
460.5 Ft	Survey abandoned [CABLE RESISTANCE]

Pipe Graphic Report of PLR CO 4 X **for** Domtar Paper

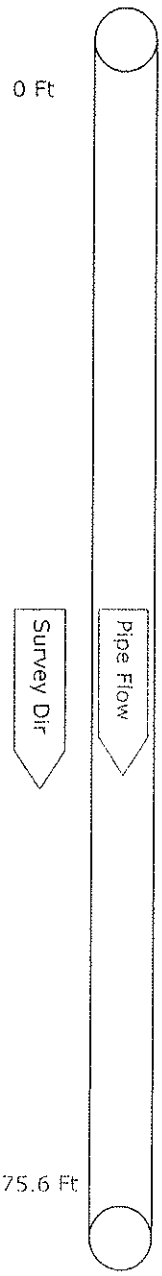
Work Order	***Contract***	***Video*** 3	***Setup*** 4
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/11/2011

Street Name	Domtar New Cell	***City***	
Location type	LANDFILL		
Surface			
Survey purpose	Pre-acceptance - normally new sewers for adoption or private line goin	***Weather***	Dry

Pipe Use	LEACHATE	***Schedule length***	Ft	***From*** CO 4	***Depth*** Ft
Shape	Circular	***Size*** 6 ***by***	ins	***To*** CO SUMP	***Depth*** Ft
Material	hdpe	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid*** 2011		***Pre-clean*** N	***Last cleaned***

General note

Location note



0.0 Ft	Start of Survey Manhole/Node [CO 4] Water level 0
51.0 Ft	Camera Submerged Begin
84.0 Ft	Camera Submerged End
104.0 Ft	Camera Submerged Begin
275.6 Ft	Survey abandoned [SUMP]

Pipe Graphic Report of PLR CO 5 X **for** Domtar Paper

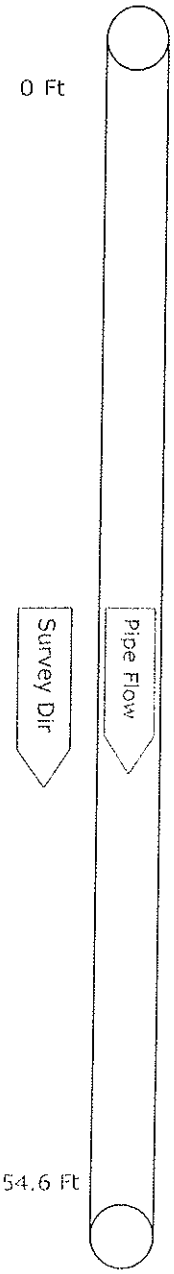
Work Order	***Contract***	***Video*** 3	***Setup*** 5
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/11/2011

Street Name	Domtar New Cell ***City***
Location type	LANDFILL
Surface	
Survey purpose	Pre-acceptance - normally new sewers for adoption or private line goin ***Weather*** Dry

Pipe Use	LEACHATE	***Schedule length***	Ft	***From*** CO 5	***Depth*** Ft
Shape	Circular	***Size*** 6 ***by***	ins	***To*** CO 5A	***Depth*** Ft
Material	hdpe	***Joint spacing***	Ft	***Direction*** Downstream	
Lining		***Year laid*** 2011		***Pre-clean*** N	***Last cleaned***

General note

Location note



0 Ft — Start of Survey

0.0 Ft — Manhole/Node [CO 5]

Water level 0

454.6 Ft

454.6 Ft — Survey abandoned [CABLE RESISTANCE]

Pipe Graphic Report of PLR CO 6 X **for** Domtar Paper

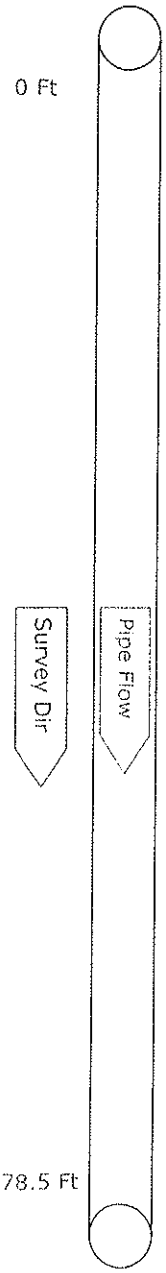
Work Order	***Contract***	***Video*** 3	***Setup*** 6
Facility	***Operator*** David	***Van Ref*** NC-1	***Surveyed On*** 05/11/2011

Street Name	Domtar New Cell	***City***			
Location type	LANDFILL				
Surface					
Survey purpose	Pre-acceptance - normally new sewers for adoption or private line goin	***Weather***	Dry		

Pipe Use	LEACHATE	***Schedule length***	Ft	***From***	CO 6	***Depth***	Ft
Shape	Circular	***Size*** 6 ***by***	ins	***To***	CO 6A	***Depth***	Ft
Material	hdpe	***Joint spacing***	Ft	***Direction***	Downstream		
Lining		***Year laid***	2011	***Pre-clean***	N	***Last cleaned***	

General note

Location note



0 Ft — Start of Survey

0.0 Ft — Manhole/Node [CO 6]

Water level 0

478.5 Ft

478.5 Ft — Survey abandoned [CABLE RESISTANCE]

Leachate Collection Pipe Videos 1, 2, and 3