Belfry, Elsie EAO:EX

From: Grace, David H EAO:EX
Sent: January-31-14 3:13 PM
To: Taje, Eddy MEM:EX
Cc: McCullough, Sarah ENV:EX; Metcalfe, Shelley ENV:EX
Subject: RE: Lafarge Texada Island

Hi Eddy,

Thanks for the below update re the permit amendment process for Lafarge.

Can you please keep EAO in the loop on any milestones going forward.

This will assist us in updating our outgoing generic responses.

I have copied Sarah and Shelley from MOE as an FYI.

I think that it will be useful to ensure that we are aware of the most recently approved messaging from our respective agencies.

Feel free to give me a call if any of you would like to discuss.

Cheers,

David

David Grace
Project Assessment Manager | BC Environmental Assessment Office
Tel: 250 387-1417 | Fax: 250-387-2208
Cell: s.17 | david.grace@gov.bc.ca

From: Taje, Eddy MEM:EX
Sent: Friday, January 31, 2014 1:04 PM
To: Grace, David H EAO:EX
Subject: RE: Lafarge Texada Island

We have a draft permit that has to be cleaned up, and s.22 not much will occur until then. We also have some replies to answer and a letter to Vancouver Coastal Health to get out. The impacted first nations have provided a letter of support , and therefore consultation is complete. Other complaints or concerns do not relate to the Mines Act permit but are targeted at global warming, surrey docks, American coal and shipping. All of these are outside of our jurisdiction.

From: Grace, David H EAO:EX
Sent: Thursday, January 30, 2014 5:10 PM
To: Taje, Eddy MEM:EX
Cc: McCullough, Sarah ENV:EX
Subject: RE: Lafarge Texada Island

Hi Eddy,

I hope you are well.

When you get a chance I would appreciate an update on your process.

Cheers,
David

David Grace
Project Assessment Manager | BC Environmental Assessment Office
Tel: 250 387-1417 | Fax: 250-387-2208
Cell: s.17 | david.grace@gov.bc.ca

From: Taje, Eddy MEM:EX
Sent: Thursday, November 14, 2013 12:50 PM
To: Grace, David H EAO:EX
Subject: RE: Lafarge Texada Island

Nothing wrong with it, covers all the bases.

From: Grace, David H EAO:EX
Sent: Thursday, November 14, 2013 12:19 PM
To: Taje, Eddy MEM:EX; McCullough, Sarah ENV:EX
Cc: Podjan, Laurel EAO:EX
Subject: Lafarge Texada Island

Hi Eddy,

I have been asked to run the below paragraph by you to ensure you are okay with how we characterize the Lafarge amendment process. We plan on including it in a Minister's response letter. I have also included Sarah as I reference MOE.

Can you please let me know if you are okay with it? This is time sensitive.

s.13

Thanks,
David

David Grace
Project Assessment Manager | BC Environmental Assessment Office
Tel: 250 387-1417 | Fax: 250-387-2208
Cell: s.17 | david.grace@gov.bc.ca

Belfry, Elsie EAO:EX

From: McCullough, Sarah ENV:EX
Sent: November-15-13 10:41 AM
To: Grace, David H EAO:EX
Cc: Chor, Alan K ENV:EX
Subject: RE: Lafarge Texada Island

Hi David,

Alan Chor and I have reviewed the contents of the letter and have no issues regarding the wording that relates to Environmental Protection.

Best of luck.

Thanks.

Sarah McCullough
Environmental Protection Officer
Ministry of Environment | Environmental Protection Division
Tel: (604) 582-5337 | Fax: (604) 584-9751

From: Grace, David H EAO:EX
Sent: Thursday, November 14, 2013 12:19 PM
To: Taje, Eddy MEM:EX; McCullough, Sarah ENV:EX
Cc: Podjan, Laurel EAO:EX
Subject: Lafarge Texada Island

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Can you please let me know if you are okay with it? This is time sensitive.

s.13

Thanks,
David

David Grace
Project Assessment Manager | BC Environmental Assessment Office
Tel: 250 387-1417 | Fax: 250-387-2208
Cell: s.17 | david.grace@gov.bc.ca

Belfry, Elsie EAO:EX

From: Podjan, Laurel EAO:EX
Sent: November-14-13 1:10 PM
To: Grace, David H EAO:EX
Subject: RE: Lafarge Texada Island

Thank you – it's been put forward for approval

LAUREL
☎ 2503875606

From: Grace, David H EAO:EX
Sent: Thursday, November 14, 2013 12:50 PM
To: Taje, Eddy MEM:EX
Cc: Podjan, Laurel EAO:EX
Subject: RE: Lafarge Texada Island

Thanks Eddy!

From: Taje, Eddy MEM:EX
Sent: Thursday, November 14, 2013 12:50 PM
To: Grace, David H EAO:EX
Subject: RE: Lafarge Texada Island

Nothing wrong with it, covers all the bases.

From: Grace, David H EAO:EX
Sent: Thursday, November 14, 2013 12:19 PM
To: Taje, Eddy MEM:EX; McCullough, Sarah ENV:EX
Cc: Podjan, Laurel EAO:EX
Subject: Lafarge Texada Island

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Can you please let me know if you are okay with it? This is time sensitive.

s.13

However, even if permits are not necessary, the operator of the coal facility is still obligated to take all measures necessary to prevent spills and pollution and to protect air and water quality."

Thanks,
David

David Grace
Project Assessment Manager | BC Environmental Assessment Office
Tel: 250 387-1417 | Fax: 250-387-2208
Cell: s.17 | david.grace@gov.bc.ca

Belfry, Elsie EAO:EX

From: McCullough, Sarah ENV:EX
Sent: November-12-13 11:42 AM
To: Grace, David H EAO:EX
Cc: Chor, Alan K ENV:EX; Metcalfe, Shelley ENV:EX
Subject: FW: log 198907
Attachments: 198907 reply letter.docx; 198907 original letter.pdf

Hi David,
As discussed, I have attached a copy of the Minister's letter we put together regarding the proposed expansion at the Lafarge Texada coal terminal.

I hope this assists you in writing your own Minister's letter on behalf of the EAO. If you any more questions regarding our permitting process regarding this file please don't hesitate to contact me.

Sarah McCullough
Environmental Protection Officer
Ministry of Environment | Environmental Protection Division
Tel: (604) 582-5337 | Fax: (604) 584-9751

From: Gustafson, Stephanie A ENV:EX
Sent: Tuesday, November 12, 2013 11:12 AM
To: McCullough, Sarah ENV:EX
Subject: log 198907

Here are the attachments that were in Cliff under this Number. Figured I might as well send you both. ☺

Stephanie

Reference: 198907

Nicholas Simons, MLA
Powell River – Sunshine Coast
Parliament Buildings
Victoria BC V8V 1X4

Dear Mr. Simons:

Thank you for your letter of September 30, 2013, regarding environmental and human health impacts from the proposed increase in coal shipments to and from the Lafarge Canada limestone quarry site on Texada Island.

The Ministry of Environment has provided comments to the Ministry of Energy and Mines so that environmental protection issues can be considered during the permit amendment process under the *Mines Act*. In addition, the Ministry of Environment is reviewing the coal facility expansion proposal to ascertain whether permits will be required under the *Environmental Management Act*. If a waste discharge permit is required, consultation would be carried out in accordance with the Public Notification Regulation. However, even if permits are not necessary, the operator of the coal facility is still obligated to take all measures necessary to prevent spills and pollution and to protect air and water quality.

With respect to your concerns related to navigational risk assessment and spills to marine waters, you may wish to contact the appropriate federal authorities, which may include the Canadian Coast Guard, Transport Canada and Environment Canada. In addition, you may wish to contact the Vancouver Coastal Health Authority regarding health impact assessment concerns.

Thank you again for sharing your concerns about protecting the environment.

Sincerely,

Mary Polak
Minister

...2

cc: Honourable Bill Bennett, Minister of Energy and Mines and Minister Responsible for Core Review

Nicholas Simons, MLA
(Powell River – Sunshine Coast)
Parliament Buildings
Victoria, BC V8V 1X4
Ph: (250) 953 – 4702
Fax: (250) 387 - 4680

Constituency Office:
109 - 4675 Marine Ave.
Powell River, BC V8A 2L2
Phone (604) 485 - 1249

5 – 4720 Sunshine Coast Hwy
Sechelt, BC V0N 3A2
Phone (604) 741 - 0792

September 30th, 2013

The Honourable Mary Polak
Minister of Environment
Room 112, Parliament Buildings
VICTORIA, B.C. V8V 1X4

Dear Minister Polak,

I hope you are well.

Many constituents have expressed their concern about the proposed increase in coal being shipped to and from Texada Island. They are concerned about our Province's rapid acceleration of U.S. and Alberta thermal coal exports in light of our responsibilities as global citizens, and about the local and regional impacts of increased coal traffic.

The Texada Quarrying Ltd. facility (TQL, is a subsidiary of Lafarge Canada) is used to load coal onto bulk cargo vessels bound for Asia. It currently handles about 400,000 t per year, but there is a proposal by Fraser Surrey Docks (FSD) which would see that amount increase to 8,000,000 t per year by 2020. FSD proposes to build a coal transfer facility in the Fraser River where the coal trains from Montana and Wyoming would dump their loads onto barges –all destined for Texada Island, accounting for the increase.

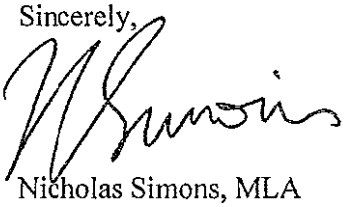
Port Metro Vancouver is both the landlord and the approving agency for the FSD proposal. Run by a federally-appointed board, it requires its tenant to submit studies showing how the project might impact the community, and how it has mitigated those impacts in response to the required community input. These include environmental assessments, navigational risk assessments, and studies on possible human health impacts. FSD conducted two public open houses and held over 35 stakeholder meetings. This project may impact residents of the Sunshine Coast, but so far none of the studies and no consultations have taken place beyond the sand heads at the mouth of the Fraser River –the limit of Port Metro Vancouver's jurisdiction.

The first 34 km., represent a fraction of the project; residents of Texada Island and the Sunshine Coast should have a voice in the other part of the project. So far, the public has been limited to commenting at one Open House at the Texada Legion on Lafarge Canada's permit amendment application. The application is to improve the facility's storm water management system and to extend a conveyor. But as long as the application meets Mining Act requirements the Company will get the amendment regardless of issues raised or comments made at the meeting; the meeting was a courtesy.

Legitimate questions about the coal export expansion plan go beyond Lafarge's purview and are outside the jurisdiction of Port Metro Vancouver. No agency seems to be taking the lead in protecting the interests of the Sunshine Coast. I am urging the Ministry of the Environment to take on that responsibility and address the legitimate questions about the proposed project, if not from a global or even provincial perspective, at least from a regional and local level.

No decision on the FSD proposal should be contemplated until a Navigational Risk Assessment, an Environmental Management Plan, a Spill Response Plan, an Air Quality Management Plan, a Health Impact Assessment, and public consultations can be conducted for people and the environment that exist beyond the sand heads at the mouth of the Fraser River.

Sincerely,



Nicholas Simons, MLA

cc. Hon. Christy Clark, Premier
Mr. Spencer Chandra-Herbert, MLA, Opposition Environment Critic
Colin Palmer, Chair, Powell River Regional District
Gary Nohr, Chair, Sunshine Coast Regional District

Belfry, Elsie EAO:EX

From: Taje, Eddy EMNG:EX
Sent: May-22-13 4:36 PM
To: Grace, David H EAO:EX
Subject: RE: Texada application

Will have that info late tomorrow or early Friday, thank you

From: Grace, David H EAO:EX
Sent: Wednesday, May 22, 2013 2:13 PM
To: Christie, Karen L EAO:EX; Hamilton, Chris EAO:EX
Cc: Hamblin, Gerry EAO:EX; Peterson, Mike EAO:EX; Hall, Susan M EAO:EX; Murphy, Shelley EAO:EX; Taje, Eddy EMNG:EX; Haines, Kate EAO:EX; Matsko, Nataliya EAO:EX
Subject: RE: Texada application

Hello Karen,

I will follow up with Eddy.

Thanks,
David

David Grace
Project Assessment Manager | BC Environmental Assessment Office
Tel: 250 387-1417 | Fax: 250-387-2208
Cell: s.17 | david.grace@gov.bc.ca

From: Christie, Karen L EAO:EX
Sent: Wednesday, May 22, 2013 10:58 AM
To: Hamilton, Chris EAO:EX
Cc: Hamblin, Gerry EAO:EX; Peterson, Mike EAO:EX; Hall, Susan M EAO:EX; Murphy, Shelley EAO:EX; Taje, Eddy EMNG:EX; Haines, Kate EAO:EX; Grace, David H EAO:EX; Matsko, Nataliya EAO:EX; Christie, Karen L EAO:EX
Subject: Texada application

Hi Chris,

I believe this request falls to the Transportation sector.
- It not part of the Raven Coal EA (which proposes to ship coal out of Port Alberni)
- I do not believe that there is an EA certificate that includes the Texada coal load out facility.

Would you please take a look and get back to Eddy Taje?

Karen

Karen Christie
Executive Project Director

Environmental Assessment Office
1-836 Yates St., Victoria, B.C., V8W 1L8
Phone: (250) 387-9675| Fax : 250-356-6448
Karen.L.Christie@gov.bc.ca | www.eao.gov.bc.ca


Please consider the environment before printing this email

From: Haines, Kate EAO:EX
Sent: Wednesday, May 22, 2013 10:10 AM
To: Taje, Eddy EMNG:EX; Christie, Karen L EAO:EX
Cc: Hamblin, Gerry EAO:EX; Peterson, Mike EAO:EX; Hall, Susan M EAO:EX; Murphy, Shelley EAO:EX
Subject: FW: Texada application

Hi Eddy,

I am forwarding your question to the coal/aggregates team who I believe should be able to provide comment. Though our team has the Raven Coal project, our sector is actually metal mining.

Karen/Gerry/Mike – over to you.

Thanks

Kate

From: Taje, Eddy EMNG:EX
Sent: Wednesday, May 22, 2013 10:07 AM
To: Taje, Eddy EMNG:EX; Haines, Kate EAO:EX
Subject: RE: Texada application

Added the attachments << File: Document.pdf >> << File: Mines Reclamation Security for Shoreline Improvements May 2013.docx >> this time

---

From: Taje, Eddy EMNG:EX
Sent: Wednesday, May 22, 2013 10:02 AM
To: Haines, Kate EAO:EX
Subject: Texada application

Attached is the proposal from Lafarge to increase storage capacity at the existing coal load out. This would require an amendment from MEMNG. I do not believe it triggers the EA process, however before we move forward I would like your comments either way.

There is no footprint increase
There is no new disturbance except for an access road, which they could build without our approval
It does contain improvements to the surface water management on the storage pad, to accommodate the larger volumes stored.

They do have all the permits in place for the ship loader including permits from Immigration Canada as a port of entry.(not sure of the legal terms on this approval) but they are ok on that front.

Referrals from us if not in the EAO process include

First nations
MOE
DFO
Local Government

We are having a meeting today to chart the process any comments from you by the end of the week would be appreciated.

LAFARGE

May 9, 2013

Ministry of Energy and Mines
Mining & Minerals Division
6th Floor, 1810 Blanshard Street
Victoria, B.C
V8W 9M9

Attention: Ed Taje

Dear Sir:

Re: Letter of Amendment to increase Coal Storage on Texada Quarries Reclamation Permit M-66, File 14745-20.

As requested, Texada Quarries has reviewed the Reclamation Liability on file with Ministry of Energy and Mines and suggest we will increase our Letter of Credit by $48,000 based on our May 7, 2013 amendment request. The following is the rationale we used to determine the new liability amount:

1. Current Letter of Credit on file is $24,000.
2. All work will occur on existing permitted site with no further disturbance on the existing site.
3. The amount of coal to be stored will increase slightly by 500,000 tonnes.
4. Total security for M-66 will now be $72,000.

I trust you will find the above in order. If you have any questions or concerns please contact me directly.

Regards,

Brad Kohl
Vice President, Vancouver Aggregates

LAFARGE CANADA INC.
19633 98A Avenue, Langley, BC V1M 3G5
Office: (604) 455-6200 Fax: (604) 882-7108
Web: www.lafargenorthamerica.com

LAFARGE

May 7, 2013

Ministry of Energy and Mines
Mining & Minerals Division
6th Floor, 1810 Blanshard Street
Victoria, B.C
V8W 9M9

Attention: Ed Taje

Dear Sir:

Re: Letter of Amendment to increase Coal Storage on Texada Quarries Reclamation Permit M-66, File 14745-20.

Texada Quarries has the opportunity to expand it coal transshipment business through its existing facility. To facilitate the increased business we must modify the offload system and increase our live storage. We have engaged a consultant to design a comprehensive storm water management plan to capture and manage all runoff water from the stockpile area. The volume of coal that will need to be stockpiled will increase to 800k tonnes.

The following are documents are for your reference and approval:

1. Storm water management plan from Norwest Corporation
2. Shoreline improvements and conveyor modifications from Kreator Equipment.
3. Site plan incorporating the modifications, storm water management plan and existing infrastructure.
4. Previous correspondence from 1990 to Ideal Cement now Texada Quarries.
5. Aerial view with Water Lot leases plotted on.

All conditions stated in the June 5, 1990 amendment will remain the same. The stockpiles of coal will remain on Lots 606 and 575 and no additional area will need to be permitted. As requested the ship loader conveyor belt will we upgraded to grade 2 flame resistant belting to match the rest of the conveyor upgrades.

LAFARGE CANADA INC.
19633 98A Avenue, Langley, BC V1M 3G5
Office: (604) 455-6200 Fax: (604) 882-7108
Web: www.lafargenorthamerica.com

I trust you will find the above request in order. If you have any questions or concerns please contact me directly.

Regards,

Brad Kohl
Vice President, Vancouver Aggregates

STORMWATER MANAGEMENT PLAN
COAL STOCKPILE AREA
TEXADA ISLAND SHIP LOADING AREA

Submitted to:
LAFARGE CANADA INC.

Date:
April 18, 2013

Norwest Corporation
Suite 2700, 411 – 1st Street, S.E.
Calgary, Alberta
T2G 4Y5
Tel: (403) 237-7763
Fax: (403) 263-4086
Email calgary@norwestcorp.com

www.norwestcorp.com

Author:
GORDON J. JOHNSON, M.SC., P.ENG.

NORWEST
CORPORATION

NORWEST
CORPORATION

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

NORWEST
CORPORATION

CERTIFICATE of AUTHENTICATION

This report has been prepared for Lafarge Canada Inc. (Lafarge). The text contained herein presents documentation of the design work carried out by Norwest Corporation regarding the Stormwater Management Plan to support the expansion of coal stockpiling facilities associated with Lafarge's Texada Island quarry and ship loading facilities. The report includes information provided by Lafarge and third parties that has not been independently verified.

All data contained herein has been reviewed and interpreted by, or generated under the direct supervision of, Gordon J. Johnson, P.Eng. All designs have been reviewed and approved for submission by Gordon J. Johnson, P.Eng.

"original signed and sealed by author"

April 18, 2013

Gordon J. Johnson, P.Eng.
Vice President, Water Resources
Norwest Corporation

1 INTRODUCTION

1.1 BACKGROUND

Lafarge Canada Inc. (Lafarge) operates a quarry and marine loading facility on the south shore of Texada Island (Site), shown in Figure 1-1. Lafarge is upgrading these facilities by increasing stockpile capacity for transhipping coal for its current and potential future customers. The quarry produces raw materials for cement manufacturing and specialty rock products for the construction industry. The loading facilities are used to ship limestone and tranship coal because it is the only deep water port in the area that can load ocean-going ships.

Lafarge is currently developing plans to expand the area that is used to stockpile and tranship coal, and it wants to include active stormwater management as part of this expansion to mitigate the potential environmental effects associated with the release of coal sediments into the surrounding marine environment.

Lafarge has retained Norwest Corporation (Norwest) to develop a Stormwater Management Plan to support this expansion.

1.2 PURPOSE AND SCOPE

This report describes the design of the Stormwater Management Plan associated with expansion of the coal stockpiling area and includes the following information:

- description of the coal transshipping area, proposed expansion and associated stormwater management strategy;
- design criteria and standards applied to the stormwater containment and diversion system designs;
- assessments completed to support the design of the stormwater infrastructure;
- overview of the design features and standards used as a framework;
- construction specifications, including quality assurance and quality control (QA/QC) procedures; and
- design drawings.

1.3 REPORT ORGANIZATION

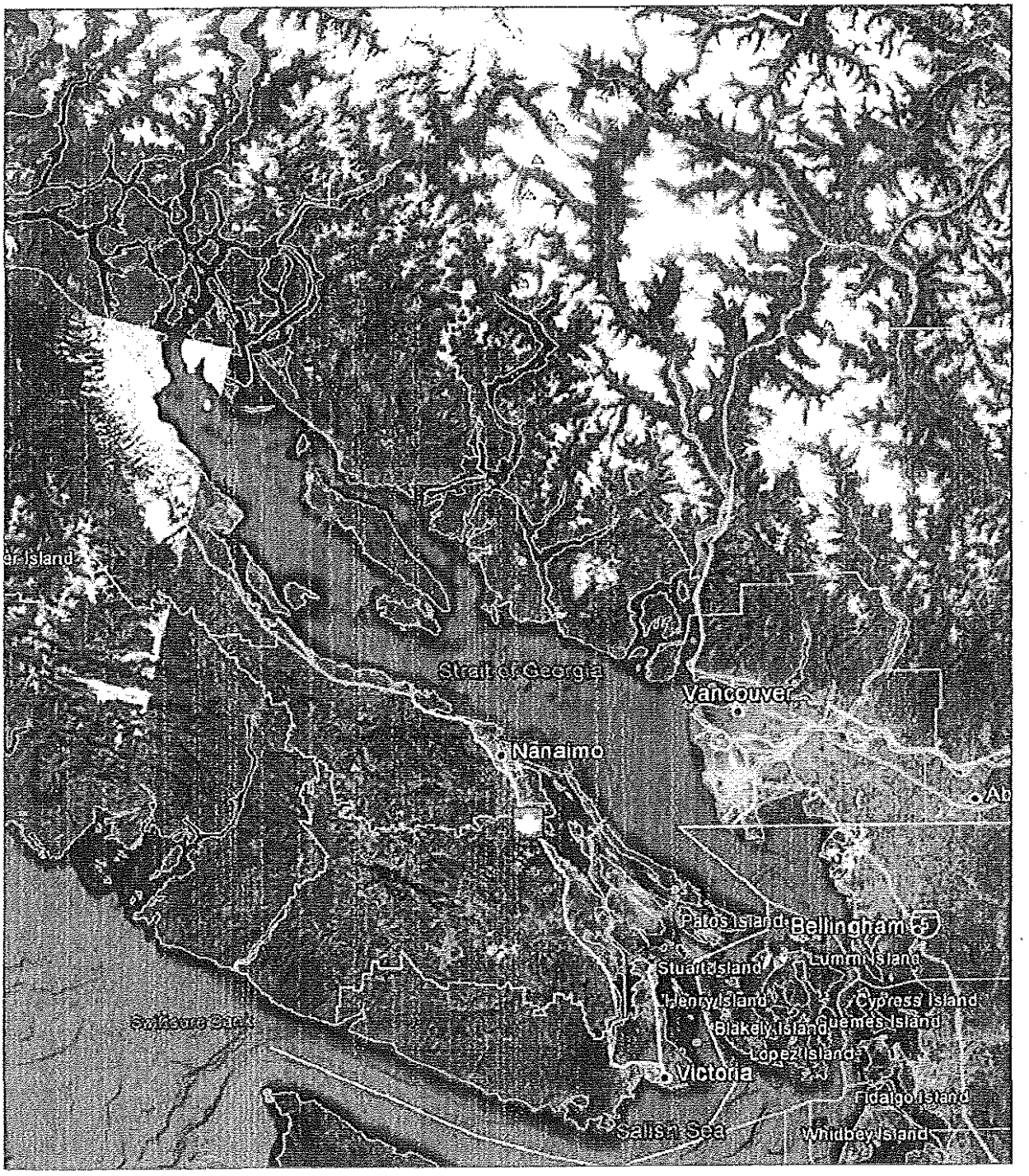
The main body of this report describes the design principles and the basis for the Stormwater Management Plan. Engineering-design drawings can found in Appendix A. Technical specifications can be found in Appendix B.

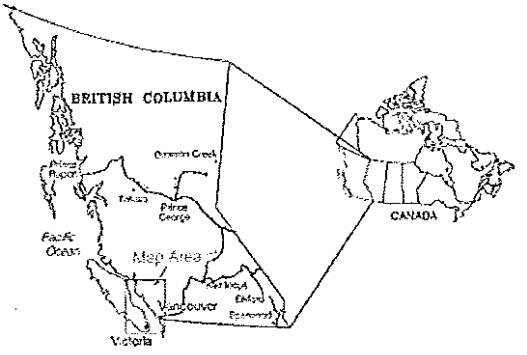
1.4 ROLES AND RESPONSIBILITY

The following roles and responsibilities have been established for this project:

- Lafarge will manage the expansion project: project managers are Shawn Holloway and Andre Balfe;
- Kreator Equipment will design and install the facilities associated with the expansion project;
- Norwest will design the Stormwater Management Plan: project manager is Gordon Johnson, VP Water Resources; and,
- Earthworks will implement be implemented by Lafarge, using existing Site equipment, or by third party contractor.

The regulatory agency for this work is the BC Ministry of Energy and Mines.





LAFARGE

TEXADA STORMWATER MANAGEMENT

PROJECT LOCATION MAP

FIGURE 1-1

DRAWN BY: AW CHKD BY: MU DATE: 13 03 13	FILE: Fig 1-1_Project Location Map.dwg G:\Project Data\Lafarge Canada_560\586-1_Texada\Reports\Draft	NORWEST APEGGA Permit P05015

2 SITE DESCRIPTION

2.1 GENERAL

Lafarge's Texada Island facilities are located approximately 100 km northwest of Vancouver, adjacent to the town of Powell River (Figure 1-1). The operation produces minerals and aggregate from one of the most significant mineral reserves on the west coast of BC and has been operating for more than 60 years.

Lafarge mines high-quality limestone, construction and asphalt-quality aggregates from this area where gold was mined a century ago, and iron ore was mined until the 1970s. Since then, companies such as Lafarge have mined millions of tonnes of limestone. The facility also imports coal, gypsum and slag by barge, and transships these materials to customers overseas using the deep water port.

In 2012, total production of quarried limestone and construction materials is estimated to be 3 million tonnes. Limestone production is the largest part of the operation and limestone is used for cement manufacturing, chemical plants, agriculture products and specialty products. Materials are sorted according to composition, quality, size and colour and are loaded onto ships and barges using one of three existing loading facilities.

2.2 SHIPPING FACILITIES

The shipping facilities include three individual loading facilities that are supported by the material staging and stockpiling area. The first one is located northwest of the staging and stockpiling area: it is dedicated to loading limestone for cement manufacturing and is supported by three offshore loading dolphins. The remaining two loading facilities are shore-based, located on the northwest corner of the staging and stockpile area: they receive and ship coal and specialty rock products. The foreshore staging and stockpiling area is a flat, semi-circular area constructed of waste rock fill covering an area of approximately 4 ha. The current foreshore facilities are shown in Figure 2-1.

The expansion program consists of modifying the materials handling facilities to increase capacity and throughput, and expanding the staging area to allow larger volumes of coal to be stockpiled. The expansion of the staging area is the component of the project that is most relevant to stormwater management. This expansion will be achieved by moving the staging area access ramp to the southeast end of the pad and excavating into the slope that forms the north boundary

of the staging area. The intent is to expand the area available for stockpiling materials to approximately 6 ha. A plan view of the proposed expansion is shown in Figure 2-2.

2.3 PHYSIOGRAPHY AND DRAINAGE

Lafarge's shipping facilities are located on the northwest end of Texada Island, where the land slopes moderately to steeply to the southwest towards the Georgia Strait. On the northwest end of Texada Island, the ground surface elevation varies from sea level to approximately 300 masl. In the immediate vicinity of Lafarge's quarry and shipping facilities, the ground surface elevation varies from sea level to approximately 100 masl. In the vicinity of the shipping facilities, the ground surface has been largely altered by quarrying activities and related infrastructure. With the exception of the ephemeral creek, runoff in this area is directed into quarry depressions. The ephemeral creek that will be redirected into the eastern estuary is the only natural drainage feature in the project development area.

2.4 CLIMATE

Climate information for the project location was obtained from Environment Canada weather stations that are located in Powell River and Comox, BC. Texada Island is situated within a temperate rainforest, Coastal Western Hemlock biogeoclimatic zone, which is the rainiest biogeoclimatic zone in BC. The zone typically has a cool meso-thermal climate: cool summers (although hot dry spells can be frequent) and mild winters. The mean annual temperature is about 8°C and the mean monthly temperature is above 10°C for four to six months of the year. Mean annual precipitation for Powell River is 1,100 mm. Table 2.1 summarizes the climate normals for Powell River.

TABLE 2.1
CLIMATE SUMMARY FOR POWELL RIVER

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	15.6 (60.1)	18 (64)	20 (68)	23.9 (75)	33 (91)	33 (91)	33.9 (93)	33 (91)	29.4 (84.9)	24 (75)	20 (68)	15 (59)	33.9 (93)
Average high °C (°F)	6.2 (43.2)	7.7 (45.9)	10.1 (50.2)	13.3 (55.9)	16.9 (62.4)	19.7 (67.5)	22.7 (72.9)	22.6 (72.7)	19.3 (66.7)	13.6 (56,5)	8.9 (48)	6.5 (43.7)	14 (57)
Average low °C (°F)	1.7 (35.1)	2.3 (36.1)	3.3 (37.9)	5.4 (41.7)	8.5 (47.3)	11.5 (52.7)	13.7 (56.7)	14.1 (57.4)	11.7 (53.1)	8 (46)	4.3 (39.7)	2.2 (36)	7.2 (45)
Record low °C (°F)	−14.4 (6.1)	−12 (10)	−10 (14)	−1.7 (28.9)	−6.7 (19.9)	3.3 (37.9)	6.1 (43)	6 (43)	0 (32)	−4 (25)	−11 (12)	−12.8 (9)	−14.4 (6.1)
Precipitation mm (inches)	136.4 (5.449)	105.2 (4.142)	98 (3.858)	67.7 (2.665)	70.4 (2.772)	62.5 (2.461)	40.1 (1.579)	47.1 (1.854)	56.9 (2.24)	116.2 (4.575)	160.3 (6.311)	141.2 (5.559)	1,062.7 (41.843)
Rainfall mm (inches)	125.6 (4.945)	95.4 (3.756)	85.8 (3.378)	67.7 (2.665)	70.4 (2.772)	62.5 (2.461)	40.1 (1.579)	47.1 (1.854)	56.9 (2.24)	116 (4.57)	156.4 (6.157)	135.5 (5.335)	1,072.1 (42.209)
Snowfall cm (inches)	12.9 (5.08)	6.9 (2.72)	2.1 (0.83)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0.2 (0.08)	3.9 (1.54)	5.7 (2.24)	31.6 (12.44)

(Environment Canada)

2.5 STORMWATER MANAGEMENT STRATEGY

Modifications to the management of stormwater flows in the coal stockpiling portion of the staging area are required to prevent runoff containing suspended coal sediments from discharging directly into the surrounding marine foreshore.

The following strategies will be used to manage the stormwater in the coal stockpile area (Figure 2-3):

1. Use a water infiltration pond to allow stormwater runoff to seep into the ground and into the adjacent estuary. The pond would be located along the north edge of the staging area, in the planned excavation area, and be bound to the south and west by the staging pad, to the north by the excavated embankment and to the east by the new access ramp to the stockpiling area.
2. Divert flows in the existing ephemeral creek using a ditch constructed along the northeast edge of the access ramp to the staging area. This ditch will discharge into the small estuary located east of the staging area.
3. Fill and grade the surface of the staging area to drain towards the north, away from the ocean and towards the infiltration pond.
4. Construct perimeter ditches around the outside of the staging area foreshore to prevent direct release of staging area runoff into the ocean. This ditch will also act as an infiltration structure.

This strategy is consistent with generally recognized "Best Management Practices" for stormwater and is similar to the stormwater management practices used around the coal stockpiles of the Richmond Cement Plant in Richmond, BC.

Basemap data obtained from Natural Resources Canada,
Aero-Geomatics Ltd., imagery acquired August 2012

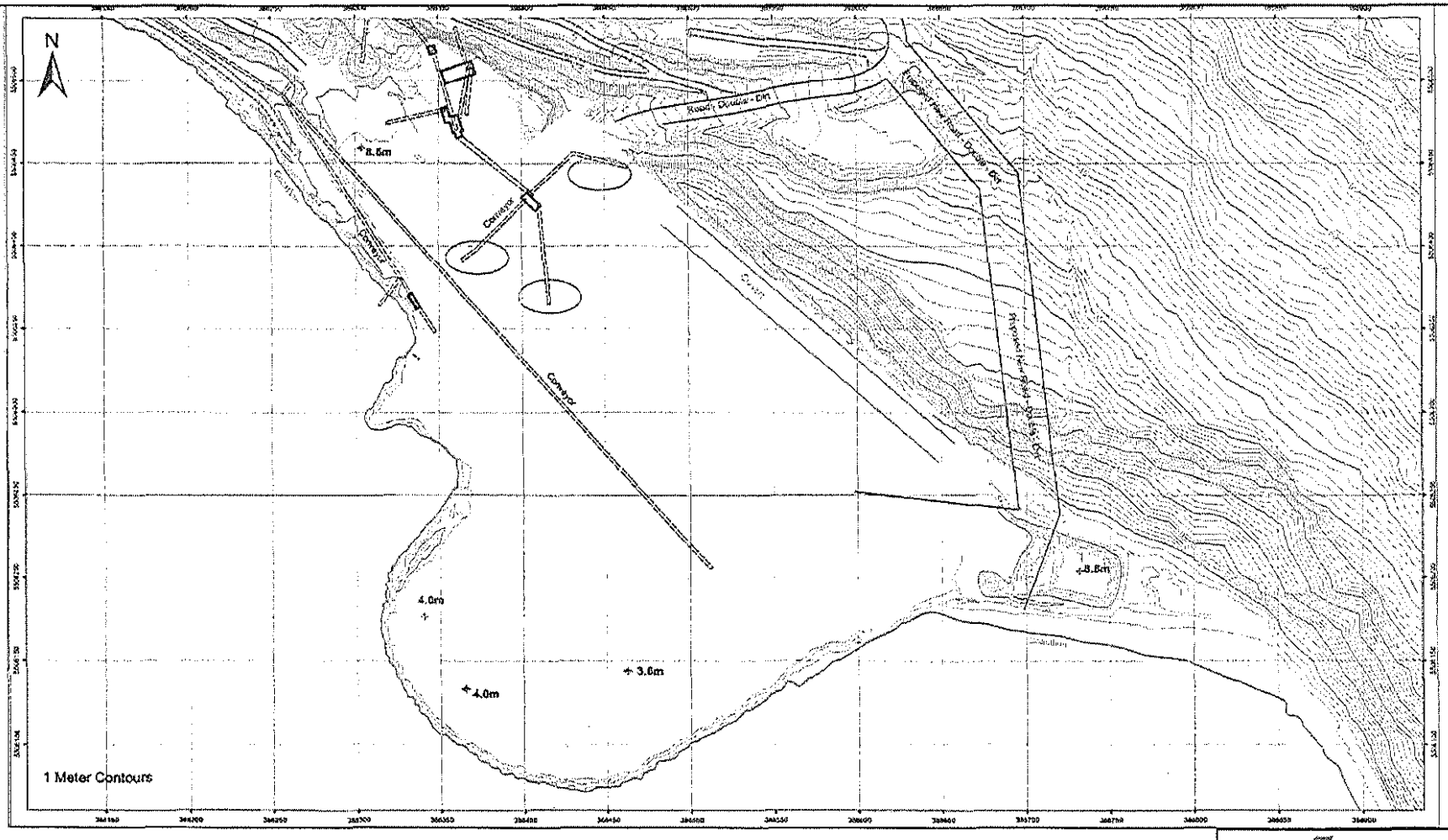
LAFARGE

TEXADA STORMWATER MANAGEMENT

PLAN VIEW OF EXISTING FORESHORE

FIGURE 2-1

NORWEST



Basemap data obtained from Natural Resource Canada.
Aero-Geomatics, Ltd., Imagery acquired August 2012

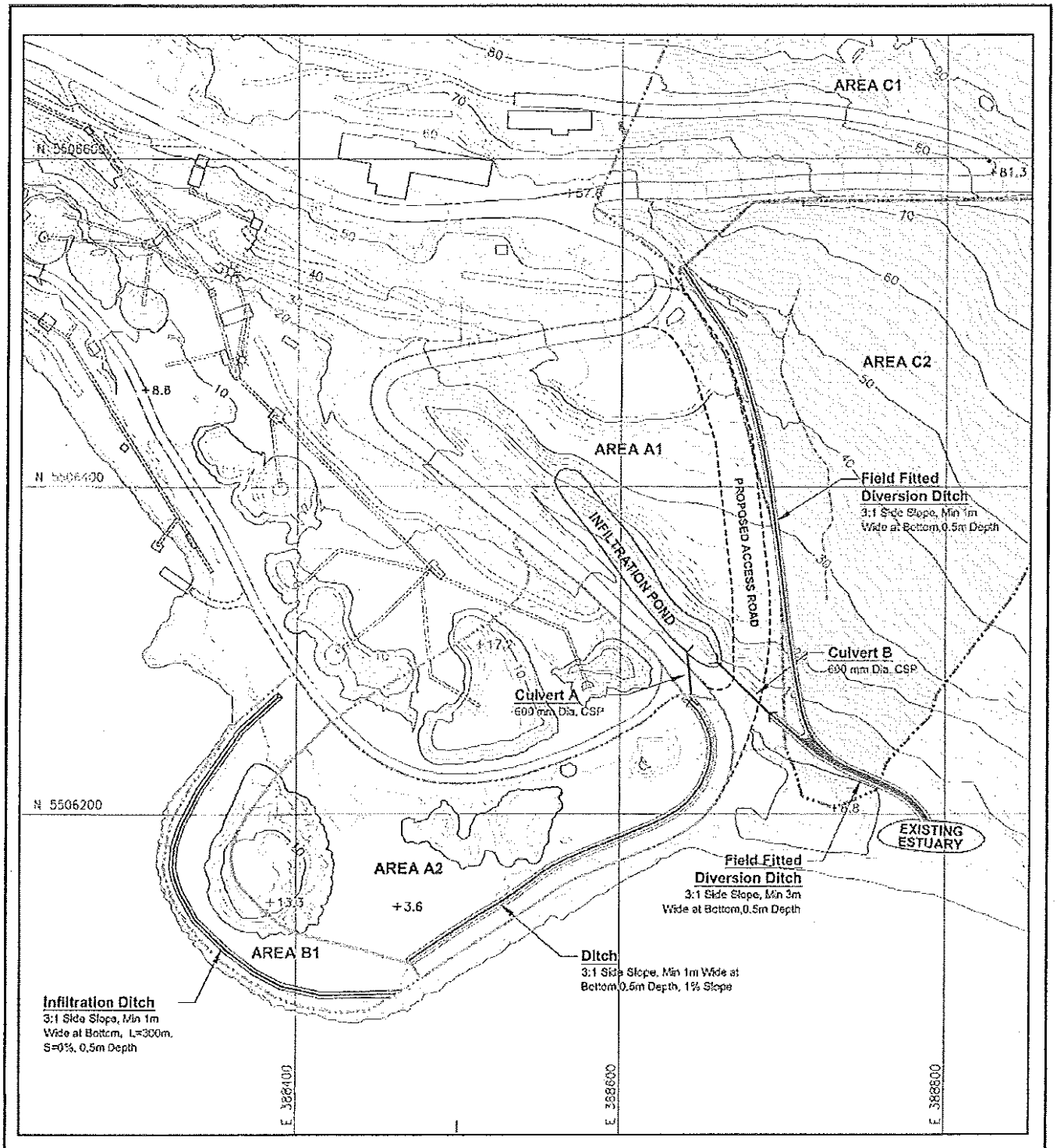
LAFARGE

TEXADA STORMWATER MANAGEMENT

POST EXPANSION PLAN VIEW

FIGURE 2-2

NORWEST



LEGEND

- Existing Creek or Ditch Alignment
- Contour Index (2m Interval)
- Conveyor
- Gravel Road
- Pole
- Pole Utility
- Light

Notes:

* Contour lines in treed areas should be treated as indefinite.
* Water levels at time of photography.

100 0 100

Metres

Projection: UTM Zone 10 Datum NAD83
NTS Mapsheet 92F/10 & 15

LAFARGE

TEXADA STORMWATER MANAGEMENT

OVERVIEW OF STORMWATER MANAGEMENT PLAN

FIGURE 2-3

DRAWN BY: A.W.	FILE: Fig 2-3_Overview of Stormwater Mana...
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DATE: 13 03 15	Texada\Reports\Draft

NORWEST
APEGGA Permit P05015

3 DESIGN BASIS

3.1 DESIGN CRITERIA AND METHODS

The following design criteria have been used:

1. The pond and perimeter ditch are designed to contain the runoff generated by the 1 in 5 years, 24-hour rainfall event. The 1 in 5 years, 24-hour rainfall event is estimated to be 54 mm.
2. Infiltration structures (access ramp, pond perimeter and infiltration ditches) are designed to allow the natural seepage of stormwater equivalent to the runoff generated during the average wettest month (usually November), plus one standard deviation, conveyed over a 30-day period. The estimated precipitation during the wettest month, plus one standard deviation, is 180 mm.
3. The 1:100-year return period, 24-hour duration storm simulated by the SWMHYMO model was used to evaluate the overland drainage conveyance systems, and erosion and sediment control measures.
4. Continuous simulation of the post-expansion Site conditions were estimated using the QHM model and were used to evaluate the storage requirements for the proposed infiltration ditch and infiltration pond. The historical hourly precipitation database was obtained from the National Climate Data and Information Archive services and covered the period from 1962 to 2005.

Coal dust is known to have relatively low bulk density, similar to and potentially less than that of water. The low specific gravity hinders the ability of the coal particles to settle when suspended in water. Therefore, the infiltration ditch and infiltration pond are being used to contain runoff and mitigate the release of coal fines into the adjacent marine environment. These facilities will be designed to totally contain any runoff associated with normal runoff events, and to reduce the runoff associated with extreme runoff events.

3.2 DESIGN STANDARDS

Because there are no standards to design or construct the Stormwater Management Plan for Lafarge's Texada Island facilities, the BC Ministry of Water, Land and Air Protection's *A Guidebook for British Columbia Stormwater Planning* (May, 2002) was used, where relevant, to guide the design of the Lafarge's Stormwater Management Plan.

4 TECHNICAL APPROACH

4.1 GOVERNING PRINCIPLES

The Stormwater Management Plan for the Site will allow the coal handling area to drain overland and be directed by road ditches to desired locations. Road ditches will be directed to culverts, and an infiltration pond and infiltration ditch will receive direct overland sheet runoff. Culverts to and from the infiltration pond will convey the runoff under roadways allowing the runoff to cross roads without interfering with traffic.

The runoff generated from the 1:100-year return period, 24-hour duration rainfall event will be used to design the overland drainage system, including culverts and evaluation of erosion and sediment control measures for the development. Culverts will be a minimum of 600 mm in diameter (as required by BC's *A Guidebook for British Columbia Stormwater Planning* (May, 2002).

4.2 NUMERICAL MODELING APPROACH

The SWMHYMO and QHM computer models were used to simulate runoff from the Site and the ephemeral creek that will be diverted by the expansion works. Both SWMHYMO and QHM models are widely accepted for use in this type of study and are capable of the following:

- generating hydrological models to simulate watershed conditions for specific design storm events;
- producing hydrographs, flow volumes and flow rates at specified points;
- evaluating flows in engineering structures (e.g., channels, control structures and reservoirs);
- determining flows for future land use conditions; and
- accepting input in the form of hydrographs.

STORMWATER FLOW ESTIMATES

Drainage characteristics of the study area were estimated for post-expansion conditions. These characteristics include catchment size, imperviousness ratio, slope, depression storage and Soil Conservation Service (SCS) runoff curve number. Modeling parameters were selected in accordance with the SWMHYMO manual and as determined by Norwest.

The total study area (41.25 ha) was delineated into five catchments based on Site contours, drainage patterns and proposed road profiles (Figure 4-1). Table 4.1 shows the catchment parameters used for the post-expansion analysis.

The SWMHYMO model with 1:100-year return period and 24hour duration rainfall event was applied to assess the overland drainage and to determine the erosion protection measures required to mitigate the risk of erosion. Table 4.2 shows the resulting peak discharges, depths of flow and velocities of flow for the critical flow locations, as shown in Figure 4-1.

TABLE 4.1
POST-EXPANSION CATCHMENT PARAMETERS

Catchment ID	Area (ha)	Curve Number	Initial Abstraction (mm)
A1	3.73	71.6	20.1
A2	3.02	94	6.3
B1	0.93	94.2	3.2
C1	26.59	69	22.8
C2	6.98	69	22.8
Total Area (ha)	41.25		

TABLE 4.2
OVERLAND FLOW ASSESSMENT

Catchment ID	Peak Discharge[1] (L/s)	Slope of Overland Drainage (%)	Maximum Depth (mm)	Maximum Velocity (m/s)	Culvert/ Location ID
A2	400	1	192	1.325	Conveyance Ditch
C1	1,022	33	89	3.7	U/S End of Diversion

Note: [1] The flows are based on the design storm event (1:100-year return period, 24-hour duration rainfall event).

STORMWATER STORAGE REQUIREMENTS

The simulated stormwater storage requirements for the infiltration pond and ditch are shown in Table 4.3, with the SWMHYMO, QHM and extrapolated HYDSTAT results for 1:100-year return period storage requirements.

TABLE 4.3
SUMMARY OF REQUIREMENTS FOR STORMWATER STORAGE

Storage Facility ID	SWMHYMO Storage (cumulative)	QHM Storage (cumulative)	HYDSTAT Storage (cumulative) [1]	SWMF Storage Provided (cumulative)
Infiltration Pond	1,378	4,120	2,375[2]	2,414
Infiltration Ditch	345	674	668[3]	784

Notes: [1] Governing volume (SWMHYMO versus QHM/HYDSTAT).
[2] Represents 1 in 5 years return period volume.
[3] Represents 1 in 100 years return period volume.

EROSION AND SEDIMENT CONTROL MEASURES

Several areas were identified as being susceptible to erosion during high-flow events (Figure 4-1). Table 4.4 summarized the measures that were included in the design to reduce potential erosion and sediment transportation.

TABLE 4.4
EROSION AND SEDIMENT CONTROL MEASURES (ESCM)

Area of Concern	Channel Geometry[1]	ESC Rock Armoring[2]	Peak Flow (L/s)
A – Culverts	3, 1, 3, 1%	d_{50} = 125 mm, 3 m Long Apron	185
B – Upper Portion of Diversion Channel	3, 1, 3, 33%	d_{50} = 230 mm	1,022
C – Directional Bends of Diversion Channel	3, 3, 3, 33%	d_{50} = 350 mm	1,022
D – Lower Portion of Diversion Channel	3, 3, 3, 0.5%	d_{50} = 125 mm	1,022

[1] - Channel Geometry is identified as left bank slope, bottom width, right bank slope, longitudal slope (%) (3,0.3,3,1% - means the left bank slope is 3H:1V, the bottom with is 1 m, the right bank slope is 3H: 1V and the longitudal slope is 1%).
[2] - Results are based on Riprap Design Curves from BC Ministry of Transportation Guidelines.

4.3 FILTER AND LINER DESIGNS

The upper surfaces of the perimeter ditches, stormwater pond, stockpile surface and face of the access road adjacent to the pond are lined with finer grained granular materials designed to act as filters, preventing the finer grained suspended coal sediments from seeping through these liners, migrating through native soils and discharging into the adjacent aquatic environments. For the

purpose of this assessment, it is assumed that the suspended coal sediments will have the grain-size distribution that is summarized in Table 4.5.

TABLE 4.5
ASSUMED GRAIN-SIZE DISTRIBUTION OF COAL FINES

Particle Size Indicator	Size Range (microns)
D_{85}	75 to 100
D_{50}	25 to 75
D_{15}	10 to 25

The filter lines were designed using the following typical criteria:

- D15 (filter) < 5 x D85 (sediment); and
- D60 (filter) < 6 x D10 (filter).

The particle size distribution for the filter is summarized in Table 4.6.

TABLE 4.6
GRAIN-SIZE DISTRIBUTION OF FILTER

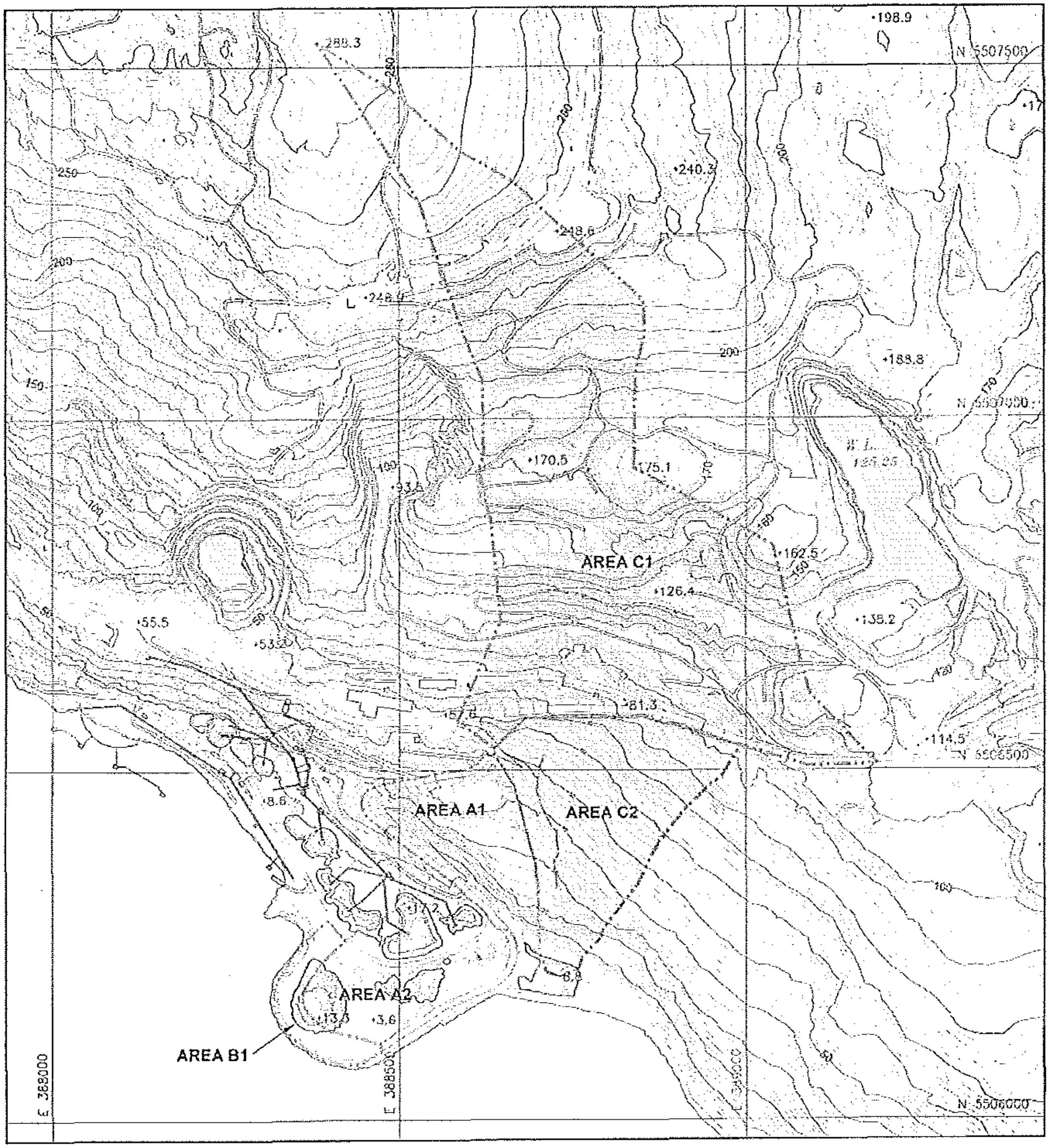
Particle Size Indicator	Size Range (mm)
D_{85}	1 to 3
D_{60}	0.8 to 1.2
D_{15}	0.20 to 0.3
D_{10}	> 0.2

The hydraulic conductivity of the proposed filter layer is estimated using the following variation on the Hazen Formula (Bear and Verruijt, 1987): $k = C(D_{10})^2$

where:

- k is the hydraulic conductivity (m/sec);
- C is a constant (100 m/sec); and
- D_{10} is the grain size of the filter (m).

Based on a D_{10} = 0.2 mm, the hydraulic conductivity of the filter is estimated to be 4×10^{-6} m/sec.



LEGEND

- Contour Index (2m Interval)
- Gravel Road
- Marsh
- Lake

200 0 200
Metres

Projection: UTM Zone 10 Datum NAD83
NTS Mapsheet 92F/10 & 15

Notes:

- Contour lines in treed areas should be treated as indefinite.
- Water levels at time of photography.

LAFARGE

TEXADA STORMWATER MANAGEMENT

CATCHMENT AREAS

FIGURE 4-1

DRAWN BY: A.W. | FILE: Fig 4-1_Catchment Areas.dwg
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NORWEST

5 STORMWATER MANAGEMENT PLAN

5.1 DESIGN FEATURES

The design of the Stormwater Management Plan includes the following features:

1. The main body of the coal staging and stockpiling area is graded so that it drains toward the north, away from the foreshore, and towards the stormwater pond and management system.
2. The stormwater infiltration pond is located along the north edge of the staging area and is formed through excavation.
3. A permeable access ramp to the east edge of the pond allows water that accumulates in the pond to seep into the existing estuary to the east of the ramp.
4. An overflow culvert conveys extreme flows through the access ramp, and into the estuary.
5. A diversion ditch constructed along the northeast edge of the access ramp to the staging area intercepts and diverts flows from the existing ephemeral creek and discharges into the small estuary located east of the staging area.
6. An infiltration ditch around the outside perimeter of the staging area foreshore prevents direct release of runoff from the outer perimeter of the staging area.

The following subsections describe each of these Stormwater Management Plan design features. Drawing 1 (Appendix A) shows the coal stockpile development plan that is required to support expansion of the coal transshipping facilities, and Drawings 2 to 4 (Appendix A) show the design features.

5.2 GRADING PLAN

The coal stockpiling area is filled and graded to direct the majority of runoff towards the stormwater infiltration pond. The pond serves to remove suspended coal particles from the runoff by filtering those particles using the pond bottom and the access road embankment as filter media. The grading of the stockpiling area also serves to improve drainage, which should improve productivity and workability of the coal piles.

Waste rock products are used as fill to raise the elevation of the coal stockpile area to establish the desired grade. These materials comprise relatively durable granular fill which will enhance infiltration and drainage; this will reduce the proportion of rainfall that runs off the stockpiling area. Granular material will also improve trafficability of the stockpile surface.

The elevations of the stockpile area are determined by the following:

- desired grade of 1%;

- dimensions of the stockpile surface; and
- minimum elevation required to maintain the stockpile area above the potential height of storm surge (4 masl).

Drawing 2 (Appendix A) shows the desired grade of the pad along with the approximate thicknesses of fill required to achieve the design grade.

5.3 STORMWATER INFILTRATION POND

EXCAVATION AND POND CONSTRUCTION

The stormwater infiltration pond is sized to contain the runoff generated by the 1 in 5 years, 24-hour single storm rainfall runoff event and by the continuous simulation of runoff based on historical hourly precipitation records. The more demanding simulation governs the infiltration pond design storage capacity. The infiltration pond is positioned to minimize its impact on the area available for stockpiling coal and to the activities associated with handling and loading the coal. Towards this end, the pond is located along the north edge of the stockpiling area, adjacent to the hillside that rises up into the quarry and materials crushing and sorting area. The pond is elongated and situated in an existing depression that collects water from the existing ephemeral stream.

Excavation will be used to establish the dimensions of the pond: the side-slopes will be built to a slope of 2:1 due to frequent water level fluctuation. The finish grade of the pond will provide a storage depth of 3 m. For the most part it will be possible to excavate the soils and colluvium that are present using a track-mounted excavator. In some areas it may be necessary to jack-hammer weathered surface rock to develop the grades. Blasting of bedrock is not required or desirable. If competent rock is encountered, it will be left in place and the pond geometry will be adjusted accordingly. The pond excavation will be covered by a filter liner that is 0.5 m thick. Coarse rock may be used to stabilize the perimeter of the pond.

ACCESS ROAD EMBANKMENT DESIGN

The access road design includes a coarse rock core that is designed to freely drain and is covered by a filter layer adjacent to the pond that prevents seepage of coal fines out of the pond. The core is constructed using waste rock which has a 75 mm minus particle size gradation. The inside face of the access road is covered with a minimum 3-metre thick filter layer up to the top of the overflow culvert.

OVERFLOW CULVERT

An overflow culvert is included in the access road design to convey extreme stormwater runoff flows that exceed the storage capacity of the pond. The invert of the culvert is located at an

elevation of 4 masl, which is positioned to prevent flooding of the stockpile surface. The culvert design consists of the following:

- 600-mm diameter, galvanized, corrugated steel pipe;
- 100-mm thick layer of sand bedding and backfill around the culvert;
- 1-metre thick, sand-bentonite plugs at either end of the culvert; and
- flared ends with bar screens.

Culverts are prepared, placed and covered in sequence with the access road construction. Preparation of the culvert bed consists of the following:

- removing all ice, snow, organic matter, protrusions and sizes greater than 200 mm in the area of the culvert footprint;
- developing a 1% grade over the length of the culvert, towards the estuary (east) to allow the culvert to freely drain following extreme runoff flow events;
- placing and smoothing bedding materials along the footprint of the culvert; and
- backfilling the culvert to a level suitable to support subsequent road construction.

The culvert length is sized to protrude a minimum of 1 m past the edges of the embankments, assuming an embankment slope of 4H:1V.

5.4 INFILTRATION DITCH

The infiltration ditch finished grade is excavated to a depth of 0.75 m at an average slope of 2H:1V and an average base width of 1 m. The liner for the ditch is placed to an average thickness of 300 mm, after the ditch excavation has been completed. The ditch has a containment capacity of approximately 1 m^3/m when 2/3 full of water. The corresponding infiltration rate of the ditch is estimated to be 0.1 m^3/day/m. This rate of seepage is expected to diminish over time as the ditch liner gradually fills with coal fines. Norwest recommends that the ditch is cleaned whenever the infiltration rate is inhibited by accumulated coal fines.

5.5 DIVERSION

The diversion channel for the existing natural creek with a base flow will provide a controlled and modified alignment of the stream and a safe conveyance of runoff flows to the existing estuary. The finished grade of the diversion ditch provides a minimum of 0.5 m depth and 3H:1V side slopes. Directional bends and curves of the diversion ditch will be armored and steepened, and the depth increased to a minimum of 1 m.

6 CONSTRUCTION STANDARDS AND QUALITY CONTROL

The components of the Stormwater Management Plan will be constructed by Lafarge's Texada Island workforce, using equipment and materials already on Site. It will be constructed according to the technical specifications found in Appendix B. These technical specifications, when followed, will result in construction quality that is consistent with the basis and assumptions of the Stormwater Management Plan design.

Construction will also be subject to QA/QC procedures, which complement the technical specifications, and these will be used by Lafarge's construction team and engineer. The QA/QC program will be implemented during construction to ensure that construction materials and methods comply with the performance and design standards described in this report. Specific aspects of the QA/QC program are described in the construction specifications and can be found in Appendix B. The complete QA/QC testing program is summarized in Table 6.1.

TABLE 6.1
SUMMARY OF QUALITY CONTROL AND QUALITY ASSURANCE TESTING PROGRAM

Component	Property	ASTM[1] Standard	Frequency	Requirement
Ditch Liner	Grain Size	D421	3 Total	$0.15 < D_{10} < 0.3$ (mm)
Stockpile Surface	Grain Size	D421	3 Total	$0.15 < D_{10} < 0.3$ (mm)
Stockpile Surface	Density	D2922	1 per 250 m^3	> 95% SPD
Access Road Surface	Density	D2922	1 per 250 m^3	> 95% SPD
Access Road Core	Grain Size	D421	3 Total	$D_{50} > 1.0$ (mm)
Access Road Apron	Grain Size	D421	3 Total	$0.15 < D_{10} < 0.3$ (mm)
Pond Liner	Grain Size	D421	3 Total	$0.15 < D_{10} < 0.3$ (mm)

Notes: [1] American Standard of Testing and Measures

7 REFERENCES

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Environment Canada, "Environment Canada—Canadian Climate Normals 1971–2000" March 2013 via website.

J.F. Sabourin and Associates Inc., "SWMHYMO Stormwater Management Hydrologic Model – User's Manual", May 2000 (reprinted April 2005).

Keith E. Saxton in cooperation with Department of Biological Systems Engineering, Washington State University "Soil Water Characteristics – Version 6.02.74", 2009.

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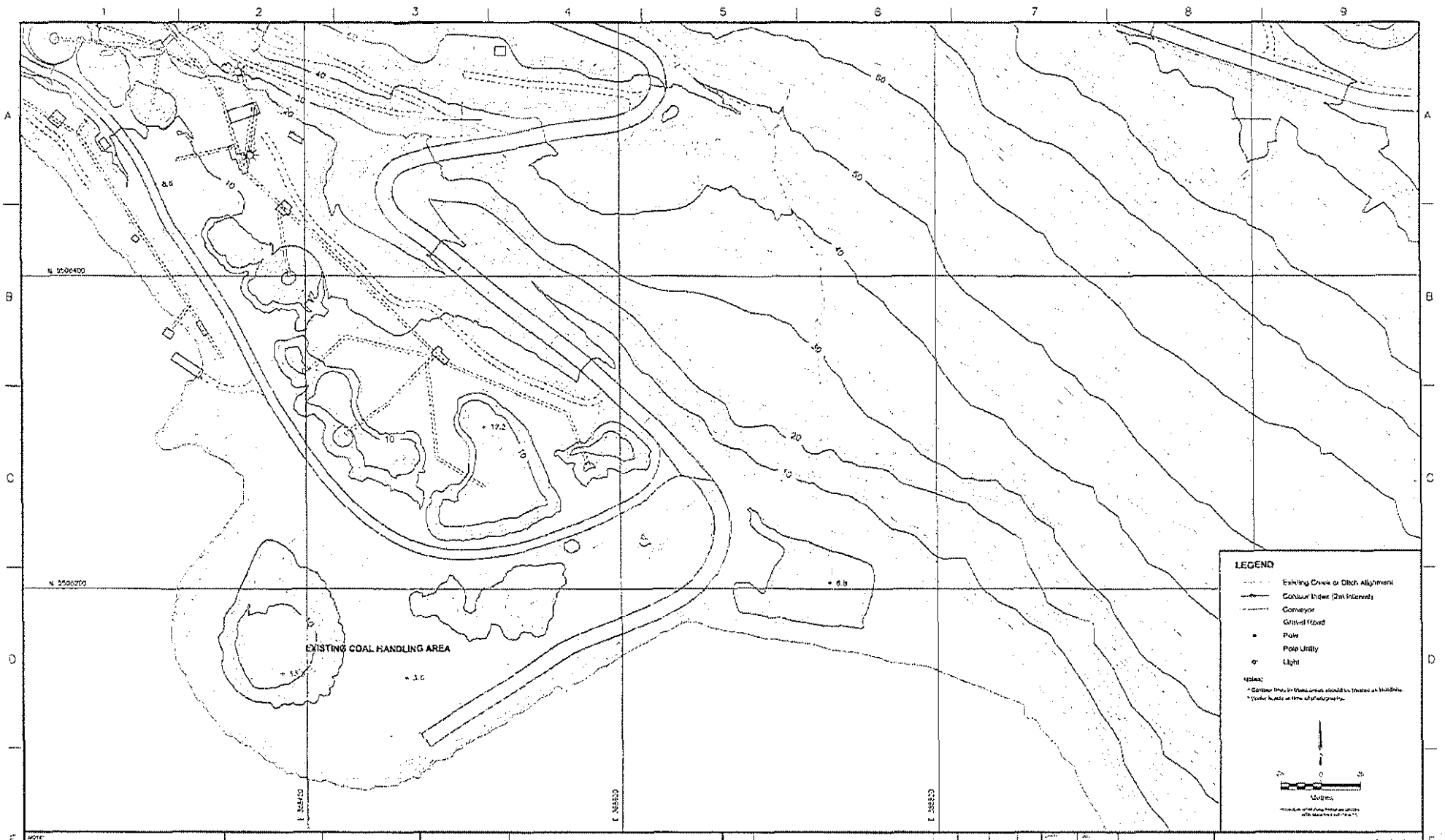
APPENDIX A
DESIGN DRAWINGS


EXISTING COAL HANDLING AREA
LEGEND
Existing Creek or Ditch Alignment
Contour Index (2m Intervals)
Conveyor
Gravel Road
Pole
Pole Utility
Light
Notes:
Metres
NORWEST
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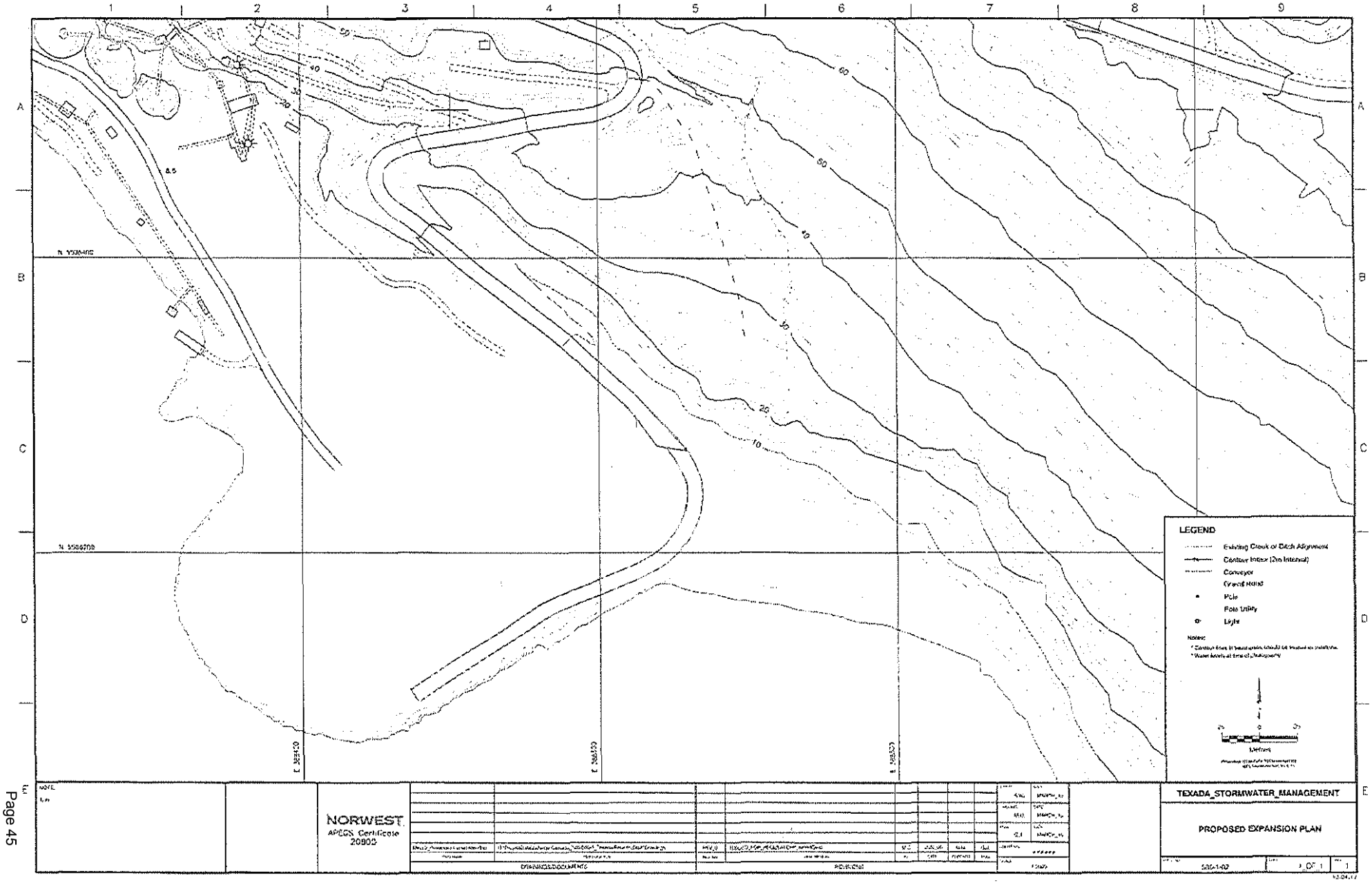
TEXADA_STORMWATER_MANAGEMENT
EXISTING CONDITIONS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Light
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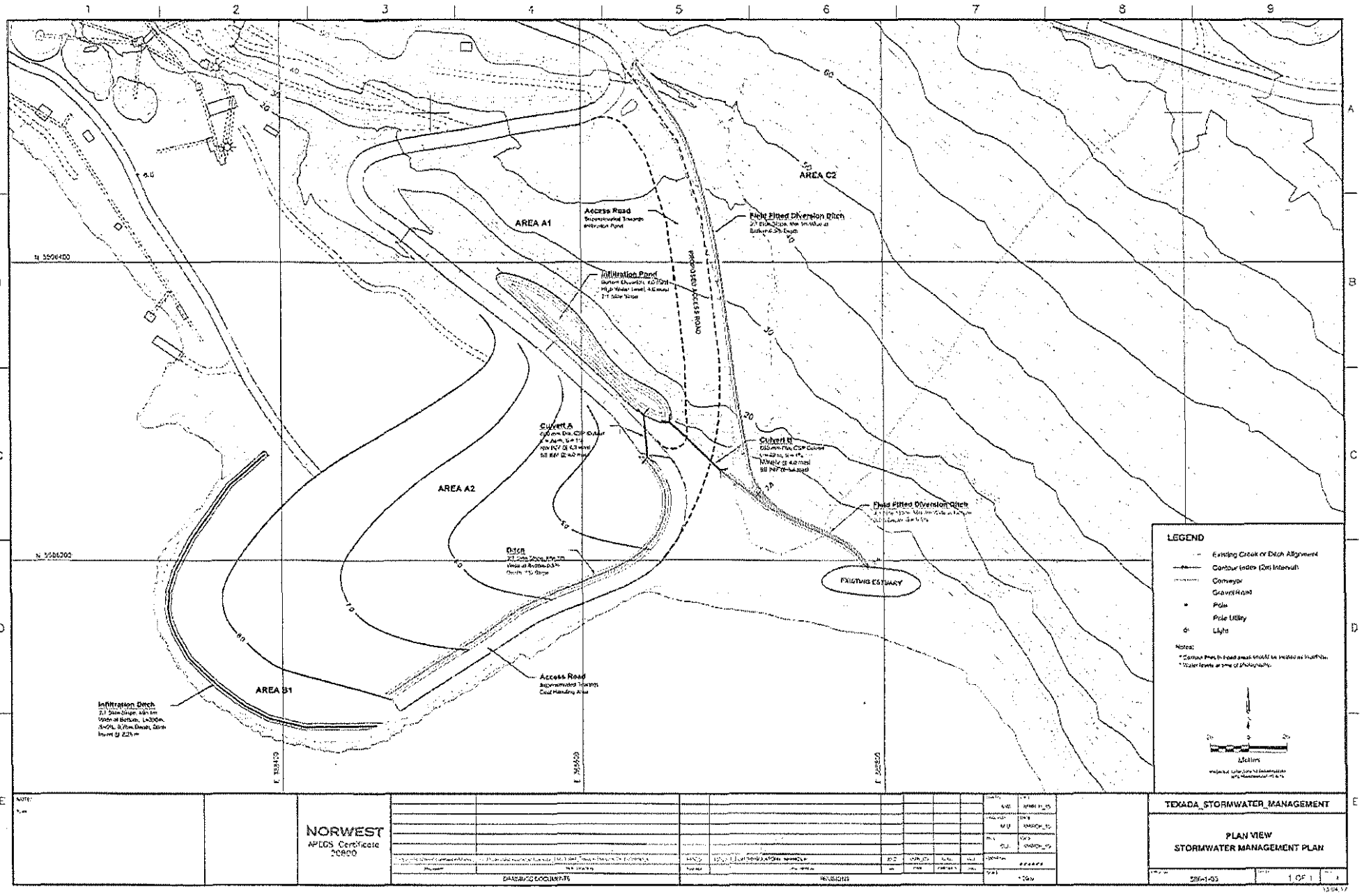
TEXADA_STORMWATER_MANAGEMENT
PROPOSED EXPANSION PLAN


AREA A1
AREA A2
AREA B1
AREA C2
Access Road
Infiltration Pond
Culvert A
Culvert B
Ditch
Field Fitted Diversion Ditch
Infiltration Ditch
EXISTING ESTUARY
PROPOSED ACCESS ROAD
LEGEND
Existing Creek or Ditch Alignment
Contour Index (2m Interval)
Conveyor
Gravel Haul
Pole
Pole Utility
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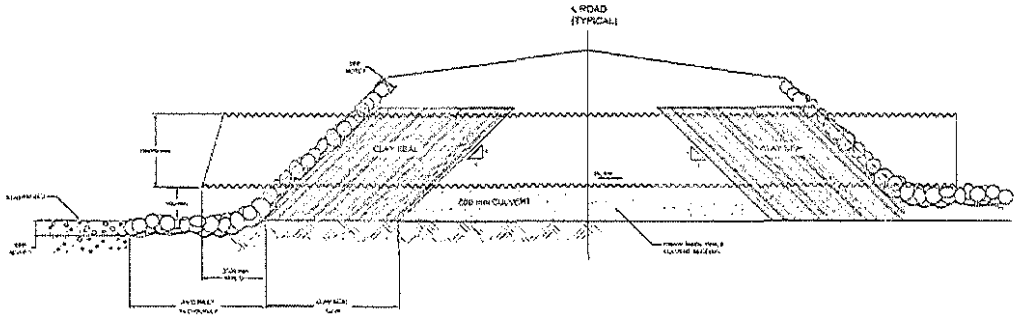
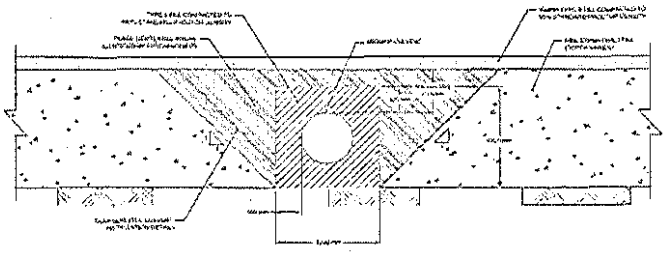
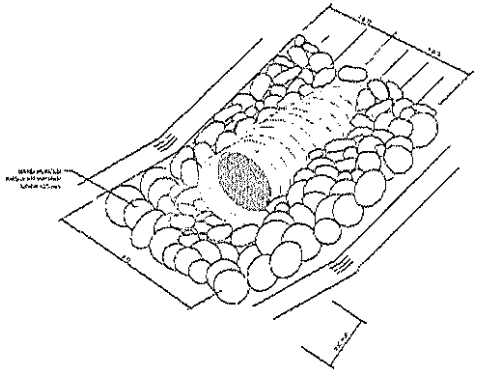
TEXADA_STORMWATER_MANAGEMENT
PLAN VIEW
STORMWATER MANAGEMENT PLAN
1 OF 1





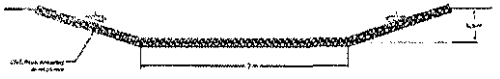


ISOMETRIC VIEW

NOTE:
1. RIPRAP THICKNESS 300mm
2. ANGULAR RIP RAP SHALL BE HAND PLACED ROCK OR AS SPECIFIED BY THE ENGINEER.
3. MINIMUM CULVERT DIA 300 mm
4. 150 mm DROP FROM BOTTOM OF CULVERT TO RIP RAP IS FOR OUTLET END ONLY
5. PLAN VIEW - CULVERT TO BE PLACED AT THE BEGINNING OF CURVE OF THE CENTRE RUN)

DITCH SECTION

DITCH SECTION



DITCH SECTION

DITCH SECTION

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TEXADA_STORMWATER_MANAGEMENT

CULVERT AND DITCH DETAILS

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APPENDIX B
TECHNICAL SPECIFICATION

1 GENERAL

1.1 SECTION INCLUDES

This section includes information on the following items of work specifically associated with the construction of the Pond and related earthworks.

1.2 REFERENCES

- American Society for Testing and Materials (ASTM) D422 – 63(2007) Standard Test Method for Particle-Size Analysis of Soils.
- ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.
- ASTM D2216 – 05 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock –by Mass.
- ASTM D2922 – 04 Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- ASTM D3017 – Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 TESTS AND INSPECTIONS

a. The testing and inspection of materials and compaction of embankments will be carried out by a qualified third party to be retained by the Owner. Standards for construction of earthworks are summarized in Table 4.1.

b. Cooperate with the Engineer and third party testing technician, and assist as required to allow efficient execution of the works.

1.4 BURIED SERVICES

a. Before commencing work, establish with Owner the location of all potential buried services on and adjacent to the Site.

b. Arrange with Owner for relocation of buried services that interfere with the execution of the works. The Owner shall be responsible for any costs incurred associated with the relocation of buried services.

1.5 PROTECTION

a. Keep excavations clean, free of standing water and the soil loose.

b. Protect natural and manmade features required to remain undisturbed.

2 PRODUCTS

2.1 GENERAL GRANULAR FILL

Off-specification aggregate native to the Site, which is free of lumps or rocks larger than 75 mm, frozen lumps, sharp fragments, organic material, debris and swelling clays.

2.2 FILTER LAYER

Filter material to comply with the underlying particle size distribution.

GRAIN SIZE DISTRIBUTION OF FILTER

Particle Size Indicator	Size Range (mm)
D_{85}	1 to 3
D_{60}	0.8 to 1.2
D_{15}	0.20 to 0.30
D_{10}	> 0.2

3 EXECUTION

3.1 EXCAVATION

a. Excavate all material encountered as required to complete the works.

b. Remove any soft zones or zones containing deleterious materials and replace it with compacted fill.

3.2 FILLING - GENERAL

a. Inspection: do not commence backfilling until fill material and areas to be filled have been inspected and approved by the Engineer.

b. Remove construction debris, organic soil, and standing water from areas to be filled.

3.3 COMPACTED FILL

a. Use General Granular Fill as specified by the Engineer.

b. Use only acceptable material from the Pond excavation, as directed by the Engineer.

c. Place and compact fill in (maximum) 300 mm thick loose lifts and compact each lift of material to a minimum of 95% of the maximum dry density as measured by ASTM D698 (Standard Proctor Density, SPD).

3.4 FILTER LAYER

a. Use Filter material as specified by the Engineer.

b. Place in 300 mm thick loose lifts and tamp to form a smooth, consistent and firm surface.

3.5 CULVERT BACKFILL

Culvert Pipe Zone Granular Backfill Material – pipe zone granular backfill material shall consist of filter material or equivalent.

A mixture of 10% bentonite and granular backfill materials, by dry weight, shall be used to construct end plugs on either end of the culvert installation.

Culvert Pipe Materials – the drainage culvert pipes shall be 600 mm diameter, lock-seam, galvanized corrugated steel pipe (CSP). The CSP culvert pipe body shall have helical corrugations, while the culvert pipe ends shall have annular corrugations. The CSP culvert pipe shall be made from 2 mm thick galvanized steel. All CSP culvert pipe fittings shall be galvanized and shall be compatible with the pipe type and end treatments.

Culvert Subgrade And Site Preparation - the contractor shall ensure that the ground surface and the general area of the culvert installation is suitably prepared prior to the commencement of the installation of the pipe culvert.

Culvert Pipe Zone Granular Backfill Material Placement – pipe zone granular backfill material shall be used for culvert pipe bedding. Pipe zone granular backfill shall be placed in uniform lifts not to exceed 125 mm thick throughout the culvert pipe zone. Pipe zone granular backfill material shall be placed, spread and levelled in uniform lifts using suitable equipment and construction methods.

The placement of pipe zone granular backfill material shall only be initiated when the owner and his representative have approved the condition of the foundation soils at the base (invert) of the existing drainage ditch.

Culvert Pipe Installation – install the culvert pipe at the locations shown on the drawings. Install the culvert pipe so that the end of the culvert pipe extends 1.0 m beyond the toe of slope of the access road random fill/pipe zone backfill through the ditch section.

Culvert Random Fill Material Placement – random fill above the pipe zone shall be dumped and spread in loose lifts/layers not to exceed 0.45 m thick. Random fill materials shall be placed, spread and levelled in uniform lifts on a continuous basis using suitable equipment and construction methods.

The contractor shall ensure that there is a minimum of 1.2 m of total cover over the crown of the culvert pipe prior to using heavy construction equipment.

Culvert Pipe Zone Granular Material Compaction – the contractor shall compact each pipe zone granular backfill material lift with a combination of personnel operated and self-propelled compaction equipment that is capable of providing sufficient static or dynamic force to achieve a density of a minimum of 95% of the standard proctor density. Compaction of pipe zone granular material shall not cause damage to the culvert pipe or cause the culvert pipe to displace horizontally or vertical.

Culvert Pipe Random Fill Compaction – the contractor shall compact each random fill lift with a minimum of four passes with self-propelled compaction equipment that is capable of providing sufficient static or dynamic force to adequately consolidate the soil materials to form a stable access road/ditch culvert pipe embankment fill. The contractor shall ensure that there is a minimum of 1.2 m of total cover over the crown of the culvert pipe prior to using heavy construction equipment.

Culvert Pipe Installation Alignment And Grade – the culvert pipes for ditch crossings shall be installed on an alignment that is coincident with the centreline of the ditch and at a grade that allows for the unimpeded, efficient movement of water along the drainage ditch without significant ponding at either end of the pipe culvert.

END OF SECTION

1 GENERAL

1.1 SECTION INCLUDES

- Scope of Work;
- Drawings;
- Description of Work;
- Use of Site;
- Mobilization and Start Up;
- Existing Services;
- Superintendence;
- Examination;
- Work by Others;
- Restoration;
- Record Documents;
- Water Control;
- Erosion and Sediment Control;
- Dust and Particulate Control;
- Demobilization; and
- Health and Safety.

1.2 RELATED SECTIONS

- Section 01 13 00 – Surveying; and,
- Section 31 14 11 – Earthworks.

2 GENERAL INSTRUCTIONS

2.1 SCOPE OF WORK

Works to be performed under the specified conditions include construction of the Stormwater Management Plan in accordance with the Drawings presented in Table 1 and these Specifications.

2.2 DRAWINGS

a. Drawings issued with and forming part of this Report, and complementing these Specifications are listed below.

b. Perform the works in accordance with these Drawings and associated Specifications. Where conflict exists between the Drawings and Specifications, immediately request clarification from the Engineer.

c. Revised Drawings may be issued from time to time by the Engineer and such Drawings will supersede previous versions.

TABLE 1
DRAWINGS

Existing Conditions	Drawing 1	Current Site conditions (before development).
Expansion Plan	Drawing 2	Stockpile area after the expansion.
Plan View – Stormwater Management Plan	Drawing 3	Plan View of the Pond with details.

2.3 DESCRIPTION OF WORK

The works include but are not limited to, the following:

a. Mobilization, start-up and demobilization of construction equipment;

b. General excavation of pond;

c. General filling and grading of the coal stockpile area;

d. Excavation of the perimeter exfiltration ditch;

e. Installation of the overflow culvert; and,

f. Lining of the ditch, pond and stockpile area.

The overall expansion of Lafarge's Texada facility staging area is not included in this scope.

2.4 USE OF SITE

a. When unfavorable conditions exist, discontinue operations and work that may be adversely affected by such conditions. Do not construct or cause to be constructed any portion of the works under conditions which would adversely affect the quality of the works, unless special means or precautions are taken to perform the works in a proper and satisfactory manner.

b. Maintain adequate facilities for storage of materials, tools and equipment which are subject to damage by weather.

2.5 MOBILIZATION AND START-UP

a. Ensure planned activities are consistent with existing regulatory approvals.

b. Perform planning and scheduling activities as required for the performance of the works.

c. Purchased materials, mobilized equipment and supplies are incidental to the Site.

d. Use the existing Site access roads to the designated work areas during mobilization. Complete improvements to roads as required.

e. Confining equipment, storage of materials and operation to work in areas designated by the Owner. Do not unreasonably encumber the Site with construction equipment or other materials and equipment.

2.6 SUPERINTENDENCE

Provide all necessary superintendence during the execution of the works. Employ and assign to the works a competent and authorized individual, herein referred to as the Superintendent, who shall be responsible for supervision, inspection and direction of the works. The Superintendent will have responsibility and authority over the Site activities. Upon request, the Engineer will confirm instructions in writing. The superintendent shall be available to the works and the Site at all times during execution of the works.

2.7 EXAMINATION

a. Inspect the Site to review and establish the condition of the area of the works including existing buildings, wells, trees and other plants, grassed areas, fencing, service poles,

wires, paving, and survey bench marks or monuments on or adjacent to the Site which may be affected by the works.

b. Provide ongoing review, inspection, and attendance during performance of the works to properly document conditions. Promptly note any existing conditions at the Site affected by the works which may require restoration, repair, or replacement. Do not cover up any of the works prior to the appropriate testing and verification.

c. Protect existing Site structures and facilities from damage while work is in progress and repair any damage resulting from the works.

d. Verify that existing Site conditions and substrate surfaces are acceptable for subsequent work.

2.8 WORK BY OTHERS

Activities will be coordinated with other Contractors when they are incorporated into the works. If any part of the works under this design Specification depends on the proper execution or result upon the work of another Contractor, report promptly to Owner, in writing, any defects which may interfere with proper execution of the works.

2.9 RESTORATION

a. Except where specifically required otherwise by other Specification sections, restore areas affected by the performance of the works to match the condition of similar adjacent, undisturbed areas.

b. Ensure that restored areas match prescribed grade and surface drainage characteristics, except as otherwise specified, and ensure a smooth transition from restored surfaces to existing surfaces.

c. Utilize construction methods and procedures during the performance of the works which keep the disturbance and damage of whatever existing nature to the practical minimum.

2.10 RECORD DOCUMENTS

a. Maintain on Site, one set of the following documents:

   i. Drawings;

   ii. Specifications;

iii. QA/QC requirements summary sheet; and,

iv. QA/QC testing results.

b. Maintain a record of execution of the works, including all approved changes. Ensure entries are complete and accurate, enabling future reference.

c. Record information concurrent with construction progress.

2.11 WATER CONTROL

a. Maintain excavations free of water. Provide, operate, and maintain necessary equipment appropriately sized to keep excavations, and other work areas free from water.

b. Transfer water into local depressions that are located entirely within the boundaries of the Site. Water shall not be released to the surrounding watershed unless testing shows that the water quality meets the surface water discharge criteria.

2.12 EROSION AND SEDIMENT CONTROL

a. Plan and execute construction by methods to control surface drainage from cuts and fills, from stockpiles, and other work areas. Prevent erosion and sedimentation.

b. Provide and maintain temporary measures to prevent erosion and migration of silt and sediment off of the Site.

2.13 DUST AND PARTICULATE CONTROL

Provide and maintain dust and particulate control measures such as a water misting system as required to prevent the generation of dust and particulate.

2.14 HEALTH AND SAFETY REQUIREMENTS

a. Complete works in accordance with the Health, Safety and Environmental Plan to be provided by Owner.

b. Implement construction activities in accordance with Occupational Health and Safety (OH&S) legislation of the Province of British Columbia.

c. The Superintendent is responsible for ensuring that all employees comply with the health and safety policies on the Site.

END OF SECTION

1 GENERAL

1.1 SECTION INCLUDES

This section includes all surveying work in support of stormwater management plan construction activities.

2 GENERAL INSTRUCTIONS

2.1 SCOPE OF WORK

a. Work to be performed includes surveying of the works as directed by these Specifications and as directed by the Engineer.

b. The term "Surveyor" may be used to refer to and individual surveyor, or a surveying company, provided in relation to the survey requirements to execute the works.

c. The Owner will supply benchmarks and control points required for vertical and horizontal control. The Surveyor will be provided with this information prior to mobilizing to the Site. All other staking and survey control after the initial set of control points shall be the responsibility of the Surveyor.

d. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

e. Should work be suspended for any reason, complete a detailed survey of the condition of the works at the time of work suspension and submit it to the Engineer.

2.2 COMPETENCE AND AVAILABILITY

a. The Surveyor shall be selected based on competency and availability to the Site. The Surveyor shall be experienced in completing survey work in support of earthworks projects.

b. The Surveyor shall be provided with a minimum of 24 hours of notice prior to the expected time the Surveyor is required to be on the Site.

c. The Surveyor shall be available to the Site at all times, provided the request for services is submitted in a timely manner (i.e. minimum of 24 hours of notice). The Surveyor shall provide a competent replacement to the Site in the event that the Surveyor is not available so as not to cause a delay to the works. It is the responsibility of the Surveyor to provide the replacement with the relevant information to the works, including, but not limited to:

design drawings, coordinate system, control points, Site contacts, data labeling format and background information related to the work already completed.

d. The Surveyor shall make all reasonable efforts to accommodate to the request for services. If the Surveyor is not able to provide service on the requested date, and no replacement is found, the Engineer shall be informed immediately.

2.3 FIELD SURVEYING

a. Verify locations of survey control points prior to starting work. Promptly notify the Engineer of any discrepancies discovered.

b. Locate, preserve, and protect survey control and reference points as set or established. Promptly replace the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

c. Maintain a complete and accurate log of control and survey work as it progresses.

3 PART 3 EXECUTION

3.1 GENERAL

a. Prior to the commencement of work, the Surveyor and Engineer shall develop a list of the minimum expected surveying requirements for the associated works.

b. Prior to the commencement of work, the Surveyor, Owner and the Engineer shall develop a list of milestones, which will require submission of survey data to verify grades, elevations and alignment.

c. All data recorded by the Surveyor shall be neat and orderly such that it is easily transferred, and so the Engineer may interpret the data in a timely manner. The Surveyor may record any number of shots as requested or required by the Surveyor, the Owner or the Engineer; however, these survey points shall not be included with the as-built package of survey points if not required by Section 3.2 of this Specification.

d. All discrepancies shall be immediately reported to the Engineer. Works that would be affected by the discrepancy shall not be completed until the discrepancy has been clarified to the satisfaction of the Engineer.

3.2 SURVEY DATA REQUIREMENTS

a. The following provides information on the minimum survey data required for completion of the as-built package following completion of the works:

   i. An initial survey has been completed to capture the existing conditions prior to the commencement of the works. The initial survey covers all areas where existing condition are to be disturbed or constructed upon. The purpose of the initial survey is to reconcile construction volumes upon completion of the works and to verify the survey information used for design.

   ii. Upon completing the stockpile area and pond, complete a detailed survey in a maximum 20 m x 20 m spaced grid to confirm the elevations and geometry, which includes a survey of all break points to show the limits and depth of pond.

   iii. Once the culvert has been placed and the diversion ditch has been excavated, complete a detailed survey to confirm locations and grades.

b. All data points shall be clearly labeled. If the Surveyor has a preferred legend for labeling data, the legend must be approved by the Engineer prior to use.

c. Survey data shall be made available to the Engineer to verify grades, elevations, geometries, thicknesses or any other component of the works as requested by the Engineer. The Engineer shall be provided with a minimum 48 hours of notice of the incoming information. At a minimum, the survey data as described within this Specification shall be organized and provided to the Engineer.

END OF SECTION

KREATOR
EQUIPMENT & SERVICES INC.

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L9W 2Z3 Canada
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19633 98A Ave
Langley, BC V1M 3G5
CANADA

Mr. Brad Kohl,

Please find attached the technical scope of the shoreline conveyor system for Texada Island.

The scope of work for Kreator is to Design, Engineer, Build, Transport and Install a system to unload 8,000 metric ton barges and convey the material to the storage area for future shipping and / or to load the ship loader directly. The material being handled is Powder River Basin Coal; the weight is 44 lbs. per cubic foot. The material will be unloaded by two Crawler Mounted Material Handlers with 8m^3 clam style buckets. The material handlers will gather the material from the barge and load it into the hoppers located on the unload barge system. The barge will be equipped with a conveyor system and loading hoppers to deliver the material to the shore line conveyor system. The shore line conveyor system will have the ability to take the material to the storage yard allowing the coal storage area to be reloaded and / or be sent directly to the ship loader.

It is pertinent to note the following points when considering the system design:

a. All belts are 440PIW ¼" x 1/8" grade 2 flame resistant belting.
b. All transfer points are enclosed to minimize fugitive dust.
c. Dust suppression systems have been incorporated into the design at critical transfer points.
d. The system will tie into the existing 60" ship loading conveyor at the existing ship loading conveyor reload hopper.
e. Lafarge will upgrade the existing ship loading conveyor to 60" grade 2 flame resistant belting.
f. The existing piles will be used to secure the unloading barge. No reconfiguration of the existing shoreline is required.
g. The coal will be stored on the existing material storage pad.
h. The design has incorporated the location of the existing ground-water monitoring wells.
i. The design has been developed to remain complimentary to the existing environmental management and material handling best practice currently applied on Texada Island.
j. The design has considered that all material coming from Powder River Basin will be coated with a Dust Suppressant agent and, when seasonal conditions require, an Anti-Oxidant agent for spontaneous combustion management.
k. The design has been validated with operational site visits to a source mine in Powder River Basin, Montana to consider the handling process, material composition and the application of dust suppressant and anti-oxidant agents.

Regards,

Wm. Keith Miles
KREATOR

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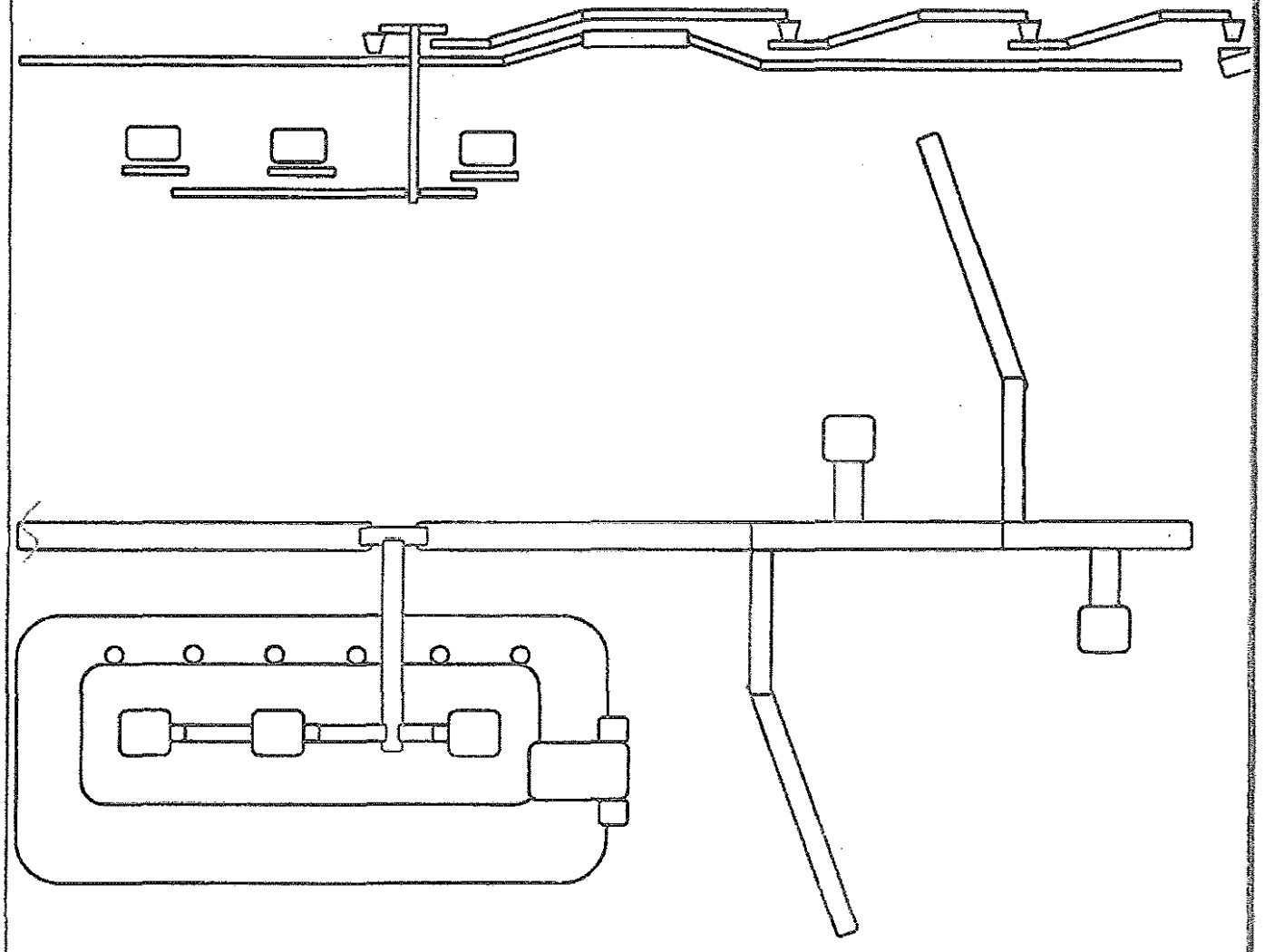
Attn: Lincoln Kyne – lincilon.kyne@lafarge-na.com Eric Anderson – eric.anderson@lafarge-na.com

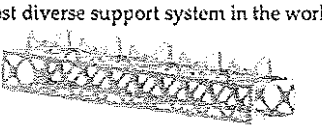
Lafarge Texada - 120425KM1R12 - Coal Trans Shipping Project



Quote Summary:

Design, Engineer, Build, Transport and Install a system to unload 8,000 metric ton barges and convey the material to the storage area for future shipping and / or to load the ship loader directly. The material being handled is Powder River Basin Coal; the weight is 44 lbs. per cubic foot. The material will be unloaded by an excavator like material handler with a 6 to 8 yard clam style bucket. The material handler will gather the material from the barge and load it into the hoppers located on the unload barge system. The barge will be equipped with a conveyor system and loading hoppers to deliver the material to the shore line conveyor system. The shore line conveyor system will have the ability to take the material to the storage yard allowing the coal storage area to be reloaded and / or be sent directly to the ship loader.

The success of this project will be based on a well understood scope between both parties.
If anything is unclear please indicate what it is and we will send you a revision for final approval.
Thank you for the interest in our company.



Equipment Summary:

Barge System:

Equipment No. CC1 (60" x 160' @ 800fpm Horizontal Think System Channel Conveyor).

Equipment No. CC2 (60" x 60' @ 800fpm Horizontal Think System Channel Conveyor).

Equipment No. CC3 (60" x 140' @ 800fpm Inclined Think System Truss Conveyor).

Equipment No. HP1 (20' x 20' load hopper c/w relieving angle bottom and 60 degree sides).

Equipment No. HPC2 48" x 24' feeder cartridge set on a constant speed of 120fpm with a 35:1 307SMTP and 25HP motor

Equipment No. HP2 (20' x 20' load hopper c/w relieving angle bottom and 60 degree sides).

Equipment No. HPC2 48" x 24' feeder cartridge set on a constant speed of 120fpm with a 35:1 307SMTP and 25HP motor

Equipment No. HP3 (20' x 20' load hopper c/w relieving angle bottom and 60 degree sides).

Equipment No. HPC2 48" x 24' feeder cartridge set on a constant speed of 120fpm with a 35:1 307SMTP and 25HP motor

Barge Switch Gear and Lock Out Room

Shore Line System:

Equipment No. CC4 (60" x 40' @ 800fpm Horizontal Think System Reversible Conveyor).

Equipment No. CC5 (60" x 40' @ 800fpm Truss section, shore line truck feed conveyor).

Equipment No. CC6 - 60" x 435' @ 800fpm Horizontal Think System Channel Conveyor that will be directional to the stock pile area from the barge main transfer.

Equipment No. CC7 - 60" x 200' 800fpm Horizontal Think System Channel Conveyor that will be directional to the stock pile area from the barge main transfer.

Equipment No. CC8 - 60" x 210' 800fpm Horizontal Think System Channel Conveyor that will be directional to the stock pile area from the barge main transfer.

Two re-feed points that will sit over the 60" conveyor on (CC6,7,8)

Two re-feed points that will sit over the 60" conveyor (CC7)

Equipment No. CC9 - 60" x 1200' - 800fpm Horizontal Think System Channel Conveyor that will be directional from the stock pile area to the ship loader .

Equipment No. CC10 & CC11 - Two (2) 60" x 60' Portable Feeders (Pit Portable)

Equipment No. CC12 & CC13 - Two (2) 60" x 60' jump conveyors (Pit Portable)

Equipment No. CC14 & CC15 - Two (2) 60" x 125' stackers Truss Pit Portable

Control Tower and Switch Gear Tower (20' x 8')

KREATOR EQUIPMENT & SERVICES INC.

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Barge System:

Equipment No. CCI 60" x 160' @ 800fpm Horizontal Think System Channel Conveyor. HP2 and HP3 conveyor on the barge.

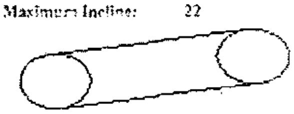
Specific Specification:
This conveyor will be mounted to the deck of the barge at a height of 40" to 48".
The conveyor components will have 35 degree rollers.
The conveyor will be galvanized.
The tail section will be a wing pulley c/w tail guard.
The head section will come complete with a martin QC1 belt scraper
The head section will come complete with a transition chute to the next conveyor
The electrical on this conveyor will be done back to the control room switch gear.
The conveyor is supplied for site assembly.
Return roller guards included
The belting will be 440PIW 1/4" x 1/8" x 60" grade 2 Flame resistant belting
Vulcanized splice

Generic Specification:
Kreator integral channel design.
The entire main frame of this system is an engineered to structurally withstand forces from X,Y,Z axis. This is not typical in the industry, as a conventional truss designs are engineered to withstand forces from X,Y axis and do a lesser job with the Z axis forces. During flex fatigue failure and catastrophic failure a truss assemble will twist prior to failure, prevent the twist prevent the failure.
Our side plates are laser cut and formed with a calculated corner radius to maximize the twisting resistance of the system
Having the side segments be in one piece 20' long and 8" deep allow us maximum flexibility the side plates have incremental hole spacing throughout the side, top and bottom for mounting idlers, e stop brackets, belt loops, hoods, electrical supports, impact beds, safety guarding, etc. This conveyor is designed so that any field fitting is a bolt on assembly, no expensive damaging field welding required.
The lateral and transverse members of the system are made up of 2" schedule 40 106B pipe with a standard Kreator designed bolted connection. The connection is jointed at the perfect junction to eliminate stress dissipation in the joints, but rather distribute the stress for load sharing.
The system can be purchased as a kit for field erection
Fits into sea containers and is limited on weight before volume like conventional truss assemblies
The majority of the components are interchangeable and reversible for ease of assembly
The design is engineered to ensure proper coating of the materials prior to assembly. This allows for a holiday free coating.
The standard coating is galvanized transverse and lateral supports, and optional painted or galvanized sides.
Our standard color is Orange, although we will paint it to your company color. (optional)
This truss system is engineered for applications in military bridging, municipal walkways due to its cosmetically pleasing appearance. Relieve bridging in catastrophic weather relieve, flood shoring, dynamic load supports, vertical static load supports. The system can be stacked vertically and horizontally to achieve any width and length.
Vertical support columns will be constructed of 4" formed channel or equivalent.
Conveyor to have a walkway down both sides. Right hand side will be tied in to the off load hopper walkway, and the left will be straight down to the tail of the conveyor.

Drive Calculations:
V-Belt drives adjusted to reflect ½" lagging on head/drive pulley. If other than ½" used we can adjust.

CCI Barge Conveyor – 60" x 160'

Materials		Inputs	Tension Summary
Coal Kreator		Belt Width: 60 in	Te: 1969 lbs.
Repose:	38 deg	Belt Speed: 800 fpm	T-1: 3990 lbs
Surcharge:	25 deg	Capacity: [illegible]	T-2: 2021 lbs.
Density:	44 lb/ft³	Length: 160 ft	T-t: 2065 lbs.
Maximum Incline:	22	Lift: [illegible]	T-tu: 2065 lbs.
		Incline: [illegible]	T-head: 3990 lbs.
		TU Weight: [illegible]	Start Torque: 196 ft*lb.
		Skirtboard: [illegible]	HP: 60 hp
		Min tension: [illegible]	Demand HP: 52 hp
Location of Gtu:	0 from tail	# Plows: 1	% Loaded: 67 %
Location of Drive:	160 from tail	# Scrapers: 1	
		% Belt PIW: 15 %	Theoretical Capacity: 3281 tph
		Belt Selection: 440 PIW	
		Idler Type: E7	



Reducer Information

Motor Type: Hostile Duty	Shaft mount reducer: 307SMTP05	Driver Sheave:	Belt Qty: 3
Motor RPM: 1750	Torque Arm Kit: 307TAP-H	Driver Bushing: B 2 3/8	V-Belt Svc Factor: 1.3
Motor: H60P2E	Shaft mount bushing: 307TBP215	Driven Sheave: 3B5V124	Reducer Svc Factor: Class 2 1.4 SF
Motor Base: MB215-307	Backstop: N/A	Driven Bushing: B 2	Mechanical SMTP HP: 93 91182
Motor Base Adapter: MMA307	Fan Kit: N/A	Belts: 5VX1030	BG Mnt: 307BGMKPT
Motor Base Support: MMS307H	Belt Guard: BGP24 24-38		

The success of this project will be based on a well understood scope between both parties.
If anything is unclear please indicate what it is and we will send you and revision.
Thank you for the interest in our company.

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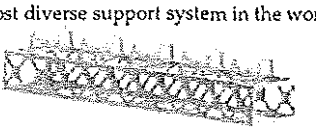

Pulley Information

Location	Pulley Diameter	Face Width	Shaft Diameter	Bearing Journal	Drive Journal	Shaft Length	Lagging	Wrap
Drive	12	63	4-7/16	3-7/16	2-15/16	106	Yes	180
Tail	12	63	3-15/16	2-15/16		87		180

Pulley design is based on CEMA standards. Contact pulley manufacturer for exact pulley design, dimensions and load capacity.

Equipment No. CC2 60" x 60' @ 800fpm Horizontal Think System Channel Conveyor. HP1 conveyor on the barge.

Specific Specification:
This conveyor will be mounted to the deck of the barge at a height of 40" to 48".
The conveyor components will have 35 degree rollers.
The conveyor will be galvanized.
The tail section will be a wing pulley c/w tail guard.
The head section will come complete with a martin QC1 belt scraper
The head section will come complete with a transition chute to the next conveyor
The electrical on this conveyor will be done back to the control room switch gear.
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Return roller guards included
The belting will be 440PIW 1/4" x 1/8" x 60" grade 2 Flame resistant belting
Vulcanized splice

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Our side plates are laser cut and formed with a calculated corner radius to maximize the twisting resistance of the system
Having the side segments be in one piece 20' long and 8" deep allow us maximum flexibility the side plates have incremental hole spacing throughout the side, top and bottom for mounting idlers, e stop brackets, belt loops, heeds, electrical supports, impact beds, safety guarding, etc. This conveyor is designed so that any field fitting is a bolt on assembly, no expensive damaging field welding required.
The lateral and transverse members of the system are made up of 2" schedule 40 106B pipe with a standard Kreator designed bolted connection. The connection is jointed at the perfect junction to eliminate stress dissipation in the joints, but rather distribute the stress for load sharing.
The system can be purchased as a kit for field erection
Fits into sea containers and is limited on weight before volume like conventional truss assemblies
The majority of the components are interchangeable and reversible for ease of assembly
The design is engineered to ensure proper coating of the materials prior to assembly. This allows for a holiday free coating.
The standard coating is galvanized transverse and lateral supports, and optional painted or galvanized sides.
Our standard color is Orange, although we will paint it to your company color. (optional)
This truss system is engineered for applications in military bridging, municipal walkways due to its cosmetically pleasing appearance. Relieve bridging in catastrophic weather relieve, flood shoring, dynamic load supports, vertical static load supports. The system can be stacked vertically and horizontally to achieve any width and length.
Vertical support columns will be constructed of 4" formed channel or equivalent.
Conveyor to have a walkway down both sides. Right hand side will be tied in to the off load hopper walkway, and the left will be straight down to the tail of the conveyor.

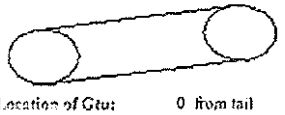
Drive Calculations:

CC2 Barge – 60" x 60'

Material:

Coal Kreator

Repose:	38 deg
Surcharge:	25 deg
Density:	44 lb/ft³
Maximum Incline:	22 lb/ft³



Location of Gtu:	0 from tail
Location of Drive:	60 from tail

Inputs

Belt Width: [illegible]	
Belt Speed: [illegible] fpm	
Capacity: [illegible] tph	
Length: 60 ft	
Lift: 0 ft	
Incline: 0 %	
Tt Weight: 4129	
Sidebeard: 10	
Min temp: 32 F	
# Plows: 1	
# Scrapers: 1	
% Belt PIW: 14 %	
Belt Selection: 440 PIW	
Idler Type: E7	-

Tension Summary

Te: 1519 lbs.	
T-1: 3568 lbs	
T-2: 2048 lbs.	
T-t: 2065 lbs.	
T-tu: 2065 lbs.	
T-head: 3568 lbs.	
StartTorque: 131 ft*lb.	
HP: 50 hp	
Demand HP: 40 hp	
% Loaded: 67 %	
Theoretical Capacity: 3281 tph	

Reducer Information

Motor Type: Hostile Duty | Shaft mount reducer: 307SMTP05 | Driver Sheave: 3B5V80 | Belt Qty: 3

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If anything is unclear please indicate what it is and we will send you and revision.
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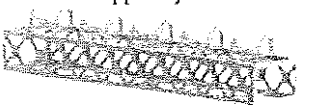

Motor RPM: 1750	Torque Arm Kit: 307TAP-H	Driver Bushing: 3 2 1/8	V-Belt Svc Factor: 1.3
Motor: H50P2E	Shaft mount bushing: 307TBP215	Driven Sheave: 3B5V110	Reducer Svc Factor: Class 2 1.4 SF
Motor Base: MB215-307	Backstop: N/A	Driven Bushing: B 2	Mechanical SMTP HP: 93.91182
Motor Base Adapter: MMA307	Fan Kit: N/A	Belts: 5VX950	BG Mat: 307BGMKPT
Motor Base Support: MMS307H	Belt Guard: BGP20 22-34		

Pulley Information

Location	Pulley Diameter	Face Width	Shaft Diameter	Bearing Journal	Drive Journal	Shaft Length	Lagging	Wrap
Drive	12	63	4-7/16	3-7/16	2-15/16	106	Yes	180
Tail	12	63	3-15/16	2-15/16		87		180

Equipment No. CC3 - 60" x 140' @ 800fpm Inclined Think System Truss Conveyor. Barge to Land conveyor.

Specific Specification:
This conveyor will be mounted to the deck of the barge at the tail at a height of 40" to 48" and go to the land conveyor system at approximately 20' high and mount to the shore line system.
The conveyor components will have 35 degree rollers.
The return rollers will be set on Kreator EZ slide mounts.
The conveyor will be galvanized.
The tail section will be a wing pulley c/w tail guard.
The head section will come complete with a martin QC1 belt scraper
The head section will come complete with a transition chute to the next conveyor
The electrical on this conveyor will be done back to the control room switch gear.
The conveyor is supplied for site assembly.
Return roller guards included
The belting will be 440PIW 1/4" x 1/8" x 60" grade 2 Flame resistant belting
Vulcanized splice

Generic Specification:
Kreator integral channel design.
The entire main frame of this system is an engineered to structurally withstand forces from X,Y,Z axis. This is not typical in the industry, as a conventional truss designs are engineered to withstand forces from X,Y axis and do an lesser job with the Z axis forces. During flex fatigue failure and catastrophic failure a truss assemble will twist prior to failure, prevent the twist prevent the failure.
Our side plates are laser cut and formed with a calculated corner radius to maximize the twisting resistance of the system
Having the side segments be in one piece 20' long and 30" deep allow us maximum flexibility the side plates have incremental hole spacing throughout the side, top and bottom for mounting idlers, e stop brackets, belt loops, hoods, electrical supports, impact beds, safety guarding, etc. This conveyor is designed so that any field fitting is a bolt on assembly, no expensive damaging field welding required.
The lateral and transverse members of the system are made up of 2" schedule 40 106B pipe with a standard Kreator designed bolted connection. The connection is jointed at the perfect junction to eliminate stress dissipation in the joints, but rather distribute the stress for load sharing.
The system can be purchased as a kit for field erection
Fits into sea containers and is limited on weight before volume like conventional truss assemblies
The majority of the components are interchangeable and reversible for ease of assembly
The design is engineered to ensure proper coating of the materials prior to assembly. This allows for a holiday free coating
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Our standard color is Orange, although we will paint it to your company color. (optional)
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Vertical support columns will be constructed of 4" formed channel or equivalent.
Conveyor to have a walkway down both sides. Right hand side will be tied in to the off load hopper walkway, and the left will be straight down to the tail of the conveyor.

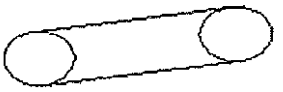
Drive Calculations:

CC3 Barge 60" x 140' barge to shore line system

Material:

Coal Kreator

Repose:	38 deg
Surcharge:	25 deg
Density:	44 lb/ft³
Maximum Incline:	22 I



Location of Gtu:	0 from tail
Location of Drive:	140 from tail

Inputs		Tension Summary	
Belt Width:	60 in	Te:	4549 lbs.
Belt Speed:	800 fpm	T-1:	8189 lbs
Capacity:	7200 tph	T-2:	3639 lbs.
Length:	140 ft	T-t:	3134 lbs.
Lift:	30 ft	T-tu:	3134 lbs.
Incline:	12.37 %	T-head:	8189 lbs.
TU Weight:	6268	StartTorque:	369 ft*lb.
Skirtboard:	10	HP:	125 hp
Min temp:	32 F	Demand HP:	120 hp
# Plows:	1	% Loaded:	67 %
# Scrapers:	1		
% Belt PIW:	31 %	Theoretical	3281 tph.

The success of this project will be based on a well understood scope between both parties.
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Thank you for the interest in our company.

	Belt Selection: 440 PIW Idler Type: E7	Capacity:

Reducer Information

Motor Type: Hostile Duty	Shaft mount reducer: 415SMTP05B	Driver Sheave: N/A	Belt Qty: 0
Motor RPM: 1750	Torque Arm Kit: 415TAP-HB	Driver Bushing: N/A	V-Belt Svc Factor: 1.3
Motor: H125P2F	Shaft mount bushing: 415TBP415B	Driven Sheave: N/A	Reducer Svc Factor: Class 2 1.4 SF
Motor Base: MB407-415	Backstop: 415BSP	Driven Bushing: N/A	Mechanical SMTP HP: 214.582984
Motor Base Adapter: MMA407-415	Fan Kit: N/A	Belts: N/A	BG Met: N/A
Motor Base Support: MMS415H	Belt Guard: N/A		

Note 3: It is your responsibility to select appropriate shaft diameter. Bushing selected only because it has the MAXIMUM bore this reducer will accept. Larger shaft diameter will require larger reducer.

Note 4: Belt guards are available from PTS. and are required by OSHA to be installed on all Belt drives.

Pulley Information

Location	Pulley Diameter	Face Width	Shaft Diameter	Bearing Journal	Drive Journal	Shaft Length	Lagging	Wrap
Drive	14	63	4-15/16	4-15/16	4-15/16	112	Yes	180
Tail	12	63	4-7/16	4-7/16		87		180

Pulley design is based on CEMA standards. Contact pulley manufacturer for exact pulley design, dimensions and load capacity.

Equipment No. HP1 (20' x 20' load hopper c/w relieving angle bottom and 60 degree sides).

Equipment No. HPC2 48" x 24' feeder cartridge set on a constant speed of 120fpm with a 35:1 307SMTP and 25HP motor

Constructed of ¼" SA36 plate steel and 8" x 26 lbs. wide flange beam

Liner to be removable ¼" AR400 liner

Tapered opening in the bottom of the hopper to control the material discharge and prolong skirting life

The feeder hopper will be mounted on 6" male / female pins in opposing corners

Painted orange and grey c/w yellow guarding

Equipment No. HP2 (20' x 20' load hopper c/w relieving angle bottom and 60 degree sides).

Equipment No. HPC2 48" x 24' feeder cartridge set on a constant speed of 120fpm with a 35:1 307SMTP and 25HP motor

Constructed of ¼" SA36 plate steel and 8" x 26 lbs. wide flange beam

Liner to be removable ¼" AR400 liner

Tapered opening in the bottom of the hopper to control the material discharge and prolong skirting life

The feeder hopper will be mounted on 6" male / female pins in opposing corners

Painted orange and grey c/w yellow guarding

Equipment No. HP3 (20' x 20' load hopper c/w relieving angle bottom and 60 degree sides).

Equipment No. HPC2 48" x 24' feeder cartridge set on a constant speed of 120fpm with a 35:1 307SMTP and 25HP motor

Constructed of ¼" SA36 plate steel and 8" x 26 lbs. wide flange beam

Liner to be removable ¼" AR400 liner

Tapered opening in the bottom of the hopper to control the material discharge and prolong skirting life

The feeder hopper will be mounted on 6" male / female pins in opposing corners

Painted orange and grey c/w yellow guarding

Barge Switch Gear and Lock Out Room

10' x 20' container with the required switch gear for the barge

This will allow the barge to have a single line running to shore, with the exception of the communications cables

Air conditioning

Vented

Two man doors c/w windows

Window next to each door

Painted Grey

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Shore Line System

Equipment No. CC4 (60" x 40' - 800fpm Horizontal Think System Reversible Conveyor).

Specific Specification:
This conveyor will be mounted to a frame at a height of 30' so that the system will have the flexibility to load 777D rock trucks off the back side if desired.
The conveyor components will have 20 degree rollers.
The conveyor will be galvanized.

30" truss conveyor under the hopper c/w 20 degree rollers spaced every 12"

Drive to be a 25:1 ratio 307STMP shaft mounted gearbox with a 40HP 575volt 60Hz 1800RPM motor

Guarded both sides

No back stop
The tail section will be a drum pulley c/w guard.
The head section will come complete with a martin QC1 belt scraper on both sides of the conveyor
The head section will come complete with a transition chute to the next conveyor
The electrical on this conveyor will be done back to the control room switch gear.
The conveyor is supplied for site assembly.
Return roller guards included
The belting will be 440PIW 1/4" x 1/8" x 60" grade 2 Flame resistant belting
Vulcanized splice

Generic Specification:
Kreator integral channel design.
The entire main frame of this system is an engineered to structurally withstand forces from X,Y,Z axis. This is not typical in the industry, as a conventional truss designs are engineered to withstand forces from X,Y axis and do an lesser job with the Z axis forces. During flex fatigue failure and catastrophic failure a truss assemble will twist prior to failure, prevent the twist prevent the failure.
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Having the side segments be in one piece 20' long and 8" deep allow us maximum flexibility the side plates have incremental hole spacing throughout the side, top and bottom for mounting idlers, e stop brackets, belt loops, hoods, electrical supports, impact beds, safety guarding, etc. This conveyor is designed so that any field fitting is a bolt on assembly, no expensive damaging field welding required.
The lateral and transverse members of the system are made up of 2" schedule 40 1060 pipe with a standard Kreator designed bolted connection. The connection is jointed at the perfect junction to eliminate stress dissipation in the joints, but rather distribute the stress for load sharing.
The system can be purchased as a kit for field erection
Fits into sea containers and is limited on weight before volume like conventional truss assemblies
The majority of the components are interchangeable and reversible for ease of assembly
The design is engineered to ensure proper coating of the materials prior to assembly. This allows for a holiday free coating
The standard coating is galvanized transverse and lateral supports, and optional painted or galvanized sides
Our standard color is Orange, although we will paint it to your company color. (optional)
This truss system is engineered for applications in military bridging, municipal walkways due to its cosmetically pleasing appearance. Relieve bridging in catastrophic weather relieve, flood shoring, dynamic load supports, vertical static load supports. The system can be stacked vertically and horizontally to achieve any width and length.
Vertical support columns will be constructed of 4" formed channel or equivalent.
Conveyor to have a walkway down both sides. Right hand side will be tied in to the off load hopper walkway, and the left will be straight down to the tail of the conveyor.

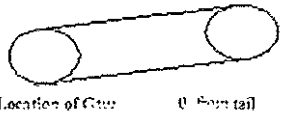
CC4 manual calculations. Lift beyond program scope. Use same drive as CC3. HP required for 30' lift = 67, plus HP for length and speed = 103HP.

CC4 Main transfer conveyor on the shore line system:

Materials

Coal Kreator

Repose:	38 deg
Surcharge:	25 deg
Density:	44 lb/ft³
Maximum Incline:	22



Location of Gate:	0 from tail
Location of Drive:	40 from tail

Inputs

Belt Width:	[illegible]
Belt Speed:	[illegible]
Capacity:	2250 tph
Length:	[illegible]
Lift:	[illegible]
Incline:	[illegible]
Tail Weight:	[illegible]
Skirtboard:	10
Min temp:	32 F
# Plows:	1
# Scrapers:	1
% Belt PIW:	13 %
Belt Selection:	440 PIW
Idler Type:	E7

Torsion Summary

Te:	1427 lbs.
T-1:	3481 lbs
T-2:	2054 lbs.
T-t:	2065 lbs.
T-to:	2065 lbs.
T-head:	3481 lbs.
Start Torque:	117 ft*lb.
HP:	40 hp
Demand HP:	38 hp
% Loaded:	67 %
Theoretical Capacity:	3281 tph

Reducer Information

Motor Type: Hostile Duty	Shaft mount reducer: 215SMTP05	Driver Sheave: 2B5V94	Belt Qty: 2
Motor RPM: 1750	Torque Arm Kit: 215TAP-H	Driver Bushing: B 2 1/8	V-Belt Svc Factor: 1.3
Motor: H40P2E	Shaft mount bushing: 215TBP215	Driven Sheave: 2B5V124	Reducer Svc Factor: Class 2 1.4 SF
Motor Base: MB215-307	Backstop: N/A	Driven Bushing: B 1 7/8	Mechanical SMTP HP: 62.3252912
Motor Base Adapter: MMA215	Fan Kit: N/A	Belts: 5VX1000	BG Mnt: 215BGMKPT

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Motor Base Support: MMS215H

Belt Guard: BGP20 22-34

Pulley Information

Location	Pulley Diameter	Face Width	Shaft Diameter	Bearing Journal	Drive Journal	Shaft Length	Lagging	Wrap
Drive	12	63	4-7/16	3-7/16	2-15/16	103	Yes	180
Tail	12	63	3-15/16	2-15/16		87		180

Pulley design is based on CEMA standards. Contact pulley manufacturer for exact pulley design, dimensions and load capacity.

Bearing Information

	Bore Size	Type	Left Bearing	Qty	Right Bearing	Qty
Drive	3-7/16	Tapered Roller	RPB-307-4	1	ERPB-307-4	1
Tail	2-15/16	Tapered Roller	RPB-215-4	1	ERPB-215-4	1

Equipment No. CC5 (60" x 40' - 800fpm Truss section, shore line truck feed conveyor).

This conveyor will receive from the overflow chute to load trucks if desired. This will allow the trucks to drive in parallel with the system.

Specific Specification:
The conveyor components will have 35 degree rollers.
The conveyor will be galvanized.
The tail section will be a wing pulley c/w tail guard.
The head section will come complete with a martin QC1 belt scraper
The head section will come complete with a transition chute to the next conveyor
The electrical on this conveyor will be done back to the control room switch gear.
The conveyor is supplied for site assembly.
Return roller guards included
The belting will be 440PIW 1/4" x 1/8" x 60" grade 2 Flame resistant belting
Vulcanized splice

Generic Specifications:
Kreator integral truss design.
The entire main frame of this system is an engineered to structurally withstand forces from X,Y,Z axis. This is not typical in the industry, as a conventional truss designs are engineered to withstand forces from X,Y axis and do an lesser job with the Z axis forces. During flex fatigue failure and catastrophic failure a truss assemble will twist prior to failure, prevent the twist prevent the failure.
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The lateral and transverse members of the system are made up of 2" schedule 40 106B pipe with a standard Kreator designed bolted connection. The connection is jointed at the perfect junction to eliminate stress dissipation in the joints, but rather distribute the stress for load sharing.
The system can be purchased as a kit for field erection
Fits into sea containers and is limited on weight before volume like conventional truss assemblies
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Our standard color is Orange, although we will paint it to your company color. (optional)
This truss system is engineered for applications in military bridging, municipal walkways due to its cosmetically pleasing appearance. Relieve bridging in catastrophic weather relieve, flood shoring, dynamic load supports, vertical static load supports. The system can be stacked vertically and horizontally to achieve any width and length.
Vertical support columns will be constructed of 8" formed channel or equivalent.
Conveyor to have a walkway down both sides. Right hand side will be tied in to the off load hopper walkway, and the left will be straight down to the tail of the conveyor.

440PIW 4 Ply belting

CC5 manual calculations. Lift beyond program scope. Use same drive as CC3. HP required for 30' lift 67, plus HP for length and speed = 103HP.

CC5 Truck load conveyor off of the main transfer

Materials

Coal Kreator	
Repose:	38 deg
Surcharge:	25 deg
Density:	44 lb/ft³
Maximum Incline:	22

Inputs

Belt Width:	60 in
Belt Speed:	800 fpm
Capacity:	2200 tph
Length:	40 ft
Lift:	0 ft
Incline:	0 %
TU Weight:	4129
Skirtboard:	10

Tension Summary

Te:	1427 lbs.
T-1:	3481 lbs
T-2:	2054 lbs.
T-t:	2065 lbs
T-tu:	2065 lbs.
T-head:	3481 lbs.
Start Torque:	117 ft*lb
HP:	40 hp

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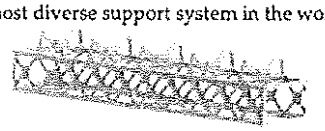

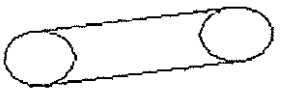

Location of Gtu:	0 From tail	Min temp:	32 F	Demand HP:	38 hp
Location of Drive:	40 from tail	# Plows:	1	% Loaded:	67 %
		# Scrapers:	1		
		% Belt PIW:	13 %	Theoretical Capacity:	3281 tph
		Belt Selection:	440 PIW		
		Idler Type:	E7		

Reducer Information

Motor Type:	Hostile Duty	Shaft mount reducer:	215SMTP05	Driver Sheave:	2B5V94	Belt Qty:	2
Motor RPM:	1770	Torque Arm Kit:	215TAP-H	Driver Bushing:	B 2 1/8	V-Belt Svc Factor:	1.3
Motor:	H40P2E	Shaft mount bushing:	215TBP215	Driven Sheave:	2B5V124	Reducer Svc Factor:	Class 2 1.4 SF
Motor Base:	MB215-307	Backstop:	N/A	Driven Bushing:	B 1 7/8	Mechanical SMTP HP:	62.3252012
Motor Base Adapter:	MMA215	Fan Kit:	N/A	Belts:	5VX1000	BG Mnt:	215BGMKPT
Motor Base Support:	MMS215H	Belt Guard:	BGP20 22-34				

Pulley Information

Location	Pulley Diameter	Face Width	Shaft Diameter	Bearing Journal	Drive Journal	Shaft Length	Lagging	Wrap
Drive	12	63	3-7/16	3-7/16	2-15/16	103	Yes	180
Tail	12	63	3-15/16	2-15/16		87		180

Pulley design is based on CEMA standards. Contact pulley manufacturer for exact pulley design, dimensions and load capacity.

Bearing Information

	Bore Size	Type	Left Bearing	Qty	Right Bearing	Qty
Drive	3-7/16	Tapered Roller	RPB-307-4	1	RRPB-307-4	1
Tail	2-15/16	Tapered Roller	RPB-215-4	1	RRPB-215-4	1

Equipment No. CC6 - 60" x 435' - 800fpm Horizontal Think System Channel Conveyor that will be directional to the stock pile area from the barge main transfer. (800fpm)

Specific Specification:
The conveyor components will have 35 degree rollers.
The conveyor will be galvanized.

30 truss conveyor under the hopper c/w 20 degree rollers spaced every 12"

Drive to be a 25:1 ratio 307STMP shaft mounted gearbox with a 40HP 575volt 60Hz 1800RPM motor

Guarded both sides

No back stop
The tail section will be a drum pulley c/w guard.
The head section will come complete with a martin QC1 belt scraper
The head section will come complete with a transition chute to the next conveyor
The electrical on this conveyor will be done back to the control room switch gear.
The conveyor is supplied for site assembly.
Return roller guards included
The belting will be 440PIW 1/4" x 1/8" x 60" grade 2 Flame resistant belting
Vulcanized splice

Generic Specification
Kreator integral channel design.
The entire main frame of this system is an engineered to structurally withstand forces from X,Y,Z axis. This is not typical in the industry, as a conventional truss designs are engineered to withstand forces from X,Y axis and do an lesser job with the Z axis forces. During flex fatigue failure and catastrophic failure a truss assemble will twist prior to failure, prevent the twist prevent the failure.
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The design is engineered to ensure proper coating of the materials prior to assembly. This allows for a holiday free coating.
The standard coating is galvanized transverse and lateral supports, and optional painted or galvanized sides.
Our standard color is Orange, although we will paint it to your company color. (optional)
This truss system is engineered for applications in military bridging, municipal walkways due to its cosmetically pleasing appearance. Relieve bridging in catastrophic weather relieve, flood

The success of this project will be based on a well understood scope between both parties.
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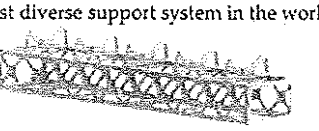

shoring, dynamic load supports, vertical static load supports. The system can be stacked vertically and horizontally to achieve any width and length.
Vertical support columns will be constructed of 4" formed channel or equivalent.
Conveyor to have a walkway down both sides. Right hand side will be tied in to the off load hopper walkway, and the left will be straight down to the tail of the conveyor.

Drive Calculations:
Typical to CC3

Equipment No. CC7 - 60" x 200' - 800fpm Horizontal Think System Channel Conveyor that will be directional to the stock pile area from the barge main transfer.

Specific Specification:
The conveyor components will have 35 degree rollers.
The conveyor will be galvanized.
The tail section will be a wing pulley c/w tail guard.
The head section will come complete with a martin QC1 belt scraper
The head section will come complete with a transition chute to the next conveyor
The electrical on this conveyor will be done back to the control room switch gear.
The conveyor is supplied for site assembly.
Return roller guards included
The belting will be 440PIW 1/4" x 1/8" x 60" grade 2 with Vulcanized splice Flame resistant belting

Generic Specification:
Kreator integral truss design.
The entire main frame of this system is an engineered to structurally withstand forces from X,Y,Z axis. This is not typical in the industry, as a conventional truss designs are engineered to withstand forces from X,Y axis and do an lesser job with the Z axis forces. During flex fatigue failure and catastrophic failure a truss assemble will twist prior to failure, prevent the twist prevent the failure.
Our side plates are laser cut and formed with a calculated corner radius to maximize the twisting resistance of the system
Having the side segments be in one piece 20' long and 30" deep allow us maximum flexibility the side plates have incremental hole spacing throughout the side, top and bottom for mounting idlers, e stop brackets, belt loops, hoods, electrical supports, impact beds, safety guarding, etc. This conveyor is designed so that any field fitting is a bolt on assembly, no expensive damaging field welding required.
The lateral and transverse members of the system are made up of 2" schedule 40 106B pipe with a standard Kreator designed bolted connection. The connection is jointed at the perfect junction to eliminate stress dissipation in the joints, but rather distribute the stress for load sharing.
The system can be purchased as a kit for field erection
Fits into sea containers and is limited on weight before volume like conventional truss assemblies
The majority of the components are interchangeable and reversible for ease of assembly
The design is engineered to ensure proper coating of the materials prior to assembly. This allows for a holiday free coating.
The standard coating is galvanized transverse and lateral supports, and optional painted or galvanized sides.
Our standard color is Orange, although we will paint it to your company color. (optional)
This truss system is engineered for applications in military bridging, municipal walkways due to its cosmetically pleasing appearance. Relieve bridging in catastrophic weather relieve. flood shoring, dynamic load supports, vertical static load supports. The system can be stacked vertically and horizontally to achieve any width and length.
Head section with walkways down both sides to stairs and stairs to grade.
Guarded both sides
440PIW 4 Ply belting

Drive Calculations:
Typical to CC3

Equipment No. CC8 - 60" x 210' - 800fpm Horizontal Think System Channel Conveyor that will be directional to the stock pile area from the barge main transfer.

Specific Specification:
This conveyor will be mounted under the frame of the reversing conveyor and span from the coal storage area to the ship loader.
This conveyor will come complete with a fold or a slide (final decision will come out in the design)
The conveyor components will have 35 degree rollers.
The return rollers will be set on Kreator EZ slide mounts.
The conveyor will be galvanized.
The tail section will be a wing pulley c/w tail guard.
The head section will come complete with a martin QC1 belt scraper
The head section will come complete with a transition chute to the next conveyor
The electrical on this conveyor will be done back to the control room switch gear.
The conveyor is supplied for site assembly.
Return roller guards included
The belting will be 440PIW 1/4" x 1/8" x 60" grade 2 Vulcanized splice Flame resistant belting

Generic Specification:
Kreator integral truss design.
The entire main frame of this system is an engineered to structurally withstand forces from X,Y,Z axis. This is not typical in the industry, as a conventional truss designs are engineered to withstand forces from X,Y axis and do an lesser job with the Z axis forces. During flex fatigue failure and catastrophic failure a truss assemble will twist prior to failure, prevent the twist prevent the failure.
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field welding required.
The lateral and transverse members of the system are made up of 2" schedule 40 106B pipe with a standard Kreator designed bolted connection. The connection is jointed at the perfect junction to eliminate stress dissipation in the joints, but rather distribute the stress for load sharing.
The system can be purchased as a kit for field erection
Fits into sea containers and is limited on weight before volume like conventional truss assemblies
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Head section with walkways down both sides to stairs and stairs to grade.
Guarded both sides
440PIW 4 Ply belting ¼" x 1/8" Grade 2

Drive Calculations:
Typical to CC3

Two re-feed points that will sit over the 60" conveyor on (CC6,7,8)

Constructed of ¼" SA36 plate steel and 8" x 26 lbs. wide flange beam

Liner to be removable ¼" AR400 liner

Tapered opening in the bottom of the hopper to control the material discharge and prolong skirting life

System guarded to local standards

Painted orange and grey c/w yellow guarding

Follow through sides

Equipment No. CC9 - 60" x 1200' - 800fpm Horizontal Think System Channel Conveyor that will be directional front the stock pile area to the ship loader under the main barge transfer.

Specific Specification:
This conveyor will be mounted under the frame of the reversing conveyor and span from the coal storage area to the ship loader.
This conveyor will come complete with a fold or a slide (final decision will come out in the design)
The conveyor components will have 35 degree rollers.
The return rollers will be set on Kreator EZ slide mounts.
The conveyor will be galvanized.
The tail section will be a wing pulley c/w tail guard.
The head section will come complete with a martin QC1 belt scraper
The head section will come complete with a transition chute to the next conveyor
The electrical on this conveyor will be done back to the control room switch gear.
The conveyor is supplied for site assembly.
Return roller guards included
The belting will be 440PIW 1/4" x 1/8" x 60" grade 2 Vulcanized splice Flame resistant belting

Generic Specification:
Kreator integral truss design.
The entire main frame of this system is an engineered to structurally withstand forces from X,Y,Z axis. This is not typical in the industry, as a conventional truss designs are engineered to withstand forces from X,Y axis and do an lesser job with the Z axis forces. During flex fatigue failure and catastrophic failure a truss assemble will twist prior to failure, prevent the twist prevent the failure.
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The lateral and transverse members of the system are made up of 2" schedule 40 106B pipe with a standard Kreator designed bolted connection. The connection is jointed at the perfect junction to eliminate stress dissipation in the joints, but rather distribute the stress for load sharing.
The system can be purchased as a kit for field erection
Fits into sea containers and is limited on weight before volume like conventional truss assemblies
The majority of the components are interchangeable and reversible for ease of assembly
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Head section with walkways down both sides to stairs and stairs to grade.
Guarded both sides
440PIW 4 Ply belting ¼" x 1/8" Grade 2

Drive Calculations:

The success of this project will be based on a well understood scope between both parties.
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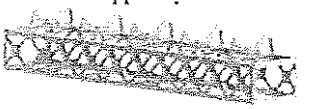


CC9 directional conveyor from the far side of the stockpile area to the Ship loader

Material:

Coal Kreator

Repose:	38 deg
Surcharge:	25 deg
Density:	44 lb/ft³
Maximum Incline:	22

Location of Gtu:	600 from tail
Location of Drive:	1200 from tail

Inputs

Belt Width:	60 in
Belt Speed:	[illegible]
Capacity:	3025 tph
Length:	1200 ft
Lift:	25 ft
Incline:	1.19 %
TU Weight:	9619
Skirtboard:	10
Min temp:	32 F
# Plows:	1
# Scrapers:	1
% Belt PIW:	55 %
Belt Selection:	440 PIW
Idler Type:	[illegible]

Tension Summary

Te:	9746 lbs.
T-1:	14619 lbs
T-2:	4873 lbs.
T-t:	4746 lbs.
T-tu:	4809 lbs.
T-head:	14619 lbs.
StartTorque:	1069 ft*lb.
HP:	300 hp
Demand HP:	[illegible] hp
% Loaded:	92 %
Theoretical Capacity:	[illegible] tph

No shaft mount solution found

Pulley Information

Location	Pulley Diameter	Face Width	Shaft Diameter	Bearing Journal	Drive Journal	Shaft Length	Lagging	Wrap
[illegible]	[illegible]	63	5-15/16	4-15/16	None	0	Yes	180
Tail	12	63	4-15/16	3-15/16		87		180
Bend 1	16	63	4-7/16	3-7/16		87		90
Bend 2	16	63	4-7/16	3-7/16		87		90
TakeUp	12	63	5-15/16	3-15/16		87		180

Pulley design is based on CEMA standards. Contact pulley manufacturer for exact pulley design, dimensions and load capacity.

Bearing Information

	Bore Size	Type	Left Bearing	Qty	Right Bearing	Qty
Drive	4-15/16	Tapered Roller	RPB-415-4	1	ERPB-415-4	1
Tail	3-15/16	Tapered Roller	RPB-315-4	1	ERPB-315-4	1
Bend 1	3-7/16	Tapered Roller	RPB-307-4	1	ERPB-307-4	1
Bend 2	3-7/16	Tapered Roller	RPB-307-4	1	ERPB-307-4	1
TakeUp	3-15/16	Tapered Roller	RPB-315-4	1	ERPB-315-4	1

This solution is based on the use of PTS Components. Substitution of competitive product may result in reduced drive life and/or unsatisfactory performance.

CC10 & CC11 - Two (2) 60" x 60' Portable Feeders (Pit Portable)

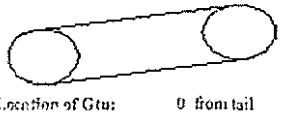
Drive Calculations:

CC10 + 11 Portable Feeders

Material:

Coal Kreator

Repose:	38 deg
Surcharge:	25 deg
Density:	44 lb/ft³
Maximum Incline:	22 lb/ft³



Location of Gtu:	0 from tail
Location of Drive:	60 from tail

Inputs

Belt Width:	60 in
Belt Speed:	[illegible]
Capacity:	3025 tph
Length:	60 ft
Lift:	12 ft
Incline:	11.54 %
TU Weight:	5442
Skirtboard:	10
Min temp:	32 F
# Plows:	1
# Scrapers:	1
% Belt PIW:	24 %

Tension Summary

Te:	3298 lbs.
T-1:	6220 lbs
T-2:	2922 lbs.
T-t:	2721 lbs.
T-tu:	2721 lbs.
T-head:	6220 lbs.
StartTorque:	264 ft*lb.
HP:	100 hp
Demand HP:	[illegible] hp
% Loaded:	92 %
Theoretical	[illegible] tph

The success of this project will be based on a well understood scope between both parties.
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Belt Selection: 440 PIW Capacity:

Idler Type: E7

Reducer Information 286 RPM

Motor Type: Hostile Duty	Shaft mount reducer: 407SMTP05B	Driver Sheave: N/A	Belt Qty: 0
Motor RPM: 1750	Torque Arm Kit: 407TAP-HB	Driver Bushing: N/A	V-Belt Svc Factor: 1.3
Motor: H100P2E	Shaft mount bushing: 407TBP215B	Driven Sheave: N/A	Reducer Svc Factor: Class 2 1.4 SF
Motor Base: MB407-415	Backstop: 407BSP	Driven Bushing: N/A	Mechanical SMTP HP: 184.196629
Motor Base Adapter: MMA407-415	Fan Kit: N/A	Belts: N/A	BG Mnt: N/A
Motor Base Support: MMS407H	Belt Guard: N/A		

Note 4: Belt guards are available from PTS, and are required by OSHA to be installed on all Belt drives.

Pulley Information

Location	Pulley Diameter	Face Width	Shaft Diameter	Bearing Journal	Drive Journal	Shaft Length	Lagging	Wrap
Drive	12	63	3-15/16	3-15/16	3-15/16	109	Yes	180
Tail	12	63	3-7/16	3-7/16		87		180

Pulley design is based on CEMA standards. Contact pulley manufacturer for exact pulley design, dimensions and load capacity.

Bearing Information

	Bore Size	Type	Left Bearing	Qty	Right Bearing	Qty
Drive	3-15/16	Tapered Roller	RPB-315-4	1	ERPB-315-4	1
Tail	3-7/16	Tapered Roller	RPB-307-4	1	ERPB-307-4	1

CC12 & CC13 - Two (2) 60" x 60' jump conveyors (Pit Portable) The system will have the switch gear and cables installed for four additional jump conveyors for future expansion. These are recommended to be purchased with the system to truly utilize the coal storage footprint.

Drive Calculations:
Typical to CC10 and CC11

CC14 & CC15 - Two (2) 60" x 125' stackers Truss Pit Portable

Drive Calculations:
Typical to CC3

Generic Specifications:
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The system can be purchased as a kit for field erection
Fits into sea containers and is limited on weight before volume like conventional truss assembles
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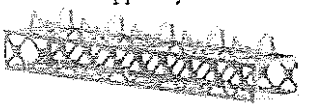

Installation:
The existing conveyor would be removed by the Kreator. Conveyor must be in a Zero Energy State prior to Commencement of work.
Installation of all equipment listed above included

Civil Works:
Form and set rebar
Prepare for the pour
Manage the pour
Final finishing

Electrical:
All conveyors wired back to the control room
Installation of the cables
E stops
Switch gear and set up of the control room
The entire system with be equipped for a double light standard at most transfer points

Control Room and Switch Gear Room:
Two level switch gear room
Sea Can assembly c/w stairs connecting the two
Air conditioning in both
Tower to have a captain's chair and storage
Stairs from the ground
Painted and decaled to match the installation

Conveyor Cross Overs (3) three units supplied:
Stairs up both sides with a walkway across for access

Wm. Keith Miles President & C.E.O.
647 234 7378 519 941 7876 519 941 6240
1 855 KREATOR (573 2867)

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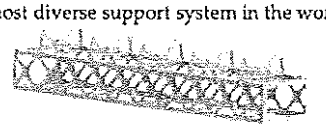

KREATOR Equipment & Services Inc. Standard Terms and Conditions of Sale

1. OFFER AND ACCEPTANCE. This order is accepted on and subject to the following terms and conditions. Seller's acceptance of any offer by Buyer to purchase the merchandise is expressly conditional upon the Buyer's assent to all of the terms and conditions herein, including any terms additional to or different from those contained in the offer to purchase. Seller hereby objects to any different or additional terms or conditions contained in any acceptance by Buyer of any offer made by Seller or in any other documents submitted by Buyer. If the merchandise set forth in the reverse hereof are being provided pursuant to a quotation in writing from Seller, the terms of such quotation shall apply to this sale as they differ from those general conditions of sale and, in all other respects, these general conditions of sale shall govern. The above applies even if Buyer previously submitted a purchase order or other document that limits acceptance by Seller to terms of that purchase order.

2. TAXES. Buyer shall pay all taxes and charges of any nature imposed by any federal, provincial, or local governmental authority by reason of the sale or delivery of the merchandise described herein whether levied or assessed against Seller, Buyer, or the merchandise. Such applicable taxes or charges, if not included in this invoice, shall be invoiced separately.

3. LIMITATION OF LIABILITY AND REMEDY. In no event, whether arising out of breach of contract, warranty or tort shall Seller be liable to Buyer, or to any third party, for any direct, indirect, consequential or incidental damages, including, but not limited to loss of profits or revenues, loss of use of equipment or services furnished by Seller, damage to associated equipment, costs of capital, substitute products, facilities, replacement power or down-tome costs. Buyer assumes all other risks and liabilities for any loss, damage or injury to persons, property, or the environment arising from the use of the equipment. Buyer agrees to identify and hold Seller harmless from all claims, actions, suits, demands, and judgments arising from actions brought under the occupational safety and health act or other governmental regulations or laws. Buyer expressly agrees that the remedies granted to it hereunder are Buyer's sole and exclusive remedies with respect to any claim of Buyer arising under this Contract.

The liability of seller shall not, whether for breach of contract, breach of warranty or any other circumstances exceed the purchase price of the products furnished.

4. TERMINATION. Buyer may cancel its order only with the written consent of Seller and upon terms that will indemnify Seller for any loss, damage and expense arising from such cancellation. Seller may terminate this contract as a result of an act of force majeure as defined in Paragraph 8 hereof, and in such event, Seller shall have no further liability to produce or ship any equipment hereunder and shall have no liability for damages to Buyer or others. If Seller terminates this contract, other than as result of an act of force majeure, Seller's sole liability shall be to use reasonable efforts to obtain similar products from another source at a price not to exceed Seller's quoted price for the equipment.

5. TECHNICAL ADVICE. Seller's warranty shall not be enlarged, and no obligation or liability shall arise out of Seller's rendering of technical advice, in connection with Buyer's order of the equipment. Any technical advice furnished, or recommendation made by Seller or any employee or representative of Seller, concerning any use or application of any equipment or parts furnished under this Contract is believed to be reliable, but Seller makes no warranty, express or implied, of results to be obtained. Buyer shall assume all responsibility for loss or damage resulting from the handling or use of any such equipment or parts in accordance with such technical advice.

6. ASSIGNMENT Buyer shall not assign its rights or obligations under this Contract without Seller's prior written consent. Buyer shall not assert against any assignee of Seller of this Contract (or any part hereof) any claim or defense that it may have against Seller.

7. GOVERNING LAW. The validity, interpretation and performance of the terms and conditions of this Contract shall be governed and construed in accordance with the laws of the Province of Ontario, Canada.

8. FORCE MAJEURE. Seller does not assume the risk of and shall not be liable for failure to perform any obligation relating to the sale of the equipment caused by civil insurrection, war, fire, strike, labor stoppages or other labor disturbances, acts of God, acts or omission of Buyer, acts or omission of the Canadian Government, floods, epidemics, freight embargoes, shortages of fuel, energy or materials, failure of suppliers or subcontractors to satisfactorily meet scheduled deliveries, or any other cause beyond the control of Seller.

9. TIME FOR CLAIMS. Any action by Buyer based on a claim arising out of this Contract must be commenced within in year after the basis for such claim could reasonably have been discovered.

10. ENTIRE AGREEMENT. The terms set forth herein constitute the sole terms and conditions of the contract between Buyer and Seller. No other warranty term, condition or understanding, weather oral or written shall be binding upon Seller, unless hereafter made in writing and signed by Seller's authorized representative.

THANK YOU,

THE KREATOR Team

DISCLAIMER: Information contained in this transmittal or on any attached drawings is confidential; unauthorized use is strictly prohibited. Misappropriation of the information shall make the receiver liable for any and all subsequent damages suffered by Kreator Equipment & Services Inc. and/or its shareholders.

The success of this project will be based on a well understood scope between both parties.
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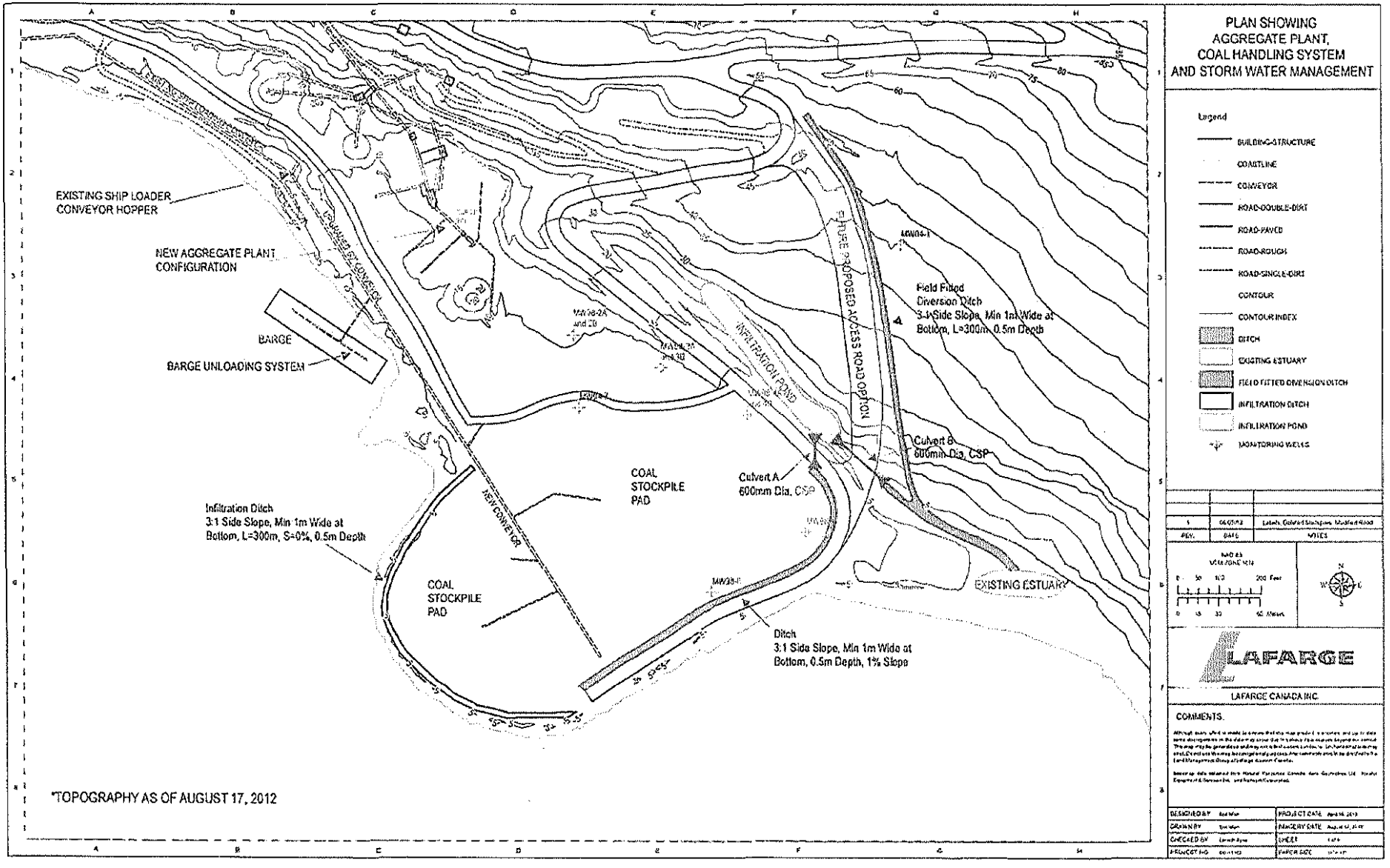
Thank you for the interest in our company.


EXISTING SHIP LOADER CONVEYOR HOPPER
NEW AGGREGATE PLANT CONFIGURATION
BARGE
BARGE UNLOADING SYSTEM
Infiltration Ditch
3:1 Side Slope, Min 1m Wide at
Bottom, L=300m, S=0%, 0.5m Depth
COAL STOCKPILE PAD
COAL STOCKPILE PAD
NEW CONVEYOR
INFILTRATION POND
PHASE 3 PROPOSED ACCESS ROAD OPTION
Field Fitted
Diversion Ditch
3:1 Side Slope, Min 1m Wide at
Bottom, L=300m, 0.5m Depth
Culvert B
600mm Dia. CSP
Culvert A
600mm Dia. CSP
Ditch
3:1 Side Slope, Min 1m Wide at
Bottom, 0.5m Depth, 1% Slope
EXISTING ESTUARY
*TOPOGRAPHY AS OF AUGUST 17, 2012
PLAN SHOWING
AGGREGATE PLANT,
COAL HANDLING SYSTEM
AND STORM WATER MANAGEMENT
Legend
BUILDING-STRUCTURE
COASTLINE
CONVEYOR
ROAD-DOUBLE-DIRT
ROAD-PAVED
ROAD-ROUGH
ROAD-SINGLE-DIRT
CONTOUR
CONTOUR INDEX
DITCH
EXISTING ESTUARY
FIELD FITTED DIVERSION DITCH
INFILTRATION DITCH
INFILTRATION POND
MONITORING WELLS
LAFARGE
LAFARGE CANADA INC.
COMMENTS

June 5, 1990 File: 14745-20

Ideal Cement Company Limited
P. O. Box 160
Vananda, B. C.
VON 3KO

Attention: P. M. Stiles, General Manager

Dear Sir:

Re: Barge and Ship Loading Facilities
Texada Island

Following a referral to other agencies of the proposed use of the existing Texada Mine shipping facility for storing and loading out coal to Panamex size vessels, listed below are some of the requirements.

1. The loading of ships with coal shall be carried out in such a manner as to prevent coal from entering the water or foreshore.

2. Dust suppression equipment such as sprinkling systems to be available to prevent coal or dust from leaving the stockpile area.

3. A berm of limestone or similar material to be installed around the foreshore side of the stockpile with a clear strip being left between the berm and base of the coal stockpile.

Your attention to the aforementioned requirements will be appreciated.

Yours truly,

R. Bone, P. Eng.,
District Inspector of Mines and
Resident Engineer

RB\gp

Government of Canada / Gouvernement du Canada
Fisheries and Oceans / Pêches et Océans

Fisheries Branch
South Coast Division
3225 Stephenson Pt. Rd.
Nanaimo, B.C. V9T 1K3
(604) 756-7270
Fax (604) 758-9600

May 16, 1990

Mr. R. Bone, P. Eng.
Inspector of Mines
Ministry of Energy, Mines and Petroleum Resources
1 A 3411 Shenton Road
Namaimo, B.C.
V9T 2H1

Dear Sir:

RE: BARGE AND SHIP LOADING FACILITIES
IDEAL CEMENT-TEXADA ISLAND

The Department of Fisheries and Oceans reviewed your memo and accompanying letters from Ideal Cement reguarding the above subject and we have no objections to this proposal.

However we request that the following conditions be adhered to:

1: The loading of ships with coal shall be carried out in such a manner to prevent coal from entering the water or foreshore.

2: Dust suppresion equipment such as a sprinkling system should be available to prevent coal or dust from leaving the stockpile area.

Should you require any clarification please call the undersigned at 756-7266.

Yours truly,

B. Lawley

Barry Lawley
Habitat Technician

cc F.O. i/c Powell River

FILE NO.

To: All Vancouver Island Mine
Development Review Committee Members

May 10, 1990

File: 11000-01
204-20

Bob Bone, Eng. & Insp. Branch, Nanaimo
Eric Beresford, Eng. & Insp. Branch, Nanaimo
Jorge Alvarez, Eng. & Insp. Branch, Nanaimo
Paul Pashnik, MOF, Port Alberni
Ted Oldham, Waste Man. Branch, MOE, Nanaimo
Paul Wilton, Applied Geol. Branch, Victoria
Bill Hollingshead, Water Man. Branch, MOE, Nanaimo
Doug Morrison, Fish & Wildlife Branch, MOE, Nanaimo
Darcy Yule, MOF, Campbell River
Gerry Kaspryk, Pol. Analysis, MOAF, Victoria
Barry Lawley, Dept. of Fisheries & Oceans, Nanaimo
Keith Ferguson, Env. Prot. Service, Vancouver
Rik Simmons, MOP, Vancouver Island Region (Parks)
Doug Berry, Vancouver Island Region, MOCL, Victoria
Terry Pollock, Dept. of Highways

RE: Barge and Ship Loading Facilities - Ideal Cement, Texada Island

Please find attached letters from P.M. Stiles regarding transhipment of coal.

The stockpile area is within the mining Permit #M-66 still in existence for the underground mine belonging originally to Texada Mines. The permit does allow for the storing and handling of other products and is specifically stated in the conditions of the permit. However, would you please inform me if you have any comments regarding the proposal.

The loading facility originally handled copper and magnetite concentrates. If you can think of any conditions that may be appropriate please call. I will be requesting that a low-grade limestone berm be erected around the seaward side of the stockpile as a containment structure.

Your prompt reply will be appreciated.

Yours truly,

R. Bone

R. Bone, P. Eng.
Chairman
Vancouver Island MDRC

RB/km

enc.

Ideal Cement Company
Limited

P.O. Box 160
Vanderhoof, British Columbia V0N 3K0
604 689-7627

IDEAL

May 8th, 1990

Mr. R. Bone
Inspector of Mines & Resident Engineer
Ministry of Energy, Mines, & Petroleum Resources
1A, 3411 Shenton Road
NANAIMO, B. C.
V9T 2H1

Re: Reclamation Permit No. M-66

Dear Sir:

I wish to make application under an existing reclamation permit - M-66 - to extend the terms of that permit to include the transhipment of coal. Coal will be received on barges, unloaded at the existing barge ramp and stockpiled. The stockpiled coal will be reclaimed and loaded on ships with the existing ship loader. Repairs of the dock structure, shiploader, and shore facilities are in progress.

The coal stockpile area has been covered with a layer of white limestone which will have three functions:-

1. to act as an indicator when reclaiming coal for shipment,
2. to act as an acid drainage neutralizer should there be any need,
3. to assist in clean-up after the coal handling has ceased. The mixture of limestone and coal remaining will be shipped to a cement plant.

The stockpile is situated on the former Texada Iron Mines tailings pile, more particularly on Lots 606 and 575. It is well removed from private dwellings and private property. The terms of the water lot allow for the "storing of other products as may be handled" hence allowing the handling of coal.

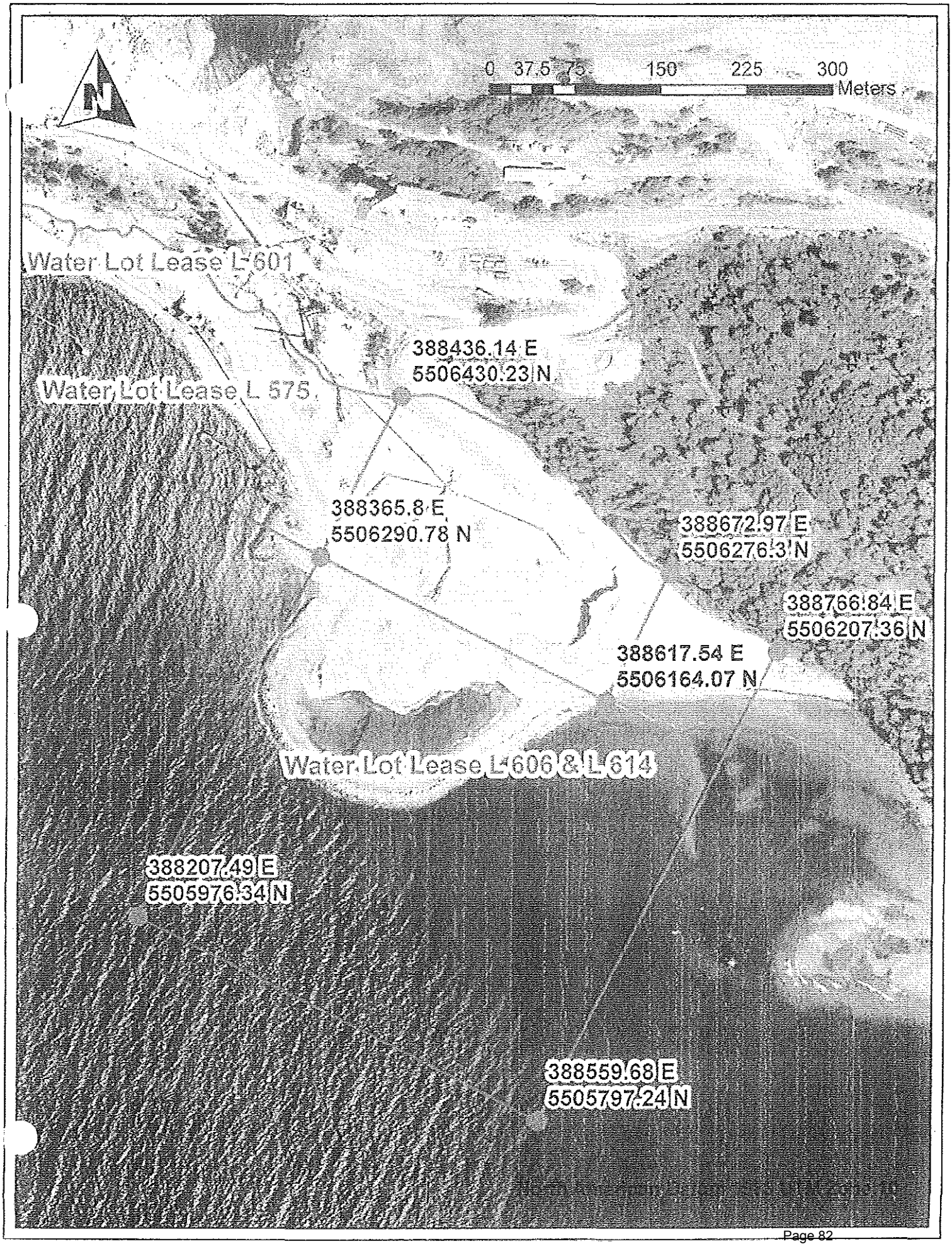
Your attention to this application will be much appreciated, particularly with the time constraints we find ourselves under.

Yours truly,
IDEAL CEMENT COMPANY LTD.

P. M. Stiles
General Manager

PMS:mcs

cc: Mr. R.W. McGinn
Chief Insp of Mines


0 37.5 75 150 225 300
Meters
Water Lot Lease L 601
388436.14 E
5506430.23 N
Water Lot Lease L 575
388365.8 E
5506290.78 N
388672.97 E
5506276.3 N
388766.84 E
5506207.36 N
388617.54 E
5506164.07 N
Water Lot Lease L 606 & L 614
388207.49 E
5505976.34 N
388559.68 E
5505797.24 N

Belfry, Elsie EAO:EX

From: Taje, Eddy EMNG:EX
Sent: May-23-13 9:32 AM
To: Grace, David H EAO:EX
Cc: 'Brad.Kohl@lafarge-na.com'
Subject: Texada information:

Attached is a letter from Brad Kohl, regarding our discussion yesterday. I believe he has answered your questions however I did advise him that he may have to provide additional clarification depending on your review of the letter. As the letter is addressed to whom it may concern please accept that my final conversation with him was after hours and for the life of me, S22 and could not remember who to address the letter  to

LAFARGE

May 23, 2013

Environmental Assessment Office
2nd Floor 836 Yates St
PO Box 9426 Stn Prov Govt
Victoria, BC V8W 9V1

To whom it may concern;

Re: Letter of Amendment to increase Coal Storage on Texada Quarries Ministry of Energy and Mines Reclamation Permit M-66, File 14745-20.

Texada Quarries has made application to the Ministry of Energy and Mines to modify the existing stockpile area for the purposes of handling additional Coal volumes. It was brought to our attention that Texada review Part 8, Table 14, Section 4 under The Reviewable Projects Regulations. Upon review we believe we are exempt from a review based on the Criteria:

1. Texada will not be disturbing $\geq$ 1000m of linear shoreline. Based on the Norwest stormwater management plan submitted, the total will be 300m of modified infiltration ditch.

2. There will be no new land disturb in the amendment. The existing area currently used for a variety of commodities and crushed aggregate will be substituted for Coal storage.

3. As Permit M-66 is a legacy Mines Permit no Environmental Assessment has ever been completed or required by MoEM.

4. New conveyor will be constructed and tied into the existing Ship Loader on site. A ship loader has been in place for over 60 years and was upgraded in the last 6 years bring up to current shipping standards without a requirement for environmental review.

5. Site grading will be enhanced to follow "Best Management Practices" for stormwater used around similar Coal stockpiles.

After careful review, we believe that we meet all the requirements under the Environmental Assessment Act for Reviewable Projects Regulations to carry on with site modifications for increased Coal storage on Texada.

LAFARGE CANADA INC.
19633 98A Avenue, Langley, BC V1M 3G5
Office: (604) 455-6200 Fax: (604) 882-7108
Web: www.lafargenorthamerica.com

If there are any questions or concerns please contact me directly.

Regards,

Brad Kohl
Vice President, Vancouver Aggregates

cc. Ed Taje MoEM

Belfry, Elsie EAO:EX

From: Grace, David H EAO:EX
Sent: May-24-13 1:54 PM
To: 'Brad.Kohl@lafarge-na.com'
Cc: Matsko, Nataliya JTST:EX; Taje, Eddy MEM:EX; 'Paul.Samletzki@lafarge-na.com'
Subject: Re: Texada information:

Hi Brad,

Thank you for clarifying.

Regards,
David

From: Brad.Kohl@lafarge-na.com [mailto:Brad.Kohl@lafarge-na.com]
Sent: Friday, May 24, 2013 11:36 AM
To: Grace, David H EAO:EX
Cc: Matsko, Nataliya EAO:EX; Taje, Eddy EMNG:EX; Brad Kohl <Brad.Kohl@lafarge-na.com>; Paul Samletzki <Paul.Samletzki@lafarge-na.com>
Subject: Re: Texada information:

David,

To confirm our discussion today, foreshore work was approved by the Federal Gov't/Canadian Coast guard in 1978 to infill the existing foreshore. Final inspection was carried out in 1981 and signed off on.

Coal storage was then approved in 1990 by MoEM.

When we scale the past project, which is pre Lafarge, the shoreline disturbance is less than 1000m and created land was less the 2 Hectares of land.

Please let know if this answers any outstanding questions.

Regards,
Brad Kohl Fin, G.S.C | Vice President| Aggregates | Greater Vancouver|Tel (604) 455-6203 | Fax (604) 882-7108
Email Brad.Kohl@lafarge-na.com

From: "Grace, David H EAO:EX" [David.Grace@gov.bc.ca]
Sent: 05/23/2013 04:52 PM MST
To: Brad Kohl
Cc: "Matsko, Nataliya EAO:EX" <Nataliya.Matsko@gov.bc.ca>; "Taje, Eddy EMNG:EX" <Eddy.Taje@gov.bc.ca>
Subject: RE: Texada information:

Brad,

Thank you for this clarification letter.

A follow up question - I am just trying to get a sense of the size of your existing facility.

Can you please confirm whether construction of your existing facility entailed dredging, filling or other direct physical disturbance of

(a) ≥ 1 000 m of linear shoreline, or

(b) ≥ 2 hectares of foreshore or submerged land, or a combination of foreshore and submerged land, below the natural boundary of a marine coastline or marine estuary?

Thank you,
David

David Grace
Project Assessment Manager | BC Environmental Assessment Office
Tel: 250 387-1417 I Fax: 250-387-2208
Cell: s.17 | david.grace@gov.bc.ca

From: Taje, Eddy EMNG:EX
Sent: Thursday, May 23, 2013 9:32 AM
To: Grace, David H EAO:EX
Cc: 'Brad.Kohl@lafarge-na.com'
Subject: Texada information:

Attached is a letter from Brad Kohl, regarding our discussion yesterday. I believe he has answered your questions however I did advise him that he may have to provide additional clarification depending on your review of the letter. As the letter is addressed to whom it may concern please accept that my final conversation with him was after hours and for the life of me, my brain went dead, and could not remember who to address the letter << File: Environmental Assement Review Texada May 2013 (2).pdf >> to

Belfry, Elsie EAO:EX

From: Taje, Eddy EMNG:EX
Sent: May-24-13 1:45 PM
To: Grace, David H EAO:EX
Subject: RE: Texada information:

I know brad replied to this : I have searched our files to try an determine area etc on the old applrovals and no luck. If necessary I can order the archived files from storage, and may be get some better information, but am not sure how that work work, as it was a federal approval and we may not have clearly defined areas.

From: Grace, David H EAO:EX
Sent: Thursday, May 23, 2013 4:52 PM
To: 'Brad.Kohl@lafarge-na.com'
Cc: Matsko, Nataliya EAO:EX; Taje, Eddy EMNG:EX
Subject: RE: Texada information:

Brad,

Thank you for this clarification letter.

A follow up question - I am just trying to get a sense of the size of your existing facility.

Can you please confirm whether construction of your existing facility entailed dredging, filling or other direct physical disturbance of
(a) ≥ 1 000 m of linear shoreline, or
(b) ≥ 2 hectares of foreshore or submerged land, or a combination of foreshore and submerged land, below the natural boundary of a marine coastline or marine estuary?

Thank you,
David

David Grace
Project Assessment Manager | BC Environmental Assessment Office
Tel: 250 387-1417 | Fax: 250-387-2208
Cell s.17 | david.grace@gov.bc.ca

From: Taje, Eddy EMNG:EX
Sent: Thursday, May 23, 2013 9:32 AM
To: Grace, David H EAO:EX
Cc: 'Brad.Kohl@lafarge-na.com'
Subject: Texada Information:

Attached is a letter from Brad Kohl, regarding our discussion yesterday. I believe he has answered your questions however I did advise him that he may have to provide additional clarification depending on your review of the letter. As the letter is addressed to whom it may concern please accept that my final conversation with him was after hours and for the life of me, my brain went dead, and could not remember who to address the letter << File: Environmental Assement Review Texada May 2013 (2).pdf >> to

Belfry, Elsie EAO:EX

From: Taje, Eddy MEM:EX
Sent: November-08-13 9:21 AM
To: Grace, David H EAO:EX
Cc: Howe, Diane J MEM:EX; Pope, Rue MEM:EX
Subject: RE: Texada Island?

Good morning David.

Hope I cover all of this. I have to go to Nanaimo today so likely will not able to respond until Tuesday next week

- Lafarge (Texada Quarry) has three permits on this site. A "Q" permit issued by us under the Mines Act, an "M" permit issued under the Mines Act, and a permit for a marine facility (Federal) All permits are in good standing.
- To the best of my knowledge the Marine Facility has had a permit since the 1950's It last was updated around 2006 when they installed new foreshore and surface infrastructure. Ie: ship loader, conveyors and related infrastructure. This facility is one of three in the coast area that has a marine terminal permited on a mine site.
-In 1990 They received an authorization to stockpile and ship coal from the facility. They have been shipping coal for a touch over 20 years. At present coal being shipped is from the Quinsam Mine and some from the coal mine at Coalmount near Princeton. The existing authorization under Mines Act Permit "M-66" does not specify or limit the source of the coal or the volume to be handled. When issued under the mentioned permit it met the standards of the day, both in terms of process , and environmental issues. Due to a limited market of coal producers looking for a shipping terminal the major customer has been Quinsam. The largest single stockpile of coal to date has been in the order of 500,000 Tonnes.
-On completion of our review and process the end result if successful would be an amendment to the existing Mines Act Permit "M-66". To the best of my knowledge and based on information provided by them there is no amendment required to the permit or authorization related to the marine facility.
- MOE is involved, because of the potential for the requirement for a permit (effluent discharge) This is not clearly established as of yet as the proposal is such that it intends to not discharge water (effluent) into the receiving environment. There are some technical details being cleared up that will define this requirement for a EMA permit or establish that it is not required. In any event this if required would be a stand alone permit and Lafarge would be required to comply with that requirement.

I hope this helps and as I said I likely will not be able to reply until Tuesday, when I return. I will in the office here until about 10:30 this morning.

Ed Taje

MEM
Regional Manager, Coast Area
Health and Safety/UG Coal Specialist
Phone: Office: 250 952 0732
Cell: S17
Res: S22
Fax: 250 952 0491

-----Original Message-----
From: Grace, David H EAO:EX
Sent: Friday, November 8, 2013 8:08 AM
To: Taje, Eddy MEM:EX
Subject: Re: Texada Island?

Hi Eddy,

I am being asked the following:

What kind of permit and under what authority is it being issued? (I assume the Mines Act but you also mention MOE?)

Is it new or an amendment? If existing do they take coal from VI? (My understanding is that it is an amendment to an existing permit - but do they currently handle coal?)

Thanks again for helping me get this info to my MO.

David

----- Original Message -----
From: Taje, Eddy MEM:EX
Sent: Thursday, November 07, 2013 04:30 PM
To: Grace, David H EAO:EX
Subject: RE: Texada Island?

We are still in the review process and I do not anticipate any decision for minimum 2 more weeks, likely a bit more. Components under review or waiting for more information.
_ the application has been reviewed by MOE (more on them later) Local Government (Powel River Regional District, Powel Rive, and sunshine coast Regional district), and Vancouver Health.
- First Nations consultation in ongoing and not complete, Only one FN as there are no overlaps on this site -Application was advertised as per our Act, and the plan was made available to the public. We have had a significant response from the public, including some letters of support.
-A public meeting, (Open House) was held on Texada island with perhaps 150 persons attending.
-We are still waiting for comments from the Sunshine coast Regional District, actually just today I agreed to a short extension on the referral period with them.
-Lafarge has been request to provide addition information on possible health effects which may be associated with the proposal. This is limited to the potential area of influence -MOE is still working with Lafarge in relation to the waste management act (hope i have that right) on airshed, and potential water discharge issues. This is not completed.
-We have a call with Vancouver coastal Health next Thursday to clear some issues related to potential health risks.
-Lafarge has been directed to provide a stand alone document of dust control measures as the measures included in the submitted application are not understood by some in the referral process. In short we have asked for a Dust Control on The coal loadout on Texada for Dummies." I expect this early next week.
-Our Professionals have reviewed the proposal from a coal chemistry point of view and the potential for acid generation, and metal leaching. We have some basic conditions established but this is not finalized yet. Associated with this is the important consideration regarding possible spontaneous combustion. We believe we have this worked out are just double checking our information. All of the items noted in this section are under very detailed technical review as you can appreciate.
-Our Industrial Hygienist has done a preliminary review of human issues associate with dust and will ensure mitigation measures and limits are clearly defined.
-once a decision is made and the permit amendment is issued (if) there will be significant monitoring requirements both for air and water.

All of the above is on the assumption the amendment will be issued. There is always the possibility that these very detailed reviews can lead to a rejection, although at this point I would be surprised if that happened.

Please note this application is stand alone from other applications for coal handling. Hope this helps

Ed Taje

MEMPR
Regional Manager, Coast Area
Health and Safety/UG Coal Specialist
Phone: Office: 250 952 0732
Cell: S17
Res: S22
Fax: 250 952 0491

-----Original Message-----
From: Grace, David H EAO:EX
Sent: Thursday, November 7, 2013 3:57 PM
To: Hamilton, Chris EAO:EX; Taje, Eddy MEM:EX
Subject: RE: Texada Island?

Hi Eddy,

I hope you are well.

We are being asked to describe the permit amendment process for Lefarge by our Minister's office.

The what, how, when etc.

I have the letter from Lefarge confirming that the proposed changes are below our Reviewable Projects Reg.

We need a paragraph explaining how MEM conducted the permit amendment and the things that you considered if possible.

Thanks in advance for your assistance with this.

Regards,
David

-----Original Message-----
From: Hamilton, Chris EAO:EX
Sent: Thursday, November 7, 2013 3:20 PM
To: Taje, Eddy MEM:EX
Cc: Grace, David H EAO:EX
Subject: Texada Island?

Hi Eddy. My colleague Karen Christie gave me your name. As you might know, EAO is getting significant pressure to complete an EA for the Fraser Surrey Docks proposal, and we are trying to get a better idea about how coal is handled and permitted on Texada. Are you the person to help or could you suggest someone? Thanks Chris

Sent from my mobile