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WATER STEWARDSHIP REPORT ON AN APPROVAL APPLICATION
(Changes in and about a stream)

Water District:	New Westminster	Precinct:	Kent	File No:	A2005590
Applicant:	Ministry of Public Safety and the Solicitor General, Emergency Management BC (EMBC)		Attn: Ann Griffin		
Mailing address:	PO Box 9223 Stn Prov Gov, Victoria, BC, V8W 9J1		Phone: 250-953-4098 Email: Ann.Griffin@gov.bc.ca		
Consultant:	Scott Resources Services Inc.		Attn: Jim Scott		
Mailing address:	202-9300 Nowell St. Chilliwack, BC, V2P 4V7		Phone: 604-820-1415 Email: scottres@telus.net		
Consultant:	Northwest Hydraulic Consultants		Attn: Vic Galay		
Mailing address:	30 Gostick Place North Vancouver, BC V7M 3G3		Phone: 604-980-6011 Email: Vgalay@nhc-van.com		
Name of stream(s):	Fraser River (Tranmer Bar)		Tributary to: Salt Water		

I recommend that the Application be: ***refused.***

Proposed Changes (include Works and Appurtenant Land):

To extract and remove approximately 186,000 m^3 of gravel and sediment and construct a temporary bridge, temporary stream crossings with culverts, and temporary roads all within:

Unsurveyed foreshore or land covered by water being part of the bed of Fraser River, together with Island 27, Section 21, Township 3, Range 28, W6M, together with DL 154, all of YDYD (Lands File 2410025) and foreshore or land covered by water being part of the bed of Fraser River, Section 20, Township 3, Range 28, W6M, YDYD.

Requested timing of changes by applicant: January 1 to March 15 2009 during the winter fisheries window

Referrals/Consultation:

Person/Agency	Date Referrals Sent (2008 unless noted)	Date Reply Received (2008 unless noted)	Comments
Environmental Stewardship Division (ESD)	Oct. 28, Dec. 4 Dec. 9	Jan. 2, 2009	Reports that were added to the application after the initial referral were forwarded to ESD. See notes below for comments.
Fisheries & Oceans Canada (DFO)	Oct. 28, Feb. 5	Feb. 6	The initial referral was not sent to the appropriate DFO office, so was resent on Feb. 5. A draft version of the CEAA

			(*Canadian Environmental Assessment Act*) screening report was provided to WSD on Jan. 30 and reviewed in preparation of this report. DFO is reviewing the project for possible *Fisheries Act* authorization.
District of Kent	Oct. 28	Nov. 24	Approval recommended subject to constraints related to any gravel transportation in Kent (largely beyond the scope of instream work). These comments were forwarded to EMBC.
Fraser Valley Regional District	Oct. 28	Nov. 17, Dec. 2	No objection provided that works are "hydrotechnically" sound, neighboring properties are not affected, Enivronmental Monitoring meets regulatory requirements, and District of Kent is consulted.
Integrated Land Mgmt Bureau (ILMB)	Various dates Dec. 2008 to Feb. 2009	Various dates Dec. 2008 to Feb. 2009	This work requires authorization from ILMB (under a map reserve and work permit). Also see land consideration notes below.
Transport Canada Navigable Waters Protection Division	Oct. 28	Jan. 7, 2009	Proposed work includes a bridge. Approval recommended for the bridge.
Water Stewardship Division (WSD) Flood Hazard Mgmt (FHM)	Oct. 28,Dec. 31 Jan. 12, 2009	Nov. 5 Jan. 27, 2009	See flood protection notes below for comments.
Archer CRM Partnership	Oct. 28	Nov. 6	No known archaeological sites in the location where work will occur, but there are sites nearby. The area has high archaeological potential based on the location and terrain.
First Nations:			EMBC (Ann Griffin) has undertaken consultation with First Nations, including meetings (see Jan. 8, 2009 email). WSD sent referrals to the FN groups below while other agencies sent referrals to different groups (see file for details).
1. Cheam Band	Oct. 28	None	Told EMBC that they object to the business arrangements for the proposed work (see notes for details). The Cheam have not provided written comments to date.
2. Hul'qumi'num Treaty Group	Oct. 28	None	EMBC commented that they declined an opportunity to meet with EMBC for consultation (see Jan. 8 email).
3. Sto:Lo Nation	Oct. 28	None	
4. Sto:Lo Tribal Council	Oct. 28	None	"Approval supported" for related application from ILMB.
5. Union Bar Band	Oct. 28	None	"Approval supported" for related application from ILMB.
6. Seabird Island Band	Oct. 28	Feb. 5, 2009	"Approval supported" for related application from ILMB. Partners with EMBC for proposed work. See notes below for discussion of comments in Feb. 4 letter to WSD.
7. Peters Band	Oct. 28	None	Told EMBC that they had no concerns as long as the removal was done in such a way as to protect fish habitat.
1. ***Potentially impacted stakeholders/landowners***	None sent	N/A	See land consideration notes below for comments.
2. ***Downstream licencees***	None sent	N/A	There are no licence intakes (i.e. points of diversion) in work area or within 1 km downstream.
3. ***Complainants***	None sent	N/A	Information to the Ad Hoc Gravel

			Removal Committee and LGL research associates was provided by EMBC, not through referral from WSD. Key comments from these groups are discussed below.

Notes: *(include reasons for refusal or cancellation):*

All information that I received before or on February 6, 2009 was reviewed in preparation of this report, including:

- Documents prepared by the applicant, Emergency Management BC (EMBC), and their environmental consultants: the Nov. 20 report with attachments 1-7 prepared by EMBC, Northwest Hydraulic Consultants (nhc) and Scott Resource Services Inc. (SRS), and the Dec. 2 report by nhc. Email messages from EMBC and their consultants were also reviewed.
- Comments from our ministry's Environmental Stewardship Division (ESD) and Flood Hazard Management Section (FHM)
- Referral responses from other agencies and First Nations
- Comments from stewardship groups: a report by LGL research associates prepared for the Fraser River Sturgeon Conservation Society (FRSCS), the Jan. 4, 2009 email from the FRSCS, and emails from the Ad Hoc Fraser River Stewardship Gravel Removal Committee (Ad Hoc Committee).

This report contains selected comments from the organizations above, which have been summarized or paraphrased according to my understanding of the author's intent. Direct quotations are marked accordingly. This report is not intended to serve as communication from other agencies or groups, particularly in the case of second-hand comments (e.g. verbal comments from First Nations to EMBC).

Site

Tranmer Bar is located approximately 5 km upstream of the Agassiz-Rosedale bridge, between a secondary channel and Spaeti's bar to the northwest and the mainstem river and Herring Island to the southeast. There have been several smaller gravel removals from Tranmer Bar, totaling 133,000 m^3 between 1993 and 2004 (nhc). The two excavation sites are located downstream of forested sections of the bar in an area of "crescent shaped bar deposits, interspersed with channel nooks and bays at varying water levels". The sites are largely submerged at high flow and dry at low flow.

Proposed work

A total of 186,000 m^3 of gravel and sediment will be removed by dry scalping at two sites to an average depth of 1.3 m over areas of approximately 94,000 m^2 at the edge site and 50,000 m^2 at the bar top site (see extraction design tab in file). The two sites will connect an area of low elevation to form a seasonal secondary channel across the bar. Access to the site will involve crossing the secondary channel to the northwest with a temporary bridge to Spaeti's Bar. The proposed location of the bridge is the farthest upstream of the two options shown in the extraction design (Jan. 20 email from EMBC). The 54 m long bridge deck will be supported by steel piles and connected to a causeway (18 m wide at the abutments) with culverts (see preliminary bridge engineering drawings). The length of the causeway in the wetted channel is anticipated to be roughly 10 m, depending on flow levels at the time of construction (Jan. 21 email from SRS). The haul route may cross small residual secondary channels using culverts.

Flood protection

The proposed gravel removal is designed to provide flood protection as part of a larger program. The 2004-2008 Lower Fraser River Gravel Removal Plan is outlined in a 2004 provincial-federal letter of agreement (LOA) between the former ministry of Land and Water BC and Fisheries and Oceans Canada (DFO). Water Stewardship understands that the main objective of this program is to maintain the river flood profile by removing gravel from areas where it is aggrading (depositing). The plan sets a gravel removal objective of 420,000 m^3 for 2009, but does not exempt removals from permitting requirements.

EMBC's consultant, Northwest Hydraulic Consultants (nhc), provided hydraulic rationale for the extraction location and design. The extraction is predicted to remove gravel from a depositional area,

limit long-term aggradation, lower water levels during typical flood events, and divert water away from the bank. Nearly 3 million m^3 of sediment has accumulated on Tranmer Bar since 1999; however, the extraction site itself has not shown deposition since 2003. Hydraulic modeling predicted that the extraction will lower flood levels 1.5 km upstream of the site by 0.1 m during a 2-year flood. The extraction is designed to increase flow across the bar, diverting water away from dykes and bank protection. This work may modify ongoing morphological changes in this area, such as the erosion of Herring Island, but is not expected to stop ongoing erosion.

Different opinions were given on the flood protection benefits of this project by Flood Hazard Management (FHM) during different stages of the review process. In his review of preliminary information, Ron Henry (FHM) rated Tranmer Bar as having "moderate" flood protection benefits. He referenced information for aggradation that was for the time period of 1999 to 2003 (i.e. prior to the period of no aggradation) and stated that it was difficult to rank flood management benefit prior to 2D modeling being done (Oct. 6, 2008). Ron Henry had no objections to this Approval application.

After Ron Henry retired, hydraulic information for this application and related comments were evaluated by Hamish Weatherly, a Senior Hydrologist at BGC Engineering who is working on contract for FHM. Hamish Weatherly is acting as Ron Henry's temporary replacement to provide advice on Fraser River gravel removal from a River Engineering/Hydrology perspective. In the Jan. 27 BGC Memo, Hamish Weatherly rated the overall hydraulic benefit as low, which is one point above "no benefit" on a five point scale. The key reasons for this rating can be summarized as follows:

- The hydraulic modelling results have limited importance for predicting hydraulic benefits: "the 2-D hydraulic modelling completed by nhc is a static model that does not account for gravel transport and long-term aggradation." The hydraulic benefit should be considered "more in the context of preventing a long-term rise in the bed level rather than an immediate reduction in water surface elevations for the design flood."
- Generally, gravel removals should be located in an actively aggrading zone or in one that is subject to active gravel transport that will become depositional following gravel removal. The removal site has low potential for continued aggradation or capture of gravel post-extraction for reasons that are consistent with nhc's prediction that it will take over a decade to refill.
- In general, Tranmer Bar is a good candidate site for gravel removal, however, the extraction location within the bar complex is questionable. Extraction at the bar edge would be more effective, but may not be appropriate for fisheries reasons. Furthermore, "ongoing morphological changes" at Herring Island "could also potentially lower the flood profile irrespective of gravel removals."

Note that I cannot determine if Ron Henry and Hamish Weatherly reviewed similar plans for this project. Ron Henry may have had access to earlier extraction plans, which may or may not have differed from the current ones.

Northwest Hydraulic Consultants (nhc) reviewed the Jan. 27 BGC Memo and argued that the hydraulic benefits of this project should be rated as extremely high. Additional rationale was provided in support of the extraction location and can be summarized as follows:

- The hydraulic modeling results are positive and show a lowering of flood levels that can usually only be achieved by several years of excavation. One of the main reasons for this benefit is a shorter flow path over the bar. Hamish Weatherly's comments do not adequately acknowledge the lowering of flood levels predicted by hydraulic modeling.
- Tranmer Bar was recommended by an earlier report co-authored by BGC (titled Fraser River Potential Gravel Removals 2007 to 2011).
- As suggested in the BGC Memo, the bar edge site may be more appropriate for hydraulic reasons, but was not acceptable to DFO due to fisheries concerns (Jan. 29, 30 emails from EMBC, nhc).

Hamish Weatherly reviewed this response and it did not change his evaluation considerably (see Feb. 6 email). However, he clarified that his comments were intended to provide advice on the effectiveness of the extraction design and were not a recommendation against granting the Approval.

The Ad Hoc Committee commented that (based on the preliminary information provided to them) the

extraction design would not provide hydraulic benefits. The supporting arguments for this conclusion were related to channel morphology at this site and the gravel removal program as a whole (see Dec. 16 comments for details). The Ad Hoc Committee's comments were included in the material reviewed by Hamish Weatherly and addressed in the BGC Memo summarized above.

Land considerations

Land tenure holders may be affected in the following ways:

- The proposed gravel removal may increase the rate of ongoing erosion at one location on Herring Island (see nhc Jan. 19 and 30 emails and maps). The effects are difficult to quantify and could range from no change to an increase of 10-20% (nhc). Preliminary mapping information from ILMB suggests that this area consists of private property and Crown Land and may or may not include part of a Cheam Indian Reserve (IR 2 Tseatah). Note that property rights in parts of the affected area may have already been lost due to erosion, since the streambed below the natural boundary (e.g. the high water mark) is generally considered to be Crown Land.
- Kruger Products has a Tree Farm Licence (TFL) over the extraction site and surrounding areas. The proposed work will affect the TFL land base, but is not expected to involve removal of marketable timber. ILMB and EMBC have consulted with Kruger, who has no outstanding concerns about this project (Kruger Feb. 4 and 5 emails).
- The bridge crossing will be on private property on and around Spaeti's Bar. EMBC's contractor has written consent from the landowner (Urs Spaeti, Feb. 4 document on file). Note that WSD has been unable to confirm that the entire bridge crossing is on Mr. Spaeti's property. Therefore a condition requiring EMBC to obtain proof of ownership and landowner consent for work on private property is recommended, should this Approval be issued.

First Nations considerations

Referrals to First Nations were sent by our ministry and consultation has been lead by EMBC on behalf of the province. The Cheam object to this application on the basis that they have land rights to Tranmer Bar and should be business partners with EMBC for the removal of a larger volume of gravel this year. The site is centrally located in the Cheam Band Consultative Area and is within 5 km of two Cheam reserves. EMBC states that the land claim from the Cheam has not been recognized in court (i.e. granted) and that there are competing claims from Seabird Island and Popkum bands. Consultation with the Cheam by EMBC included at least nine meetings. The accommodation proposed by EMBC is partnership with Cheam at other sites, which is beyond the scope of this review.

Supportive responses were provided by some First Nations. Popkum and Seabird Island are EMBC's business partners for this project through a "government-to-government" arrangement. Comments from Chief Seymour include that Seabird Island supports gravel removal since it increases fish access, allowing greater fish diversity (i.e. improves habitat) and lowers flood risk. The Peters Band commented to EMBC that they had no concerns so long as gravel removal was done in a way that protected fish habitat. I am not aware of any concerns from other First Nations.

Note that First Nations may have fishing rights as well as land rights at this site. Any direct impacts to fishing would likely be temporary in nature (e.g. temporary loss of access at the bridge site).

Environmental considerations

The proposed work will directly alter the stream channel through gravel removal and the temporary installation of stream crossing(s) and access routes. Although gravel removal will occur in isolation of flow, it may affect fish indirectly by changing habitat characteristics at or around the extraction site.

Environmental information and comments were provided by the applicant, DFO, ESD, LGL, FRSCS and the Ad Hoc Committee. DFO provided preliminary comments from the CEAA review. ESD provided a qualified professional opinion recommending against this Approval being issued, at least prior to further study. LGL, FRSCS and the Ad Hoc Committee object to this Approval being issued without further study. Comments are discussed below, organized by subheading.

Changes to physical habitat

Hydraulic modeling was used by the applicant's hydraulic consultant, nhc, to predict how gravel removal will alter flow over the extraction sites at two flow levels. Depth will increase, while velocity will increase at moderate flows (from an average of 0.03 m/s to 0.44 m/s at Mean Annual Flow) and decrease slightly at

2-year flood levels (nhc, Dec.2). After gravel removal, the excavation site will be wet rather than mostly dry during moderate flows. There may be an increase in sediment size and changes in morphology at inner areas of the bar that are currently dominated by fines. The extraction site is predicted to refill, but this will take "a decade or more...in the absence of a major flood event."

Existing Fish Habitat

Fish sampling and habitat assessment by the applicant's biological consultant, SRS, indicates that the site provides important fish habitat, including potential sturgeon habitat. Preliminary fish sampling showed that fish densities at lower Tranmer "may be considered higher than average" based on comparison to average values from an earlier study of the gravel reach. Note that the sampling methods were not designed to capture white sturgeon or large adults. According to SRS, Tranmer Bar contains suitable habitat for white sturgeon so is considered potential sturgeon habitat in the absence of sampling data (also see LGL report). The edge of Tranmer Bar and Spaeti's Bar are known salmon spawning habitat.

Comments on fish habitat were also provided by other groups, including the following :

- The Environmental Stewardship Division commented that the fisheries assessment was not adequate and does not meet the requirements of the Letter of Agreement (due to sampling limitations among other reasons).
- Seabird Island First Nation commented that the area of extraction "does not affect traditional spawning or rearing areas for sturgeon."
- The Ad Hoc Committee commented that their "episodic" sampling and the nature of the habitat suggests that lower Tranmer has exceptionally high value for juvenile fish, including salmon.

Potential impacts to habitat suitability (for species other than sturgeon)

Impacts on fish habitat suitability were predicted based on qualitative habitat assessment by SRS and limited habitat suitability modeling by nhc (see SRS attachment 6, section 4.4 and nhc, Dec.2, respectively, for details). Habitat assessment by SRS indicates that the extraction will reduce the area of important shallow habitat types available to juvenile fish during high flows. Changes in physical habitat characteristics could also cause changes in the invertebrate community composition.

Habitat suitability modeling results from nhc predict that overall habitat suitability for juvenile chinook and juvenile coho will increase (nhc, Dec. 2). These results are largely attributed to the fact that the extraction area will be wetted for longer. Note that there are 28 species of fish in the gravel reach and modeling was completed for only 4 species/life stage combinations (based on DFO's selection and information limitations). Suitable habitat was not predicted to be available for the other two species/life stages that were modeled.

The draft CEAA screening report provided by DFO quantified impacts and provided professional opinions on the potential for adverse impacts to fish and wildlife populations (as quoted or paraphrased below):

- "Potential impacts to the fisheries and aquatic resources resulting from the project" that were evaluated in the screening report included: "alteration of the microhabitat near the streambed leading to changes in habitat quality for benthic invertebrates, rearing juvenile chinook and coho salmon, and migrating chum and pink salmon fry; reduction in the quality of habitat for egg and larval stages of white sturgeon; loss of high-elevation, refuge habitat during spring floods; loss of high-elevation, summer rearing habitat..."
- "The proposed footprint of the gravel extraction represents 6.7% of the bar habitat available on Tranmer Bar"
- Significant negative impact on the overall populations of lower Fraser chinook and coho are unlikely. Proposed measures to increase habitat complexity and fish access offset the loss of high-elevation rearing habitat.
- There will be a disturbance of over 13,000 m^2 of vegetation, primarily young shrubs on Tranmer Bar. Disturbance to vegetation can affect wildlife, however, "Environment Canada has confirmed that there are no significant concerns related to wildlife arising from the proposed project."

- In terms of the potential for cumulative effects from this and other gravel extractions, "adverse environmental effects from gravel extractions are for the most part short-lived, due in large part to the natural transport and deposition of sediment in the gravel reach"

The Ad Hoc Committee is concerned that this work will cause large-scale negative impacts to fish. Reference was made to high habitat value, loss of limited high bar habitat, the potentially long duration of time for the river to "heal" at this site, and inadequate assessment of risks to habitat. The Committee also commented that Tranmer Bar should be exempt from gravel excavation as a habitat refuge, since it has been less impacted than other large bars in the reach.

Potential impacts to white sturgeon

White sturgeon is an endangered species that is managed in part by the Ministry of Environment. While the species is listed under COSEWIC (Committee on the Status of Endangered Wildlife in Canada), the Lower Fraser population is not listed or given habitat protection under SARA (*Species at Risk Act*).

According to SRS, patterns of habitat use by sturgeon (if present) could be altered. For example, increased flow through the inner bar could alter the use of this area by sturgeon juveniles and change the location of any egg deposition. Note that juvenile sturgeon may prefer areas of slow flow with fine substrate (SRS literature review, attachment 6, section 3.4). Adult sturgeon should not be adversely affected since they prefer deeper areas.

The Environmental Stewardship Division had several key concerns about potential impacts to sturgeon which can be summarized as follows:

- Tranmer is potential sturgeon habitat.
- "We have a poor understanding of sturgeon habitat requirements and use in the lower Fraser",
- The cause of recent population declines is still uncertain, "but it is disturbing to note that the recruitment decline is coincident with the initiation of large scale gravel removals in the lower Fraser"
- "It is prudent that further gravel extractions not proceed until the impacts to sturgeon and sturgeon habitat are better understood..." Sampling for sturgeon, additional habitat assessment, a mitigation plan and "quantification of the impacts of gravel removal on sturgeon" are recommended.

An Approval condition requiring monitoring of sturgeon has been recommended; however, pre-extraction data on sturgeon has not been collected.

DFO concluded that potential impacts of gravel extraction on sturgeon remain uncertain.

Stewardship groups expressed concerns that the decline of Lower Fraser River sturgeon may be caused in part by gravel removal. Gravel removal could cause declines in juvenile survival through mechanisms such as the loss of high-bar habitat and disruption of the armour layer (LGL, FRSCS). EMBC's consultants state that concerns about disruption of the armour layer by dry scalping are not justified since it will be eroded by freshet flows then re-formed prior to spawning. The consultants also commented that there is insufficient evidence to claim that gravel removal may be a cause of sturgeon decline (Nov. 28 email for winter 2009 applications in A2005591 and Dec. 12 email on file).

Potential impacts of the bridge crossing

The bridge crossing will cause a temporary loss and disturbance of habitat due to the installation of structures in the wetted channel. It was designed by professional engineers using industry standards and has been reviewed by a hydraulic engineer who states that it will not cause dewatering.

Comments from DFO indicate that installation of the bridge and access route may cause salmon redd mortality and noise disturbance to fish.

The Ad Hoc Committee is concerned that the bridge crossing could impact salmon in these ways and others. For example, a secondary channel crossing at Big Bar in 2006 contributed to downstream dewatering of salmon redds (DFO report in A20005163). Note that, unlike the proposed crossing at Tranmer, the 2006 crossing at Big Bar was a causeway that did not initially include culverts.

Mitigation and monitoring

The following measures have been undertaken or planned by the applicant to protect and monitor environmental values, including fisheries resources:

- The shape of the excavation will include "open nooks" to offset the loss of shallow bar top habitat during elevated summer flows. The excavation will also increase the connection of natural strand pools to the mainstem river, which should decrease fish stranding during low flows.
- Measures such as noise monitoring are proposed by the applicant to minimize environmental risks associated with the bridge construction.
- The excavation method (dry scalping) should not directly impact fish. It will also minimize sedimentation. Construction mitigation, monitoring and reclamation measures are planned. For example, the extraction boundaries will be adjusted, if necessary, to avoid salmon redds. Direct impacts to pink salmon are anticipated to be minimal due to the timing of the work (during a winter fisheries window in an odd-numbered year). Temporary works such as the bridge and haul route will be removed before the end of the fisheries work window.
- Pre and post-extraction surveys and sampling (sediment, invertebrates, fish) will be used to assess environmental impacts.

Key concerns

In my opinion, the following environmental concerns identified in this review cannot be mitigated entirely:

- Unknown risk to white sturgeon, including risk of habitat loss to early life stages
    - Opinions from biologists indicate that poor understanding of sturgeon habitat use limits the development of strategies to minimize impacts.
- Potential impacts to other fish species associated with habitat alteration
    - In my opinion, the extent of potential habitat alteration from this extraction could be considered relatively large for a gravel removal. A large area (over 140,000 m^2) will be affected, even if this area is small in comparison to entire habitat areas of a large river such as the Fraser. Potential changes include modification of several types of important fish habitat characteristics (including flow, sediment size and vegetation) in an extraction area that may take over a decade to fill in. Consequently, there is considerable risk of long-term changes in habitat suitability, whether these changes are considered to be positive or negative.
- Temporary loss of stream habitat and potential salmon redd mortality caused by the bridge, causeway and road construction.

RECOMMENDATION

I recommend refusing this application for Approval for the following reasons:

a) There is uncertainty about the flood protection benefits, which have been ranked from low to extreme by different professionals. MoE staff and/or their contractors have indicated the benefits will be low to moderate.

b) There will be disturbance of stream habitat and associated risks to fish, including species (i.e., white sturgeon) of provincial concern.

c) There are two outstanding land-related concerns: the objection from the Cheam and the potential increased erosion of one area of Herring Island.

I do not believe that any one of these concerns alone would be sufficient grounds for refusal. However, in combination, they indicate that this project involves considerable risks in return for uncertain benefits.

Report made by:	Rachael Eedy Water Stewardship Technician	Date Report:	February 6, 2009
Site Inspected by:	N/A Not inspected	Date Site Inspected:	N/A
Report Reviewed by:	Tim Bennett, P.Eng. Assistant Regional Water Manager	Date signed:	