

Fraser River Action Plan



Inventory of Municipal Stormwater Discharges within the Fraser River Estuary



CANADA'S GREEN PLAN
LE PLAN VERT DU CANADA

Canada

DOE FRAP 1993-38



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INVENTORY OF MUNICIPAL STORMWATER DISCHARGES WITHIN THE FRASER RIVER ESTUARY

DOE FRAP 1993-38

Prepared for:

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DISCLAIMER

This report was funded by Environment Canada under the Fraser River Action Plan through its Fraser Pollution Abatement Office. The views expressed herein are those of the authors and do not necessarily state or reflect the policies of Environment Canada.

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NOTE: Inventory maps available for viewing at 224 West Esplanade,
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(in pouches)

NOTE TO THE USER

Please note that this report contains three (3) large satellite maps entitled “Inventory of storwater discharges within the Fraser River Estuary” that could not be included in the file.

1.0 INTRODUCTION

UMA Engineering Ltd. was retained by the Conservation and Protection Department of Environment Canada to conduct an inventory of stormwater discharges to the Fraser River Estuary up to Kanaka Creek, not including tributaries.

This work was made necessary by the pollution abatement component of the Fraser River Action Plan, an initiative of the federal Green Plan, which calls for the identification and control of contaminants entering the Fraser River Basin, from both point and non-point effluent sources. Stormwater discharges represent point sources of pollution and thus require evaluation.

A list of storm drains discharging into the Fraser River Estuary was compiled. Existing reports and as-built information were received from the following municipalities and other government agencies:

- Greater Vancouver Regional District (GVRD)
- City of Vancouver
- City of New Westminster
- City of Burnaby
- City of Richmond
- City of Port Coquitlam
- City of Surrey
- District of Delta
- City of Coquitlam
- District of Pitt Meadows
- District of Maple Ridge
- Township of Langley
- University Endowment Lands (UEL)
- YVR Airport Authority

Section 2.0 describes all the data collected to characterize stormwater outfalls. Section 3.0 summarizes the site reconnaissance program which followed the desk-top data collection phase. Section 4.0 outlines the components of the environmental assessment matrix as well as the overall sensitivity rating. Appendix A contains the individual data sheets for each site, while Appendix B is the photographic record of each storm outfall site. Appendix C includes additional information and references such as personal communications and pump station information. A summary of environmental assessment matrix scores including the overall sensitivity rating for each outfall location is included in Appendix D.

2.0 STORMWATER DISCHARGES

Site and outfall data was collected for each stormwater discharge location. The information was compiled onto individual data sheets which was incorporated into a data base. This section of the report describes the various data fields and the organization of data.

2.1 Site Identification

Each storm discharge outfall was given an identification number to ensure that an organized approach was employed for the management of the data. Each site was identified using the following system:

R GB ID#

where:

- **R** indicates the specific reach of the Fraser River to which the outfall discharged;
- **GB** denotes the municipality or governing body under whose jurisdiction the contributing drainage area falls; and
- **ID#** was assigned to each outfall, starting with 001 for each municipality, and increasing sequentially generally in the upstream direction.

Table 2.1 defines the reach and lists the governing bodies with their designated codes for use in the outfall numbering system.

For example, Outfall Number 405001 identifies the site location as the Main Arm (4) in the District of Delta (05) and as the first outfall located (001). A few outfall numbers which appear to be out of sequence were sites that were reclassified due to site reconnaissance data or more accurate information.

Storm discharge outfalls were identified using information supplied by the appropriate agencies, namely land use plans, official community plans, as-built drawings, drainage studies, and storm sewer drawings. As expected, there was a wide variety in the quality and quantity of the data received.

TABLE 2.1: VALUES FOR REACH AND GOVERNING BODY DEFINED

FEATURE	DEFINITION	CODE
REACH	Sea Island	1
	North Arm	2
	Ladner Reach	3
	Main Arm	4
	Annacis Island	5
	Port Mann	6
	Barnston Island	7
	Derby Reach	8
GOVERNING BODY	University of B.C.	01
	YVR Airport Authority	02
	City of Vancouver	03
	City of Richmond	04
	District of Delta	05
	City of Burnaby	06
	City of New Westminster	07
	City of Surrey	08
	City of Coquitlam	09
	City of Port Coquitlam	10
	District of Pitt Meadows	11
	Township of Langley	12
	District of Maple Ridge	13
	Greater Vancouver Regional District	14
	Private/Unknown	15

2.2 Outfall Data

Once the outfall was identified, available data describing the site was compiled onto a data sheet. The following describes the different components of the data sheet.

- Outfall Number:** refers to the site identification number as previously described.
- Site Name:** is the name given to a particular outfall, and typically the nearest roadway is employed.
- Location Description:** is used as an aid to locate a particular outfall on the location maps. Each site is described by its bank (i.e., north or south), the receiving water body (i.e., the middle arm of the Fraser River), the approximate distance up or downstream from a known landmark (i.e., bridge or island), and the nearest roadway (i.e., foot of Princess Street). This was completed using air photos, land use maps, and storm sewer plans.
- Owner:** identifies the governing body, and relates to the aforementioned GB code. The name of the person who supplied the data is listed as the contact name, along with their address, phone number, and fax number. A separate category, Private/Unknown was created for unusual cases. Examples of these cases include small drains from private properties usually from industrial areas on the foreshore, previously undocumented outfalls discovered in the field, and major watercourses such as Kanaka Creek.
- UTM (N and E):** refers to Universal Transverse Mercator (UTM) coordinates on the NAD 83 - Zone 10 system, and UTM Northing and Easting ($\pm 5.0\text{m}$) were determined in the field using a GPS Satellite locating system.
- Photo No.:** refers to the roll and frame number of the outfall site as documented in the photographic record.

The structure itself was then characterized using available data:

- Gravity Outlet:** is used to describe the number of pipes, size, material, and any other important features (i.e., flap gates or tide gates). If a gravity outlet exists, but no information is available, the data field is labelled "Size Unknown." For pump stations without gravity floodboxes, the data field is labelled "None."
- Invert Elevation:** is taken as the geodetic elevation of the outfall invert. Zero geodetic elevation is, by definition, equivalent to the 1928 mean sea level.

Invert Depth: is taken as the depth of the invert below chart datum, i.e., the depth of the invert below the lowest normal tide at that location. The distance below geodetic of the chart datum for specific water bodies and positions along watercourses affected by tidal action were obtained from the Canadian Hydrographic Service. As-built drawings generally only provide invert elevations relative to geodetic datum, and therefore, it is necessary to cross reference as-built elevations with the chart datum from the Canadian Hydrographic Service to estimate the depth of the outfalls below the water surface at lowest normal tide. Many outfalls have inverts above the lowest normal tide and are listed as "Above Water".

Outfall Length: is measured as the perpendicular distance to the shoreline from the outfall.

Chart Datum: is taken as the lowest normal tide elevation.

Drawing References: identifies the source from which the data and specifications were derived. Numbers correspond to the drawing numbering system used by the listed municipality.

Watercourse/CSO: is a data field which identifies watercourses or combined sewer overflows (CSOs) for cases other than gravity outlets.

If a pump was operated to control the volume of stormwater discharged, any available information was noted.

Pumps: identifies the name of the pump and its approximate capacity. For pump stations without any information on the pumps, this data field is labelled "Capacity Unknown."

Discharge Pipes: lists the characteristics of the pump discharge pipe.

Controls: identifies the applicable controls for the pump either as "Manual" or "Automatic."

Drawing References: as described before.

Finally, the characteristics of the contributing drainage area was described:

Drainage Area: is stated if known from drainage studies.

Land Use: is identified from land use plans, zoning by-laws, official community plans, and air photo interpretation.

Drawing References: as described before.

The data sheet also includes an area for Other Data and/or Comments. This data field was used to record notes, such as important local conditions or features. References were also made to additional relevant information from previous studies or reports, some of which is included in Appendix C - Additional Information and References.

3.0 SITE ASSESSMENTS

After the desktop data compilation, stormwater discharges were verified in the field. The purpose of the visual confirmation was fourfold:

- to accurately identify the location of the outfalls
- to note the surrounding environment
- to provide a photographic record of each site
- to identify outfall sites that had no prior documentation.

Field work was carried out during a two week period starting November 8, 1993 using a 14 foot Zodiac craft. UTM coordinates were obtained using a Tremble Pathfinder Basic Plus GPS receiver. Field measurements were differentially corrected to an error of plus or minus 5 metres according to the error tracking station of Terrapro GPS Surveys Ltd. at White Rock, B.C. Due to a lack of satellite information available at the tracking station, corrections were not available for 36 outfall locations. These sites were then adjusted using aerial photography and are estimated to be accurate to within 50 metres. In addition, 20 outfalls along the New Westminster waterfront were too deep for field survey, and these discharges were located using air photos as well.

Outfall location plans were prepared using a 1:20 000 scale aerial photographic mosaic. Drawings 1971-030-00 Sheets 1, 2, and 3 showing the locations of stormwater outfalls with identification numbers are included in the back pouch of this report.

4.0 ENVIRONMENTAL ASSESSMENT MATRIX

An environmental assessment matrix was incorporated into the data base to evaluate the overall environmental risk and to provide a sensitivity ranking for each of the storm outfalls. The matrix consists of five criteria:

- flushing characteristics
- discharge flow
- habitat sensitivity
- drainage area/land use characteristics
- public use

A numerical range was developed to reflect the impact of each criteria as described in the following paragraphs. Generally, the lower the value, the lower the impact on the receiving environment and the abatement priority. The value also reflects the relative weighting of each criteria, as Environment Canada indicated a higher level of concern for habitat sensitivity and drainage area/land use characteristics.

4.1 Flushing Characteristics

- 1: Open shoreline with high flushing and dispersion characteristics; river flow strong.
- 2: Partially enclosed area with moderate flushing and dispersion; moderate river flow or tidal currents; possibility of back eddies formed during some stages of the tide.
- 3: Very enclosed area with poor flushing and dispersion; little river flow or weak tidal currents; complete exchange during tidal cycle unlikely; freshwater streams or lakes.

4.2 Discharge Flow

- 1: Low flows from small drainage basins (single pipe diameter 300mm or smaller)
- 2: Moderate flows from medium sized drainage basins (single pipe diameter greater than 300mm but less than 900mm)
- 3: High flows from large drainage basins (pipe diameter greater than 900mm or multiple pipes)

4.3 Habitat Sensitivity

- 1: Low to moderate productivity, less diverse habitat (eg. sandy or cobble beaches); areas of high commercial or industrial shoreline development.
- 3: Moderate to high productivity and diverse habitat; general area of recreational or commercially utilized species (eg. undeveloped shoreline with some vegetation)
- 5: High productivity or endangered habitat or protected habitat (eg. wildlife sanctuary or ecological reserve); spawning or rearing areas for recreational or commercially utilized species (eg. salmon bearing streams)

4.4 Drainage Area/Land Use Characteristics

- 1: Drainage catchment area from land use associated with open space or undeveloped land (ie. low level of contaminants)
- 2: Drainage catchment area from agricultural, park, or recreational land use (ie. possible fertilizers, pesticides, etc.)
- 3: Drainage catchment area from urban residential land use (ie. urban runoff)
- 4: Drainage catchment area from industrial or commercial land use

For outfall locations with drainage area consisting of more than one land use, the score for this criteria was based on the approximate relative area of each land use designation.

4.5 Public Use

- 0: No public use; inaccessible to general public (eg. inaccessible)
- 1: Low public use; aesthetic/non-contact recreation (eg. beach or dyke walking).
- 2: Public use moderate; secondary contact recreation (eg. fishing, wind surfing).
- 3: High public use; public beach; primary contact recreation (eg. swimming).

4.6 Overall Environmental Sensitivity Index

Based on the average score for the five criteria, an Environmental Sensitivity Index was calculated, and an overall sensitivity rating is also presented on the data sheets according to the following ranges:

- High: Associated with an average score higher than 2.4, or any site known to be an endangered or protected habitat, or a spawning or rearing area for recreational or commercially utilized species; or any site that is used for primary contact water activities.
- Moderate: Any site with an average score between 1.8 and 2.4 (generally with moderate river flow, secondary water contact (surface water sports), and moderate fishery resources).
- Low: Any site with an average score less than 1.8 (generally with good river flow, low public use and minimal fishery resources).

Some explanatory notes are provided in the data fields to justify the score for each criteria where possible.

5.0 REMOTE SENSING

Remote sensing can be applied to identify major storm sewer outfalls and assess their impact on the water quality within the Fraser River Estuary. The following briefly outlines suitable remote sensing techniques and provides a framework for generating cost estimates for the analysis.

Remote sensing can be conducted either from an aircraft, or by satellite. Satellite imagery would be more applicable for regional studies where spatial resolution of data is less critical. It would be able to provide an overview of broader environmental concerns such as habitat monitoring, and could be used in conjunction with other higher resolution methods. Airborne Digital Multispectral Imagery is more suited to the required level of detail for this project and will be the focus of this outline.

5.1 Airborne Digital Multispectral Imagery

Airborne digital imaging spectroscopy has recently reached the point where it has begun to infringe on what was traditionally the domain of conventional analogue aerial photography. Significant improvements in remote sensing technology, coupled with improvements in digital data processing and analysis, have led to the development and use of relatively low cost, high resolution, airborne multispectral scanner systems (MSS) for a rapidly growing list of both terrestrial and marine applications.

Digital multispectral image acquisition and related analysis techniques have a number of distinct advantages over conventional data acquisition and analysis. The imagery collected is in digital format which can be manipulated and processed using advanced computer-based digital image analysis techniques. This format provides a great deal of flexibility with respect to the storage, analysis, and interpretation of the data. Most importantly, precise, user-defined image bands can be selected and modified to optimize the detection and analysis of phenomena possessing characteristic spectral signatures. This spatial continuity of digital imagery, as well as its potential for both quantitative and qualitative analyses, add a level of flexibility not present in conventional aerial photography and ground-based sample data.

Digital imaging spectrometry has been found to be useful in the detection and mapping of suspended particulate and organic substances in a variety of hydrological environments. Characteristic absorption and reflectance of spectral features in the visible and near-infrared electromagnetic wavelengths can be used to measure actual particle and organic material concentrations. In general, increases in suspended particulate concentration can be detected in airborne spectral data as both, a shift in the peak reflectance from shorter (blue) to longer (green) wavelengths, and as an increase in the magnitude of the reflectance itself. Increases in the concentration of organic substances can also affect the spectral distribution of peak reflectance and causes an increase in the magnitude of reflectance or absorption in certain electromagnetic wavelengths. Differences between

organic and suspended particulate concentrations in Fraser River water could reveal the location of stormwater discharges. The results of the spectral analyses are greatly improved when calibrated with data from a ground-based water sampling program.

Conventional methods for the detection and mapping of suspended substances include the collection of water quality samples at known locations followed by a laboratory analysis of the sample's contents. This method provides essential information, however, alone it cannot provide an instantaneous delineation of spatial characteristics of the suspended material. Conventional methods suffer from two major limitations: (1) the spatial resolution is limited by the amount of samples that are economically feasible to collect and analyze, and (2) conventional methods have poor temporal resolution in that they cannot be acquired in a timeframe comparable to that over which changes occur in the marine environment. For example, if a water quality program requires six hours to collect the whole suite of samples, the tide will have completed one half of its cycle. This means that once the samples have been analyzed, the distribution of the suspended material as obtained from the samples is not representative of the instantaneous description, but rather, a description averaged over a period extending from the collection of the first sample to the collection of the last sample.

Airborne multispectral data can effectively provide a density of sample points not available through ground sampling procedures. This will allow a greater level of accuracy in the correlation of airborne measurements with the ground based samples. The high spatial density of the airborne data can also be useful in the extrapolation of conditions at known sample locations to other locations where no sample information exists. The high spectral resolution of the scanner will also improve the ability to isolate relationships between spectral response of the scanner and actual ground conditions.

The recommended airborne multispectral imaging system for this project is the Compact Airborne Spectrographic Imager (CASI) developed by Itres Research Ltd. of Calgary, Alberta. This is one of the newest and most flexible imaging systems available in the marketplace. CASI narrows the gap between digital airborne sensors and aerial photographic systems in a variety of resource and environmental applications. The increased spatial and spectral resolution characteristic of the CASI, in conjunction with the digital nature of the acquired data itself, establish it as a very real competitor to airborne photographic systems.

The CASI utilizes a Charged Coupled Device (CCD) array which is capable of acquiring spectral reflectance information over both terrestrial and hydrologic targets in two separate modes: (1) spatial, and (2) spectral. The spatial mode captures the reflectance spectra in up to 15 discrete, electromagnetic wavelength intervals (bands) ranging from visible to near infrared. The spectral mode is used to collect samples of continuous reflectance spectra in several look directions. Spatial resolution of the data is variable and generally a function of several parameters including: aircraft altitude, scanner fore-optics, and integration sampling.

A three-phased approach is recommended as follows: The first phase would involve the development of a digital, geographically referenced database to facilitate data integration and analysis. Information sources such as: bathymetry, currents, tides, effluent sources (location and effluent type), and data from previous studies would be spatially registered at an appropriate scale. This phase would also include the preparation and mobilization for the in-situ sampling and airborne data acquisition operations which will occur in the second phase.

The second phase would involve the collection of ground-based water samples and the airborne multispectral data. Two suites of airborne data would need to be acquired for the project. The first suite of airborne data would be acquired before the collection of the ground-based samples, and would be used for the optimal processing of the water sampling points. The second suite of airborne data would coincide with the ground-based sample collection. The significance of the second set of multispectral data is twofold: (1) it will provide the bases for the correlation analysis, and (2) it will be useful in the investigation of the temporal characteristics of the estuary.

Both quantity of suspended material and the mixing, flushing and dilution of stormwater in the Fraser River water with time are important aspects of water quality monitoring and assessment. A spectral bandset designed for water quality investigation and monitoring would need to be used for the multispectral data acquisition.

Water samples would be collected at surveyed positions with the samples taken at 0.5m and 2.0m water depths. These samples are consistent with normal water quality monitoring programs. A percentage of the samples would be collected in triplicate to evaluate the statistical variability and repeatability of water quality measurements. This sampling strategy will yield representative samples of the entire range of near surface water quality conditions at each of the study sites.

Once the airborne and ground-based data have been collected, the final phase - statistical and spatial analyses, could be completed. The airborne data would be extracted and calibrated to standard luminance values and the ground-based samples would be analyzed for the relevant water quality parameters. The airborne multispectral data, ground-based sample data, all other data sets would be digitally mapped onto a GIS database. The major objective is to establish statistical correlations of suspended substances as measured by the analysis of the in situ samples. Once the level of correspondence between these data is established, the airborne multispectral imagery can be used to produce extremely high resolution maps of sediment quantity and distribution.

Remote Sensing using CASI and thermal scanners has already been undertaken on a portion of the Lower Fraser by G.A. Borstad Associates Ltd. under the direction of George Derkson of the Fraser Pollution Abatement Office of Environment Canada. One of the purposes of this study was to test the ability of CASI and thermal scanners to locate sewer outfalls. The results of this study will be presented to Environment Canada in a workshop by G.A. Borstad Associates Ltd. in March, 1994. A report of the results should also be available at the end of March. We would recommend that further investigation into the potential of remote sensing be considered in more detail after reviewing the successes and problems encountered by this study.

5.2 Cost Estimates

The following is an estimate of the cost for the project (remote sensing only; not including ground-based sampling). Costs included as either daily or hourly rates, therefore the final cost would be a function of the number of flights, frequency of flights and duration of project.

Airborne Data Collection

Based on an altitude of approximately 2,000 feet, on-board GPS for data registration; data resolution of approximately 1 metre; and 500 metre swath.

Aircraft Costs:	\$500.00 to \$1,000 per hour
Sensor Rental:	\$1,500 per day
CASI Operator:	\$500 per day plus expenses

The CASI scanner can record up to 15 spectral bands. The scanner has a resolution of 5m, depending upon altitude, and using aircraft equipped with a GPS receiver and differential correction from a fixed GPS station, positions can be calculated to within +/- 3m.

Data Analysis - Multispectral Data

Radiometric Calibration:	\$1,400
Geographic Registration and Processing/Mosaic:	\$2,400

(Would be a function of data volumes; remote sensing technician rates approximately \$500 per day.)

Deliverables would have to be defined ahead of time. The above would be based on a deliverable being the digital files (in PCI/PIX format). Any hard copy costs or GIS data integration costs would be additional.

Satellite Imagery

The Fraser River estuary upstream to Kanaka Creek could be covered by one Landsat TM Subscene or 4 SPOT Subscenes and the costs are as follows:

		<u>System Corrected</u>	<u>Precision Corrected</u>
Landsat TM Subscene	7 band	\$ 1750	\$ 2450
	3 band	\$ 1150	\$ 1750
SPOT P or XS Subscene		\$ 1850	\$ 2650

There is a \$ 295 per scene programming fee that is charged only if a usable scene is aquired. The resolution of the images is as follows:

Landsat TM	3 or 7 spectral bands with 30m resolution
SPOT P	1 spectral band with 10m resolution
SPOT XS	3 spectral bands with 20m resolution

In all cases the imagery pixels are aligned to UTM coordinates. System Correction corrects for errors introduced by the positioning of the satellite. In addition to system corrections, precision correction uses ground control points to correct the imagery to true geodetic position.

6.0 SUMMARY

From information supplied by the municipalities and other governing agencies and verified through field investigation, 252 storm discharge outfalls were identified in the Fraser River Estuary downstream of Kanaka Creek. The field program included the visual confirmation of documented outfall locations, the identification of undocumented outfall locations, and an evaluation of the environmental sensitivity of each discharge location. In addition, photographs were taken of each outfall site. All the information, including the environmental assessment matrix, was compiled into a database designed for easy review and retrieval. The individual environmental criteria values, the average score, and an overall environmental sensitivity rating was completed for each site.

The environmental sensitivity rating for the outfall sites can be summarized as follows:

Environmental Sensitivity Summary	
Low:	116
Moderate:	96
High:	<u>40</u>
Total	252

Appendix A contains the information compiled for each storm discharge outfall. Appendix B contains the photographic record, and Appendix C includes additional information referenced in the Other Data/Comment data field on the data sheet. Three sheets of the outfall location plan at a scale of 1:20 000 are enclosed in the back pouch of the report. Appendix D contains a summary of environmental assessment matrix scores including the overall sensitivity rating for all outfall sites.

REFERENCES

Associated Engineering Services Ltd. (1980); Proposed Drainage and Irrigation Improvement Scheme - North Crescent Slough Area, B.C. Ministry of Environment, Victoria, B.C.

Dayton and Knight Ltd. (1990); Annacis Island Master Drainage Plan, Corporation of Delta, Delta, B.C.

Dayton and Knight Ltd. (1989); North Delta Fraser Drainage Area and Boundary Bay Drainage Area, Corporation of Delta, Delta, B.C.

Dayton and Knight Ltd. (1990); Ladner Drainage Area, Corporation of Delta, Delta, B.C.

Fraser River/North Arm and Fraser River/Sandheads to Douglas Island, Canadian Hydrographic Service Marine Charts

Krahn, P.K.; Hui, K.W.; Walker, J.R. (1980); Fraser River Estuary Study, Water Quality, Site Registry of Storm Water Outfalls, B.C. Ministry of Environment, Victoria, B.C.

Lidstone, Donald, et al. (1993); Report of the Sewage Treatment Review Panel, Greater Vancouver Sewerage and Drainage District, Burnaby, B.C.

Stanley Associates Engineering Ltd. (1992); Urban Runoff Quantification and Contaminants Loading in the Fraser Basin and Burrard Inlet, Environment Canada, Fraser Pollution Abatement Office, North Vancouver, B.C.

UMA Engineering Ltd. (1992); Combined Sewer Overflow Inventory (Fraser River Basin and Burrard Inlet), Environment Canada, Fraser Pollution Abatement Office, North Vancouver, B.C.

APPENDIX A:

Inventory of Stormwater Discharge Sites

SITE:

OUTFALL #: 102001

SITE NAME: AIRPORT EB

LOCATION DESC.: N. Bank of Middle Arm
3.3 km d/s of Dinsmore Bridge
near South Ranch Road

OWNER: YVR

UTM N: 5447977.664

CONTACT: Anne Murray

E: 486063.491

ADDRESS: 4900 North Service Road
Richmond, B.C. V7B 1Y3

PHONE/FAX: 276-6357/276-6596

PHOTO NO.: 13-2, 13-3

STRUCTURES:

GRAVITY OUTLETS: 1 x 2400 x 1500mm conc. flood box w/flap gates + trash racks

INVERT ELEV.: -1.92 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -2.4 m

DRAWING REF'S: P169H6235101

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Airport

DRAWING REF'S: A008414020

OTHER DATA/
COMMENT: - Shut off gate

- see YVR Water Quality Monitoring

FLUSH: 1.0

DISCHARGE: 3.0

HABITAT: 3.0 - some vegetation

LAND USE: 4.0

PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 102003

SITE NAME: AIRPORT N4

LOCATION DESC.: N. Bank of Middle Arm
1.6 km d/s of Dinsmore Bridge
at end of Bell Irving Street

OWNER: YVR

UTM N: 5447216.614

CONTACT: Anne Murray

E: 487512.627

ADDRESS: 4900 North Service Road
Richmond, B.C. V7B 1Y3

PHONE/FAX: 276-6357/276-6596

PHOTO NO.: 3-21

STRUCTURES:

GRAVITY OUTLETS: 1 x 1800 x 1500mm conc. flood box w/trash rack

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES: 1 x 600mm dia. w/flap gate

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Airport

DRAWING REF'S: A009414020

OTHER - Fuel oil interceptor
DATA/ - Water monitoring station
COMMENT: - see YVR Water Quality Monitoring
near Air B.C. seaplane docking area.

FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - road

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 102002

SITE NAME: AIRPORT E7

LOCATION DESC.: N. Bank of Middle Arm
2.4 km d/s of Dinsmore Bridge
at end of South Fuel Road

OWNER: YVR

UTM N: 5447400.580

CONTACT: Anne Murray

E: 486776.957

ADDRESS: 4900 North Service Road
Richmond, B.C. V7B 1Y3

PHONE/FAX: 276-6357/276-6596

PHOTO NO.: 3-22, 3-23

STRUCTURES:

GRAVITY OUTLETS: 1 x 2400 x 1500mm conc. flood box w/lap gates + trash racks

INVERT ELEV.: -1.5 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -2.4 m

DRAWING REF'S: P169H6235103

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Airport

DRAWING REF'S: AO 08414020

OTHER DATA/ COMMENT:
- Fuel oil interceptor
- water monitoring station
- see YVR Water Quality Monitoring
program

FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 3.0 - marsh area
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 102007

SITE NAME: AIRPORT E2

LOCATION DESC.: S. Bank of Middle Arm
0.8 km d/s from Arthur Laing Bridge

OWNER: YVR

UTM N: 5449895.986

CONTACT: Anne Murray

E: 489222.077

ADDRESS: 4900 North Service Road
Richmond, B.C. V7B 1Y3

PHONE/FAX: 276-6357/276-6596

PHOTO NO.: 2-13

STRUCTURES:

GRAVITY OUTLETS: 1 x 2400 x 1500mm conc. flood box w/flap gates + trash racks

INVERT ELEV.: -1.87 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -2.0 m

DRAWING REF'S: P169 H623 S101

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Airport

DRAWING REF'S: A0 09414020

OTHER DATA/
COMMENT: - Fuel oil interceptor
- see YVR Water Quality MonitoringFLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 102004

SITE NAME: AIRPORT E8

LOCATION DESC.: N. Bank of Middle Arm
0.8 km d/s of Dinsmore Bridge
near Inglis Drive

OWNER: YVR

UTM N: 5447216.372

CONTACT: Anne Murray

E: 488285.591

ADDRESS: 4900 North Service Road
Richmond, B.C. V7B 1Y3

PHONE/FAX: 276-6357/276-6596

PHOTO NO.: 3-18,3-19

STRUCTURES:

GRAVITY OUTLETS: 1 x 1600 x 1600mm flood box w/flap gate + trash racks

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: P169H6235102

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES: 1 x 900mm dia. steel

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Airport
Industrial

DRAWING REF'S: A008414020

OTHER - Fuel oil interceptor
DATA/ - Water monitoring station
COMMENT:
- 1200m diameter conc. culvert in ditch
upstream
- see YVR Water Quality Monitoring

FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - road

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 102009

SITE NAME: AIRPORT N1

LOCATION DESC.: S. Bank of McDonald Slough
600 m from d/s end of Slough

OWNER: YVR

UTM N: 5450886.707

CONTACT: Anne Murray

E: 486003.922

ADDRESS: 4900 North Service Road
Richmond, B.C. V7B 1Y3

PHONE/FAX: 276-6357/276-6596

PHOTO NO.: 2-3

STRUCTURES:

GRAVITY OUTLETS:

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Airport

DRAWING REF'S: A008414020

OTHER - Fuel oil interceptor
DATA/ - water monitoring station
COMMENT: - see YVR Water Monitoring ProgramFLUSH: 3.0 - MacDonald Slough
DISCHARGE: 3.0
HABITAT: 3.0 - bird habitat
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: **High**

SITE:

OUTFALL #: 102008

SITE NAME: PARK BAY

LOCATION DESC.: S. Bank of North Arm
3.0 km d/s from Arthur Laing

OWNER: YVR

UTM N: 5451117.810

CONTACT: Anne Murray

E: 487567.154

ADDRESS: 4900 North Service Road
Richmond, B.C. V7B 1Y3

PHONE/FAX: 276-6357/276-6596

PHOTO NO.: 2-4

STRUCTURES:

GRAVITY OUTLETS: concrete flood boxes

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Airport

DRAWING REF'S: A009414020

OTHER
DATA/
COMMENT:

- see YVR Water Quality Monitoring

FLUSH: 3.0 - outlet in bay
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 2.0 - public park

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: High

SITE:

OUTFALL #: 103003

SITE NAME: DUNBAR STREET

LOCATION DESC.: N. bank of North Arm (Deering Island channel)
4.3 km d/s from Arthur Laing Bridge
adjacent to Point Grey G.C.

OWNER: City of Vancouver

UTM N: 5451793.510

CONTACT: Jeff Addis

E: 486402.586

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7011/873-7419

PHOTO NO.: 1-24

STRUCTURES:

GRAVITY OUTLETS: 1 x 2130mm dia. conc. CSO

INVERT ELEV.: -2.58 m

OUTFALL LENGTH: approx 50m

INVERT DEPTH: 0.18 m

CHART DATUM: -2.4 m

DRAWING REF'S: QB 53-38

WATERCOURSE/CSO: C

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Park
Residential

DRAWING REF'S: I23

OTHER - see CSO Study #8
DATA - no diffusers
COMMENT: - rip rap spit

FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 103001

SITE NAME: WALLACE STREET

LOCATION DESC.: N. bank of North Arm
4.7 km d/s from Arthur Laing Bridge
at end of Wallace St. (extended)

OWNER: City of Vancouver

UTM N: 5452036.707

CONTACT: David Duckworth

E: 486050.531

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 1-21

STRUCTURES:

GRAVITY OUTLETS: 1 x 750mm dia. w/tide gate + conc. structure

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: QB 53 . 36

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Park (Golf)

DRAWING REF'S: QB 53 . 36

OTHER - ditched to dyke
DATA/ - adjacent to cable crossing
COMMENT:

FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.4

RATING: Low

SITE:

OUTFALL #: 103004

SITE NAME: CARRINGTON STREET

LOCATION DESC.: N. bank of Deering Is. channel
4.1 km u/s of Arthur Laing Bridge
at end of Carrington Street

OWNER: City of Vancouver

UTM N: 5451765.339

CONTACT: David Duckworth

E: 486581.253

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 1-25

STRUCTURES:

GRAVITY OUTLETS: 1 x 1050mm dia. w/flap gate + trash rack

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Commercial

DRAWING REF'S: I22

OTHER - cable control on flap gate
DATA/ - drains open channel
COMMENT:

FLUSH: 3.0 - low flow in slough
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 103005

SITE NAME: DEERING ISLAND PLACE

LOCATION DESC.: N. bank of North Arm (Deering Island channel)
4.1 km d/s of Arthur Laing Bridge

OWNER: City of Vancouver

UTM N: 5451689.001

CONTACT: David Duckworth

E: 486493.260

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 2-1

STRUCTURES:

GRAVITY OUTLETS: 1 x 525mm dia.

INVERT ELEV.: -2.0 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -2.2 m

DRAWING REF'S: S69B, QB53-39

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential

DRAWING REF'S:

OTHER - not visually confirmed
DATA/ - rip-rap bank
COMMENT:FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 1.0 - homes nearby

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: Low

SITE:

OUTFALL #: 103006

SITE NAME: BLENHEIM STREET

LOCATION DESC.: N. bank Deering Island Channel
3.7 km d/s from Arthur Laing Bridge
at end of Blenheim St.

OWNER: City of Vancouver

UTM N: 5451689.993

CONTACT: David Duckworth

E: 486919.338

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 2-2

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. conc. w/flap gate

INVERT ELEV.: -0.57 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -2.2 m

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES: 1 x 400mm dia. w/flap gate

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S: I22

OTHER - previously tested by fisheries
DATA - high tannic acid from
COMMENT: hog fuel dump

FLUSH: 3.0 - 40m outlet channel
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 2.1

RATING: **Moderate**

SITE:

OUTFALL #: 103007

SITE NAME: YEW STREET

LOCATION DESC.: N. bank of North Arm
2.5 km d/s of Arthur Laing Bridge
adjacent to Marine Drive Golf Course
(in line with Yew St. extension)

OWNER: City of Vancouver

UTM N: 5451233.231

CONTACT: David Duckworth

E: 488164.787

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 2-5, 2-6

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. (approx)

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: QB 53-P-4

WATERCOURSE/CSO:

PUMPS: capacity unknown (golf course)

DRAWING REF'S:

DISCHARGE PIPES: 1 x 350mm dia.
1 x 200mm dia.

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Golf Course
Residential

DRAWING REF'S:

OTHER DATA/
COMMENT: - adjacent pump owned by golf course

FLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 2.5
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: **Low**

SITE:

OUTFALL #: 103008

SITE NAME: ARBUTUS STREET

LOCATION DESC.: N. bank of North Arm
1.9 km d/s of Arthur Laing Bridge
at end of Arbutus Street

OWNER: City of Vancouver

UTM N: 5450867.734

CONTACT: David Duckworth

E: 488631.147

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 1-18

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. conc.
15 cm wide slots cut into outlet manhole

INVERT ELEV.: -0.5 m

OUTFALL LENGTH: approx 15m

INVERT DEPTH: above water

CHART DATUM: -2.2 m

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Park

DRAWING REF'S: K24

OTHER - no backwater control apparent
DATA/ - manhole outlet structure
COMMENT:

FLUSH: 2.0 - low flow at low tide
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 2.0 - in public park

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 103009

SITE NAME: 75TH AVENUE

LOCATION DESC.: N. bank of North Arm
1.7 km d/s from Arthur Laing Bridge

OWNER: City of Vancouver

UTM N: 5450730.842

CONTACT: David Duckworth

E: 488837.925

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 1-13, 1-14

STRUCTURES:

GRAVITY OUTLETS: 1 x 450mm dia.

INVERT ELEV.: -0.24 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -2.2 m

DRAWING REF'S: QB 53-105

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Park

DRAWING REF'S: L25

OTHER - outfalls into channel 50m from beach
DATA/ - sandbag headwall
COMMENT:FLUSH: 3.0 - outfall channel
DISCHARGE: 2.0
HABITAT: 3.0 - natural vegetation
LAND USE: 3.0
PUBLIC USE: 2.0 - public park

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: **High**

SITE:

OUTFALL #: 103010

SITE NAME: BARNARD STREET

LOCATION DESC.: N. bank of Richmond Island Channel
1.0 km d/s from Arthur Laing Bridge
at end of Barnard Street along 75th Avenue

OWNER: City of Vancouver

UTM N: 5450233.789

CONTACT: David Duckworth

E: 489322.555

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 2-10

STRUCTURES:

GRAVITY OUTLETS: 1 x 1050mm dia. conc.

INVERT ELEV.:

OUTFALL LENGTH: ~5.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: QB 53-78

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Commercial

DRAWING REF'S: L25

OTHER DATA/ COMMENT:
- recently constructed Industrial Park
- rip rap spit over outfall

FLUSH: 2.0 - near Richmond Island
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - rocky shore

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 103011

SITE NAME: BENTLEY STREET

LOCATION DESC.: N. bank of Richmond Island Channel
0.7 km d/s of Arthur Laing Bridge
at end of Bentley Street

OWNER: City of Vancouver

UTM N: 5450092.944

CONTACT: David Duckworth

E: 489541.853

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 2-12

STRUCTURES:

GRAVITY OUTLETS: 1 x 700mm dia.

INVERT ELEV.: -0.56 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -2.0

DRAWING REF'S: QB 53-91

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Commercial

DRAWING REF'S: L25

OTHER DATA/
COMMENT: - not visually confirmed

FLUSH: 3.0 - Richmond Island slough
DISCHARGE: 2.0
HABITAT: 1.0 - dumped concrete slabs
LAND USE: 4.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 103012

SITE NAME: HUDSON STREET

LOCATION DESC.: N. bank of North Arm
immediatey adjacent Arthur Laing Bridge
at end of Hudson Street

OWNER: City of Vancouver

UTM N: 5449682.822

CONTACT: David Duckworth

E: 490122.662

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 2-14

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia.

INVERT ELEV.: -5.3 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -2.0 m

DRAWING REF'S: QB 53-44

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: M26

OTHER - not visually confirmed
DATA/ - very deep
COMMENT:

FLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 103013

SITE NAME: OAK STREET

LOCATION DESC.: N. bank of North Arm
300 m d/s of Oak Street Bridge
at end of Oak Street extension

OWNER: City of Vancouver

UTM N: 5449726.318

CONTACT: David Duckworth

E: 490472.852

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia.

INVERT ELEV.: -9.58 m

OUTFALL LENGTH:

INVERT DEPTH: 7.58 m

CHART DATUM: -2.0 m

DRAWING REF'S: QB 53-45

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: N26

OTHER - not visually confirmed
DATA/ - very deep
COMMENT:

FLUSH: 2.0 -- eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 104001

SITE NAME: NO 1 ROAD NORTH

LOCATION DESC.: S. bank of Middle Arm
2.4 km d/s of Dinsmore Bridge
at end of No. 1 Road

OWNER: City of Richmond

UTM N: 5446830.322

CONTACT: Bill Jones

E: 486789.509

ADDRESS: 6911 No. 3 Road,
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 3-9

STRUCTURES:

GRAVITY OUTLETS: 2 x 1500mm dia.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Residential
Natural Reserve

DRAWING REF'S: OCP

OTHER - Indian Fisheries Boundary
DATA/ - Q10=2.3m³/s (design flow)
COMMENT:

FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 3.0 - marshy shoreline
LAND USE: 3.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 104002

SITE NAME: MCCALLAN

LOCATION DESC.: S. bank of Middle Arm
1.6 km d/s of Dinsmore Bridge
near end of McCallan Rd.

OWNER: City of Richmond

UTM N: 5446799.151

CONTACT: Bill Jones

E: 487596.718

ADDRESS: 6911 No. 3 Road,
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 3-7, 3-8

STRUCTURES:

GRAVITY OUTLETS: 1 x 1500mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Residential
Park

DRAWING REF'S: OCP

OTHER - Q10=1.02m3/s (design flow)
DATA/
COMMENT:

FLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 3.0 - marsh area
LAND USE: 3.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 104003

SITE NAME: NO. 2 ROAD NORTH

LOCATION DESC.: S. bank of Middle Arm
700 m d/s of Dinsmore Bridge
at end of No. 2 Road

OWNER: City of Richmond

UTM N: 5446826.648

CONTACT: Bill Jones

E: 488410.480

ADDRESS: 6911 No. 3 Road,
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 3-6

STRUCTURES:

GRAVITY OUTLETS:

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Residential
Industrial

DRAWING REF'S: OCP

OTHER - Q10=1.02 m3/s (design flow)
DATA/ - drains piped system
COMMENT:

FLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 3.0 - marshy shoreline
LAND USE: 3.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 104004

SITE NAME: GILBERT NORTH

LOCATION DESC.: S. bank of Middle Arm
200 m d/s of Dinsmore Bridge
at end of Hollybridge Way

OWNER: City of Richmond

UTM N: 5447083.682

CONTACT: Bill Jones

E: 488971.242

ADDRESS: 6911 No. 3 Road,
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 3-4, 3-5

STRUCTURES:

GRAVITY OUTLETS: 2 x 2000mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES: 1 x 720mm dia. cast iron
(5m extended)

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S: OCP

OTHER - 6 floodboxes visible on interior side
DATA/ - drains open channel
COMMENT:

FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 1.0 - dyke walking (unusual)

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 104005

SITE NAME: CAMBIE ROAD

LOCATION DESC.: S. bank of Middle Arm
900 m u/s of Dinsmore Bridge
near end of Cambie Road

OWNER: City of Richmond

UTM N: 5448005.690

CONTACT: Bill Jones

E: 489863.481

ADDRESS: 6911 No. 3 Road,
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 2-17, 2-18

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Residential, Industrial,
Commercial

DRAWING REF'S: OCP

OTHER - Q10 = 2.35 m3/s (design flow)
DATA/ - slight sewage odour
COMMENT:

FLUSH: 2.0 - behind marina
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 1.5 - public marina

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 104007

SITE NAME: BRIDGE PUMP

LOCATION DESC.: N. Bank of Middle Arm
near Middle Arm Bridge

OWNER: City of Richmond

UTM N: 5448790.541

CONTACT: Bill Jones

E: 489824.915

ADDRESS: 6911 No. 3 Road,
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 2-15

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Airport sewer plan

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S:

OTHER DATA/
COMMENT: - stagnant waterFLUSH: 2.0 - eddy, Middle Arm
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 114001

SITE NAME: MACDONALD STREET

LOCATION DESC.: N. bank of North Arm
3.0 km u/s of Arthur Laing Bridge
adj. to Marine Drive Golf Course

OWNER: GVRD

UTM N: 5451454.362

CONTACT: Russ Black

E: 487730.292

ADDRESS: 4330 Kingsway
Burnaby, B.C. V5H 4G8

PHONE/FAX: 432-6200/432-6251

PHOTO NO.: 2-8

STRUCTURES:

GRAVITY OUTLETS: 1 x 1500mm dia. CSO

INVERT ELEV.: -2.54 m

OUTFALL LENGTH: 0

INVERT DEPTH: 0.34 m

CHART DATUM: -2.2 m

DRAWING REF'S: QB 53-L

WATERCOURSE/CSO: C

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Golf Course

DRAWING REF'S:

OTHER - not visually confirmed
DATA/ - very deep
COMMENT:
- adjacent to 115003

FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 114002

SITE NAME: ANGUS DRIVE

LOCATION DESC.: N. bank of North Arm
1.2 km d/s of Arthur Laing Bridge
at end of Angus Drive

OWNER: GVRD

UTM N: 5450337.360

CONTACT: Russ Black

E: 489060.765

ADDRESS: 4330 Kingsway
Burnaby, B.C. V5H 4G8

PHONE/FAX: 432-6200/432-6251

PHOTO NO.: 2-9

STRUCTURES:

GRAVITY OUTLETS: 1 x 2000mm dia. CSO

INVERT ELEV.: -1.64 m

OUTFALL LENGTH: <50m

INVERT DEPTH: above water

CHART DATUM: -2.0 m

DRAWING REF'S: QB 53-N

WATERCOURSE/CSO: C

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Commercial

DRAWING REF'S:

OTHER - see CSO Studies #'s 5, 6, 7, 8
DATA/ - rip rap spit constructed
COMMENT: - not visually confirmed

FLUSH: 2.0 - eddy behind Richmond Island
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 1.0 - public park

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 115000

SITE NAME: MUSQUEAM CR

LOCATION DESC.: N. bank of North Arm
5.2km D/s from Authur Lang Bridge.

OWNER: Private/Unknown

UTM N: 5452122.842

CONTACT:

E: 485467.950

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 1-20

STRUCTURES:

GRAVITY OUTLETS: - watercourse

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: W

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Golf course
Undeveloped

DRAWING REF'S:

OTHER DATA/
COMMENT: - drains reserve landsFLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 1.0
PUBLIC USE: 0.0 - no public access

ENVIRONMENTAL SENSITIVITY INDEX: 1.2

RATING: Low

SITE:

OUTFALL #: 115001

SITE NAME: POINT GREY GOLFCOURSE

LOCATION DESC.: N. bank of North Arm
4.6 km d/s from Arthur Laing Bridge

OWNER: Private/Unknown

UTM N: 5452010.801

CONTACT:

E: 486148.197

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 1-22

STRUCTURES:

GRAVITY OUTLETS: 2 x 600mm dia. w/flap gates

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Q853-37

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES: 1 x 600mm dia.

CONTROLS: manual ?

DRAINAGE AREA:

LAND USE: Golf course

DRAWING REF'S:

OTHER - drains creek from golf course
DATA/ - probably owned by golf course
COMMENT:FLUSH: 3.0 - outlet channel
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 2.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 115002

SITE NAME: DEER INLET

LOCATION DESC.: N. bank of North Arm

OWNER: Private/Unknown

UTM N: 5451801.052

CONTACT:

E: 486445.035

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 1-23

STRUCTURES:

GRAVITY OUTLETS: - none

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES: 1 x 600 mm dia. cmp w/flapgate

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Golf course

DRAWING REF'S:

OTHER - pump operated by golf course

DATA/

COMMENT:

FLUSH: 3.0 - mouth of slough

DISCHARGE: 2.0

HABITAT: 1.0 - dumped concrete shoreline

LAND USE: 2.0 - golf course

PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 115003

SITE NAME: MARINE DRIVE G.C.

LOCATION DESC.: N. bank of North Arm
3.0 Km u/s of Arthur Laing Bridge
adj. to GVRD outfall

OWNER: Private/Unknown

UTM N: 5451454.362

CONTACT:

E: 487730.292

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 2-7

STRUCTURES:

GRAVITY OUTLETS: - none

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES: 1 x 200mm dia. cmp w/flapgate
1 x 600mm dia. cmp w/flapgate

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Golf course

DRAWING REF'S:

OTHER - drainage for golf course ditches
DATA/ - pump owned/operated by golf course
COMMENT: management

FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 2.0 - golf course
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.2

RATING: **Low**

SITE:

OUTFALL #: 115004

SITE NAME: CASCADE

LOCATION DESC.: N. bank of Richmond Island Slough
750m D/S of Arthur Laing Bridge

OWNER: Private/Unknown

UTM N: 5450180.470

CONTACT:

E: 489407.024

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 2-11

STRUCTURES:

GRAVITY OUTLETS: 1 x 200mm dia. conc.

INVERT ELEV.:

OUTFALL LENGTH: 1.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER DATA/
COMMENT: - parking lot drainageFLUSH: 3.0 - behind Richmond Island
DISCHARGE: 1.0
HABITAT: 1.0 - dumped fill
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 115005

SITE NAME: ROADRAMP

LOCATION DESC.: N. bank of Middle Arm
0.7km d/s of Dinsmore Bridge

OWNER: Private/Unknown

UTM N: 5448153.991

CONTACT:

E: 489561.947

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 2-16 (inlet)

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Roadway drainage

DRAWING REF'S:

OTHER - outlet not visually confirmed
DATA/ - drains highway area
COMMENT:FLUSH: 3.0 - marshy bay, log sort
DISCHARGE: 2.0
HABITAT: 3.0 - marsh area
LAND USE: 1.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 203001

SITE NAME: SHAUGHNESSY

LOCATION DESC.: N. bank of North Arm
100 m u/s of Oak Street Bridge
at end of Shaughnessy St.

OWNER: City of Vancouver

UTM N: 5449880.649

CONTACT: Jeff Addis

E: 490830.392

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7011/873-7419

PHOTO NO.: 4-F

STRUCTURES:

GRAVITY OUTLETS: 1 x 1500mm dia. conc. CSO

INVERT ELEV.: -2.70 m

OUTFALL LENGTH: <50

INVERT DEPTH: 0.70 m

CHART DATUM: -2.0 m

DRAWING REF'S: QB 53 #46

WATERCOURSE/CSO: C

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S: N26

OTHER - no diffusers
DATA/ - not visually confirmed
COMMENT: - very deep

FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0 - fill
LAND USE: 3.5
PUBLIC USE: 1.0 - public park

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 203002

SITE NAME: HEATHER

LOCATION DESC.: N. bank of North Arm
350 m u/s of Oak Street Bridge
at end of Heather St.

OWNER: City of Vancouver

UTM N: 5449990.489

CONTACT: David Duckworth

E: 491028.259

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia.

INVERT ELEV.: -1.50 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -2.0 m

DRAWING REF'S: QB 53-47

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: O26

OTHER - see CSO Studies #'s 5,6,7,8
DATA - not visually confirmed
COMMENT: - very deep

FLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 203005

SITE NAME: FRASER STREET

LOCATION DESC.: N. bank of Mitchell Channel
1.0 km d/s from Knight Street Bridge

OWNER: City of Vancouver

UTM N: 5450332.979

CONTACT: David Duckworth

E: 493322.170

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 4-22

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia.

INVERT ELEV.: -0.28 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.8 m

DRAWING REF'S: QB 53-49

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: Q25

OTHER DATA/
COMMENT: - manhole structure @ river bankFLUSH: 2.0 - eddy, slight bay
DISCHARGE: 2.0
HABITAT: 1.0 - fill
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 203007

SITE NAME: VICTORIA

LOCATION DESC.: N. bank of North Arm
800 m u/s of Knight Street Bridge
at end of Victoria Avenue (slightly u/s)

OWNER: City of Vancouver

UTM N: 5450417.059

CONTACT: David Duckworth

E: 495115.513

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 4-20

STRUCTURES:

GRAVITY OUTLETS: 1 x 1060mm dia. w/ screen (no flapgate)

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: QB 53-82

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multiple Family Residential
Industrial

DRAWING REF'S: T25

OTHER DATA/ COMMENT: - recently constructed/ extended to
sheet pile retaining wall

FLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 203008 SITE NAME: ELLIOT STREET

LOCATION DESC.: N. bank of North Arm
1.5 km u/s of Knight Street Bridge
at end of Elliot Street

OWNER: City of Vancouver UTM N: 5450306.719

CONTACT: David Duckworth E: 495830.991

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200 PHOTO NO.: 4-19

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. conc.

INVERT ELEV.: -3.56 m

OUTFALL LENGTH:

INVERT DEPTH: 1.76 m

CHART DATUM: -1.8 m

DRAWING REF'S: QB 53-50

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential

DRAWING REF'S: T25

OTHER - not visually confirmed - very deep
DATA/ - manhole located
COMMENT:
- new rip rap

FLUSH: 2.0 - bay, eddy
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 1.0 - public park

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 203009

SITE NAME: VIVIAN CR.

LOCATION DESC.: N. bank of North Arm
1.7 km u/s of Knight Street Bridge

OWNER: City of Vancouver

UTM N: 5450270.711

CONTACT: David Duckworth

E: 496234.648

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 4-17

STRUCTURES:

GRAVITY OUTLETS: 1 x 1650mm dia. conc.

INVERT ELEV.:

OUTFALL LENGTH: 6.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: QB 53-P5

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Park (Golf Course)
Under Development

DRAWING REF'S: U25

OTHER - recently realigned
DATA/ - recent landfill
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 2.5
PUBLIC USE: 1.0 - future park

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: **Low**

SITE:

OUTFALL #: 203011

SITE NAME: KERR STREET

LOCATION DESC.: N. bank of North Arm
2.5 km u/s of Knight Street Bridge
at end of Kerr Street

OWNER: City of Vancouver

UTM N: 5450293.597

CONTACT: David Duckworth

E: 496900.546

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 4-15

STRUCTURES:GRAVITY OUTLETS: 1 x 1050mm dia. w/ tide gates
1 x 350mm dia.

INVERT ELEV.: 0.5 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.6 m

DRAWING REF'S: QB 53-51A

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential, Park
Industrial

DRAWING REF'S: V25

OTHER DATA/
COMMENT: - outfall beneath public pier in parkFLUSH: 3.0 - outlet bay, pier
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 2.0 - public pier

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 203012

SITE NAME: MACBLO

LOCATION DESC.: N. bank of North Arm
2.7 km u/s of Knight Street Bridge
at end of Kerr Street

OWNER: City of Vancouver

UTM N: 5450239.748

CONTACT: David Duckworth

E: 497085.140

ADDRESS: City Hall, 453 West 12th Avenue
Vancouver, B.C. V5Y 1V4

PHONE/FAX: 873-7323/873-7200

PHOTO NO.: 4-14

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. w/ flap gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Industrial

DRAWING REF'S:

OTHER - piped beneath MacMillan Bloedel yard
DATA - unsure of source
COMMENT:

FLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 3.0 - natural vegetation
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 204001

SITE NAME: NO. 4 ROAD NORTH(10)

LOCATION DESC.: S. bank of Twigg Channel
800 m u/s of Oak Street Bridge
near end of No. 4 Road

OWNER: City of Richmond

UTM N: 5449759.990

CONTACT: Bill Jones

E: 491779.438

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 2-19, 2-20

STRUCTURES:

GRAVITY OUTLETS: 2 x 1500mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S: OCP

OTHER - culverts dented by log booms
DATA - rip rap bank
COMMENT: - Q10=3.85 m3/s (design flow)

FLUSH: 2.0 - log booms
DISCHARGE: 3.0
HABITAT: 1.0 - rip rap bank
LAND USE: 3.5
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 204002

SITE NAME: SHELL NORTH (11)

LOCATION DESC.: S. bank of Twigg Channel
1.6 km u/s of Oak Street Bridge
at end of Shell Road

OWNER: City of Richmond

UTM N: 5449476.796

CONTACT: Bill Jones

E: 492479.182

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 2-21, 2-22

STRUCTURES:

GRAVITY OUTLETS: 2 x 1500mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S: OCP

OTHER - rip rap bank
DATA/ - Q10=2.89 m3/s (design flow)
COMMENT:FLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 204003

SITE NAME: BATH SLOUGH (13)

LOCATION DESC.: S. bank of Twigg Channel
1 km d/s from Knight Street Bridge

OWNER: City of Richmond

UTM N: 5449316.021

CONTACT: Bill Jones

E: 493451.200

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 2-23

STRUCTURES:

GRAVITY OUTLETS: 1 x 3000mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: 3 x 1.25 m3/s, 1 x 0.46 m3/s

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S: OCP

OTHER - Q10=2.04 m3/s (design flow)

DATA/ - drains open channel

COMMENT:

FLUSH: 1.0

DISCHARGE: 3.0

HABITAT: 1.0 - rip rap bank

LAND USE: 3.5

PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: Low

SITE:

OUTFALL #: 204004

SITE NAME: NO 6 ROAD NORTH (14)

LOCATION DESC.: S. bank of Twigg Channel
600 m u/s from Knight Street Bridge
near end of No. 6 Road

OWNER: City of Richmond

UTM N: 5449910.599

CONTACT: Bill Jones

E: 494920.855

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 2-24, 2-25

STRUCTURES:

GRAVITY OUTLETS: 1 x 2000mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: 2 x 0.54 m³/s, 1 x 0.13 m³/s

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial
Agricultural

DRAWING REF'S: OCP

OTHER DATA/
COMMENT: - slightly dentedFLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 204005

SITE NAME: NO.7 ROAD NORTH (15)

LOCATION DESC.: S. bank of North Arm
2.2 Km u/s of Knight St. bridge
near end of No. 7 Rd

OWNER: City of Richmond

UTM N: 5449941.379

CONTACT: Bill Jones

E: 496576.020

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 3-1

STRUCTURES:

GRAVITY OUTLETS: 1 x 3000mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: 2 x 0.88 m3/s, 1 x 0.46 m3/s

DRAWING REF'S:

DISCHARGE PIPES: 1 x 1200mm dia. conc.

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial
Agricultural

DRAWING REF'S:

OTHER - three flood gates
DATA/ - Q10 = 2.92 m3/s (design flow)
COMMENT:FLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 204006

SITE NAME: NO 8 ROAD NORTH (16)

LOCATION DESC.: S. bank of North Arm
3.1 km d/s from CNR Bridge
near end of No. 8 Road

OWNER: City of Richmond

UTM N: 5449459.308

CONTACT: Bill Jones

E: 498210.162

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 3-2, 3-3

STRUCTURES:

GRAVITY OUTLETS: 1 x 3600mm dia. cmp @ outlet to floodboxes

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: 3 x 0.76 m³/s, 1 x 0.35 m³/s

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S: OCP

OTHER - two manual floodgates
DATA - drains open channels
COMMENT: - intake area weed-choked
- flapgate on adjacent ditch
- adjacent to pipeline crossing
- Q10=2.0 m³/s(design flow)

FLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 2.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: Low

SITE:

OUTFALL #: 206001

SITE NAME: BOUNDARY ROAD (BBY)

LOCATION DESC.: N. bank of North Arm
3.3 km d/s of CNR Bridge
at end of Boundary Road - East Side

OWNER: City of Burnaby

UTM N: 5449821.522

CONTACT: Don Braun

E: 498284.720

ADDRESS: 4949 Canada Way
Burnaby, B.C.V5G 1M2

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 4-9

STRUCTURES:

GRAVITY OUTLETS: 1 x 1500mm dia. conc. pipe leading to outfall structure

INVERT ELEV.: 0.59 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.6 m

DRAWING REF'S: 870504-1/86355-37

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: Big Bend Dev. Plan

OTHER DATA/ COMMENT: - outfall structure includes riprap and
gravel fill (filter cloth)
- may be City of Vancouver connection

FLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0 - rocky shore
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 204007

SITE NAME: BLACK DITCH

LOCATION DESC.: S. bank of North Arm
0.5 km d/s of CNR Bridge
along River Road

OWNER: City of Richmond

UTM N: 5448014.825

CONTACT: Bill Jones

E: 500388.749

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 5-2, 5-3

STRUCTURES:GRAVITY OUTLETS: 2 x 900mm w/flap gates
1 x 1200mm dia. w/irrigation gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural
Industrial

DRAWING REF'S:

OTHER -very dark black water
DATA/ - drains open channel beneath River Rd.
COMMENT:FLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0 - rip rap bank
LAND USE: 3.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 206003

SITE NAME: FRASERWOOD

LOCATION DESC.: N. bank of North Arm
2.9 km d/s of CNR Bridge
at end of Fraserwood Ct.

OWNER: City of Burnaby

UTM N: 5449612.103

CONTACT: Don Braun

E: 498628.390

ADDRESS: 4949 Canada Way
Burnaby, B.C.V5G 1M2

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 4-8

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. conc. pipe leading to outfall structure

INVERT ELEV.: 0.40 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.6 m

DRAWING REF'S: 870504-5 / 86355-37

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Under Development

DRAWING REF'S: Land Use Map

OTHER DATA/ COMMENT: - outfall with gravel filters, rip rap,
etc.FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 3.0 - natural vegetation nearby
LAND USE: 4.0
PUBLIC USE: 1.0 - public walkway, park

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 206004

SITE NAME: KAYMAR CREEK

LOCATION DESC.: N. bank of North Arm
2.7 km d/s of CNR Bridge

OWNER: City of Burnaby

UTM N: 5449521.942

CONTACT: Don Braun

E: 498804.240

ADDRESS: 4949 Canada Way
Burnaby, B.C.V5G 1M2

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 4-7

STRUCTURES:GRAVITY OUTLETS: 1 x 900mm dia. conc. pipe leading to outfall structure
2 x 1500mm dia. conc.

INVERT ELEV.: -0.60 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.6 m

DRAWING REF'S: 870504-7

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: Big Bend Dev. Plan

OTHER - trashrack
DATA/ - flap gates
COMMENT: - drains open channel creek
- culverts pass beneath park pathFLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 3.0 - natural bank nearby
LAND USE: 4.0
PUBLIC USE: 1.0 - public walkway

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: **High**

SITE:

OUTFALL #: 206005

SITE NAME: FRASERTON

LOCATION DESC.: N. bank of North Arm
2.5 km d/s of CNR Bridge
adjacent to Fraserton Ct.

OWNER: City of Burnaby

UTM N: 5449463.512

CONTACT: Don Braun

E: 498927.929

ADDRESS: 4949 Canada Way
Burnaby, B.C.V5G 1M2

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 4-6

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. conc.

INVERT ELEV.: 0.22 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.4 m

DRAWING REF'S: 870504-6, 86355-37

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: Big Bend Dev. Plan

OTHER DATA/ COMMENT: - outfall structure as described in
86355-37
- gravel, rip rap, filter cloth
- orange coloured sludge coming from
outfallFLUSH: 2.0 - outlet bay, eddy
DISCHARGE: 2.0
HABITAT: 3.0 - natural vegetation nearby
LAND USE: 4.0
PUBLIC USE: 1.0 - public walkway

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 206006

SITE NAME: PATTERSON

LOCATION DESC.: N. bank of North Arm
2.3 km d/s of CNR Bridge
in line with Patterson Street

OWNER: City of Burnaby

UTM N: 5449414.328

CONTACT: Don Braun

E: 499059.611

ADDRESS: 4949 Canada Way
Burnaby, B.C.V5G 1M2

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 5-4

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. cmp w/flapgate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: no records

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial, Park
Under Development

DRAWING REF'S: Big Bend Dev. Plan

OTHER DATA/
COMMENT: - near pipeline crossingFLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 3.0 - natural banks
LAND USE: 3.0
PUBLIC USE: 1.0 - public trail

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 206007

SITE NAME: SUSSEX AVENUE

LOCATION DESC.: N. bank of North Arm
1.8 km d/s of CNR Bridge
at end of Sussex Ave.

OWNER: City of Burnaby

UTM N: 5449166.054

CONTACT: Don Braun

E: 499589.163

ADDRESS: 4949 Canada Way
Burnaby, B.C.V5G 1M2

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 4-4

STRUCTURES:**GRAVITY OUTLETS:**

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: W

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Park

DRAWING REF'S: no records

OTHER DATA/
COMMENT: - under construction -may be piped soonFLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 3.0 - natural banks
LAND USE: 3.0
PUBLIC USE: 1.0 - public trail

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 206008

SITE NAME: BYRNE CREEK

LOCATION DESC.: N. bank of North Arm
1.6 km d/s of CNR Bridge

OWNER: City of Burnaby

UTM N: 5449079.564

CONTACT: Don Braun

E: 499792.978

ADDRESS: 4949 Canada Way
Burnaby, B.C.V5G 1M2

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 4-3

STRUCTURES:GRAVITY OUTLETS: 3 x 2.05m x 2.05m conc. box culverts w/flood gates
+ trash racks

INVERT ELEV.: -0.80 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.4 m

DRAWING REF'S: 830016

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Park

DRAWING REF'S: Big Bend Dev. Plan

OTHER - drains mouth of creek
DATA/
COMMENT:FLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 3.0 - natural banks nearby
LAND USE: 3.0
PUBLIC USE: 2.0 - park

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: **High**

SITE:

OUTFALL #: 206009

SITE NAME: BYRNE PUMP

LOCATION DESC.: N. bank of North Arm
1.3 km d/s of CNR Bridge
at end of Byrne Road

OWNER: City of Burnaby

UTM N: 5448841.906

CONTACT: Don Braun

E: 499980.895

ADDRESS: 4949 Canada Way
Burnaby, B.C.V5G 1M2

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 4-1, 4-2

STRUCTURES:

GRAVITY OUTLETS: 4 x 1067mm dia. cmp w/trash racks

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: 2-1487

WATERCOURSE/CSO:

PUMPS: 2 x 1770 litres/sec capacity (@ 3.27 m head)

DRAWING REF'S:

DISCHARGE PIPES: 2 x 914mm dia.

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial
Park

DRAWING REF'S: Big Bend Dev. Plan

OTHER DATA/
COMMENT: - 2 floodboxes plugged - welded shut at
gates
- see "Byrne Road Pump Station -
System Desc. & Operating Instructions"FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 3.0 - natural banks nearby
LAND USE: 4.0
PUBLIC USE: 2.0 - park, fishing

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: **High**

SITE:

OUTFALL #: 206010

SITE NAME: TILlicum

LOCATION DESC.: N. bank of North Arm
600 m d/s from CNR Bridge
at end of Tillicum Street

OWNER: City of Burnaby

UTM N: 5448270.180

CONTACT: Don Braun

E: 500446.269

ADDRESS: 4949 Canada Way
Burnaby, B.C.V5G 1M2

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 5-1

STRUCTURES:

GRAVITY OUTLETS: 2 x 900mm dia. cmp w/ flap gates (different inverts)

INVERT ELEV.: 1.07,-0.10

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.4 m

DRAWING REF'S: 870524

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Park
Industrial (under development)

DRAWING REF'S: Big Bend Dev. Plan

OTHER DATA/ COMMENT: - replaces 1 x 900 m & 1 x 700 mm wood
staves
- drains open channel

FLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 206011

SITE NAME: EMILY STREET

LOCATION DESC.: N. bank of North Arm
150 m d/s from CNR Bridge
at end of Emily Street (proposed)

OWNER: City of Burnaby

UTM N: 5448024.542

CONTACT: Don Braun

E: 500789.570

ADDRESS: 4949 Canada Way
Burnaby, B.C.V5G 1M2

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 5-6

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. conc. w/flap gate + trash rack

INVERT ELEV.: 0.100 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.2 m

DRAWING REF'S: 870524

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial (under development)
Institutional

DRAWING REF'S: Big Bend Dev. Plan

OTHER - near Corrections Centre
DATA/ - Emily Street not constructed
COMMENT:

FLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0 - proposed
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 214003

SITE NAME: MANITOBA STREET

LOCATION DESC.: N. bank of Mitchell Channel
1.3 km u/s of Oak Street Bridge
at end of Manitoba St.

OWNER: GVRD

UTM N: 5450310.573

CONTACT: Russ Black

E: 491924.926

ADDRESS: 4330 Kingsway
Burnaby, B.C. V5H 4G8

PHONE/FAX: 432-6200/432-6251

PHOTO NO.: 4-25

STRUCTURES:

GRAVITY OUTLETS: 1 x 1800mm dia. CSO

INVERT ELEV.: -5.60 m

OUTFALL LENGTH: 18 m

INVERT DEPTH: 3.60 m

CHART DATUM: -2.0 m

DRAWING REF'S: QB 53-M

WATERCOURSE/CSO: C

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: P25

OTHER - see CSO Study #8
DATA/ - not visually confirmed - very deep
COMMENT: - near log sort yard
- note sign in photoFLUSH: 2.0 - Mitchell Channel
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 214004

SITE NAME: SOUTH HILL

LOCATION DESC.: N. bank of Mitchell Channel
1.1 km d/s from Knight Street Bridge

OWNER: GVRD

UTM N: 5450287.813

CONTACT: Russ Black

E: 493188.993

ADDRESS: 4330 Kingsway
Burnaby, B.C. V5H 4G8

PHONE/FAX: 432-6200/432-6251

PHOTO NO.: 4-23

STRUCTURES:

GRAVITY OUTLETS: 1 x 1800mm dia. CSO

INVERT ELEV.: -7.30 m

OUTFALL LENGTH: 42 m

INVERT DEPTH: 5.50 m

CHART DATUM: -1.8 m

DRAWING REF'S: QB 53-0, S829

WATERCOURSE/CSO: C

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S:

OTHER - see CSO Studies #'s 5,6,7,8
DATA - not visually confirmed - very deep
COMMENT: - passes under saw mill
- note sign in photoFLUSH: 2.0 - Mitchell Channel
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 214006

SITE NAME: BORDEN STREET

LOCATION DESC.: N. bank of Mitchell Channel
100 m u/s of Knight Street Bridge

OWNER: GVRD

UTM N: 5450662.482

CONTACT: Russ Black

E: 494484.100

ADDRESS: 4330 Kingsway
Burnaby, B.C. V5H 4G8

PHONE/FAX: 432-6200/432-6251

PHOTO NO.: 4-21

STRUCTURES:

GRAVITY OUTLETS: 1 x 2100mm dia. CSO

INVERT ELEV.: -4.70 m

OUTFALL LENGTH: ~6.0 m

INVERT DEPTH: 2.90 m

CHART DATUM: -1.8 m

DRAWING REF'S: QB 53-P, S80b

WATERCOURSE/CSO: C

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S:

OTHER - see CSO Study #8
DATA - no diffusers
COMMENT: - not visually confirmed - very deep
- note sign in photoFLUSH: 2.0 - eddy, bay
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #:	215001	SITE NAME:	MILL
LOCATION DESC.:	N. bank of North Arm 3.3 Km d/s of CNR Bridge		
OWNER:	Private/ Unknown	UTM N:	5449998.420
CONTACT:		E:	497694.240
ADDRESS:			
PHONE/FAX:	- / -	PHOTO NO.:	4-10, 4-11

STRUCTURES:

GRAVITY OUTLETS: 1 x 500mm dia. cmp w/ flap gate	
INVERT ELEV.:	OUTFALL LENGTH: 0
INVERT DEPTH:	CHART DATUM:
DRAWING REF'S:	WATERCOURSE/CSO:

PUMPS:	
DRAWING REF'S:	DISCHARGE PIPES:
CONTROLS:	

DRAINAGE AREA:	LAND USE: Industrial
DRAWING REF'S:	

OTHER DATA/ COMMENT:	- drains mill yard	FLUSH:	2.0 - log sort area
		DISCHARGE:	2.0
		HABITAT:	1.0
		LAND USE:	4.0
		PUBLIC USE:	0.0 - no access
<hr/>			
ENVIRONMENTAL SENSITIVITY INDEX:		1.8	
RATING:		Low	

SITE:

OUTFALL #: 215002

SITE NAME: KINROSS CK

LOCATION DESC.: N. bank of North Arm
2.5 Km u/s of Knight St. Bridge

OWNER: Private/ Unknown

UTM N: 5450200.732

CONTACT:

E: 497219.134

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 4-12, 4-13

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. w/flap gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - outfalls into 3 x 5 m basin
DATA/ - exits through trash rack in side wall
COMMENT: of basin
- see photosFLUSH: 2.0 - small bay, eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 215003

SITE NAME: JELlicOE

LOCATION DESC.: N. bank of North Arm
150 m d/s of end of Jellicoe St.

OWNER: Private/ Unknown

UTM N: 5450277.838

CONTACT:

E: 496488.739

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 4-16

STRUCTURES:

GRAVITY OUTLETS: 1 x 200mm dia. conc.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - maybe abandoned
DATA/ - original building torn down
COMMENT:FLUSH: 1.0
DISCHARGE: 1.0
HABITAT: 1.0 - fill
LAND USE: 4.0
PUBLIC USE: 1.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 215004

SITE NAME: NEAR ELLIOT

LOCATION DESC.: N. bank of North Arm
150 m u/s of Elliot Street

OWNER: Private/ Unknown

UTM N: 5450264.803

CONTACT:

E: 495901.513

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 4-18

STRUCTURES:

GRAVITY OUTLETS: 1 x 300mm dia. PVC

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Park
Residential

DRAWING REF'S:

OTHER - no flapgate, but steep grade
DATA/ - drains park and catches flow
COMMENT: from CNR culvertFLUSH: 2.0 - eddy
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 2.0
PUBLIC USE: 1.0 - park area

ENVIRONMENTAL SENSITIVITY INDEX: 1.4

RATING: Low

SITE:

OUTFALL #: 215005

SITE NAME: SOUTH BRIDGE

LOCATION DESC.: N. bank of Mitchell Channel
1.7 km d/s from Knight St. Bridge
at end of Southbridge Business Park

OWNER: Private/ Unknown

UTM N: 5450265.351

CONTACT:

E: 492728.277

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 4-24

STRUCTURES:

GRAVITY OUTLETS: 2 x 500mm dia. w/ flapgates

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - probably drains business park parking
DATA/ lot, roofs etc.
COMMENT: - 320-370 E. Kent Ave S.

FLUSH: 2.0 - Mitchell Channel
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 304001

SITE NAME: NO.1 ROAD SOUTH (34)

LOCATION DESC.: N. bank of South Arm
8 km d/s of Deas Tunnel
at end of No 1. Road

OWNER: City of Richmond

UTM N: 5441246.901

CONTACT: Bill Jones

E: 486736.240

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 6-9, 6-10

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: - capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Residential
Industrial

DRAWING REF'S: OCP

OTHER - drains piped system
DATA/
COMMENT:FLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 304002

SITE NAME: NO.2 ROAD SOUTH (33)

LOCATION DESC.: N. bank of South Arm
6.5 km d/s of Deas Tunnel
near Marina

OWNER: City of Richmond

UTM N: 5440634.029

CONTACT: Bill Jones

E: 488230.182

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 6-7, 6-8

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: - capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Residential
Industrial

DRAWING REF'S: OCP

OTHER - drains open sheet piled channel
DATA/ - drains into marina
COMMENT:FLUSH: 3.0 - harbour
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 1.0 - public marina

ENVIRONMENTAL SENSITIVITY INDEX: 2.3

RATING: **Moderate**

SITE:

OUTFALL #: 304003

SITE NAME: GILBERT SOUTH (32)

LOCATION DESC.: N. bank of South Arm
5.2 km d/s of Deas Tunnel
at end of Gilbert Road

OWNER: City of Richmond

UTM N: 5439911.501

CONTACT: Bill Jones

E: 489157.280

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 6-11, 6-12

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: - capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Agricultural
Residential

DRAWING REF'S: OCP

OTHER - pumps from open channel/ditch
DATA/ - adj. to sanitary sewer outfall
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 1.0 - waterfront park

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 304004

SITE NAME: NO 3 ROAD SOUTH (30)

LOCATION DESC.: N. bank of South Arm
4.4 km d/s of Deas Tunnel
at end of No. 3 Road

OWNER: City of Richmond

UTM N: 5439746.466

CONTACT: Bill Jones

E: 489987.667

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 6-13, 6-14

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: 2 x 0.63 m³/s, 1 x 0.13 m³/s

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Agricultural
Residential

DRAWING REF'S: OCP

OTHER - drains open channel
DATA/ - new construction on site
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 2.5
PUBLIC USE: 1.0 - waterfront park

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: **Low**

SITE:

OUTFALL #: 304005

SITE NAME: WOODWARDS SLOUGH(29)

LOCATION DESC.: N. bank of South Arm
3.4 km d/s of Deas Slough

OWNER: City of Richmond

UTM N: 5439807.237

CONTACT: Bill Jones

E: 490960.534

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 6-15, 6-16

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: - capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Agricultural
Industrial

DRAWING REF'S: OCP

OTHER DATA/
COMMENT: - drains sloughFLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 3.0 - marshy area
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 304006

SITE NAME: HORSESHOE SLOUGH(27)

LOCATION DESC.: N. bank of South Arm
1.3 km d/s of Deas Slough

OWNER: City of Richmond

UTM N: 5440798.630

CONTACT: Bill Jones

E: 493023.494

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 6-17, 6-18

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: - capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial, Agricultural,
Residential

DRAWING REF'S: OCP

OTHER DATA/ COMMENT: - drains open channel, piped outfalls,
and slough
- site XE03153-01 (p. 61) 1978 reportFLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0 - rocky shoreline
LAND USE: 3.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 304007

SITE NAME: STEVESTON RD.W.(35A)

LOCATION DESC.: W. bank of Lulu Island (Richmond)
1 Km north of South Arm
at end of Steveston Road

OWNER: City of Richmond

UTM N: 5442353.758

CONTACT: Bill Jones

E: 485815.516

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 3-16, 3-17

STRUCTURES:

GRAVITY OUTLETS: - none

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES: 1 x 350mm dia. (approx)

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Residential

DRAWING REF'S:

OTHER - no flood boxes
DATA/ - pumped outfall has 1.5 m wide wier
COMMENT: to prevent back flows
- open channel to north
- pipe, culvert to south

FLUSH: 3.0 - channel to ocean
DISCHARGE: 2.0
HABITAT: 3.0 - foreshore marsh
LAND USE: 3.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: **High**

SITE:

OUTFALL #: 304008

SITE NAME: WILLIAMS RD.W. (36)

LOCATION DESC.: W. bank of Lulu Island
1 km north of South Arm
at end of Williams Road

OWNER: City of Richmond

UTM N: 5443139.442

CONTACT: Bill Jones

E: 485770.820

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 3-14, 3-15

STRUCTURES:

GRAVITY OUTLETS: - none

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS: 1 x 0.63 m3/s, 3 x 300mm dia. intakes

DRAWING REF'S:

DISCHARGE PIPES: 1 x 300mm dia. w/flapgate
1 x 600 mm dia. w/flapgate

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Residential

DRAWING REF'S:

OTHER DATA/
COMMENT: - drains open ditch along inside
of dyke
- drains 2 x 250 mm dia. storm
sewers along Williams Rd.FLUSH: 3.0 - channel to ocean
DISCHARGE: 2.0
HABITAT: 3.0 - foreshore marsh
LAND USE: 3.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: **High**

SITE:

OUTFALL #: 304009

SITE NAME: FRANCIS RD. W. (37)

LOCATION DESC.: W. bank of Lulu Island
2.5 km north of South Arm
at end of Francis Road

OWNER: City of Richmond

UTM N: 5443954.164

CONTACT: Bill Jones

E: 485741.271

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 3-12, 3-13

STRUCTURES:

GRAVITY OUTLETS: - none

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS: 1 x 0.63 m³/s

DRAWING REF'S:

DISCHARGE PIPES: 1 x 450 mm dia.
1 x 300 mm dia.

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Residential

DRAWING REF'S:

OTHER - no flood boxes
DATA/
COMMENT:FLUSH: 3.0 - channel to ocean
DISCHARGE: 3.0
HABITAT: 3.0 - foreshore marsh
LAND USE: 3.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: **High**

SITE:

OUTFALL #: 304010

SITE NAME: BLUNDELL RD. WEST

LOCATION DESC.: W. bank of Lulu Island
3.3 km north of South Arm
at end of Blundell Road

OWNER: City of Richmond

UTM N: 5444782.777

CONTACT: Bill Jones

E: 485679.584

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 3-10, 3-11

STRUCTURES:

GRAVITY OUTLETS: - none

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS: 1 x 0.63 m3/s

DRAWING REF'S:

DISCHARGE PIPES: 1 x 300 mm dia.

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Residential
Golf Course

DRAWING REF'S:

OTHER - drains open channel along dyke
DATA/ - piped drainage from road
COMMENT:

FLUSH: 3.0 - channel to ocean

DISCHARGE: 1.0

HABITAT: 3.0 - foreshore marsh

LAND USE: 3.0

PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 305001

SITE NAME: FLOODBOX 138

LOCATION DESC.: N. bank of Canoe Pass, Westham Island
2.8 km d/s of Westham Is. Bridge

OWNER: Corp. of Delta

UTM N: 5436016.699

CONTACT: John Close

E: 487968.892

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-20, 7-21

STRUCTURES:

GRAVITY OUTLETS: 1 x 750mm cmp w/flap gate + irrigation gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westham Is. MDP

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S: Westham Is. MDP

DISCHARGE PIPES: 1 x 300 mm csp w/flap gate
1 x 400mm dia. w/flap gate

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER DATA/
COMMENT: - end of Tamboline SloughFLUSH: 3.0 - channel to ocean
DISCHARGE: 2.0
HABITAT: 3.0 - foreshore marsh
LAND USE: 2.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 305002

SITE NAME: FLOOD BOX 137

LOCATION DESC.: N. bank of Canoe Pass
2.5 km d/s of Westham Island Bridge

OWNER: Corp. of Delta

UTM N: 5435731.989

CONTACT: John Close

E: 488223.324

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-19

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. cmp w/flap gate + irrigation gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER DATA/
COMMENT: - drains perimeter ditch

FLUSH: 3.0 - channel through marsh

DISCHARGE: 2.0

HABITAT: 3.0 - foreshore marsh

LAND USE: 2.0

PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 305003

SITE NAME: FLOODBOX 149

LOCATION DESC.: N. bank of Canoe Pass
2.4 km d/s of Westham Is. Bridge

OWNER: Corp. of Delta

UTM N: 5435611.489

CONTACT: John Close

E: 488491.093

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-18

STRUCTURES:GRAVITY OUTLETS: 1 x 760mm dia. cmp w/flap gate
+ screw type irrigation gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westham Is. MDP

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER
DATA/
COMMENT:FLUSH: 3.0 - channel through marsh
DISCHARGE: 2.0
HABITAT: 3.0 - marsh area
LAND USE: 2.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 305004

SITE NAME: FLOODBOX 136

LOCATION DESC.: N. bank of Canoe Pass
1.8 km d/s from Westham Is. Bridge

OWNER: Corp. of Delta

UTM N: 5435529.681

CONTACT: John Close

E: 489168.041

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-16, 7-17

STRUCTURES:

GRAVITY OUTLETS: 1 x 760mm dia. cmp w/flap gate + irrigation gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westham Is. MDP

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S: Westham Is. MDP

OTHER DATA/
COMMENT: - drains open ditch

FLUSH: 3.0 - small bay

DISCHARGE: 2.0

HABITAT: 3.0 - marsh

LAND USE: 2.0

PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 305006

SITE NAME: FLOODBOX 135A

LOCATION DESC.: N. bank of Canoe Pass
300 m d/s of Westham Is. Bridge

OWNER: Corp. of Delta

UTM N: 5436212.810

CONTACT: John Close

E: 490314.650

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-15

STRUCTURES:

GRAVITY OUTLETS: 1 x 300mm cast iron w/flap gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westham Is. MDP

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER DATA/
COMMENT: - drains under dyke - quite lowFLUSH: 2.0 - small bay, eddy
DISCHARGE: 1.0
HABITAT: 3.0 - marsh area
LAND USE: 2.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 305007

SITE NAME: FLOODBOX 134

LOCATION DESC.: S. bank of Sea Reach
800 m d/s from Canoe Pass

OWNER: Corp. of Delta

UTM N: 5437362.004

CONTACT: John Close

E: 490099.039

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 12-23

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. cmp w/flap gate & irrigation gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westham Is. MDP

WATERCOURSE/GSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER
DATA/
COMMENT:

FLUSH: 2.0 - eddy, small bay

DISCHARGE: 2.0

HABITAT: 1.0

LAND USE: 2.0

PUBLIC USE: 1.0 - public marina

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 305008

SITE NAME: FLOODBOX 133

LOCATION DESC.: S. bank of Sea Reach
1.0 km d/s from Canoe Pass

OWNER: Corp. of Delta

UTM N: 5437491.933

CONTACT: John Close

E: 489859.628

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 12-22

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. cmp w/flap gate & irrigation gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westham Is. MDP

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER DATA/ COMMENT: - houseboats, houses nearby

FLUSH: 2.0 - outlet bay

DISCHARGE: 2.0

HABITAT: 1.0

LAND USE: 2.0

PUBLIC USE: 1.0 - houses nearby

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: Low

SITE:

OUTFALL #: 305009

SITE NAME: FLOODBOX 132

LOCATION DESC.: S. bank of Sea Reach
1.5 km d/s of Canoe Pass

OWNER: Corp. of Delta

UTM N: 5437893.647

CONTACT: John Close

E: 489542.165

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 12-21

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. cmp w/flap gate & irrigation gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westham Is. MDP

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER DATA/
COMMENT: - marina, houseboats nearbyFLUSH: 2.0 - eddy
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 2.0
PUBLIC USE: 2.0 - houseboats

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 305010

SITE NAME: FLOODBOX 131-131A

LOCATION DESC.: S. bank of Sea Reach
2.0 km d/s of Canoe Pass

OWNER: Corp. of Delta

UTM N: 5438021.246

CONTACT: John Close

E: 489145.516

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 12-19,12-20

STRUCTURES:GRAVITY OUTLETS: 1 x 1350mm dia. cmp w/flap gate
1 x 760mm dia. cmp w/flap gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westham Is. MDP

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER - u/s end of Tamboline Slough
DATA - 80 m from Sea Reach
COMMENT:FLUSH: 3.0 - 80m outlet channel
DISCHARGE: 3.0
HABITAT: 3.0 - marsh
LAND USE: 2.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 305011

SITE NAME: FLOODBOX 130

LOCATION DESC.: S. bank of Sea Reach
2.7 km d/s of Canoe Pass

OWNER: Corp. of Delta

UTM N: 5438582.736

CONTACT: John Close

E: 488491.062

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 12-18

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. cmp w/flap gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westham Is. MDP

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER - 80 m from Sea Reach
DATA/
COMMENT:FLUSH: 3.0 - 80m outlet channel
DISCHARGE: 3.0
HABITAT: 3.0 - marsh
LAND USE: 2.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 305012

SITE NAME: FLOODBOX 146

LOCATION DESC.: N. bank of Ewen Slough on Westham Island
3.5 km d/s from Canoe Pass
S. bank of Sea Reach

OWNER: Corp. of Delta

UTM N: 5438852.795

CONTACT: John Close

E: 487622.129

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 12-17

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. cmp w/irrigation gate
+ cable controlled tide gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westham Is. MDP

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER - in Reifel Wildlife Sanctuary
DATA - irrigation gate set in vertical cmp
COMMENT: for water level control

FLUSH: 3.0 - in Ewen Slough
DISCHARGE: 3.0
HABITAT: 5.0 - wildlife sanctuary
LAND USE: 1.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: High

SITE:

OUTFALL #: 305013

SITE NAME: FLOODBOX 145

LOCATION DESC.: S. bank of South Arm on Westham Is.
at confluence with Sea Reach
7.5 km d/s of Deas Tunnel

OWNER: Corp. of Delta

UTM N: 5439490.375

CONTACT: John Close

E: 487322.302

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 12-15

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp w/manual tide gate on interior side

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westham Is. MDP

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Bird Sanctuary

DRAWING REF'S:

OTHER - within Reifel Bird Sanctuary
DATA/ - cable controlled trash rack
COMMENT:

FLUSH: 2.0 - channel through marsh
DISCHARGE: 3.0
HABITAT: 5.0 - wildlife sanctuary
LAND USE: 1.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 305014

SITE NAME: FLOODBOX 121

LOCATION DESC.: S. bank of Canoe Pass
2.4 km d/s of Westham Is. Bridge

OWNER: Corp. of Delta

UTM N: 5435058.863

CONTACT: John Close

E: 488880.043

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 1-0

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: AESL 4806-1-5

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER - photo of inlet side
DATA/ - not visually confirmed
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 3.0 - marsh
LAND USE: 2.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 305015

SITE NAME: FLOODBOX N

LOCATION DESC.: S. bank of Canoe Pass
2.1 km d/s of Westham Is. Bridge

OWNER: Corp. of Delta

UTM N: 5435156.392

CONTACT: John Close

E: 489430.236

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 1-1, 1-2

STRUCTURES:

GRAVITY OUTLETS: 1 x 760mm dia. cmp w/irrigation gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: AESL 4806-1-5

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER DATA/
COMMENT: - drains piped systemFLUSH: 2.0 - outlet bay
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 2.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 305016

SITE NAME: FLOODBOX 151

LOCATION DESC.: S. bank of Canoe Pass
1.8 km d/s from Westham Is. Bridge

OWNER: Corp. of Delta

UTM N: 5435203.216

CONTACT: John Close

E: 489378.817

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 1-3, 1-4

STRUCTURES:GRAVITY OUTLETS: 1 x 1520 x 1520 mm conc. floodbox w/flap gate
+ irrigation gate

INVERT ELEV.: -1.40 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -2.2 m

DRAWING REF'S: AESL 4806-1-35

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER - trash rack on both ends

DATA/ - drains open ditches

COMMENT:

FLUSH: 2.0 - small bay

DISCHARGE: 3.0

HABITAT: 1.0

LAND USE: 2.0

PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 305017

SITE NAME: MASON ROAD P.S.

LOCATION DESC.: S. bank of Canoe Pass
450 m d/s of Westham Is. Bridge
100 m u/s from end of Mason Road

OWNER: Corp. of Delta

UTM N: 5435883.076

CONTACT: John Close

E: 490521.168

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 1-5, 1-7

STRUCTURES:

GRAVITY OUTLETS: 4 x 1200mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: AESL 4806-1-4

WATERCOURSE/CSO:

PUMPS: 1 x 3.0 m3/s

DRAWING REF'S: D & K

DISCHARGE PIPES: 2 x 900mm dia. steel
1 x 600mm dia. steel

CONTROLS: automatic

DRAINAGE AREA: 1403 ha

LAND USE: Agricultural
Residential (90 ha)

DRAWING REF'S: D & K

OTHER DATA/ COMMENT: - Dayton & Knight - Ladner Drainage Area
Report

FLUSH: 2.0 - small eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 2.5
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 305018

SITE NAME: FLOODBOX 116

LOCATION DESC.: S. bank of Ladner Reach
4.7 km d/s from Deas Tunnel
at end of 41B Street

OWNER: Corp. of Delta

UTM N: 5436966.164

CONTACT: John Close

E: 492067.488

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. w/flap gate

INVERT ELEV.: -0.69 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -2.0 m

DRAWING REF'S: AESL 4806-1-3

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER DATA/
COMMENT: - not visually confirmedFLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 2.0
PUBLIC USE: 1.0 - houseboats nearby

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 305019

SITE NAME: GUICHON P.S.

LOCATION DESC.: S. bank of Ladner Reach
4.5 km d/s from Deas Tunnel

OWNER: Corp. of Delta

UTM N: 5437083.735

CONTACT: John Close

E: 492340.694

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 12-24

STRUCTURES:

GRAVITY OUTLETS: 1 x 1500 x 1500mm conc. floodbox w/flap gate

INVERT ELEV.: -1.03 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -2.0 m

DRAWING REF'S: AESL 4806-1-33

WATERCOURSE/CSO:

PUMPS: 1 x 0.5 m³/s

DRAWING REF'S: D & K

DISCHARGE PIPES: 1 x 400mm dia. cast iron

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

**OTHER
DATA/**COMMENT: - drains open ditch and end of closed
system
- at end of curb and gutter along River
Road

FLUSH: 2.0 - 30m outlet channel

DISCHARGE: 3.0

HABITAT: 1.0

LAND USE: 2.0

PUBLIC USE: 1.0 - houseboats nearby

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 305020

SITE NAME: FLOODBOX 114

LOCATION DESC.: S. bank of Ladner Reach
at outlet of Green Slough
at end of Fairview Road (46A St.)

OWNER: Corp. of Delta

UTM N: 5437419.100

CONTACT: John Close

E: 493051.442

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: AESL 4806-1-2

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural
Residential

DRAWING REF'S:

OTHER DATA/
COMMENT: - may be boarded over

FLUSH: 2.0 - small bay
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 2.5
PUBLIC USE: 1.0 - marina

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 305021

SITE NAME: CHILLUKTHAN P.S.

LOCATION DESC.: S. bank of Green Slough
900 m u/s from outlet of Slough
at end of Elliot Street

OWNER: Corp. of Delta

UTM N: 5437803.918

CONTACT: John Close

E: 493775.843

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 1-8, 1-9

STRUCTURES:

GRAVITY OUTLETS: 3 x 2.04 x 1.52m conc. floodboxes

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: 1 x 1.9 m³/s, 1 x 0.5m³/s, 1 x 1.5m³/s; TOTAL 3.9 m³/s

DRAWING REF'S: D & K

DISCHARGE PIPES: 1 x 900mm dia. steel

CONTROLS: automatic

DRAINAGE AREA: 1696 ha

LAND USE: Agricultural
Residential

DRAWING REF'S: D & K

OTHER DATA/ - Dayton & Knight - Ladner Drainage Area
Report

COMMENT: - drains channelized creek flowing
through town of Ladner
- see "Corp. of Delta - Stormwater
Sampling Sites"
- sampled once per year

FLUSH: 3.0 - channel to river

DISCHARGE: 3.0

HABITAT: 1.0

LAND USE: 2.5

PUBLIC USE: 1.0 - in town

ENVIRONMENTAL SENSITIVITY INDEX: 2.1

RATING: **Moderate**

SITE:

OUTFALL #: 305022

SITE NAME: GREEN SLOUGH P.S.

LOCATION DESC.: S. bank of Green Slough
1 km d/s from Deas Tunnel
2.5 km u/s from outlet
at end of Crescent Drive

OWNER: Corp. of Delta

UTM N: 5439075.666

CONTACT: John Close

E: 494704.795

ADDRESS: 4450 Clarence Taylor Drive
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 1-10, 1-11

STRUCTURES:

GRAVITY OUTLETS: 4 x 1500 x 1500mm conc. floodboxes

INVERT ELEV.: -1.16 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.8 m

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: 1 x 1.9 m³/s, 1 x 0.8m³/s, 1 x 2.9m³/s; TOTAL 5.6 m³/s

DRAWING REF'S: Dayton & Knight

DISCHARGE PIPES: 2 x 650mm dia. steel w/flipgte
1 x 500mm dia. steel w/flipgte
1 x 1000mm dia. steel w/flipgte

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Agricultural
Residential

DRAWING REF'S:

OTHER DATA/
COMMENT: - two separate pump houses

FLUSH: 3.0 - channel to river
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 2.5
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 305023

SITE NAME: 40TH AVENUE P.S.

LOCATION DESC.: S. bank of Ladner Reach
5.0 km d/s from Deas Tunnel
at end of 40th Avenue

OWNER: Corp. of Delta

UTM N: 5436968.105

CONTACT: John Close

E: 491726.996

ADDRESS: 4500 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 12-25

STRUCTURES:

GRAVITY OUTLETS: - none

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS: 9.4 HP

DRAWING REF'S: D & K

DISCHARGE PIPES: 1 x 250mm cast iron w/flapgate

CONTROLS: Start -.644 / Stop -1.213

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER - Dayton & Knight - Ladner Drainage Area
DATA - operates infrequently
COMMENT: - passes beneath private junk yard

FLUSH: 2.0 - eddy
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 2.0
PUBLIC USE: 1.0 - houseboats nearby

ENVIRONMENTAL SENSITIVITY INDEX: 1.4

RATING: Low

SITE:

OUTFALL #: 305024

SITE NAME: FLOODBOX 144

LOCATION DESC.: W. bank of Westham Island
1 km south of South Arm
at end of Ewen Slough

OWNER: Corp. of Delta

UTM N: 5438851.415

CONTACT: John Close

E: 486572.981

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 12-16

STRUCTURES:

GRAVITY OUTLETS: 1 x 760mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westam is MDP

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Bird Sanctuary

DRAWING REF'S:

OTHER - trash rack on interior side
DATA/ - vertical cmp used to control water
COMMENT: levels
- in Reifel Wildlife SanctuaryFLUSH: 3.0 - end of slough
DISCHARGE: 2.0
HABITAT: 5.0 - wildlife sanctuary
LAND USE: 1.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: **High**

SITE:

OUTFALL #: 305026

SITE NAME: FLOODBOX 142

LOCATION DESC.: W. bank of Westham Island
2.7 Km N of Canoe Pass

OWNER: Corp. of Delta

UTM N: 5437986.352

CONTACT: John Close

E: 486812.944

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-24

STRUCTURES:

GRAVITY OUTLETS: 1 x 300mm cmp w/flap gate + irrigation gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westham Is. MDP

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER - drains open ditch
DATA/ - near Reifel Wildlife Sanctuary
COMMENT:FLUSH: 3.0 - channel to ocean
DISCHARGE: 1.0
HABITAT: 5.0 - wildlife sanctuary
LAND USE: 2.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 305027

SITE NAME: FLOODBOX 144

LOCATION DESC.: W. bank of Westham Island
2.5 km N. of Canoe Pass

OWNER: Corp. of Delta

UTM N: 5437629.014

CONTACT: John Close

E: 486844.997

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-25

STRUCTURES:

GRAVITY OUTLETS: 1 x 450mm dia. cmp w/flap gate + irrigation gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westham Is. MDP

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER - drains open ditches
DATA/ - near Reifel Wildlife Sanctuary
COMMENT:

FLUSH: 3.0 - channel to ocean

DISCHARGE: 2.0

HABITAT: 5.0 - wildlife sanctuary

LAND USE: 2.0

PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: High

SITE:

OUTFALL #: 305029

SITE NAME: FLOODBOX 139

LOCATION DESC.: W. bank of Westham Island
1.8 km n. of Canoe Pass

OWNER: Corp. of Delta

UTM N: 5436474.419

CONTACT: John Close

E: 487387.825

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-22

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. cmp w/flap gate + irrigation gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Westham Is. MDP

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER DATA/
COMMENT: - drains open ditch

FLUSH: 3.0 - channel to ocean

DISCHARGE: 2.0

HABITAT: 3.0 - foreshore marsh

LAND USE: 2.0

PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 404001

SITE NAME: HIGHWAY 99 (26)

LOCATION DESC.: N. bank of South Arm
immediately adjacent to Deas Tunnel

OWNER: City of Richmond

UTM N: 5441197.418

CONTACT: Bill Jones

E: 494116.071

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 6-19, 6-20

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: - capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Agricultural
Industrial

DRAWING REF'S: OCP

OTHER - drains open channel
DATA/ - between B.C. Ferries and Ministry of
COMMENT: Transportation yards
- abandoned steel pipes running into
river
- $Q_{10}=1.25\text{m}^3/\text{s}$ (design flow)FLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 404002

SITE NAME: NO 6 ROAD SOUTH (25)

LOCATION DESC.: N. bank of South Arm
1.2 km u/s from Deas Tunnel
near end of No. 6 Road

OWNER: City of Richmond

UTM N: 5442294.010

CONTACT: Bill Jones

E: 494975.265

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 6-21, 6-22

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: 2 x 0.95 m³/s, 1 x 0.34 m³/s

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Agricultural
Industrial

DRAWING REF'S: OCP

OTHER - drains open channel
DATA - 150 m from Fraser River
COMMENT:FLUSH: 3.0 - 150 m channel
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 404003

SITE NAME: NO 7 ROAD SOUTH

LOCATION DESC.: N. bank of South Arm
3.4 km u/s from Deas Tunnel
near end of No. 7 Road South

OWNER: City of Richmond

UTM N: 5443761.243

CONTACT: Bill Jones

E: 496559.386

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 6-25, 7-0

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: 1 x 1.58 m³/s

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Agricultural
Industrial

DRAWING REF'S: OCP

OTHER DATA/ COMMENT: - pumps nearby drawing water from
open channel
- 50 m from Fraser River

FLUSH: 2.0 - 50 m channel
DISCHARGE: 3.0
HABITAT: 3.0 - marsh
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 404004

SITE NAME: NELSON RD.(23)

LOCATION DESC.: N. bank of South Arm
5.8 Km u/s of Deas Tunnell
@ end of Nelson Rd.

OWNER: City of Richmond

UTM N: 5444645.976

CONTACT: Bill Jones

E: 499037.925

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 6-23, 6-24

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: 2 x 0.76 m3/s, 1 x 0.26 m3/s

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial
Agricultural

DRAWING REF'S:

OTHER DATA/
COMMENT: - drains open ditch

FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 3.0 - marsh area
LAND USE: 4.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 405001

SITE NAME: VASSEY FLOODBOX

LOCATION DESC.: S. bank of Deas Slough
200 u/s from Deas Bridge (Hwy 99)
near end of Vassey Road and River Road

OWNER: Corp. of Delta

UTM N: 5440219.219

CONTACT: John Close

E: 495462.170

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-13, 7-14

STRUCTURES:

GRAVITY OUTLETS: 2 x 1200 x 1200mm conc. floodboxes

INVERT ELEV.: -0.64 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.8 m

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER DATA/ COMMENT: - MOE-AESL North Crescent Slough Area
Report
- 80 m from Deas Slough
- fed by 3 x 900 mm dia. culverts

FLUSH: 3.0 - 80m channel
DISCHARGE: 3.0
HABITAT: 3.0 - marsh area
LAND USE: 2.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 405002

SITE NAME: MITCHELL FLOODBOX

LOCATION DESC.: S. bank of Deas Slough
1.2 km u/s from Hwy 99 Bridge

OWNER: Corp. of Delta

UTM N: 5441264.912

CONTACT: John Close

E: 496020.723

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-12

STRUCTURES:GRAVITY OUTLETS: 2 x 1200 x 3050mm wooden floodboxes
4 x 1200mm dia. w/tide gates

INVERT ELEV.: -0.88 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.8 m

DRAWING REF'S: MOE

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER DATA/ COMMENT: - MOE-AESL North Crescent Slough Area
Report
- drains open channel
- near conservation areaFLUSH: 3.0 - dead end slough
DISCHARGE: 3.0
HABITAT: 5.0 - near conservation area
LAND USE: 2.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: High

SITE:

OUTFALL #: 405003

SITE NAME: MCDONALD PUMP STAT.

LOCATION DESC.: S. bank of South Arm
2 km u/s from Deas Tunnel

OWNER: Corp. of Delta

UTM N: 5441772.719

CONTACT: John Close

E: 496415.133

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-10, 7-11

STRUCTURES:

GRAVITY OUTLETS: 2 x 1500 x 1500mm conc. floodboxes

INVERT ELEV.: -1.52 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.8 m

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: 2 x 0.91 m³/s

DRAWING REF'S:

DISCHARGE PIPES: 2 x 750mm dia.

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER - MOE-AESL North Crescent Slough Area
DATA/ Report
COMMENT: - drains open channel systemFLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 2.0
PUBLIC USE: 0.0 - on roadside

ENVIRONMENTAL SENSITIVITY INDEX: 1.4

RATING: **Low**

SITE:

OUTFALL #: 405004

SITE NAME: FLOODBOX 103

LOCATION DESC.: S. bank of South Arm
4.6 km d/s from Alex Fraser Bridge
near Fasher Road

OWNER: Corp. of Delta

UTM N: 5443747.903

CONTACT: John Close

E: 499843.657

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-8, 7-9

STRUCTURES:

GRAVITY OUTLETS: 4 x ? x 1500mm conc. floodboxes w/ tidegates

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural
Industrial

DRAWING REF'S:

OTHER - drains open channel system
DATA/ - 70 m from Fraser River
COMMENT:

FLUSH: 2.0 - 70m channel
DISCHARGE: 3.0
HABITAT: 3.0 - natural vegetation
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 504001

SITE NAME: EWEN ROAD (22)

LOCATION DESC.: N. bank of Annacis Channel
3.5 km d/s from Annacis Bridge
near Ewen Road

OWNER: City of Richmond

UTM N: 5445358.189

CONTACT: Bill Jones

E: 500131.251

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 7-1

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: - capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial
Agricultural

DRAWING REF'S: OCP

OTHER - drains open ditch system
DATA/ - floodboxes separate from pumphouse
COMMENT:FLUSH: 2.0 - side channel
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 504002

SITE NAME: QUEENS NORTH (18)

LOCATION DESC.: S. bank of North Arm
2.4 km d/s of Queensboro Bridge
at end of Queens Road

OWNER: City of Richmond

UTM N: 5447523.177

CONTACT: Bill Jones

E: 502253.167

ADDRESS: 6911 No. 3 Road
Richmond, B.C. V6Y 2C1

PHONE/FAX: 276-4026/276-4197

PHOTO NO.: 5-10, 5-11

STRUCTURES:

GRAVITY OUTLETS: 1 x 2000mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: 3 x 1.04 m³/s, 1 x 0.25 m³/s

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Residential
Agricultural

DRAWING REF'S:

OTHER - drains open channel
DATA/ - very black water
COMMENT:

FLUSH: 2.0 - eddy, bay
DISCHARGE: 3.0
HABITAT: 3.0 - some marsh
LAND USE: 3.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 505001

SITE NAME: ALEXANDER ROAD

LOCATION DESC.: S. bank of South Arm
3.8 km d/s of Annacis Island Bridge
East of end of Alexander Road

OWNER: Corp. of Delta

UTM N: 5444280.848

CONTACT: John Close

E: 500705.591

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-7

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. steel w/flap gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: Vector Dwg. D1990-5

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Agricultural

DRAWING REF'S:

OTHER DATA/
COMMENT: - drains open channel system

FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0 - rocky shore
LAND USE: 3.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.4

RATING: **Low**

SITE:

OUTFALL #: 505002

SITE NAME: FLOODBOX 102

LOCATION DESC.: S. bank of Anniesville Channel
1.2 km d/s of Alex Fraser Bridge

OWNER: Corp. of Delta

UTM N: 5444484.545

CONTACT: John Close

E: 503113.072

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-5, 7-6

STRUCTURES:

GRAVITY OUTLETS: 4 x 7 x 900mm conc. floodboxes

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural
Undeveloped (Burns Bog)

DRAWING REF'S:

OTHER - drains open channel system
DATA/ - passes beneath River Road
COMMENT: - retaining wallsFLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 2.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: Low

SITE:

OUTFALL #: 505003

SITE NAME: FLOODBOX 101

LOCATION DESC.: S. bank of Annieville Channel
0.9 km d/s of Alex Fraser Bridge

OWNER: Corp. of Delta

UTM N: 5444486.263

CONTACT: John Close

E: 503672.129

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-3, 7-4

STRUCTURES:

GRAVITY OUTLETS: 2 x 1200 x 1200mm conc. floodboxes w/tide gates

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural, Burns Bog
Industrial

DRAWING REF'S:

OTHER - lots of debris at outlet
DATA/ - 10.0 m from Fraser River
COMMENT:FLUSH: 2.0 - small bay
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 2.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 505004

SITE NAME: FLOODBOX 100

LOCATION DESC.: S. bank of Anniesville Channel
100 m d/s of Alex Fraser Bridge

OWNER: Corp. of Delta

UTM N: 5444799.430

CONTACT: John Close

E: 504229.614

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 7-2

STRUCTURES:

GRAVITY OUTLETS: 4 x 1200mm dia. cmp w/flap gates

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: - capacity unknown

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Agricultural

DRAWING REF'S:

OTHER - temporary submersible pump
DATA/ in operation
COMMENT: - drains open channel
- 50 m from Fraser River
- one flapgate controlled by manual
cableFLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 505005

SITE NAME: CENTER STREET

LOCATION DESC.: S. bank of Annieville Channel
150 m u/s of Alex Fraser Bridge
near end of Center Street

OWNER: Corp. of Delta

UTM N: 5445099.704

CONTACT: John Close

E: 504349.204

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-13

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. cmp w/trash rack (no flapgates)

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Industrial

DRAWING REF'S: Land Use Map

OTHER DATA/
COMMENT: - drains piped system
- shown on storm sewer overall planFLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 3.0 - natural bank nearby
LAND USE: 3.5
PUBLIC USE: 1.0 - public access

ENVIRONMENTAL SENSITIVITY INDEX: 2.3

RATING: **Moderate**

SITE:

OUTFALL #: 505006

SITE NAME: MAIN RAVINE

LOCATION DESC.: S. bank of Anniesville Channel
0.6 km u/s of Alex Fraser Bridge

OWNER: Corp. of Delta

UTM N: 5445406.061

CONTACT: John Close

E: 504682.489

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-12

STRUCTURES:

GRAVITY OUTLETS: 1 x 750 x 600mm conc. ellipse (height x width)

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Industrial (fish packers)

DRAWING REF'S: Land Use Map

OTHER DATA/
COMMENT: - behind fish packing plant
- from general storm sewer mapFLUSH: 2.0 - eddy, bay
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 505007

SITE NAME: BROOK ROAD

LOCATION DESC.: S. bank of Anniesville Channel
1.3 km u/s of Alex Fraser Bridge
200 m d/s from Brook Road

OWNER: Corp. of Delta

UTM N: 5445954.083

CONTACT: John Close

E: 505265.172

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-10

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Park/Institutional

DRAWING REF'S: Land Use Map

OTHER - from storm sewer plan

DATA/ - hard to locate

COMMENT:

FLUSH: 1.0

DISCHARGE: 2.0

HABITAT: 3.0 - natural bank

LAND USE: 3.0

PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 505008

SITE NAME: MCADAM CREEK

LOCATION DESC.: S. bank of Annieville Channel
1.7 km u/s from Alex Fraser Bridge

OWNER: Corp. of Delta

UTM N: 5446119.954

CONTACT: John Close

E: 505501.381

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-9

STRUCTURES:

GRAVITY OUTLETS: 1 x 2100mm dia. conc.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Park/undeveloped

DRAWING REF'S: Land Use Map

OTHER DATA/ COMMENT: - drains natural watercourse through
railway
- from storm sewer planFLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 3.0 - natural area
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 505009

SITE NAME: COLLINGS RAVINE

LOCATION DESC.: S. bank of Annieville Channel
2.0 km u/s from Alex Fraser Bridge
near Collings Way
at outlet of Gunderson Slough

OWNER: Corp. of Delta

UTM N: 5446289.626

CONTACT: John Close

E: 505656.557

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-8

STRUCTURES:

GRAVITY OUTLETS: - multi-span bridge

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: W

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Park

DRAWING REF'S: Land Use Map

OTHER - CNR bridge over creek
DATA/ - from storm sewer plan
COMMENT:

FLUSH: 3.0 - near Gunderson Slough
DISCHARGE: 3.0
HABITAT: 3.0 - natural area
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 505010

SITE NAME: NORUM RAVINE

LOCATION DESC.: S. bank of Gunderson Slough
2.4 km u/s from Alex Fraser Bridge

OWNER: Corp. of Delta

UTM N: 5446594.035

CONTACT: John Close

E: 505893.896

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. conc.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Park

DRAWING REF'S: Land Use Map

OTHER DATA/ COMMENT: - drains natural watercourse beneath
railway
- from storm sewer planFLUSH: 3.0 - Gunderson Slough
DISCHARGE: 3.0
HABITAT: 3.0 - natural vegetation
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 505011

SITE NAME: 92A AVENUE

LOCATION DESC.: S. bank of Gunderson Slough
2.5 km u/s from Alex Fraser Bridge
near end of 92A Ave.

OWNER: Corp. of Delta

UTM N: 5446707.563

CONTACT: John Close

E: 505994.557

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-7

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. conc.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential

DRAWING REF'S: Land Use Map

OTHER - above high tide level
DATA/ - drains piped system following ravine
COMMENT: - manhole nearby
- from storm sewer plan

FLUSH: 3.0 - Gunderson Slough
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 1.0 - houses, marina

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 505012

SITE NAME: GUNDERSON RAVINE

LOCATION DESC.: S. bank of Gunderson Slough
2.8 km u/s from Alex Fraser Bridge

OWNER: Corp. of Delta

UTM N: 5446977.714

CONTACT: John Close

E: 506095.434

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-4

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. conc.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential

DRAWING REF'S: Land Use Map

OTHER DATA/
COMMENT: - discharges in wharf, dock area
- from storm sewer planFLUSH: 3.0 - Gunderson Slough
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 1.0 - houses, marina

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 505013

SITE NAME: KENDALE RAVINE

LOCATION DESC.: S. bank of Gunderson Slough
3 km u/s from Alex Fraser Bridge

OWNER: Corp. of Delta

UTM N: 5447167.204

CONTACT: John Close

E: 506239.131

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-5, 11-6

STRUCTURES:

GRAVITY OUTLETS: 2 x 1200mm dia. conc. (separate)

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential

DRAWING REF'S: Land Use Map

OTHER DATA/ COMMENT: - pipes drain from different directions
and outlet into short channel
- one drains watercourse below road,
other drains ditch
- from storm sewer maps

FLUSH: 3.0 - Gunderson Slough
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 1.0 - houses, marina

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 505015

SITE NAME: RIDLEY PLACE

LOCATION DESC.: N. bank of Annieville Channel
1.5 km d/s from Alex Fraser Bridge
near end of Ridley Place

OWNER: Corp. of Delta

UTM N: 5445243.505

CONTACT: John Close

E: 502497.571

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-20

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. w/trash rack

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S: Annacis MDP

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Undeveloped

DRAWING REF'S:

OTHER - area under development
DATA/
COMMENT:

FLUSH: 2.0 - eddy, bay

DISCHARGE: 3.0

HABITAT: 1.0

LAND USE: 4.0

PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 505017

SITE NAME: EATON PL.

LOCATION DESC.: N. bank of Annieville Channel
700 m d/s from Alex Fraser Bridge
near Fraserview Place

OWNER: Corp. of Delta

UTM N: 5445169.507

CONTACT: John Close

E: 503641.899

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-19

STRUCTURES:

GRAVITY OUTLETS: 1 x 1500mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 3 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: Annacis MDP

OTHER DATA/
COMMENT: - no flap gates or structureFLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 505018

SITE NAME: DERWENT PLACE

LOCATION DESC.: N. bank of Annieville Channel
200 m d/s from Alex Fraser Bridge
at end of Derwent Place

OWNER: Corp. of Delta

UTM N: 5445332.829

CONTACT: John Close

E: 503864.205

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-18

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. conc. w/flap gate
1 x 900mm dia. cmp (separate)

INVERT ELEV.:

OUTFALL LENGTH: 0, 3 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S: Annacis MDP

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER DATA/ COMMENT: - adjacent to GVRD sanitary outfall
- cmp abandoned?

FLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 505019

SITE NAME: HUMBER PLACE

LOCATION DESC.: N. bank of Annieville Channel
immediately below Alex Fraser Bridge
near Humber Pl.

OWNER: Corp. of Delta

UTM N: 5445474.573

CONTACT: John Close

E: 504166.357

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-17

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp w/flap gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S: Annacis MDP

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - in new rip rap below bridge
DATA/ - filled area for bridge pier
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 505021

SITE NAME: AUDLEY P.S.

LOCATION DESC.: N. bank of Annieville Channel
1.8 km u/s of Alex Fraser Bridge
at end of Audley Blvd.

OWNER: Corp. of Delta

UTM N: 5446838.106

CONTACT: John Close

E: 505172.566

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 12-8, 12-9

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S: Annacis MDP

DISCHARGE PIPES: 1 x 1500mm dia. cmp w/flapgate

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - drains piped system
DATA/
COMMENT:

FLUSH: 2.0 - eddy, bay
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 505022

SITE NAME: CARLISLE ROAD

LOCATION DESC.: S. bank of Annacis Channel
700 m u/s of Annacis Bridge
near Carlisle Road

OWNER: Corp. of Delta

UTM N: 5447112.114

CONTACT: John Close

E: 503923.550

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-25

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. w/flap gate + concrete outfall structure

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S: Annacis MDP

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER
DATA/
COMMENT:FLUSH: 2.0 - bay, eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 505025

SITE NAME: CLIVEDEN PL.

LOCATION DESC.: S. bank of Annacis Channel
200 m d/w from Annacis Bridge

OWNER: Corp. of Delta

UTM N: 5446767.757

CONTACT: John Close

E: 503083.088

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-24

STRUCTURES:

GRAVITY OUTLETS: 1 x 2100mm dia. w/flap gate + concrete outfall structure

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S: Annacis MDP

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Undeveloped

DRAWING REF'S:

OTHER DATA/ COMMENT: - public access may occur, may change
when developedFLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 3.0 - natural shoreline nearby
LAND USE: 4.0
PUBLIC USE: 1.0 - currently accessed

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: High

SITE:

OUTFALL #: 505026

SITE NAME: EATON WAY

LOCATION DESC.: S. bank of Annacis Channel
1.2 km d/s from Annacis Bridge
near Eaton Way

OWNER: Corp. of Delta

UTM N: 5445968.758

CONTACT: John Close

E: 502462.915

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-23

STRUCTURES:

GRAVITY OUTLETS: 1 x 1500mm dia. w/flap gate + concrete outfall structure

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S: Annacis MDP

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER
DATA/
COMMENT:FLUSH: 2.0 - eddy, bay
DISCHARGE: 3.0
HABITAT: 3.0 - natural shoreline
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: **High**

SITE:

OUTFALL #: 505027

SITE NAME: ANNACIS

LOCATION DESC.: S. bank of Annacis Channel
2.1 km d/s of Annacis Bridge

OWNER: Corp. of Delta

UTM N: 5445635.010

CONTACT: John Close

E: 501618.006

ADDRESS: 4450 Clarence Taylor Crescent
Delta, B.C. V4K 3E2

PHONE/FAX: 946-3272/946-7492

PHOTO NO.: 11-22

STRUCTURES:

GRAVITY OUTLETS: 1 x 1500mm dia. conc. w/flap gate + concrete outfall struct.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S: Annacis MDP

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Undeveloped

DRAWING REF'S:

OTHER DATA/
COMMENT: - mostly undevelopedFLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 3.0 - natural shoreline
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 506002

SITE NAME: THORN STREET

LOCATION DESC.: N. bank of North Arm
50 m u/s of CNR Bridge
end of Thorn Street

OWNER: City of Burnaby

UTM N: 5447867.160

CONTACT: Don Braun

E: 500935.542

ADDRESS: 4949 Canada Way
Burnaby, B.C. V5G 1M2

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 5-6

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: No

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Undeveloped

DRAWING REF'S: Land Use Map

OTHER - drains watercourse

DATA/ - lots of debris

COMMENT:

FLUSH: 2.0 - bay, eddy

DISCHARGE: 3.0

HABITAT: 3.0 - natural area

LAND USE: 3.0

PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 506004

SITE NAME: WHEATON STREET

LOCATION DESC.: N. bank of North Arm
1.1 km u/s of CNR Bridge
at end of Wheaton Street

OWNER: City of Burnaby

UTM N: 5447645.804

CONTACT: Don Braun

E: 501929.669

ADDRESS: 4949 Canada Way
Burnaby, B.C. V5G 1M2

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 5-8

STRUCTURES:

GRAVITY OUTLETS: 2 x 900mm dia. conc. w/flapgates, trash rack
+ concrete outfall structure

INVERT ELEV.: -0.1 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.2 m

DRAWING REF'S: 850511

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Undeveloped

DRAWING REF'S: Land Use Map

OTHER - 13.1 m from dyke
DATA/ - abandoned CI pipe lying on ground
COMMENT: (several sections)

FLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 3.0 - natural vegetation
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 506007

SITE NAME: WIGGINS STREET

LOCATION DESC.: N. bank of North Arm
2 km d/s of Queensboro Bridge
at end of Wiggins Street

OWNER: City of Burnaby

UTM N: 5448059.250

CONTACT: Don Braun

E: 502321.028

ADDRESS: 4949 Canada Way
Burnaby, B.C. V5G 1M2

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 5-16

STRUCTURES:GRAVITY OUTLETS: 1 x 900mm dia. cmp w/flap gate + concrete outfall structure
(asphalt coated)

INVERT ELEV.: 0.1 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -1.2 m

DRAWING REF'S: 790501

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: Land Use Map

OTHER DATA/
COMMENT: - rust coloured waterFLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 506010

SITE NAME: MEADOW AVENUE

LOCATION DESC.: N. bank of North Arm
1.2 km d/s of Queensboro Bridge
at end of Meadow Ave.

OWNER: City of Burnaby

UTM N: 5448676.053

CONTACT: Don Braun

E: 502828.279

ADDRESS: 4949 Canada Way
Burnaby, B.C. V5G 1M2

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 5-18, 5-20

STRUCTURES:

GRAVITY OUTLETS: 2 x 1650mm dia. conc.

INVERT ELEV.: -1.05 m

OUTFALL LENGTH: 0

INVERT DEPTH: 0.05 m

CHART DATUM: -1.0 m

DRAWING REF'S: 890020

WATERCOURSE/CSO:

PUMPS: 2 x FLYGT 7100

DRAWING REF'S:

DISCHARGE PIPES: 2 x ?

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S: Land Use Map

OTHER DATA/ COMMENT: - 1200 mm dia. w/flapgate 40 m u/s from
floodboxes (infilled) (see photo)
- pump curve included with "Byrne
Road Pump Station" report
- newly constructed

FLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 506011

SITE NAME: WILLARD STREET

LOCATION DESC.: N. bank of North Arm
0.8 km d/s of Queensboro Bridge
at end of Willard Street

OWNER: City of Burnaby

UTM N: 5448927.914

CONTACT: Don Braun

E: 503130.826

ADDRESS: 4949 Canada Way
Burnaby, B.C. V5G 1M1

PHONE/FAX: 294-7460/294-7425

PHOTO NO.: 5-21

STRUCTURES:

GRAVITY OUTLETS: 2 x 400mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 5.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: removed

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S: Land Use Map

OTHER - elevated on wooden trestle
DATA/ - formerly owned by GVS+DD
COMMENT: - pumps removed by GVRD
- provides emergency drainage only
(overflow)
- lots of debris

FLUSH: 3.0 - debris filled bay
DISCHARGE: 1.0 - overflow only
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: **Low**

SITE:

OUTFALL #: 507001

SITE NAME: BC RAIL

LOCATION DESC.: N. bank of North Arm
400 m d/s of Queensboro Bridge

OWNER: City of New West.

UTM N: 5449143.877

CONTACT: Steve Day

E: 503487.319

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: 5-22

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. w/flap gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S:

OTHER DATA/
COMMENT: - drains ditch between railway tracksFLUSH: 2.0 - bay, eddy
DISCHARGE: 3.0
HABITAT: 3.0 - some natural vegetation
LAND USE: 3.5
PUBLIC USE: 0.0 - inaccessible

ENVIRONMENTAL SENSITIVITY INDEX: 2.3

RATING: **Moderate**

SITE:

OUTFALL #: 507002

SITE NAME: 20TH STREET

LOCATION DESC.: N. bank of North Arm
400 m u/s of Queensboro Bridge
at end of 20th Street

OWNER: City of New West.

UTM N: 5449550.767

CONTACT: Steve Day

E: 504112.354

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 760mm dia.

INVERT ELEV.: 0.57 m

OUTFALL LENGTH: < 50m

INVERT DEPTH: 1.57 m

CHART DATUM: -1.0 m

DRAWING REF'S: schematic

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Heavy Industrial

DRAWING REF'S:

OTHER DATA/ COMMENT: - see CSO studies #'s 1,2,5

FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - inaccessible

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: **Low**

SITE:

OUTFALL #: 507003

SITE NAME: 18TH STREET

LOCATION DESC.: N. bank of North Arm
at Poplar Island Slough
0.8 km u/s of Queensboro Bridge - near 18th Street

OWNER: City of New West.

UTM N: 5449786.764

CONTACT: Steve Day

E: 504452.141

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 460mm dia.

INVERT ELEV.:

OUTFALL LENGTH: < 50m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: schematic

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Heavy Industrial

DRAWING REF'S:

OTHER - see CSO Studies #'s 5,6,7
DATA/
COMMENT:

FLUSH: 3.0 - Poplar Island Channel
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - industrial shoreline

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 507004

SITE NAME: 16TH STREET

LOCATION DESC.: N. bank of Poplar Island Channel
1.2 km u/s of Queensboro Bridge
at end of 16th Street

OWNER: City of New West.

UTM N: 5449870.520

CONTACT: Steve Day

E: 504794.464

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 690mm dia.

INVERT ELEV.: 0.5 m

OUTFALL LENGTH: < 50m

INVERT DEPTH: above water

CHART DATUM: -0.8 m

DRAWING REF'S: schematic

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Heavy Industrial

DRAWING REF'S:

OTHER
DATA/
COMMENT:FLUSH: 3.0 - Poplar Island Channel
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - industrial shoreline

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 507005

SITE NAME: 4TH AVENUE #1

LOCATION DESC.: N. bank of Poplar Island Channel
2 km u/s from Queensboro Bridge

OWNER: City of New West.

UTM N: 5449863.167

CONTACT: Steve Day

E: 504862.443

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 460mm dia.

INVERT ELEV.: 0.0 m

OUTFALL LENGTH: < 50m

INVERT DEPTH: above water

CHART DATUM: -0.8 m

DRAWING REF'S: schematic

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Heavy Industrial

DRAWING REF'S:

OTHER
DATA/
COMMENT:FLUSH: 3.0 - Poplar Island Channel
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - Industrial shoreline

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 507006

SITE NAME: 4TH AVENUE #2

LOCATION DESC.: N. bank of North Arm, at Poplar Island Channel
1.2 km u/s of Queensboro Bridge

OWNER: City of New West.

UTM N: 5449859.315

CONTACT: Steve Day

E: 504888.819

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 600 x 1200mm conc. box culvert

INVERT ELEV.:

OUTFALL LENGTH: < 50m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S: schematic

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Heavy Industrial

DRAWING REF'S:

OTHER
DATA/
COMMENT:FLUSH: 3.0 - Poplar Island Channel
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - industrial shoreline

ENVIRONMENTAL SENSITIVITY INDEX: 2.1

RATING: **Moderate**

SITE:

OUTFALL #: 507007

SITE NAME: 3RD AVENUE

LOCATION DESC.: N. bank of Poplar Island Channel
1.4 km u/s of Queensboro Bridge
at end of 3rd Avenue

OWNER: City of New West

UTM N: 5449810.292

CONTACT: Steve Day

E: 505131.232

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 380mm dia.

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multiple Family Residential
Commercial

DRAWING REF'S: schematic

OTHER
DATA/
COMMENT:

FLUSH: 3.0 - Poplar Island Channel

DISCHARGE: 2.0

HABITAT: 1.0

LAND USE: 3.5

PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 507008

SITE NAME: QUAYSIDE A

LOCATION DESC.: N. bank of North arm
1.6 km u/s of Queensboro Bridge
along Quayside

OWNER: City of New West

UTM N: 5449664.339

CONTACT: Steve Day

E: 505264.721

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 380mm dia.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multiple Family Residential
Commercial

DRAWING REF'S: master sewer plan

OTHER
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 1.0 - public walkway

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: Low

SITE:

OUTFALL #: 507009

SITE NAME: QUAYSIDE B

LOCATION DESC.: N. bank of North Arm
1.7 km u/s from Queensboro Bridge
along Quayside

OWNER: City of New West

UTM N: 5449579.217

CONTACT: Steve Day

E: 505393.845

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 530mm dia.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multiple Family Residential
Commercial

DRAWING REF'S: master sewer plan

OTHER
DATA/
COMMENT:

FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 1.0 - public walkway

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: **Low**

SITE:

OUTFALL #: 507010

SITE NAME: ROYAL AVE.

LOCATION DESC.: N. bank of North Arm
near RR Bridge, 1.8 km u/s of Queensboro Bridge
end of Royal Avenue

OWNER: City of New West

UTM N: 5449497.441

CONTACT: Steve Day

E: 505642.239

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 1370mm dia. CSO

INVERT ELEV.: 0.0 m

OUTFALL LENGTH: 50m

INVERT DEPTH: above water

CHART DATUM: -0.8 m

DRAWING REF'S:

WATERCOURSE/CSO: C

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multiple Family Residential
Commercial

DRAWING REF'S: Schematic

OTHER
DATA/
COMMENT:

FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 1.0 - public walkway

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 507011

SITE NAME: QUAYSIDE D

LOCATION DESC.: N. bank of Fraser River
2 km d/s of Pattullo Bridge
along Quayside

OWNER: City of New West

UTM N: 5449485.927

CONTACT: Steve Day

E: 505912.182

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multiple Family Residential
Commercial

DRAWING REF'S: master sewer plan

OTHER
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 1.0 - public walkway

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: Low

SITE:

OUTFALL #: 507012

SITE NAME: QUAYSIDE E

LOCATION DESC.: N. bank of Fraser River
1.8 km d/s of Pattullo Bridge

OWNER: City of New West

UTM N: 5449480.548

CONTACT: Steve Day

E: 506132.919

ADDRESS: 511 Royal Ave.
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 500mm dia.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multi-family Residential

DRAWING REF'S:

OTHER
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 1.0 - public walkway

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 507013

SITE NAME: 10TH STREET

LOCATION DESC.: N. bank of Fraser River
1.6 km d/s of Pattullo Bridge
at end of 10th Street

OWNER: City of New West

UTM N: 5449471.854

CONTACT: Steve Day

E: 506291.051

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 1070mm dia. CSO

INVERT ELEV.: 0.10 m

OUTFALL LENGTH: 75 m

INVERT DEPTH: above water

CHART DATUM: -0.8 m

DRAWING REF'S:

WATERCOURSE/CSO: C

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multiple Family Residential
Commercial

DRAWING REF'S: Schematic

OTHER DATA/
COMMENT: - see CSO study #7FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: Low

SITE:

OUTFALL #: 507014

SITE NAME: 8TH STREET

LOCATION DESC.: N. bank of Fraser River
1.4 km d/s from Pattullo Bridge
end of 8th Street

OWNER: City of New West

UTM N: 5449746.920

CONTACT: Steve Day

E: 506498.689

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. CSO

INVERT ELEV.: -0.82 m

OUTFALL LENGTH: < 50 m

INVERT DEPTH: 0.02 m

CHART DATUM: -0.8 m

DRAWING REF'S:

WATERCOURSE/CSO: C

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multiple Family Residential
Commercial

DRAWING REF'S: schematic

OTHER - see CSO study #7
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: **Low**

SITE:

OUTFALL #: 507015

SITE NAME: BEGBIE STREET

LOCATION DESC.: N. bank of Fraser River
1.35 km d/s of Pattullo Bridge
end of Begbie Street

OWNER: City of New West

UTM N: 5449848.403

CONTACT: Steve Day

E: 506562.971

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 460mm dia. CSO

INVERT ELEV.: 0.5 m

OUTFALL LENGTH: < 50 m

INVERT DEPTH: above water

CHART DATUM: -0.8 m

DRAWING REF'S:

WATERCOURSE/CSO: C

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Commercial

DRAWING REF'S: schematic

OTHER
DATA/
COMMENT:

FLUSH: 1.0

DISCHARGE: 2.0

HABITAT: 1.0

LAND USE: 4.0

PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 507016

SITE NAME: 6TH STREET

LOCATION DESC.: N. bank of Fraser River
1.0 km d/s of Pattullo Bridge
at end of 6th Street

OWNER: City of New West

UTM N: 5449998.607

CONTACT: Steve Day

E: 506754.793

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 910mm dia. CSO

INVERT ELEV.: 0.0 m

OUTFALL LENGTH: < 50 m

INVERT DEPTH: above water

CHART DATUM: -0.8 m

DRAWING REF'S:

WATERCOURSE/CSO: C

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Commercial
Multiple Family Residential

DRAWING REF'S: schematic

OTHER
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 507025

SITE NAME: STANLEY

LOCATION DESC.: S. bank of North Arm
0.8 Km u/s of Queensborough Bridge
near end of Stanley St.

OWNER: City of New West

UTM N: 5449282.874

CONTACT: Steve Day

E: 504656.123

ADDRESS: 511 Royal Ave.
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: 6-3

STRUCTURES:

GRAVITY OUTLETS: - none

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS: 1 x 0.4 m³/s, 1 x 0.5 m³/s

DRAWING REF'S:

DISCHARGE PIPES: 2 x 500mm dia. w/flapgates

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER DATA/
COMMENT: - see "Queensborough Storm Pump
Discharges"

FLUSH: 2.0 - behind log booms
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - inaccessible

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 507026

SITE NAME: WOOD ST.

LOCATION DESC.: S. bank of North Arm
50m u/s of Queensborough Bridge
near end of Wood St.

OWNER: City of New West

UTM N: 5449230.364

CONTACT: Steve Day

E: 503921.721

ADDRESS: 511 Royal Ave.
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: 6-4, 6-5

STRUCTURES:

GRAVITY OUTLETS: - size unknown

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: 1 x 1.1 m3/s, 1 x 0.25 m3/s

DRAWING REF'S:

DISCHARGE PIPES: 1 x 750mm dia. w/flapgate
1 x 500mm dia. w/flapgate

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - drains open channel
DATA/ - pipes running to mill site as well
COMMENT: - gravity outlets not confirmedFLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0 - fill
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 507028

SITE NAME: OLD RAVINE

LOCATION DESC.: N. bank of Fraser River
1.0 Km d/s of Pattullo Bridge

OWNER: City of New West

UTM N: 5450056.627

CONTACT: Steve Day

E: 506823.497

ADDRESS: 511 Royal Ave.
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 500mm dia.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Commercial

DRAWING REF'S: sewer master plan

OTHER - old culverts in filled ravine
DATA/ - only seepage and groundwater flows
COMMENT:FLUSH: 1.0
DISCHARGE: 1.0 - low seepage
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.4

RATING: **Low**

SITE:

OUTFALL #: 507029

SITE NAME: CHURCH ST.

LOCATION DESC.: N. bank of Fraser River
950 m d/s of Pattullo Bridge

OWNER: City of New West

UTM N: 5450089.902

CONTACT: Steve Day

E: 506865.222

ADDRESS: 511 Royal Ave.
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Commercial

DRAWING REF'S: sewer master plan

OTHER
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - inaccessible

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: Low

SITE:

OUTFALL #: 507030

SITE NAME: BLACKWOOD

LOCATION DESC.: N. bank of Faser River
900 m d/s of Pattullo Bridge

OWNER: City of New West

UTM N: 5450178.430

CONTACT: Steve Day

E: 506995.941

ADDRESS: 511 Royal Ave.
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 300mm dia. vitreous clay

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Commercial

DRAWING REF'S: sewer master plan

OTHER - old pipe
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - inaccessible

ENVIRONMENTAL SENSITIVITY INDEX: 1.4

RATING: **Low**

SITE:

OUTFALL #: 507032

SITE NAME: LAGUNA CT.

LOCATION DESC.: N. bank of Fraser River
50 m d/s of Queensborough railway bridge

OWNER: City of New West

UTM N: 5449539.409

CONTACT: Steve Day

E: 505536.822

ADDRESS: 511 Royal Ave.
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 380mm dia.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multiple Family Residential

DRAWING REF'S: sewer master plan

OTHER
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 1.0 - public walkway

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 507033

SITE NAME: QUAYSIDE C

LOCATION DESC.: N. bank of North Arm
50 m u/s from Queensborough railway bridge

OWNER: City of New West

UTM N: 5449497.685

CONTACT: Steve Day

E: 505667.614

ADDRESS: 511 Royal Ave.
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 200mm dia.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multiple Family Residential

DRAWING REF'S: sewer master plan

OTHER
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 1.0 - public walkway

ENVIRONMENTAL SENSITIVITY INDEX: 1.4

RATING: Low

SITE:

OUTFALL #: 507040

SITE NAME: CARTER

LOCATION DESC.: N. bank of Annacis Channel
1.5 Km u/s of Annacis channel bridge

OWNER: City of New West

UTM N: 5447799.379

CONTACT: Steve Day

E: 504357.519

ADDRESS: 511 Royal Ave.
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: 12-1

STRUCTURES:

GRAVITY OUTLETS: - none

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS: 1 x 0.31 m3/s

DRAWING REF'S:

DISCHARGE PIPES: 1 x 500mm dia. w/flapgate

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Residential
Industrial

DRAWING REF'S:

OTHER - see "Queensborough Storm Pump
DATA/ Discharges"
COMMENT: - gravity outlets unlikelyFLUSH: 2.0 - Annacis channel
DISCHARGE: 2.0
HABITAT: 3.0 - natural, marsh
LAND USE: 3.5
PUBLIC USE: 1.0 - residence nearby

ENVIRONMENTAL SENSITIVITY INDEX: 2.3

RATING: **Moderate**

SITE:

OUTFALL #: 508001

SITE NAME: MANSON PUMP STATION

LOCATION DESC.: S. bank of Fraser River
1.3 km d/s of Pattullo Bridge
near Pine Road

OWNER: City of Surrey

UTM N: 5449370.210

CONTACT: Jonathon Ng

E: 507205.655

ADDRESS: 14245 - 56th Avenue
Surrey

PHONE/FAX: 591-4340/591-8693

PHOTO NO.: 10-12,10-14

STRUCTURES:

GRAVITY OUTLETS: 2 x ? x 2100mm conc. floodboxes

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS: 1 x Flygt PL7050, 1 x Flygt PL7140, 1 x Flygt PL7140 enhanced

DRAWING REF'S: Same as above

DISCHARGE PIPES: 3 x 1067mm dia. steel

CONTROLS: automatic

DRAINAGE AREA: 851.3 ha

LAND USE: Residential 588 ha
Industrial 263 ha

DRAWING REF'S: site plan

OTHER DATA/
COMMENT: - abandoned discharge pipes from
previous pump station 20 m u/sFLUSH: 3.0 - bay, behind groyne
DISCHARGE: 3.0
HABITAT: 3.0 - natural, marsh
LAND USE: 3.5
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.5

RATING: High

SITE:

OUTFALL #: 508002

SITE NAME: OLD YALE PUMP STN.

LOCATION DESC.: S. bank of Fraser River
slightly d/s of Skytrain Bridge
end of Old Yale Road

OWNER: City of Surrey

UTM N: 5450137.292

CONTACT: Jonathon Ng

E: 507816.814

ADDRESS: 14245 - 56th Avenue
Surrey

PHONE/FAX: 591-4340/591-8693

PHOTO NO.: 10-9,10-10

STRUCTURES:

GRAVITY OUTLETS: 1 x 1500 x 1500mm timber floodbox w/tide gates

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS: 2 x Flygt PL 7060 axial

DRAWING REF'S:

DISCHARGE PIPES: 2 x 600mm dia. cmp w/flapgate
asphalt coated

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S: Drainage Catchments #9

OTHER - drains open channel
DATA/
COMMENT:FLUSH: 3.0 - 60 m drainage canal
DISCHARGE: 3.0
HABITAT: 3.0 - some vegetation
LAND USE: 4.0
PUBLIC USE: 1.0 - waterfront park nearby

ENVIRONMENTAL SENSITIVITY INDEX: 2.8

RATING: **High**

SITE:

OUTFALL #: 515001

SITE NAME: UNDER WALK

LOCATION DESC.: N. bank of Fraser River
1.9 km d/s of Pattullo Bridge
along Quayside

OWNER: City of New West

UTM N: 5449462.634

CONTACT: Steve Day

E: 505844.101

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: 6-2

STRUCTURES:

GRAVITY OUTLETS: 1 x 300mm dia. set in conc. retaining wall

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multiple Family Residential
Commercial

DRAWING REF'S: Schematic

OTHER - site drainage from condos
DATA/
COMMENT:FLUSH: 2.0 - behind piles
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 1.0 - near public walkway

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: Low

SITE:

OUTFALL #: 515030

SITE NAME: BARK MULCH

LOCATION DESC.: S. bank of Annieville channel
2.5 km d/s of Pattullo Bridge

OWNER: Private/Unknown

UTM N: 5446977.250

CONTACT:

E: 505768.430

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 11-3

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. conc. w/screen

INVERT ELEV.:

OUTFALL LENGTH: 1.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - site drainage
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0 - rocky shoreline
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 515031

SITE NAME: POINT

LOCATION DESC.: S. bank of Annieville channel
900m u/s of Alex Fraser Bridge

OWNER: Private/Unknown

UTM N: 5445795.737

CONTACT:

E: 505041.799

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 11-11

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Undeveloped

DRAWING REF'S:

OTHER - CNR culvert
DATA/ - drains ravine and residential area
COMMENT: - high above high waterFLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 3.0 - natural bank
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 515032

SITE NAME: DENTED

LOCATION DESC.: N. bank of Annieville channel
1.0 km u/s of Alex Fraser Bridge

OWNER: Private/Unknown

UTM N: 5446059.860

CONTACT:

E: 504731.579

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 11-14

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 6.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - for site drainage
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 515033

SITE NAME: PIER

LOCATION DESC.: N. bank of Annieville channel
1.0 km u/s of Alex Fraer Bridge

OWNER: Private/Unknown

UTM N: 5446072.046

CONTACT:

E: 504747.716

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 11-15

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 15.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - site drainage or process outfall
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 515034

SITE NAME: ANNACIS SLOUGH

LOCATION DESC.: S. bank of Annacis channel
2 km d/s of Alex Fraser Bridge

OWNER: Private/Unknown

UTM N: 5445365.586

CONTACT:

E: 501259.612

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 11-21

STRUCTURES:

GRAVITY OUTLETS: - watercourse

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: W

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Undeveloped

DRAWING REF'S:

OTHER - 3m span concrete bridge
DATA/ - 30 m channel (from open river)
COMMENT: - old stop-logs and tide gatesFLUSH: 2.0 - channel, eddy
DISCHARGE: 3.0
HABITAT: 3.0 - marsh
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: High

SITE:

OUTFALL #: 515040

SITE NAME: YARD I

LOCATION DESC.: S. bank of Annacis channel
3.1 km d/s of Pattullo Bridge

OWNER: Private/Unknown

UTM N: 5448425.793

CONTACT:

E: 505406.262

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 12-2

STRUCTURES:

GRAVITY OUTLETS: 1 x 250mm dia. cmp w/flap gate

INVERT ELEV.:

OUTFALL LENGTH: 2.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - site drainage
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.4

RATING: **Low**

SITE:

OUTFALL #: 515041

SITE NAME: YARD II

LOCATION DESC.: S. bank of Annacis channel
3.0 km d/s of Pattullo Bridge

OWNER: Private/Unknown

UTM N: 5448582.732

CONTACT:

E: 505538.159

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 12-3

STRUCTURES:

GRAVITY OUTLETS: 1 x 250mm dia. cmp w/flap gate

INVERT ELEV.:

OUTFALL LENGTH: 1.5 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - site drainage
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.4

RATING: **Low**

SITE:

OUTFALL #: 515042

SITE NAME: YARD III

LOCATION DESC.: S. bank of Annacis channel
2.9 km d/s of Pattullo Bridge

OWNER: Private/Unknown

UTM N: 5448659.021

CONTACT:

E: 505594.535

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 12-4

STRUCTURES:

GRAVITY OUTLETS: 1 x 450mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - no flapgate
DATA/ - site drainage
COMMENT:FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 515043

SITE NAME: YARD IV

LOCATION DESC.: S. bank of Annacis channel
2.8 km d/s of Pattullo Bridge

OWNER: Private/Unknown

UTM N: 5448731.607

CONTACT:

E: 505656.498

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 12-5

STRUCTURES:

GRAVITY OUTLETS: 1 x 450mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 1.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - site drainage
DATA/ - no flapgate
COMMENT:FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 515044

SITE NAME: YARD V

LOCATION DESC.: S. bank of Annacis channel
2.7 km d/s of Pattullo Bridge

OWNER: Private/Unknown

UTM N: 5448746.291

CONTACT:

E: 505670.180

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 12-6

STRUCTURES:

GRAVITY OUTLETS: 1 x 400mm dia. cmp w/flap gate

INVERT ELEV.:

OUTFALL LENGTH: 1.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - site drainage
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 515045

SITE NAME: YARD VI

LOCATION DESC.: S. bank of Annacis channel
2.6 Km d/s of Pattullo Bridge

OWNER: Private/Unknown

UTM N: 5448812.811

CONTACT:

E: 505713.952

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 12-7

STRUCTURES:

GRAVITY OUTLETS: 1 x 450mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - site drainage
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: Low

SITE:

OUTFALL #: 515060

SITE NAME: ASPENS

LOCATION DESC.: N. bank of North Arm
300 m u/s of CNR Bridge

OWNER: Private/Unknown

UTM N: 5447699.985

CONTACT:

E: 501186.146

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 5-7

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Undeveloped

DRAWING REF'S: Land Use Map

OTHER - drains watercourse under old dyke road
DATA/ - 15 m from river
COMMENT:

FLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 3.0 - natural shoreline
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 515061

SITE NAME: MACBLO INTAKE

LOCATION DESC.: N. bank of North Arm
1.5 km u/s of CNR Bridge

OWNER: Private/Unknown

UTM N: 5447828.697

CONTACT:

E: 502142.296

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 5-12

STRUCTURES:

GRAVITY OUTLETS: 1 x 150mm dia. cmp w/flap gate

INVERT ELEV.:

OUTFALL LENGTH: 5.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: Land Use Map

OTHER - site drainage from mill
DATA/ - adj. to water intake structure
COMMENT: - owned by MacMillan-Blodel?FLUSH: 2.0 - eddy
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 515062

SITE NAME: UNDERCUT

LOCATION DESC.: N. bank of North Arm
1.8 km d/s of Queensboro Bridge

OWNER: Private/Unknown

UTM N: 5448210.725

CONTACT:

E: 502429.896

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 5-17

STRUCTURES:

GRAVITY OUTLETS: 1 x 500mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: Land Use Map

OTHER - no flapgate
DATA/ - drains abandoned industrial area
COMMENT: - some fill in vicinityFLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: Low

SITE:

OUTFALL #: 515063

SITE NAME: BROKEN

LOCATION DESC.: N. bank of North Arm
1.4 km d/s of Queensboro Bridge

OWNER: Private/Unknown

UTM N: 5448667.417

CONTACT:

E: 502818.022

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 5-19

STRUCTURES:

GRAVITY OUTLETS: 1 x 450mm dia. w/broken flapgate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: Land Use Map

OTHER - site drainage
DATA - partially full of sand
COMMENT: - possibly owned by CNFLUSH: 2.0 - eddy
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 515065

SITE NAME: RECYCLE 1

LOCATION DESC.: N. bank of North Arm
2.1 Km d/s of Queensborough bridge

OWNER: Private/Unknown

UTM N: 5447923.857

CONTACT: E: 502224.718

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 5-13

STRUCTURES:GRAVITY OUTLETS: 1 x 200mm dia. steel
1 x 150mm dia. PVC

INVERT ELEV.:

OUTFALL LENGTH: 4.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - site drainage from recycling plant
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - inaccessible

ENVIRONMENTAL SENSITIVITY INDEX: 1.4

RATING: Low

SITE:

OUTFALL #: 515066

SITE NAME: RECYCLE 2

LOCATION DESC.: N. bank of North Arm
2.0 Km d/s of Queensborough bridge

OWNER: Private/Unknown

UTM N: 5447938.853

CONTACT:

E: 502233.217

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 5-14

STRUCTURES:

GRAVITY OUTLETS: 1 x 500mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER DATA/
COMMENT: - site drainage from recycling plantFLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - inaccessible

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 515067

SITE NAME: RECYCLE 3

LOCATION DESC.: N. bank of North Arm
2.0 Km d/s of Queensborough bridge

OWNER: Private/Unknown

UTM N: 5447991.161

CONTACT:

E: 502283.507

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 5-15

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 4.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - elevated on wooden frame
DATA/ - site drainage or more
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - inaccessible

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 515068

SITE NAME: CP CULVERT

LOCATION DESC.: N. bank of North Arm
100 m d/s of Queensborough bridge

OWNER: Private/Unknown

UTM N: 5449286.646

CONTACT:

E: 503724.415

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 5-23

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial/Rail

DRAWING REF'S:

OTHER - probably cp owned
DATA/ - drains railway ditches
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - inaccessible

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 515069

SITE NAME: QUEENSBOROUGH

LOCATION DESC.: N. bank of North Arm
20 m u/s of Queensborough bridge

OWNER: Private/Unknown

UTM N: 5449343.150

CONTACT:

E: 503836.130

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 5-24

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp w/conc. structure

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial/Rail

DRAWING REF'S:

OTHER - possibly belongs to New West
DATA/ - no flapgate
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - inaccessible

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 515070

SITE NAME: CP RAIL

LOCATION DESC.: N. bank of North Arm
40 m u/s of Queensborough bridge

OWNER: Private/Unknown

UTM N: 5449362.984

CONTACT:

E: 503840.946

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 5-24

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial/Rail

DRAWING REF'S:

OTHER - drains railway ditch
DATA/ - probably owned by CP Rail
COMMENT:FLUSH: 2.0 - eddy
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 515071

SITE NAME: DEAD PIER

LOCATION DESC.: N. bank of North Arm
300 m u/s of Queensborough bridge

OWNER: Private/Unknown

UTM N: 5449389.511

CONTACT:

E: 503874.531

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 5-25

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 2.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial/Rail

DRAWING REF'S:

OTHER - drains railway yard
DATA/ - probably CP Rail owned
COMMENT:FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - inaccessible

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 515072

SITE NAME: QUAYSIDE X

LOCATION DESC.: N. bank of North arm
20 m d/s of Queensborough railway bridge

OWNER: Private/Unknown

UTM N: 5449501.540

CONTACT:

E: 505605.251

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 6-1

STRUCTURES:

GRAVITY OUTLETS: 1 x 200mm dia. PVC

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multiple Family Residential

DRAWING REF'S:

OTHER - site drainage from walkway and
DATA/ gardens
COMMENT: - possibly owned by condominium mngmntFLUSH: 1.0
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 1.0 - public walkway

ENVIRONMENTAL SENSITIVITY INDEX: 1.4

RATING: Low

SITE:

OUTFALL #: 515073

SITE NAME: REELS

LOCATION DESC.: S. bank of North arm
1.5 Km d/s of Queensborough bridge

OWNER: Private/Unknown

UTM N: 5448318.637

CONTACT:

E: 502825.282

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 6-6

STRUCTURES:

GRAVITY OUTLETS: 1 x 250mm dia. pvc

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - site drainage from industrial yard
DATA/
COMMENT:

FLUSH: 2.0 - behind booms, eddy

DISCHARGE: 1.0

HABITAT: 1.0

LAND USE: 4.0

PUBLIC USE: 0.0 - inaccessible

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 515075

SITE NAME: TILTED

LOCATION DESC.: N. bank of North Arm
1.3 km u/s of CNR Bridge

OWNER: Private/Unknown

UTM N: 5447678.810

CONTACT:

E: 502026.178

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 5-9

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. w/flapgate + conc. structure

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Undeveloped

DRAWING REF'S: Land Use Map

OTHER - outfall structure tilted
DATA/ - may be owned by Burnaby
COMMENT:FLUSH: 2.0 - inside curve
DISCHARGE: 2.0
HABITAT: 2.0 - natural shoreline
LAND USE: 4.0
PUBLIC USE: 1.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 607021

SITE NAME: BRUNETTE

LOCATION DESC.: N. bank of Fraser River
1.9 km u/s of Pattullo Bridge
near end of Capilano Way

OWNER: City of New West

UTM N: 5452308.634

CONTACT: Steve Day

E: 508442.284

ADDRESS: 511 Royal Avenue
New Westminster, B.C. V3L 1H9

PHONE/FAX: 521-3711/521-3895

PHOTO NO.: 10-21

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. conc. w/screen

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: Schematic

OTHER DATA/
COMMENT: - concrete bag retaining wall

FLUSH: 2.0 - eddy, obstructed

DISCHARGE: 3.0

HABITAT: 1.0

LAND USE: 4.0

PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 608003

SITE NAME: PATULLO PUMP STATION

LOCATION DESC.: S. bank of Fraser River
immediately below Pattullo Bridge

OWNER: City of Surrey

UTM N: 5450399.763

CONTACT: Jonathon Ng

E: 508026.044

ADDRESS: 14245 - 56th Avenue
Surrey, B.C.

PHONE/FAX: 591-4340/591-8693

PHOTO NO.: 10-7,10-8

STRUCTURES:

GRAVITY OUTLETS: 2 x 1830mm dia. conc. w/flood gates

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES: 2 x 600mm dia. steel
1 x 900mm dia. steel

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S: Drainage Catchments #9

OTHER
DATA/
COMMENT:FLUSH: 3.0 - 100 m open channel
DISCHARGE: 3.0
HABITAT: 3.0 - vegetated canal
LAND USE: 4.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: High

SITE:

OUTFALL #: 608004

SITE NAME: 124TH ST. FLOODBOX

LOCATION DESC.: S. bank of Fraser River
1 km u/s from Pattullo Bridge
end of 124 Street

OWNER: City of Surrey

UTM N: 5451111.903

CONTACT: Jonathon Ng

E: 508778.245

ADDRESS: 14245 - 56th Avenue
Surrey, B.C.

PHONE/FAX: 591-4340/591-8693

PHOTO NO.: 10-6

STRUCTURES:

GRAVITY OUTLETS: 1 x 1800mm dia. conc. w/flap gate

INVERT ELEV.: -1.05 m

OUTFALL LENGTH: 0

INVERT DEPTH: 0.45 m

CHART DATUM: -0.6 m

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Industrial

DRAWING REF'S: Drainage Catchments #0

OTHER DATA/COMMENT: - 250 mm dia. pvc nearby
(local site drainage)FLUSH: 3.0 - 80 m drainage canal
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.1

RATING: **Moderate**

SITE:

OUTFALL #: 608005

SITE NAME: ROYAL CITY PUMP STN.

LOCATION DESC.: S. bank of Fraser River
1.75 km u/s of Pattullo Bridge
end of 126A Street

OWNER: City of Surrey

UTM N: 5451355.558

CONTACT: Jonathon Ng

E: 509367.848

ADDRESS: 14245 - 56th Avenue
Surrey, B.C.

PHONE/FAX: 591-4340/591-8693

PHOTO NO.: 11-1, 11-2

STRUCTURES:

GRAVITY OUTLETS: - none

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES: 1 x 600mm dia w/flapgate
1 x 450mm dia. w/ flapgates

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Residential
Industrial

DRAWING REF'S: Drainage Catchment #0

OTHER - canal dry at low tides
DATA/ - gravity outlets unlikely
COMMENT:FLUSH: 3.0 - 120m drainage canal
DISCHARGE: 3.0
HABITAT: 3.0 - heavily vegetated
LAND USE: 3.5
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.5

RATING: **High**

SITE:

OUTFALL #: 608006

SITE NAME: 128TH ST. FLOODBOX

LOCATION DESC.: S. bank of Fraser River
2 km u/s of Pattullo Bridge
end of 128th Street.

OWNER: City of Surrey

UTM N: 5451431.598

CONTACT: Jonathon Ng

E: 509629.532

ADDRESS: 14245 - 56th Avenue
Surrey, B.C.

PHONE/FAX: 591-4340/591-8693

PHOTO NO.: 10-5

STRUCTURES:

GRAVITY OUTLETS: 1 x 1800mm dia. conc. w/flap gate + trash rack

INVERT ELEV.: -1.47 m

OUTFALL LENGTH: 0

INVERT DEPTH: 0.87

CHART DATUM: -0.6 m

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Industrial

DRAWING REF'S:

OTHER DATA/
COMMENT: - on mill siteFLUSH: 2.0 - eddy, log sort area
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 608007

SITE NAME: BOLIVAR CREEK

LOCATION DESC.: S. bank Fraser River
3 km u/s of Pattullo Bridge
3 km d/s of Port Mann Bridge

OWNER: City of Surrey

UTM N: 5451519.895

CONTACT: Jonathon Ng

E: 510604.941

ADDRESS: 14245 - 56th Avenue
Surrey, B.C.

PHONE/FAX: 591-4340/591-8693

PHOTO NO.: 10-4

STRUCTURES:

GRAVITY OUTLETS: - watercourse

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: W

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S: Drainage Catchment #1

OTHER - Bolivar Creek mouth (outlet)
DATA/ - culverts upstream not accessible
COMMENT: from river (owned by Surrey)

FLUSH: 2.0 - eddy
DISCHARGE: 3.0 - large drainage area
HABITAT: 2.0 - vegetated banks in canal
LAND USE: 3.5
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.1

RATING: **Moderate**

SITE:

OUTFALL #: 608008

SITE NAME: 137A ST. FLOODBOX

LOCATION DESC.: S. bank of Fraser River
2.1 km d/s from Port Mann Bridge
CN Railway Yard, end of 137A Street

OWNER: City of Surrey

UTM N: 5451537.097

CONTACT: Jonathon Ng

E: 511547.249

ADDRESS: 14245 - 56th Avenue
Surrey, B.C.

PHONE/FAX: 591-4340/591-8693

PHOTO NO.: 10-3

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. cmp w/flap gate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S: Drainage Catchment #2

OTHER
DATA/
COMMENT:

FLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 608009

SITE NAME: BEDFORD RD.

LOCATION DESC.: S. bank of Fraser River
0.8 km d/s of Port Mann Bridge
CN Rail Yard

OWNER: City of Surrey

UTM N: 5451681.017

CONTACT: Jonathon Ng

E: 512475.178

ADDRESS: 14245 - 56th Avenue
Surrey, B.C.

PHONE/FAX: 591-4340/591-8693

PHOTO NO.: 10-2

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. cmp w/flap gate

INVERT ELEV.:

OUTFALL LENGTH: 8 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S: Drainage Catchments #2

OTHER DATA/ COMMENT: - culvert extends from bank then follows
beach gradeFLUSH: 2.0 - behind booms
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: Low

SITE:

OUTFALL #: 608010

SITE NAME: INVERGARY FLOODBOX

LOCATION DESC.: S. bank of Fraser River
immediately u/s Port Mann Bridge

OWNER: City of Surrey

UTM N: 5451538.124

CONTACT: Jonathon Ng

E: 513798.829

ADDRESS: 14245 - 56th Avenue
Surrey, B.C.

PHONE/FAX: 591-4340/591-8693

PHOTO NO.: 10-1

STRUCTURES:

GRAVITY OUTLETS: 2 x 1500mm dia. cmp w/tide gates

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S: Drainage Catchment #3

OTHER - drains slough behind rail yard
DATA/ - close to landfill site
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: **Low**

SITE:

OUTFALL #: 608011

SITE NAME: 157TH ST.

LOCATION DESC.: S. bank of Fraser River
1.7 km u/s from Port Mann Bridge

OWNER: City of Surrey

UTM N: 5451081.862

CONTACT: Jonathon Ng

E: 516067.315

ADDRESS: 14245 - 56th Avenue
Surrey, B.C.

PHONE/FAX: 591-4340/591-8693

PHOTO NO.: 9-15

STRUCTURES:

GRAVITY OUTLETS: 1 x 1950 x 1650mm elliptical cmp (height x width)

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial/Railway
Residential

DRAWING REF'S: Drainage Catchment #4

OTHER - creek drainage
DATA/ - possibly owned by CN
COMMENT: - abandoned 400 mm dia. cmp 3 m d/sFLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: **Low**

SITE:

OUTFALL #: 608013

SITE NAME: 164 STREET

LOCATION DESC.: S. bank of Douglas Channel
3.1 km u/s Port Mann Bridge

OWNER: City of Surrey

UTM N: 5450957.020

CONTACT: Jonathon Ng

E: 516765.267

ADDRESS: 14245 - 56th Avenue
Surrey, B.C.

PHONE/FAX: 591-4340/591-8693

PHOTO NO.: 9-18, 9-19

STRUCTURES:

GRAVITY OUTLETS: 2 x 1600mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Undeveloped

DRAWING REF'S: Drainage Catchment #5

OTHER - drains creek/slough from E
DATA/ + 1600 mm dia. cmp from S.
COMMENT: - slightly brown colouredFLUSH: 3.0 - behind sand bar
DISCHARGE: 3.0
HABITAT: 3.0 - natural marsh
LAND USE: 3.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: **High**

SITE:

OUTFALL #: 609001

SITE NAME: FAWCETT ROAD

LOCATION DESC.: N, bank of Fraser River
1.5 km d/s of Port Mann Bridge
Near end of Fawcett Road

OWNER: City of Coquitlam

UTM N: 5452163.219

CONTACT: Ken Wright

E: 512059.039

ADDRESS: 1111 Brunette Avenue
Coquitlam, B.C.

PHONE/FAX: 664-1400/664-1654

PHOTO NO.: 11-0

STRUCTURES:

GRAVITY OUTLETS: 1 x 750mm dia. PVC

INVERT ELEV.: 5.25 m

OUTFALL LENGTH: 0

INVERT DEPTH: above water

CHART DATUM: -0.4 m

DRAWING REF'S: 846-S, STI

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S: SW - OCP

OTHER - outfalls well above high water level
DATA/ - some bank protection
COMMENT:

FLUSH: 2.0 - 20 m from high water
DISCHARGE: 2.0
HABITAT: 3.0 - natural bank
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 609002

SITE NAME: MAYFAIR P.S.

LOCATION DESC.: N. bank of Fraser River
50 m u/s of Port Mann bridge

OWNER: City of Coquitlam

UTM N: 5452385.731

CONTACT: Ken Wright

E: 513429.353

ADDRESS: 1111 Brunette Ave.
Coquitlam, B.C.

PHONE/FAX: 664-1400/664-1654

PHOTO NO.: 8-0, 8-1

STRUCTURES:

GRAVITY OUTLETS: 1 x ? x 1500mm conc. floodbox w/ flapgate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES: 1 x 900mm dia. steel

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER DATA/ COMMENT: - drains open channel with holding pond

FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 1.0 - adjacent to park, boat launch

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 609003

SITE NAME: PORT MANN NORTH

LOCATION DESC.: N. bank of Fraser River
75 m u/s of Port Mann bridge

OWNER: City of Coquitlam

UTM N: 5452431.868

CONTACT: Ken Wright

E: 513506.445

ADDRESS: 1111 Brunett Ave
Coquitlam, B.C.

PHONE/FAX: 664-1400/664-1654

PHOTO NO.: 8-2

STRUCTURES:

GRAVITY OUTLETS: 2 x ? x 1200mm conc. floodboxes

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: removed

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - pump station removed
DATA/ - replaced by 609002
COMMENT:FLUSH: 2.0 - eddy, bay
DISCHARGE: 3.0
HABITAT: 3.0 - natural bank
LAND USE: 4.0
PUBLIC USE: 1.0 - near park

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: High

SITE:

OUTFALL #: 610001

SITE NAME: MARY HILL A

LOCATION DESC.: N. bank of Fraser River
1.9 km u/s of Port Mann Bridge

OWNER: City of Coquitlam

UTM N: 5452672.960

CONTACT: Ken Wright

E: 515268.013

ADDRESS: 1111 Brunette Avenue
Coquitlam, B.C.

PHONE/FAX: 664-1400/664-1654

PHOTO NO.: 8-3

STRUCTURES:

GRAVITY OUTLETS: 2 x 150mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential (roadway)

DRAWING REF'S: Mary Hill Bypass p.3

OTHER - roadway drainage
DATA/ - rip rap bank
COMMENT:FLUSH: 2.0 - log booms
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.4

RATING: Low

SITE:

OUTFALL #: 610002

SITE NAME: MARY HILL B

LOCATION DESC.: N. bank of Fraser River
2.0 km u/s of Port Mann Bridge

OWNER: City of Coquitlam

UTM N: 5452691.882

CONTACT: Ken Wright

E: 515354.537

ADDRESS: 1111 Brunette Avenue
Coquitlam, B.C.

PHONE/FAX: 664-1400/664-1654

PHOTO NO.: 8-4

STRUCTURES:

GRAVITY OUTLETS: 2 x 150mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential (roadway)

DRAWING REF'S: Mary Hill Bypass as built p.3

OTHER - road drainage

DATA/ - rip rap bank

COMMENT:

FLUSH: 2.0 - log booms

DISCHARGE: 1.0

HABITAT: 1.0

LAND USE: 3.0

PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.4

RATING: Low

SITE:

OUTFALL #: 610003

SITE NAME: MARY HILL C

LOCATION DESC.: N. bank of Fraser River
2.1 km u/s of Port Mann Bridge

OWNER: City of Coquitlam

UTM N: 5452713.930

CONTACT: Ken Wright

E: 515477.912

ADDRESS: 1111 Brunette Avenue
Coquitlam, B.C.

PHONE/FAX: 664-1400/664-1654

PHOTO NO.: 8-5

STRUCTURES:

GRAVITY OUTLETS: 1 x 200mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential (roadway)

DRAWING REF'S:

OTHER - road drainage
DATA - rip rap bank set back from natural
COMMENT: bankFLUSH: 2.0 - eddy, booms
DISCHARGE: 1.0
HABITAT: 3.0 - natural vegetation
LAND USE: 3.0
PUBLIC USE: 0.0

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 614019

SITE NAME: GLENBROOK

LOCATION DESC.: N. bank of Fraser River
0.7 km u/s of Pattullo Bridge

OWNER: G.V.R.D

UTM N: 5451376.585

CONTACT: Russ Black

E: 507741.034

ADDRESS: 4330 Kingsway
Burnaby, V5H 4A8

PHONE/FAX: 432-6200/432-6251

PHOTO NO.: 10-20

STRUCTURES:

GRAVITY OUTLETS: 1 x 2.59 x 2.59m semi-elliptical conc. CSO

INVERT ELEV.: -0.72 m

OUTFALL LENGTH: 25 m

INVERT DEPTH: above water

CHART DATUM: -0.8 m

DRAWING REF'S: SF-811

WATERCOURSE/CSO: C

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multiple Family Residential
Institutional

DRAWING REF'S: Schematic

OTHER
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 3.0 - natural shoreline
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 615001

SITE NAME: RETAINING WALL

LOCATION DESC.: N. bank of Fraser River
150 m u/s of Pattullo bridge

OWNER: Private/Unknown

UTM N: 5450818.980

CONTACT:

E: 507492.035

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 10-17

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial/Rail

DRAWING REF'S:

OTHER DATA/ COMMENT: - connects to vertical pipe on other
side of road leading up to railway
- possibly owned by City of New WestFLUSH: 1.0
DISCHARGE: 2.0 - small drainage area
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - inaccessible

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: Low

SITE:

OUTFALL #: 615002

SITE NAME: TIMBER ROAD

LOCATION DESC.: N. bank of Fraser River
300 m u/s of Pattullo bridge

OWNER: Private/Unknown

UTM N: 5450893.646

CONTACT:

E: 507526.949

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 10-18

STRUCTURES:

GRAVITY OUTLETS: 1 x 450mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Industrial

DRAWING REF'S:

OTHER - connected to vertical pipe across road

DATA/

COMMENT: - foamy, odourous, warm discharge
beneath old timber road grade

FLUSH: 1.0

DISCHARGE: 2.0

HABITAT: 1.0

LAND USE: 3.5 - railway drainage

PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.5

RATING: Low

SITE:

OUTFALL #: 615003

SITE NAME: RR CULVERT

LOCATION DESC.: N. bank of Fraser River
450 m u/s of Pattullo bridge

OWNER: Private/Unknown

UTM N: 5451239.674

CONTACT:

E: 507663.353

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 10-19

STRUCTURES:

GRAVITY OUTLETS: 1 x 450mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Multiple Family Residential
Industrial

DRAWING REF'S:

OTHER - drains beneath road and rail grade
DATA/ - possibly owned by CPR
COMMENT:FLUSH: 1.0
DISCHARGE: 2.0
HABITAT: 1.0 - rip rap bank
LAND USE: 3.5 - railway drainage
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.5

RATING: **Low**

SITE:

OUTFALL #: 615004

SITE NAME: DOMTAR

LOCATION DESC.: N. bank of Fraser River
3.4 km d/s of Port Mann Bridge

OWNER: Private/Unknown

UTM N: 5452474.713

CONTACT:

E: 510104.130

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 10-24

STRUCTURES:

GRAVITY OUTLETS: 1 x 200mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - site drainage from Domtar yard
DATA/ - in concrete retaining wall
COMMENT:FLUSH: 2.0 - bay, log sort area
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: Low

SITE:

OUTFALL #: 615005

SITE NAME: BRUNETTE CANAL

LOCATION DESC.: N. bank of Fraser River
2 km u/s of Pattullo bridge

OWNER: Private/Unknown

UTM N: 5452370.673

CONTACT:

E: 508590.892

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 10-22

STRUCTURES:

GRAVITY OUTLETS: - watercourse

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: W

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S:

OTHER - branch of Brunette river
DATA/ - sheet pile canal tied with beams
COMMENT: across top
- dark odourous water
- many outfalls in sheet pile wallsFLUSH: 1.0
DISCHARGE: 3.0 - large drainage area
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.7

RATING: Low

SITE:

OUTFALL #: 615006

SITE NAME: CN A

LOCATION DESC.: S. bank of Fraser River
2.8 km u/s of Port Mann Bridge

OWNER: Private/Unknown

UTM N: 5451022.342

CONTACT:

E: 516444.732

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-12

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial/Rail
Undeveloped

DRAWING REF'S:

OTHER - drains gully
DATA/ - possibly owned by CNR
COMMENT:FLUSH: 2.0 - behind booms
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 615007

SITE NAME: CN B

LOCATION DESC.: S. bank of Fraser River
0.7 km u/s of Port Mann Bridge

OWNER: Private/Unknown

UTM N: 5451378.248

CONTACT:

E: 514380.339

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-22

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial/Rail

DRAWING REF'S:

OTHER - near landfill site
DATA/ - orange coloured effluent
COMMENT: - possibly owned by CNRFLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 615008

SITE NAME: CN C

LOCATION DESC.: S. bank of Fraser River
1.1 km u/s of Port Mann Bridge

OWNER: Private/Unknown

UTM N: 5451296.777

CONTACT:

E: 514737.991

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-23

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial/Rail

DRAWING REF'S:

OTHER - near landfill site
DATA/ - orange coloured deposits
COMMENT: - strong odour
- sediment fan
- possibly owned by CNRFLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 615009

SITE NAME: CN D

LOCATION DESC.: S. bank of Fraser River
1.4 km u/s of Port Mann Bridge

OWNER: Private/Unknown

UTM N: 5451219.145

CONTACT:

E: 515092.588

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-24

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial/Rail

DRAWING REF'S:

OTHER - near landfill site
DATA/ - orange coloured deposits
COMMENT: - possibly owned by CNRFLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 615010

SITE NAME: CNE

LOCATION DESC.: S. bank of Fraser River
1.9 km u/s of Port Mann Bridge

OWNER: Private/Unknown

UTM N: 5451160.641

CONTACT:

E: 515521.963

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 10-0

STRUCTURES:

GRAVITY OUTLETS: 1 x 1500mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial/Rail

DRAWING REF'S:

OTHER - near landfill site
DATA/ - slight orange staining
COMMENT: - drains gulleyFLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 615011

SITE NAME: CN F

LOCATION DESC.: S. bank of Fraser River
2.3 km u/s from Port Mann Bridge

OWNER: Private/Unknown

UTM N: 5451103.696

CONTACT:

E: 515913.641

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-14

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 1.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial/Rail

DRAWING REF'S:

OTHER DATA/
COMMENT: - possibly owned by CNRFLUSH: 2.0 - eddy, log booms
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 615012

SITE NAME: CN G

LOCATION DESC.: S. bank of Fraser River
2.6 km u/s of Port Mann Bridge

OWNER: Private/Unknown

UTM N: 5451075.028

CONTACT:

E: 516103.179

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-16

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial/Rail
Undeveloped

DRAWING REF'S:

OTHER DATA/ COMMENT: - weeds growing inside pipe
- possibly abandoned but still has
infiltration flows
-possibly owned by CNRFLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0 - rail yard
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 615013

SITE NAME: CN H

LOCATION DESC.: S. bank of Fraser River
2.3 km u/s of Port Mann Bridge

OWNER: Private/Unknown

UTM N: 5451058.711

CONTACT:

E: 516219.969

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-17

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 2.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial/Rail
Undeveloped

DRAWING REF'S:

OTHER DATA/
COMMENT: - possibly owned by CNRFLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0 - railway yard
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 615014

SITE NAME: LEEDER CR

LOCATION DESC.: N. bank of Fraser River
1.2 km d/s of Port Mann bridge

OWNER: Private/Unknown

UTM N: 5452138.163

CONTACT:

E: 512371.414

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 10-25

STRUCTURES:

GRAVITY OUTLETS: - watercourse

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: W

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - creek draining industrial park
DATA/ - lots of debris, no base flow
COMMENT: - 1200 mm dia. cmp at road crossing
upstreamFLUSH: 2.0 - bay, eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 615015

SITE NAME: TWIN

LOCATION DESC.: N. bank of Fraser River
2.2 km u/s of Port Mann Bridge

OWNER: Private/Unknown

UTM N: 5452732.755

CONTACT:

E: 515590.730

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 8-6, 8-7

STRUCTURES:

GRAVITY OUTLETS: 2 x 1200mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential

DRAWING REF'S:

OTHER DATA/ COMMENT: - culverts discharge into creek 25 m
from Fraser riverFLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 3.0 - natural bank
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 615016

SITE NAME: GRAVEL PIT

LOCATION DESC.: N. bank of Fraser River
2.75 km u/s of Port Mann Bridge

OWNER: Private/Unknown

UTM N: 5452838.480

CONTACT:

E: 516142.996

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 8-8

STRUCTURES:

GRAVITY OUTLETS: 1 x 1500mm pipe arch (open bottom?)

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Undeveloped (old gravel pit)

DRAWING REF'S:

OTHER - abandoned gravel pit

DATA/ - 8 m from river

COMMENT:

FLUSH: 2.0 - eddy

DISCHARGE: 1.0 - little sign of flow

HABITAT: 3.0 - natural bank

LAND USE: 2.0

PUBLIC USE: 0.0 - thick brush

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 711001

SITE NAME: BAYNES ROAD P.S.

LOCATION DESC.: N. bank of Fraser River
2.0 km u/s of western tip of Barnston Island
Extension of Baynes Road

OWNER: Dis. Of Pitt Meadows

UTM N: 5450585.239

CONTACT: Ike Deboer

E: 521795.720

ADDRESS: 12007 Harris Road
Pitt Meadows V3Y 2B5

PHONE/FAX: 465-2425/465-5454

PHOTO NO.: 8-10, 8-11

STRUCTURES:

GRAVITY OUTLETS: 2 x 1.5 x 1.5m conc. floodboxes

INVERT ELEV.: 1.15 m

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM: N/A

DRAWING REF'S:

WATERCOURSE/CSO: N

PUMPS: 2 x 3.53 m3/s at 4.0 m total head

DRAWING REF'S:

DISCHARGE PIPES: 1067mm dia. w/flapgate
(into 1.5 x 1.5 conc. box)

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Agricultural
Airport

DRAWING REF'S:

**OTHER
DATA/**

COMMENT: - Pump station log & notes on operation
available

FLUSH: 3.0 - 60 m outlet channel

DISCHARGE: 3.0

HABITAT: 3.0 - natural vegetation

LAND USE: 3.0

PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: **High**

SITE:

OUTFALL #: 715001

SITE NAME: PITT MEADOWS A

LOCATION DESC.: N. bank of Fraser River
1.5 km u/s of western end of Barnston Island

OWNER: Private/Unknown

UTM N: 5450679.129

CONTACT:

E: 521406.413

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 8-12

STRUCTURES:

GRAVITY OUTLETS: 1 x 300mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER - old, high
DATA/ - eddy, log booms
COMMENT:FLUSH: 2.0 - eddy
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 2.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.2

RATING: Low

SITE:

OUTFALL #: 715002

SITE NAME: MILL

LOCATION DESC.: N. bank of Fraser River
500 m d/s of western end of Barnston Island

OWNER: Private/Unknown

UTM N: 5451339.622

CONTACT:

E: 519450.926

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 8-9

STRUCTURES:

GRAVITY OUTLETS: 1 x 400mm dia. conc.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER DATA/
COMMENT: - site drainage from millFLUSH: 2.0 - eddy
DISCHARGE: 2.0
HABITAT: 1.0 - log sort area
LAND USE: 4.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 715003

SITE NAME: INTERFOR A

LOCATION DESC.: N. bank of Faser River
1.0 km d/s from eastern end of Barnston Island

OWNER: Private/Unknown

UTM N: 5449872.149

CONTACT:

E: 523054.321

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 8-13

STRUCTURES:

GRAVITY OUTLETS: 1 x 400mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 1 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER DATA/
COMMENT: - site drainage from Interfor mill

FLUSH: 2.0 - eddy

DISCHARGE: 2.0

HABITAT: 1.0 - log sort area

LAND USE: 4.0

PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 715004

SITE NAME: INTERFOR B

LOCATION DESC.: N. bank of Fraser River
600 m d/s of eastern end of Barnston Island

OWNER: Private/Unknown

UTM N: 5449788.909

CONTACT:

E: 523334.557

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 8-14

STRUCTURES:

GRAVITY OUTLETS: 1 x 400mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - site drainage from Interfor mill
DATA/ - water flowing in bedding material
COMMENT: below culvertFLUSH: 2.0 - eddy
DISCHARGE: 2.0
HABITAT: 1.0 - log booms
LAND USE: 4.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 715005

SITE NAME: PIER

LOCATION DESC.: N. bank of Fraser River
500 m d/s of eastern end of Barnston Island
adjacent to pier

OWNER: Private/Unknown

UTM N: 5449757.844

CONTACT:

E: 523423.308

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 8-15

STRUCTURES:

GRAVITY OUTLETS: 1 x 325mm dia. wood stave

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Industrial

DRAWING REF'S:

OTHER - possibly abandoned
DATA/ - Native Reserve
COMMENT:

FLUSH: 2.0 - eddy
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 1.0 - marina

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 715006

SITE NAME: INTERFOR C

LOCATION DESC.: N. bank of Fraser River
500 m u/s of eastern end of Barnston Island

OWNER: Private/Unknown

UTM N: 5449702.397

CONTACT:

E: 524172.962

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 8-16

STRUCTURES:

GRAVITY OUTLETS: 1 x 300mm dia. pvc

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER DATA/
COMMENT: - site drainage from Interfor millFLUSH: 2.0 - eddy
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: **Low**

SITE:

OUTFALL #: 715007

SITE NAME: S+R MILL A

LOCATION DESC.: S. bank of Barnston Channel
400 m d/s of eastern end of Barnston Island

OWNER: Private/Unknown

UTM N: 5448295.319

CONTACT:

E: 523578.124

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-4

STRUCTURES:GRAVITY OUTLETS: 1 x 200mm dia. cast iron
1 x 300mm dia. PVC

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER DATA/
COMMENT: - site drainage from S+R MillFLUSH: 2.0 - eddy
DISCHARGE: 2.0
HABITAT: 1.0 - log sort area
LAND USE: 4.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 715008

SITE NAME: S+R MILL B

LOCATION DESC.: S. bank of Barnston Channel
900 m d/s of eastern end of Barnston Island

OWNER: Private/Unknown

UTM N: 5448030.010

CONTACT:

E: 523147.520

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-5

STRUCTURES:

GRAVITY OUTLETS: 1 x 200mm dia. steel pipe

INVERT ELEV.:

OUTFALL LENGTH: 1.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER DATA/
COMMENT: - site drainage from S+R MillFLUSH: 1.0
DISCHARGE: 1.0
HABITAT: 3.0 - natural bank
LAND USE: 4.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 715009

SITE NAME: SAWMILL

LOCATION DESC.: S. bank of Barnston Channel
900 m d/s of eastern end of Barnston Island

OWNER: Private/Unknown

UTM N: 5448025.545

CONTACT:

E: 523117.944

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-6

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp w/flapgate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - large pipe may drain more than site
DATA/ - unsure of drainage area
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 3.0 - vegetated, natural bank
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 715010

SITE NAME: POWERLINE

LOCATION DESC.: S. bank of Barnston Channel
1.5 km d/s from eastern end of Barnston Island

OWNER: Private/Unknown

UTM N: 5447861.380

CONTACT:

E: 522549.999

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-7

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. conc.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural
Industrial

DRAWING REF'S:

OTHER - possibly belongs to City of Surrey
DATA/ - considerable flow from water course
COMMENT: - may drain other areasFLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 4.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 715011

SITE NAME: MULTIPLE

LOCATION DESC.: S. bank of Barnston Channel
2.4 km d/s from eastern end of Barnston Island

OWNER: Private/Unknown

UTM N: 5447734.608

CONTACT:

E: 521659.810

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-8

STRUCTURES:GRAVITY OUTLETS: 1 x 150mm dia. steel
1 x 200mm dia. steel
1 x 250mm dia. cast iron

INVERT ELEV.:

OUTFALL LENGTH: 1 - 2 m

INVERT DEPTH.:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER DATA/
COMMENT: - site drainage at S+R MillFLUSH: 2.0 - eddy
DISCHARGE: 2.0
HABITAT: 1.0 - log sort area
LAND USE: 4.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 715012

SITE NAME: WOOD CHIPS

LOCATION DESC.: S. bank of Barnston Channel
2.8 km d/s of eastern end of Barnston Island

OWNER: Private/Unknown

UTM N: 5447684.947

CONTACT:

E: 521293.253

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-9

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER DATA/
COMMENT: - may be more than site drainageFLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 3.0 - natural vegetation
LAND USE: 4.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 2.4

RATING: **High**

SITE:

OUTFALL #: 715013

SITE NAME: BARGE

LOCATION DESC.: S. bank of Barnston Channel
2.3 km u/s of western end of Barnston Island

OWNER: Private/Unknown

UTM N: 5448360.954

CONTACT:

E: 520070.884

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-10

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 1.5 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial

DRAWING REF'S:

OTHER - may be more than site drainage
DATA/
COMMENT:FLUSH: 1.0
DISCHARGE: 3.0
HABITAT: 3.0 - some natural vegetation
LAND USE: 4.0
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 715014

SITE NAME: BARNSTON ISLAND

LOCATION DESC.: N. bank of Barnston Channel
1.3 km u/s of western end of Barnston Island

OWNER: Private/Unknown

UTM N: 5449471.754

CONTACT:

E: 520107.773

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-12, 9-13

STRUCTURES:GRAVITY OUTLETS: 2 x 1500 x 1500mm conc. floodboxes w/tide gates
1 x 350mm dia. wood staves w/flapgate
1 x 200mm dia. PVC

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS: capacity unknown

DRAWING REF'S:

DISCHARGE PIPES: 1 x 750mm dia. steel

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Agricultural

DRAWING REF'S:

OTHER DATA/ COMMENT: - may be owned by Native Reserve
- water level recorded
- pump may work in both directions
- outlet bay, booms
- near dyke roadFLUSH: 2.0 - outlet bay
DISCHARGE: 3.0
HABITAT: 1.0 - log booms
LAND USE: 2.0
PUBLIC USE: 1.0 - dyke walking

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: Low

SITE:

OUTFALL #: 812002

SITE NAME: YORKSON CREEK

LOCATION DESC.: S. bank of Fraser River
1.38 km u/s of eastern tip of Barnston Island
discharge of Yorkson Creek

OWNER: Township of Langley

UTM N: 5449243.170

CONTACT: Gary Venuti

E: 525289.583

ADDRESS: 4914 221st Street
Langley, B.C. V3A 3Z8

PHONE/FAX: 533-6009/000-0000

PHOTO NO.: N/A

STRUCTURES:

GRAVITY OUTLETS: 1 x 1700 x 3700mm conc. floodbox

INVERT ELEV.: -0.26 m

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM: N/A

DRAWING REF'S: UMA 2167-034-04

WATERCOURSE/CSO: N

PUMPS: 1 x 1.17 m3/sec (50 HP), 1 x 1.76 m3/sec (75 HP)

DRAWING REF'S: UMA 2167-019-01

DISCHARGE PIPES: 1 x 600mm dia.
1 x 700mm dia.

CONTROLS: automatic

DRAINAGE AREA:

LAND USE: Agricultural
Industrial

DRAWING REF'S: ML9 - 11

OTHER - improvements planned
DATA/ - pump station approx. 0.5 Km from
COMMENT: Fraser River through Katzie Indian
Reserve

FLUSH: 3.0 - 500m outlet channel

DISCHARGE: 3.0

HABITAT: 3.0 - natural banks

LAND USE: 4.0

PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.6

RATING: High

SITE:

OUTFALL #: 815001

SITE NAME: BOOM

LOCATION DESC.: N. bank of Fraser River
2.9 km u/s from eastern end of Barnston Island

OWNER: Private/Unknown

UTM N: 5450581.873

CONTACT:

E: 526093.977

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 8-17

STRUCTURES:

GRAVITY OUTLETS: 1 x 300mm dia. cmp w/flapgate

INVERT ELEV.:

OUTFALL LENGTH: 0.5 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential
Agricultural

DRAWING REF'S:

OTHER
DATA/
COMMENT:FLUSH: 2.0 - log booms, eddy
DISCHARGE: 1.0
HABITAT: 1.0
LAND USE: 2.5
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.3

RATING: Low

SITE:

OUTFALL #: 815002

SITE NAME: DOLPHIN II

LOCATION DESC.: N. bank of Fraser River
3.2 km u/s from eastern end of Barnston Island

OWNER: Private/Unknown

UTM N: 5450718.437

CONTACT:

E: 526329.700

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 8-18, 8-19

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200mm dia. steel

INVERT ELEV.:

OUTFALL LENGTH: 1.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential

DRAWING REF'S:

OTHER - probably owned by CPR
DATA/ - drains below tracks
COMMENT: - abandoned, filled lower culvert
3 m d/sFLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0 - log booms
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.8

RATING: **Low**

SITE:

OUTFALL #: 815004

SITE NAME: DOLPHIN 24

LOCATION DESC.: N. bank of Fraser River
3.7 km u/s from eastern end of Barnston Island

OWNER: Private/Unknown

UTM N: 5450888.463

CONTACT:

E: 526796.158

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 8-21

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential

DRAWING REF'S:

OTHER DATA/
COMMENT: - owned by railwayFLUSH: 2.0 - eddy, booms
DISCHARGE: 2.0
HABITAT: 1.0
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 1.6

RATING: Low

SITE:

OUTFALL #: 815005

SITE NAME: DOLPHIN 33

LOCATION DESC.: N. bank of Fraser River
4.0 km u/s from eastern end of Barnston Island

OWNER: Private/Unknown

UTM N: 5451012.058

CONTACT:

E: 527086.503

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 8-22

STRUCTURES:

GRAVITY OUTLETS: 1 x 600mm dia. cmp w/flapgate

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential

DRAWING REF'S:

OTHER - owned by railway
DATA/
COMMENT:

FLUSH: 2.0 - eddy, booms

DISCHARGE: 2.0

HABITAT: 3.0 - some natural vegetation

LAND USE: 3.0

PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.0

RATING: **Moderate**

SITE:

OUTFALL #: 815006

SITE NAME: CREEK 63

LOCATION DESC.: N. bank of Fraser River
4.7 km u/s from eastern end of Barnston Island

OWNER: Private/Unknown

UTM N: 5451183.832

CONTACT:

E: 528052.382

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 8-23

STRUCTURES:

GRAVITY OUTLETS: - watercourse

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: W

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential

DRAWING REF'S:

OTHER DATA/
COMMENT: - possible old Fraser sloughFLUSH: 2.0 - eddy, bay
DISCHARGE: 3.0
HABITAT: 3.0 - natural, vegetated
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 815008

SITE NAME: CAST IRON

LOCATION DESC.: N. bank of Fraser River
2.0 km d/s of Kanaka Creek

OWNER: private/Unknown

UTM N: 5451115.103

CONTACT:

E: 528665.276

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 8-25

STRUCTURES:

GRAVITY OUTLETS: 1 x 900mm dia. cast iron

INVERT ELEV.:

OUTFALL LENGTH: 2.0 m

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Residential

DRAWING REF'S:

OTHER - owned by railway
DATA/
COMMENT:FLUSH: 2.0 - eddy, booms
DISCHARGE: 3.0
HABITAT: 3.0 - natural bank
LAND USE: 3.0
PUBLIC USE: 0.0 - no access

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

SITE:

OUTFALL #: 815009

SITE NAME: KANAKA CREEK

LOCATION DESC.: N. bank of Fraser River
upstream limit of study

OWNER: Private/Unknown

UTM N: 5449778.487

CONTACT:

E: 530233.157

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-0

STRUCTURES:

GRAVITY OUTLETS: - watercourse

INVERT ELEV.:

OUTFALL LENGTH:

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO: W

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Agricultural
Residential

DRAWING REF'S:

OTHER
DATA/

COMMENT:

- provides storm drainage for
Maple Ridge developments

FLUSH: 2.0 - outlet bay

DISCHARGE: 3.0

HABITAT: 5.0 - ecological reserve

LAND USE: 2.5

PUBLIC USE: 2.0 - public park

ENVIRONMENTAL SENSITIVITY INDEX: 2.9

RATING: High

SITE:

OUTFALL #: 815010

SITE NAME: LOG YARD

LOCATION DESC.: N. bank of Fraser River
1.5 km d/s of Kanaka Creek

OWNER: Private/Unknown

UTM N: 5450940.725

CONTACT:

E: 529062.321

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-1

STRUCTURES:

GRAVITY OUTLETS: 1 x 1200 mm dia. conc.

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Residential

DRAWING REF'S:

OTHER DATA/
COMMENT: - oil slick emerging from outfallFLUSH: 2.0 - large eddy
DISCHARGE: 3.0
HABITAT: 1.0
LAND USE: 3.5
PUBLIC USE: 0.0 - private access

ENVIRONMENTAL SENSITIVITY INDEX: 1.9

RATING: **Moderate**

SITE:

OUTFALL #: 815011

SITE NAME: GOVT WHARF

LOCATION DESC.: N. bank of Fraser River
1.7 km d/s of Kanaka Creek
Immed. u/s of Gov't Wharf entrance

OWNER: Private/Unknown

UTM N: 5450995.533

CONTACT:

E: 528917.360

ADDRESS:

PHONE/FAX: - / -

PHOTO NO.: 9-2

STRUCTURES:

GRAVITY OUTLETS: 2 x 600mm dia. cmp

INVERT ELEV.:

OUTFALL LENGTH: 0

INVERT DEPTH:

CHART DATUM:

DRAWING REF'S:

WATERCOURSE/CSO:

PUMPS:

DRAWING REF'S:

DISCHARGE PIPES:

CONTROLS:

DRAINAGE AREA:

LAND USE: Industrial
Roadway

DRAWING REF'S:

OTHER - culverts under road
DATA/ - high above river
COMMENT: - 5 m from edge of Fraser
- culverts partially filled and damaged

FLUSH: 2.0 - eddy
DISCHARGE: 3.0
HABITAT: 1.0 - wharf, marina
LAND USE: 4.0
PUBLIC USE: 1.0 - public wharf

ENVIRONMENTAL SENSITIVITY INDEX: 2.2

RATING: **Moderate**

APPENDIX B:

Additional Information and References

Water Quality Monitoring Program at the Vancouver International Airport Authority, pers. communication, 1994 01 14.

Stormwater Sampling Sites, Corporation of Delta.

Queensborough Storm Pump Discharges, City of New Westminster.

Byrne Road Drainage Pump Station, System Description and Operating Instructions, City of Burnaby



Vancouver International Airport Authority
Project Office

Mailing Address:
Airport Postal Outlet
P.O. Box 24170
Richmond, B.C.
V7B 1Y3

Courier Address:
4900 North Service Rd.
Richmond, B.C.
V7B 1Y3

14 January 1994

Mr. Alan Bates
Water Resources Engineer
UMA Engineering Ltd.
3030 Gilmore Div.
Burnaby, B.C.
V5G 3B4

Fax: 438-5587

Re: Water Quality Monitoring Program at the
Vancouver International Airport Authority

Dear Mr. Bates;

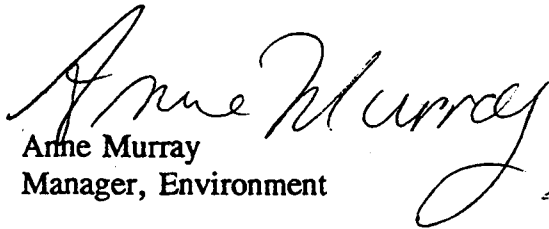
The Vancouver International Airport Authority monitors the quality of storm water prior to discharge into the Fraser River. We have had two automated sampling stations located at our stormwater outfalls and over the past year we have been installing an additional 5 sampling stations to ensure that we can take samples from all of our drainage areas.

As part of our regular monitoring program composite samples are collected on a weekly basis with extra samples during winter storm events or on an as required basis. Each sample is collected over a 24 hour period at 15 minute intervals with a total sample volume of approximately 9.6 L. During the summer months, samples are analyzed for biological oxygen demand (BOD₅), total organic carbon (TOC), total suspended solids (TSS), total kjedhal nitrogen (TKN), oil and grease, pH, alkalinity and phosphorous. Samples are also analyzed for glycols, ammonia, nitrite and nitrate during the winter months. The samples are tested for phenols, volatile organics and metals on an as needed or occasional basis. Grab samples are also taken as required to supplement the weekly monitoring using the automated sampling stations.

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UMA ENGINEERING LTD.			
BURNABY, B.C.			
FILE NO.			
JAN 19 1994			
243 DISTRIBUTION			
NAME	RT	DATE	INIT.
AB			

I believe that you already have map information indicating the location of our monitoring stations and outfalls. If you would like more information on our sampling program, please do not hesitate to contact me at 276-6357.

Yours sincerely,


Anne Murray
Manager, Environment

AM/hl

THE CORPORATION OF DELTA

STORMWATER SAMPLING SITES

Location	Sampling Frequency	Test Parameters
Tsawwassen Indian Reserve - sample collected from forebay of drainage pump station. - station discharges to Strait of Georgia.	Once per Year, generally in spring or summer.	Temperature pH Oil & Grease BOD ₅ NH ₃ TKN Organic Nitrogen Total Sulphide Sulphate Dissolved O ₂
3rd Ave. Drainage Pump Stn. - sample collected from pump station forebay. - station discharges to Boundary Bay.	Once per Year, generally in spring or summer	Temperature pH BOD ₅ NO ₂ NO ₃ NH ₃ TKN Organic Nitrogen Ortho-P Dissolved O ₂ Total Sulphide
12th Ave. Drainage Pump Stn. - sample collected from pump station forebay. - station discharges to Boundary Bay.	Once per Year, generally in spring or summer	Temperature pH BOD ₅ NO ₂ NO ₃ NH ₃ TKN Organic Nitrogen Ortho-P Dissolved O ₂ Total Sulphide

Location	Sampling Frequency	Test Parameters
Tilbury Slough - samples collected from 5 locations along Tilbury Slough.	Once per Year, generally in summer or fall	Temperature pH COD NH ₃ Dissolved O ₂ Total Sulphide Sulphate Specific Conductance Metals Scan
River Road Ditch System - samples collected from 7 locations on the system. - ditch water discharges to Fraser River through various flood gates.	Once per Year, generally in summer or fall	Temperature pH COD NH ₃ Dissolved O ₂ Total Sulphide Sulphate Specific Conductance Metals Scan
Cougar Creek and North East Interceptor Canal - samples collected from 3 locations along Cougar Creek and from one location near the mouth of North East Interceptor Canal. Cougar Creek discharges into the Canal, which in turn discharges into the Fraser River.	Once per Year, generally in summer or fall.	Temperature pH COD Total Suspended Solids Fixed Suspended Solids Specific Conductance Hardness MBAS Sulphate Dissolved O ₂ NH ₃ Total Phosphate Oil & Grease Metals Scan

Location	Sampling Frequency	Test Parameters
Chilukthan Slough Pump Station - sample collected from pump station forebay. - station discharges to Ladner Harbour	Once per Year, generally in spring or summer.	Temperature pH BOD ₅ COD Total Suspended Solids Fixed Suspended Solids Specific Conductance Sulphate Dissolved O ₂ Organic Nitrogen TKN NH ₃ Oil & Grease Metals Scan

QUEENSBOROUGH STORM PUMP DISCHARGES

PUMP STATION	RUN TIME (HRS.)	RUN TIME (MIN.)	DESIGN DISCHARGE (IGPM)	TOTAL DISCHARGE (IGPY)
CARTER				
1990	684	41040	4860	199,454,400
1991	683	40980	4860	199,162,800
1992	475	28500	4860	138,510,000
WOOD				
PUMP #1 1990	248	14880	18000	267,840,000
PUMP #1 1991	118	7080	18000	127,440,000
PUMP #1 1992	267	16020	18000	288,360,000
PUMP #2 1990				
PUMP #2 1991	533	31980	4163	133,132,740
PUMP #2 1992	1574	94440	4163	393,153,720
STANLEY				
PUMP #1 1990	257	15420	6000	92,520,000
PUMP #1 1991	238	14280	6000	85,680,000
PUMP #1 1992	65	3900	6000	23,400,000
PUMP #2 1990				
PUMP #2 1991				
PUMP #2 1992	500	30000	8000	240,000,000
BOUNDARY				
1990	684	41040	10200	418,608,000
1991	683	40980	10200	417,996,000
1992	475	28500	10200	290,700,000
			1990 TOTAL	559,855,440
			1991 TOTAL	963,411,540
			1992 TOTAL	1,374,123,720
			3 YEAR TOTAL	2,897,390,700

BYRNE ROAD DRAINAGE PUMP STATION

SYSTEM DESCRIPTION

AND OPERATING INSTRUCTIONS

1. INTRODUCTION

In past years the low areas adjacent to Byrne Road, south of Marine Drive, have experienced flooding problems. On numerous occasions this has restricted access to the industries which front on the road.

Byrne Creek parallels the road in a large ditch which discharges directly to the Fraser River. When the Fraser River water levels are high, either due to freshet conditions or tidal effects coincident with high flows in Byrne Creek, backwater conditions occur which create flooding.

It is also reported that some flooding has occurred along Byrne Road which has been caused by localized debris jams in the creek. It should be noted that this is not a function of high water levels in the Fraser River but is a localized problem requiring routine maintenance of the creek channel.

To minimize the potential of flooding as a result of high water levels in the Fraser River, the Corporation of Burnaby authorized the construction of the Byrne Road Drainage Pump Station and associated cut-off dike and gravity drainage structure in January of 1982.

2. DESCRIPTION OF FACILITIES

2.1 General

The drainage facilities consist of a reinforced concrete pump station containing two axial flow propeller pumps each with a capacity of 28,000

US gpm (1770 lps) at 10.75 feet (3.27 metres) total dynamic head. In addition, a dike was constructed across the outlet of Byrne Creek with a top elevation of 3.60 metres (103.20 feet G.V.R.D. Datum). Adjacent to the pump station is a gravity outlet structure consisting of four 1100mm diameter (42-inch) corrugated metal pipe gravity drains. When the Fraser River water levels are higher than the water levels in Byrne Creek, four cast iron flap gates prevent reverse flow into Byrne Creek. The center two flap gates have been mounted horizontally to provide improved fish passage. These gates open approximately 60 degrees even with a small differential in water levels.

2.2. Pumping Station

Large removable trash racks are installed in the forebay of the pump station. During normal operation the trash racks should be cleaned in place and should only be removed if material is lodged between the bars and cannot be removed with a long handled rake.

If the trash racks should ever be removed, the chain railing and supports are removable and the trash racks can be lifted from their guides with a crane.

To remove a pump from the station, the 125 HP motor and top shaft should be removed first, and the remaining pump assembly lifted by a crane in order for the steel split sole plates to be disassembled.

Once the sole plates are removed, the pumps can be lifted through the roof hatch until the suction bell reaches the floor level. The suction bells must be unbolted and removed prior to lifting the pump assembly

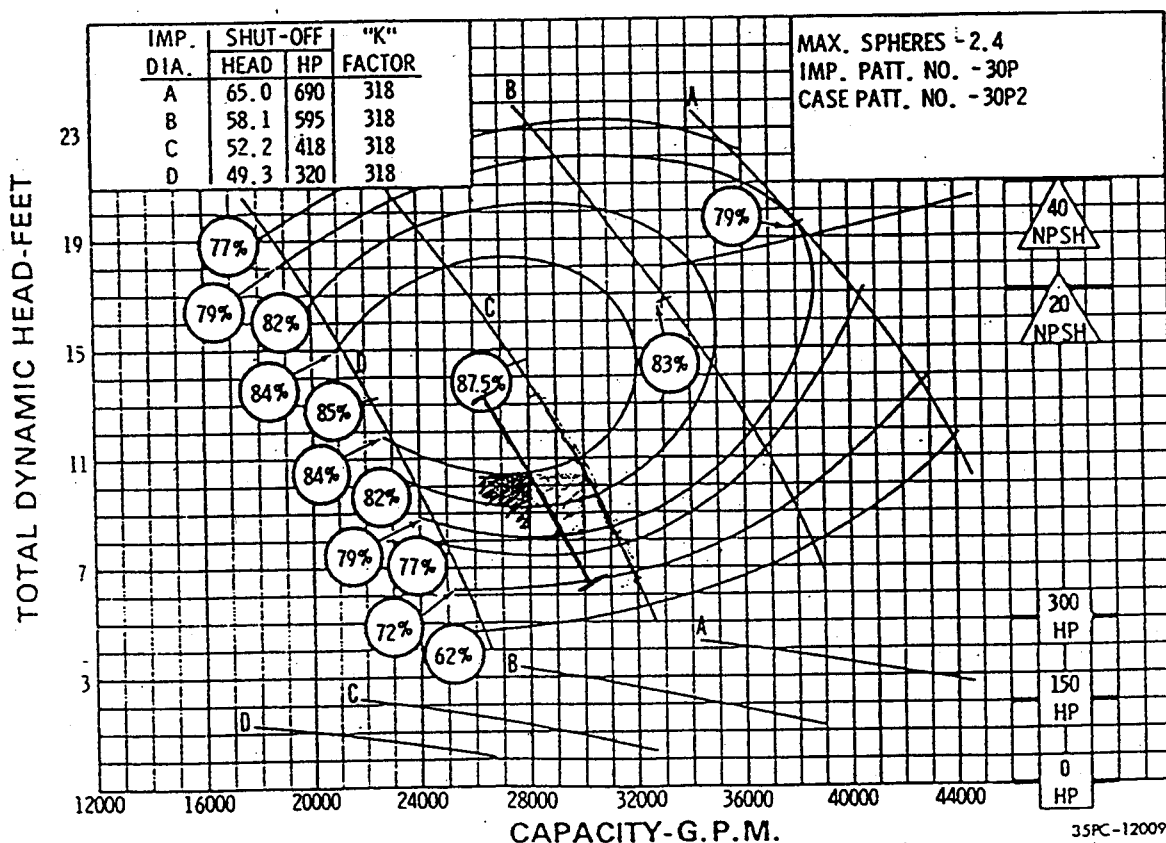
PROPELLER
30P

DATED NOVEMBER 1972

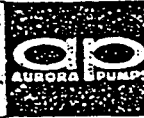
DISTRICT OF BURNABY
BYRNE ROAD PUMPING STATION
DRAINAGE PUMP..

WILSON EQUIPMENT LTD
#3 3571 VIKING WAY
RICHMOND B.C.

	DESIGN	MAX	MIN.
STATIC HEAD - FT	7.5	10.9	3.5
ELBOW LOSS	.6	.53	.8
COLUMN LOSS	.06	.05	.05
PIPELINE LOSS	.63	.47	.64
VELOCITY HEAD	1.20	1.00	1.5
FLAPGATE LOSS	0.3	.30	.3
T.D.H.	10.29	13.25	6.79



LAYNE AND BOWLER
A SUBSIDIARY OF THE AURORA PUMP
UNIT OF GENERAL SIGNAL
200 NO. PUENTE AVE. CITY OF INDUSTRY, CALIF. - P.O. BOX 1300, LA PUENTE, CALIF. 91744



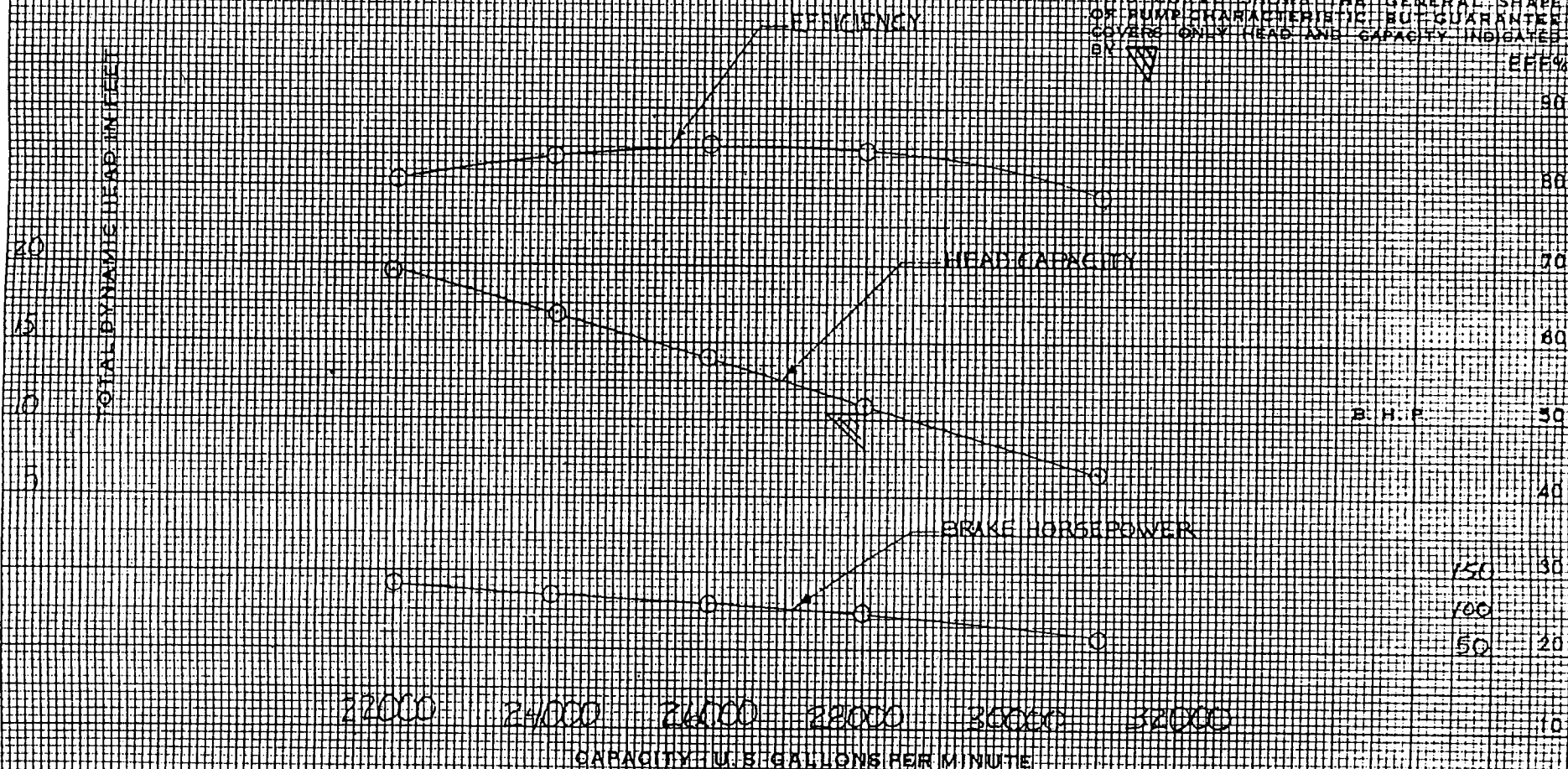
TEST DATA AS SHOWN IS
CERTIFIED CORRECT.

Philip Bond 6-16-81

WILKINSON EQUIPMENT

PUMP NO. BUL 1753-K
SIZE 30 TYPE PROPELLER
B.H.P. 590 STAGE 1
SPECIFIC GRAVITY 1.0
IMPELLER NO. 30 P
IMPELLER DIA. 10.5"
TEST NO. 81-248
PLOTTER BY ROBERT J. A. E.
DATE 6-17-81

THIS CURVE SHOWS THE GENERAL SHAPE
OF PUMP CHARACTERISTIC BUT GUARANTEES
COVERS ONLY HEAD AND CAPACITY INDICATED
BY



TEST DATA AS SHOWN IS
CERTIFIED CORRECT.

Ally Rendon

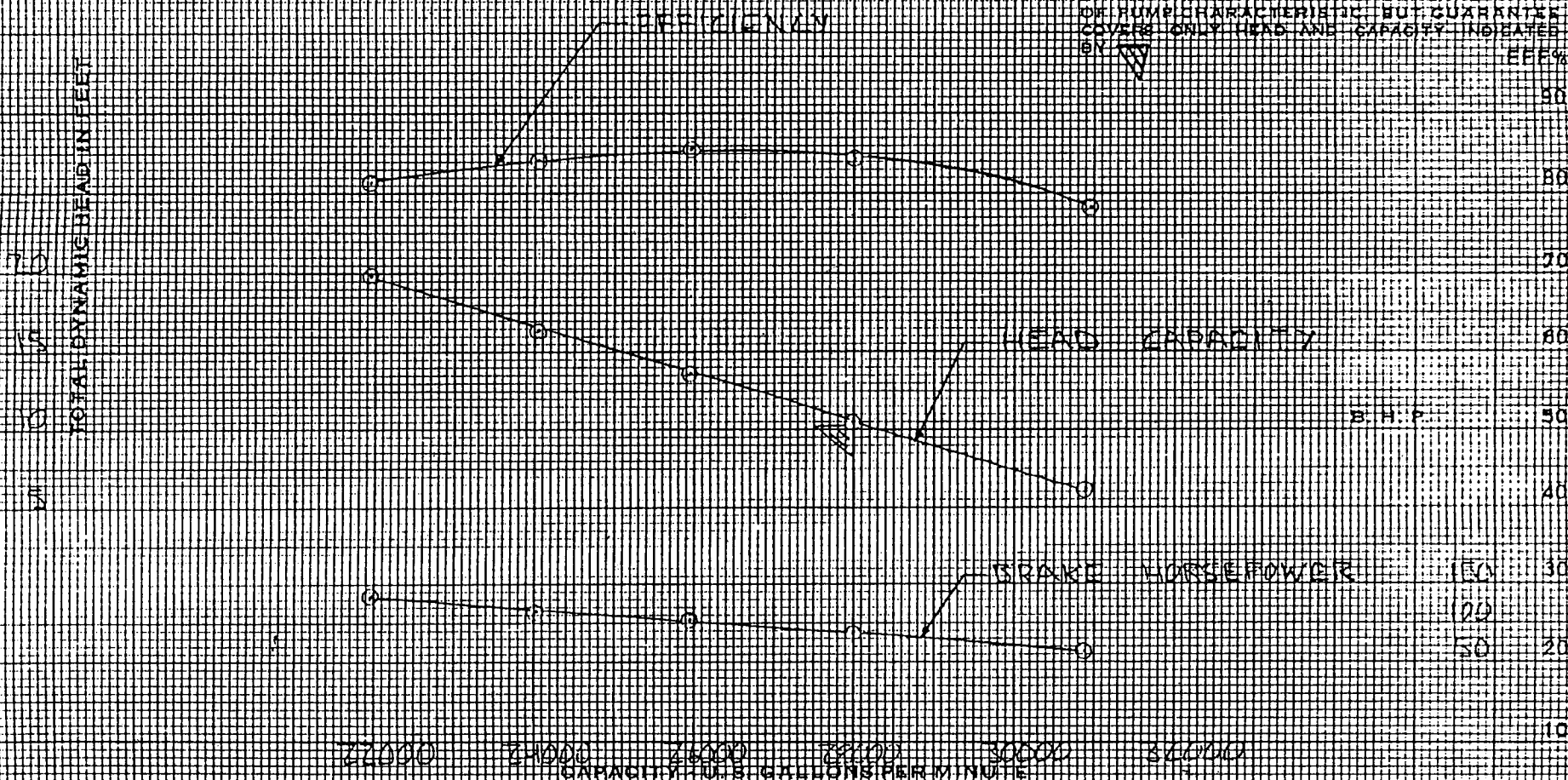
5-22-81
DATE

WILSON EQUIPMENT
CUSTOMER

PUMP NO. 3L-111253-1B
SIZE 50 TYPE PROPELLER
R.P.M. 590 STAGE 1
SPECIFIC GRAVITY 1.0
IMPELLER NO. 308
IMPELLER DIA. 10.5"
TEST NO. 81-205
PLOTTED BY MANDO REYES
DATE 6-17-81

THIS CURVE SHOWS THE GENERAL SHAPE
OF PUMP CHARACTERISTIC BUT GUARANTEES
COVER ONLY HEAD AND CAPACITY INDICATED
BY 

TOTAL DYNAMIC HEAD IN FEET



DATE
1989-09-08

PROJECT
MEADOW AVE. PUMPING STN.

ISSUE
3

PROD
7100

NO. OF BLADES **4**
IMPELLER THROUGHLET ... **850**
480

TOT. MOM. OF INERTIA **19.70KGM²**
RATED SPEED **500 RPM**

POLES **14** FREQ **60HZ**
VOLTAGE **600 V**
MOTOR SHAFT POWER **100 KW**
STARTING TORQUE **3215 NM**
MAX TORQUE **6265 NM**
RATED CURRENT **173 A**
STARTING CURRENT **925 A**

CURVE NO
63-505 B4

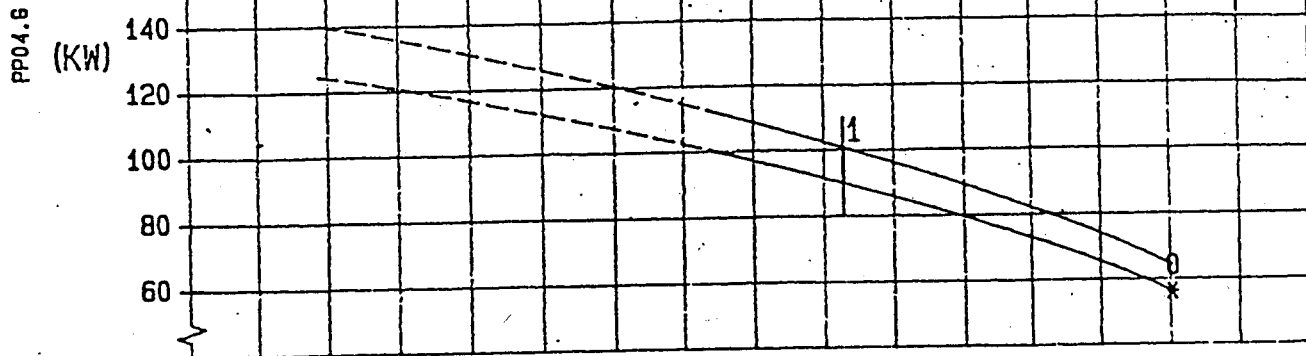
IMPELLER DIAMETER
13

MOTORTYPE
51-56-5BB/5

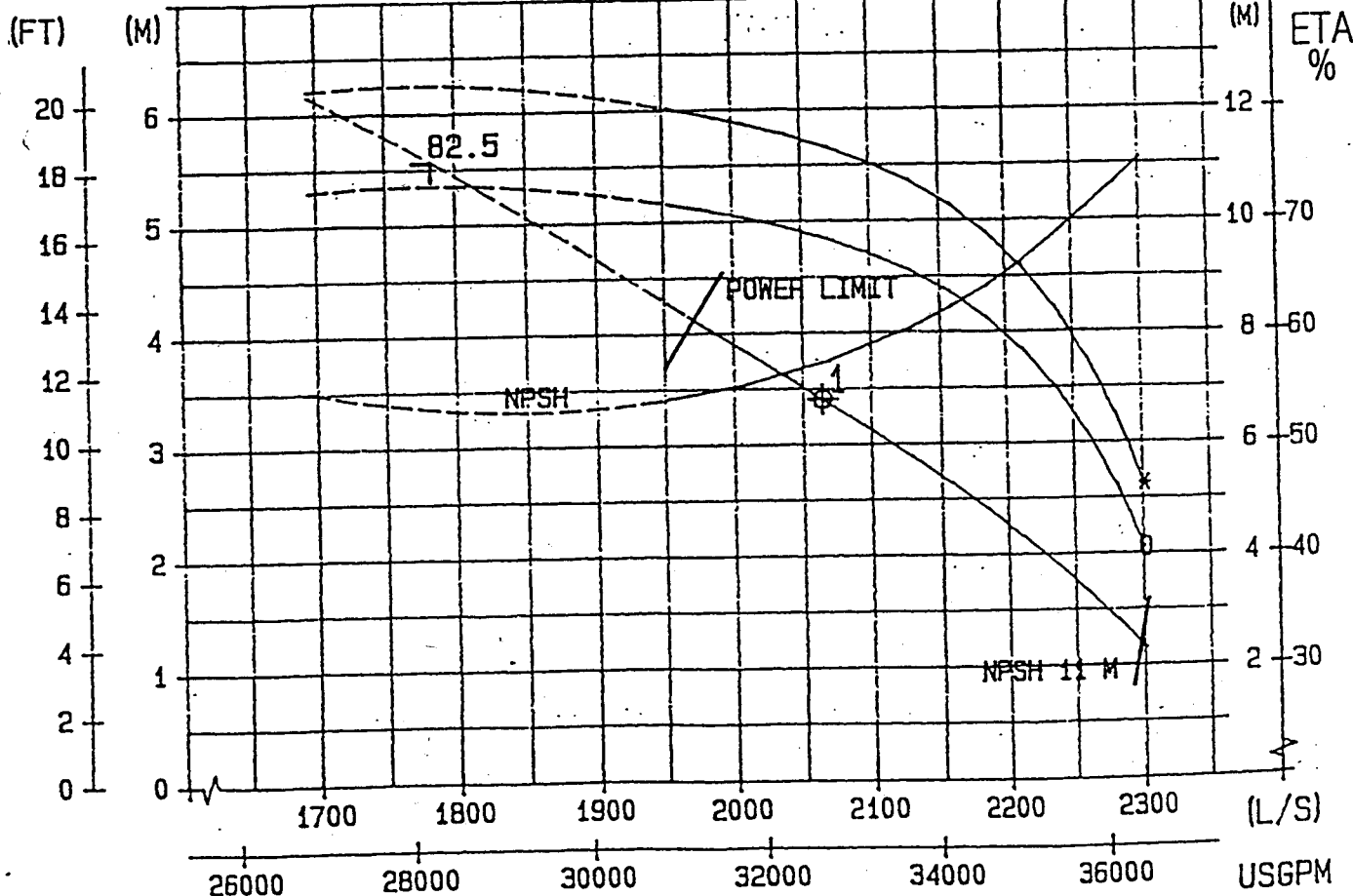
GEARTYPE RATIO

	1/1-LOAD	3/4-LOAD	1/2-LOAD
MOTOR PF	0.62	0.54	0.41
MOTOR EFFICIENCY	89.0%	88.5%	86.5%
GEAR EFFICIENCY			

POWER



HEAD



CURVES SHOW PERFORMANCE WITH CLEAR WATER AND $NPSH_{AV} > NPSH_{RE}$
* : PUMP EFFICIENCY/SHAFT POWER
0 : OVERALL EFFICIENCY/INPUT POWER

FLOW

APPENDIX C:

Summary of Environmental Assessment

Summary of Environmental Assessment

Outfall #	Flush	Discharge	Habitat	Land Use	Public Use	Environmental Sensitivity Index	Rating
102001	1.0	3.0	3.0	4.0	0.0	2.2	Moderate
102002	1.0	3.0	3.0	4.0	0.0	2.2	Moderate
102003	1.0	3.0	1.0	4.0	0.0	1.8	Low
102004	1.0	3.0	1.0	4.0	0.0	1.8	Low
102007	1.0	3.0	1.0	4.0	0.0	1.8	Low
102008	3.0	3.0	1.0	4.0	2.0	2.6	High
102009	3.0	3.0	3.0	4.0	0.0	2.6	High
103001	1.0	2.0	1.0	3.0	0.0	1.4	Low
103003	1.0	3.0	1.0	3.0	0.0	1.6	Low
103004	3.0	3.0	1.0	3.0	0.0	2.0	Moderate
103005	1.0	2.0	1.0	3.0	1.0	1.6	Low
103006	3.0	3.0	1.0	3.5	0.0	2.1	Moderate
103007	2.0	3.0	1.0	2.5	0.0	1.7	Low
103008	2.0	3.0	1.0	3.0	2.0	2.2	Moderate
103009	3.0	2.0	3.0	3.0	2.0	2.6	High
103010	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
103011	3.0	2.0	1.0	4.0	0.0	2.0	Moderate
103012	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
103013	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
104001	1.0	3.0	3.0	3.0	1.0	2.2	Moderate
104002	2.0	3.0	3.0	3.0	1.0	2.4	High
104003	2.0	3.0	3.0	3.0	1.0	2.4	High
104004	1.0	3.0	1.0	3.5	1.0	1.9	Moderate
104005	2.0	3.0	1.0	3.5	1.5	2.2	Moderate
104007	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
114001	1.0	3.0	1.0	3.0	0.0	1.6	Low
114002	2.0	3.0	1.0	3.0	1.0	2.0	Moderate
115000	1.0	3.0	1.0	1.0	0.0	1.2	Low
115001	3.0	3.0	1.0	2.0	0.0	1.8	Low
115002	3.0	2.0	1.0	2.0	0.0	1.6	Low
115003	1.0	2.0	1.0	2.0	0.0	1.2	Low
115004	3.0	1.0	1.0	4.0	0.0	1.8	Low
115005	3.0	2.0	3.0	1.0	0.0	1.8	Low
203001	1.0	3.0	1.0	3.5	1.0	1.9	Moderate
203002	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
203005	2.0	2.0	1.0	4.0	0.0	1.8	Low
203007	2.0	3.0	1.0	3.5	0.0	1.9	Moderate
203008	2.0	2.0	1.0	3.0	1.0	1.8	Low
203009	1.0	3.0	1.0	2.5	1.0	1.7	Low
203011	3.0	3.0	1.0	3.0	2.0	2.4	High
203012	2.0	3.0	3.0	4.0	0.0	2.4	High
204001	2.0	3.0	1.0	3.5	0.0	1.9	Moderate
204002	2.0	3.0	1.0	3.5	0.0	1.9	Moderate
204003	1.0	3.0	1.0	3.5	0.0	1.7	Low
204004	2.0	3.0	1.0	3.0	0.0	1.8	Low
204005	2.0	3.0	1.0	3.0	0.0	1.8	Low
204006	2.0	3.0	1.0	2.0	0.0	1.6	Low
204007	2.0	3.0	1.0	3.0	0.0	1.8	Low

Summary of Environmental Assessment

Outfall #	Flush	Discharge	Habitat	Land Use	Public Use	Environmental Sensitivity Index	Rating
206001	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
206003	1.0	2.0	3.0	4.0	1.0	2.2	Moderate
206004	2.0	3.0	3.0	4.0	1.0	2.6	High
206005	2.0	2.0	3.0	4.0	1.0	2.4	High
206006	2.0	3.0	3.0	3.0	1.0	2.4	High
206007	2.0	3.0	3.0	3.0	1.0	2.4	High
206008	2.0	3.0	3.0	3.0	2.0	2.6	High
206009	1.0	3.0	3.0	4.0	2.0	2.6	High
206010	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
206011	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
214003	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
214004	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
214006	2.0	3.0	1.0	3.5	0.0	1.9	Moderate
215001	2.0	2.0	1.0	4.0	0.0	1.8	Low
215002	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
215003	1.0	1.0	1.0	4.0	1.0	1.6	Low
215004	2.0	1.0	1.0	2.0	1.0	1.4	Low
215005	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
304001	2.0	3.0	1.0	3.5	0.0	1.9	Moderate
304002	3.0	3.0	1.0	3.5	1.0	2.3	Moderate
304003	1.0	3.0	1.0	3.0	1.0	1.8	Low
304004	1.0	3.0	1.0	2.5	1.0	1.7	Low
304005	2.0	3.0	3.0	3.0	0.0	2.2	Moderate
304006	1.0	3.0	1.0	3.0	0.0	1.6	Low
304007	3.0	2.0	3.0	3.0	1.0	2.4	High
304008	3.0	2.0	3.0	3.0	1.0	2.4	High
304009	3.0	3.0	3.0	3.0	1.0	2.6	High
304010	3.0	1.0	3.0	3.0	1.0	2.2	Moderate
305001	3.0	2.0	3.0	2.0	1.0	2.2	Moderate
305002	3.0	2.0	3.0	2.0	1.0	2.2	Moderate
305003	3.0	2.0	3.0	2.0	1.0	2.2	Moderate
305004	3.0	2.0	3.0	2.0	1.0	2.2	Moderate
305006	2.0	1.0	3.0	2.0	0.0	1.6	Low
305007	2.0	2.0	1.0	2.0	1.0	1.6	Low
305008	2.0	2.0	1.0	2.0	1.0	1.6	Low
305009	2.0	2.0	1.0	2.0	2.0	1.8	Low
305010	3.0	3.0	3.0	2.0	1.0	2.4	High
305011	3.0	3.0	3.0	2.0	1.0	2.4	High
305012	3.0	3.0	5.0	1.0	1.0	2.6	High
305013	2.0	3.0	5.0	1.0	1.0	2.4	High
305014	1.0	3.0	3.0	2.0	1.0	2.0	Moderate
305015	2.0	2.0	1.0	2.0	1.0	1.6	Low
305016	2.0	3.0	1.0	2.0	1.0	1.8	Low
305017	2.0	3.0	1.0	2.5	1.0	1.9	Moderate
305018	2.0	3.0	1.0	2.0	1.0	1.8	Low
305019	2.0	3.0	1.0	2.0	1.0	1.8	Low
305020	2.0	3.0	1.0	2.5	1.0	1.9	Moderate
305021	3.0	3.0	1.0	2.5	1.0	2.1	Moderate

Summary of Environmental Assessment

Outfall #	Flush	Discharge	Habitat	Land Use	Public Use	Environmental Sensitivity Index	Rating
305022	3.0	3.0	1.0	2.5	0.0	1.9	Moderate
305023	2.0	1.0	1.0	2.0	1.0	1.4	Low
305024	3.0	2.0	5.0	1.0	1.0	2.4	High
305026	3.0	1.0	5.0	2.0	1.0	2.4	High
305027	3.0	2.0	5.0	2.0	1.0	2.6	High
305029	3.0	2.0	3.0	2.0	1.0	2.2	Moderate
404001	2.0	3.0	1.0	3.0	0.0	1.8	Low
404002	3.0	3.0	1.0	3.0	0.0	2.0	Moderate
404003	2.0	3.0	3.0	3.0	0.0	2.2	Moderate
404004	1.0	3.0	3.0	4.0	0.0	2.2	Moderate
405001	3.0	3.0	3.0	2.0	0.0	2.2	Moderate
405002	3.0	3.0	5.0	2.0	0.0	2.6	High
405003	1.0	3.0	1.0	2.0	0.0	1.4	Low
405004	2.0	3.0	3.0	3.0	0.0	2.2	Moderate
504001	2.0	3.0	1.0	3.0	0.0	1.8	Low
504002	2.0	3.0	3.0	3.0	0.0	2.2	Moderate
505001	1.0	2.0	1.0	3.0	0.0	1.4	Low
505002	2.0	3.0	1.0	2.0	0.0	1.6	Low
505003	2.0	3.0	1.0	2.0	0.0	1.6	Low
505004	2.0	3.0	1.0	3.0	0.0	1.8	Low
505005	1.0	3.0	3.0	3.5	1.0	2.3	Moderate
505006	2.0	2.0	1.0	3.0	0.0	1.6	Low
505007	1.0	2.0	3.0	3.0	0.0	1.8	Low
505008	2.0	3.0	3.0	3.0	0.0	2.2	Moderate
505009	3.0	3.0	3.0	3.0	0.0	2.4	High
505010	3.0	3.0	3.0	3.0	0.0	2.4	High
505011	3.0	3.0	1.0	3.0	1.0	2.2	Moderate
505012	3.0	3.0	1.0	3.0	1.0	2.2	Moderate
505013	3.0	3.0	1.0	3.0	1.0	2.2	Moderate
505015	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
505017	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
505018	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
505019	1.0	3.0	1.0	4.0	0.0	1.8	Low
505021	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
505022	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
505025	2.0	3.0	3.0	4.0	1.0	2.6	High
505026	2.0	3.0	3.0	4.0	0.0	2.4	High
505027	2.0	3.0	3.0	4.0	0.0	2.4	High
506002	2.0	3.0	3.0	3.0	0.0	2.2	Moderate
506004	2.0	3.0	3.0	3.0	0.0	2.2	Moderate
506007	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
506010	2.0	3.0	1.0	3.5	0.0	1.9	Moderate
506011	3.0	1.0	1.0	3.5	0.0	1.7	Low
507001	2.0	3.0	3.0	3.5	0.0	2.3	Moderate
507002	1.0	3.0	1.0	3.5	0.0	1.7	Low
507003	3.0	2.0	1.0	3.5	0.0	1.9	Moderate
507004	3.0	2.0	1.0	3.5	0.0	1.9	Moderate
507005	3.0	2.0	1.0	3.5	0.0	1.9	Moderate

Summary of Environmental Assessment

Outfall #	Flush	Discharge	Habitat	Land Use	Public Use	Environmental Sensitivity Index	Rating
507006	3.0	3.0	1.0	3.5	0.0	2.1	Moderate
507007	3.0	2.0	1.0	3.5	0.0	1.9	Moderate
507008	1.0	2.0	1.0	3.5	1.0	1.7	Low
507009	1.0	2.0	1.0	3.5	1.0	1.7	Low
507010	1.0	3.0	1.0	3.5	1.0	1.9	Moderate
507011	1.0	2.0	1.0	3.5	1.0	1.7	Low
507012	1.0	2.0	1.0	3.0	1.0	1.6	Low
507013	1.0	3.0	1.0	3.5	0.0	1.7	Low
507014	1.0	3.0	1.0	3.5	0.0	1.7	Low
507015	1.0	2.0	1.0	4.0	0.0	1.6	Low
507016	1.0	3.0	1.0	4.0	0.0	1.8	Low
507025	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
507026	1.0	3.0	1.0	4.0	0.0	1.8	Low
507028	1.0	1.0	1.0	4.0	0.0	1.4	Low
507029	1.0	2.0	1.0	4.0	0.0	1.6	Low
507030	1.0	1.0	1.0	4.0	0.0	1.4	Low
507032	1.0	2.0	1.0	3.0	1.0	1.6	Low
507033	1.0	1.0	1.0	3.0	1.0	1.4	Low
507040	2.0	2.0	3.0	3.5	1.0	2.3	Moderate
508001	3.0	3.0	3.0	3.5	0.0	2.5	High
508002	3.0	3.0	3.0	4.0	1.0	2.8	High
515001	2.0	1.0	1.0	3.5	1.0	1.7	Low
515030	1.0	3.0	1.0	4.0	0.0	1.8	Low
515031	1.0	2.0	3.0	3.0	0.0	1.8	Low
515032	1.0	3.0	1.0	4.0	0.0	1.8	Low
515033	1.0	3.0	1.0	4.0	0.0	1.8	Low
515034	2.0	3.0	3.0	4.0	0.0	2.4	High
515040	1.0	1.0	1.0	4.0	0.0	1.4	Low
515041	1.0	1.0	1.0	4.0	0.0	1.4	Low
515042	1.0	2.0	1.0	4.0	0.0	1.6	Low
515043	1.0	2.0	1.0	4.0	0.0	1.6	Low
515044	1.0	2.0	1.0	4.0	0.0	1.6	Low
515045	1.0	2.0	1.0	4.0	0.0	1.6	Low
515060	2.0	3.0	3.0	3.0	0.0	2.2	Moderate
515061	2.0	1.0	1.0	4.0	0.0	1.6	Low
515062	1.0	2.0	1.0	4.0	0.0	1.6	Low
515063	2.0	2.0	1.0	4.0	0.0	1.8	Low
515065	1.0	1.0	1.0	4.0	0.0	1.4	Low
515066	1.0	2.0	1.0	4.0	0.0	1.6	Low
515067	1.0	3.0	1.0	4.0	0.0	1.8	Low
515068	1.0	3.0	1.0	4.0	0.0	1.8	Low
515069	1.0	3.0	1.0	4.0	0.0	1.8	Low
515070	2.0	2.0	1.0	4.0	0.0	1.8	Low
515071	1.0	2.0	1.0	4.0	0.0	1.6	Low
515072	1.0	1.0	1.0	3.0	1.0	1.4	Low
515073	2.0	1.0	1.0	4.0	0.0	1.6	Low
515075	2.0	2.0	2.0	4.0	1.0	2.2	Moderate
607021	2.0	3.0	1.0	4.0	0.0	2.0	Moderate

Summary of Environmental Assessment

Outfall #	Flush	Discharge	Habitat	Land Use	Public Use	Environmental Sensitivity Index	Rating
608003	3.0	3.0	3.0	4.0	0.0	2.6	High
608004	3.0	3.0	1.0	3.5	0.0	2.1	Moderate
608005	3.0	3.0	3.0	3.5	0.0	2.5	High
608006	2.0	3.0	1.0	3.5	0.0	1.9	Moderate
608007	2.0	3.0	2.0	3.5	0.0	2.1	Moderate
608008	2.0	3.0	1.0	3.5	0.0	1.9	Moderate
608009	2.0	2.0	1.0	3.5	0.0	1.7	Low
608010	1.0	3.0	1.0	3.5	0.0	1.7	Low
608011	1.0	3.0	1.0	3.5	0.0	1.7	Low
608013	3.0	3.0	3.0	3.0	0.0	2.4	High
609001	2.0	2.0	3.0	3.0	0.0	2.0	Moderate
609002	1.0	3.0	1.0	4.0	1.0	2.0	Moderate
609003	2.0	3.0	3.0	4.0	1.0	2.6	High
610001	2.0	1.0	1.0	3.0	0.0	1.4	Low
610002	2.0	1.0	1.0	3.0	0.0	1.4	Low
610003	2.0	1.0	3.0	3.0	0.0	1.8	Low
614019	1.0	3.0	3.0	3.0	0.0	2.0	Moderate
615001	1.0	2.0	1.0	4.0	0.0	1.6	Low
615002	1.0	2.0	1.0	3.5	0.0	1.5	Low
615003	1.0	2.0	1.0	3.5	0.0	1.5	Low
615004	2.0	1.0	1.0	4.0	0.0	1.6	Low
615005	1.0	3.0	1.0	3.5	0.0	1.7	Low
615006	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
615007	1.0	3.0	1.0	4.0	0.0	1.8	Low
615008	1.0	3.0	1.0	4.0	0.0	1.8	Low
615009	1.0	3.0	1.0	4.0	0.0	1.8	Low
615010	1.0	3.0	1.0	4.0	0.0	1.8	Low
615011	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
615012	1.0	3.0	1.0	4.0	0.0	1.8	Low
615013	1.0	3.0	1.0	4.0	0.0	1.8	Low
615014	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
615015	2.0	3.0	3.0	3.0	0.0	2.2	Moderate
615016	2.0	1.0	3.0	2.0	0.0	1.6	Low
711001	3.0	3.0	3.0	3.0	1.0	2.6	High
715001	2.0	1.0	1.0	2.0	0.0	1.2	Low
715002	2.0	2.0	1.0	4.0	0.0	1.8	Low
715003	2.0	2.0	1.0	4.0	0.0	1.8	Low
715004	2.0	2.0	1.0	4.0	0.0	1.8	Low
715005	2.0	2.0	1.0	3.5	1.0	1.9	Moderate
715006	2.0	1.0	1.0	4.0	0.0	1.6	Low
715007	2.0	2.0	1.0	4.0	0.0	1.8	Low
715008	1.0	1.0	3.0	4.0	0.0	1.8	Low
715009	1.0	3.0	3.0	4.0	0.0	2.2	Moderate
715010	2.0	3.0	1.0	4.0	0.0	2.0	Moderate
715011	2.0	2.0	1.0	4.0	0.0	1.8	Low
715012	2.0	3.0	3.0	4.0	0.0	2.4	High
715013	1.0	3.0	3.0	4.0	0.0	2.2	Moderate
715014	2.0	3.0	1.0	2.0	1.0	1.8	Low

Summary of Environmental Assessment

Outfall #	Flush	Discharge	Habitat	Land Use	Public Use	Environmental Sensitivity Index	Rating
812002	3.0	3.0	3.0	4.0	0.0	2.6	High
815001	2.0	1.0	1.0	2.5	0.0	1.3	Low
815002	2.0	3.0	1.0	3.0	0.0	1.8	Low
815003	2.0	3.0	3.0	3.0	0.0	2.2	Moderate
815004	2.0	2.0	1.0	3.0	0.0	1.6	Low
815005	2.0	2.0	3.0	3.0	0.0	2.0	Moderate
815006	2.0	3.0	3.0	3.0	0.0	2.2	Moderate
815007	2.0	3.0	3.0	3.0	0.0	2.2	Moderate
815008	2.0	3.0	3.0	3.0	0.0	2.2	Moderate
815009	2.0	3.0	5.0	2.5	2.0	2.9	High
815010	2.0	3.0	1.0	3.5	0.0	1.9	Moderate
815011	2.0	3.0	1.0	4.0	1.0	2.2	Moderate