

BYLAW NO. 600	
Bylaw Name:	Floodplain Management Bylaw No. 600, 2020
Electoral Area:	Electoral Area A (excluding Denman and Hornby Island), B and C
File Number:	PJ 1CV 19
Participants:	All Electoral Areas
Purpose:	To amend the Floodplain Management Bylaw to be consistent with the provincial coastal flood guidelines
Repeals Bylaw:	2782
Staff Contact:	Scott Smith, General Manager of Planning and Development
STATUS	
APPLICATION RECEIVED	
Electoral Areas Services Committee Approval:	<p>March 9, 2020:</p> <p>“THAT the Board repeal Bylaw No. 2782, being “Floodplain Management Bylaw, 2005”;</p> <p>AND FINALLY THAT the Board give first, second and third reading of Bylaw No. 600, being the “Floodplain Management Bylaw No. 600, 2020”.”</p>
Comox Valley Regional District Board:	1st, 2nd and 3rd Reading: April 7, 2020
Comox Valley Regional District Board:	Final Adoption:

COMOX VALLEY REGIONAL DISTRICT

BYLAW NO. 600

A bylaw to regulate the siting and construction of buildings and structures in floodplains and near watercourses in the Comox Valley area (Electoral Area A (excluding Denman and Hornby Islands), B and C) of the Comox Valley Regional District.

WHEREAS Section 524 of the *Local Government Act* (RSBC, 2015, c. 1) allows a local government to designate land as floodplain specify the flood construction level for that floodplain; and specify setbacks for landfill or structural supports within floodplain;

AND WHEREAS the Comox Valley Regional District has considered the Provincial Flood Hazard Area Land Use Management Guidelines;

NOW THEREFORE the board of the Comox Valley Regional District in open meeting assembled, enacts the following:

Application

1. This bylaw shall be applicable to Electoral Areas A (excluding Denman and Hornby Islands), B and C of the Comox Valley Regional District.
2. The following schedules attached hereto and forming an integral part of this bylaw are:
 - a) Schedule “A” – Floodplain Regulations
 - b) Schedule “B” - Floodplain Mapping for the Courtenay, Puntledge and Tsolum Rivers.
 - c) Schedule “C” - Floodplain Mapping for the Oyster River.

Repeal

3. Bylaw No. 2782 being the “Floodplain Management Bylaw, 2005” and all amendments thereto, is hereby repealed.

Citation

4. This Bylaw may be cited for all purposes as Bylaw No. 600 being the “Floodplain Management Bylaw No. 600, 2020”.

Read a first and second time this 7th day of April 2020.

Read a third time this 7th day of April 2020.

Adopted this day of 2020.

Chair

Corporate Legislative Officer

I hereby certify the foregoing to be a true and correct copy of Bylaw No. 600 being "Floodplain Management Bylaw No. 600, 2020" as adopted by the board of the Comox Valley Regional District on the day of , 2020.

Corporate Legislative Officer

SCHEDULE 'A'

Part 100

Administration

101 Other Legislation

- 1) Nothing contained in this Bylaw shall relieve any person from the responsibility to ascertain whether their proposed development complies with all other applicable enactments.

102 General Prohibitions

- 1) No building or structure shall be constructed, reconstructed, altered, moved or extended by the owner, occupier or other person so that it contravenes the requirements of this Bylaw.

103 Enforcement

- 1) A Bylaw Compliance Officer may administer this Bylaw and may enter at all reasonable times on any property to which this Bylaw applies to inspect and determine whether the regulations, prohibitions and requirements of this bylaw are being met.
- 2) A Bylaw Compliance Officer who observes a contravention of this Bylaw may issue applicable notices and orders to any owner, occupier or other person who appears to have committed or allowed the contravention.

104 Obstruction

- 1) No person shall prevent or obstruct a Bylaw Compliance Officer from performing their duties under this Bylaw.

105 Offence and Penalty

- 1) Any person who contravenes a provision of this bylaw, or who allows any act or thing to be done in contravention of this bylaw, or who refuses, omits, or neglects to fulfill, observe, carry out or perform any duty or obligation imposed in this bylaw is guilty of an offence and:
 - a. On summary conviction is liable to a fine of not less than \$5,000 and not more than \$10,000; or
 - b. On conviction of a ticket offence under the Comox Valley Regional District municipal ticket information bylaw.
- 2) If an offence is a continuing offence, each day that the offence is continued constitutes a separate and distinct offence.

106 Severability

- 1) If any section, subsection, sentence, clause or phrase of this Bylaw is for any reason held to be invalid by the decision of any Court of competent jurisdiction, the invalid portion shall be severed and the decision that it is invalid shall not affect the validity of the remainder.

107 No Representation

- 1) By the enactment, administration or enforcement of this Bylaw, the Comox Valley Regional District does not represent to the owner or any other person that any building or structure, including a manufactured home, located, constructed or used in accordance with the regulations of this Bylaw or in accordance with any advice, information, direction or guidance provided by the Comox Valley Regional District in the course of the administration of this Bylaw will not be damaged by flooding or erosion.

Part 200

Interpretation

201 Definitions

In this bylaw, the words in the left hand column have the meaning set out in the right hand column opposite them, as follows:

Alluvial Fan	The alluvial deposit of a stream where it issues from a steep mountain valley or gorge upon a plain or at the junction of a tributary stream with the main stream.
Building	A structure wholly or partly covered by a roof or roofs supported by walls or columns which is permanently affixed to the land and is intended for supporting or sheltering any use or occupancy.
Bylaw Compliance Officer	Persons employed or appointed as such from time to time by the Comox Valley Regional District Board.
Commercial Use	Use providing for the sale or rental of goods or services, for personal services, or for the servicing and repair of goods; and includes retail sales, wholesaling in conjunction with retail sales, commercial and government offices, personal services, commercial schools, household services and household repairs.
Designated Flood	a flood which may occur in any given year, of such magnitude as to equal a flood having a 200-year recurrence interval, based on a frequency analysis of unregulated historic flood records or by regional analysis where inadequate stream flow data is available. Where the flow of a large watercourse is controlled by a major dam, the designated flood shall be set on a site specific basis.
Designated Flood Level	The observed or calculated elevation for the designated flood, which is used in the calculation of the flood construction level. In coastal areas, the designated flood level includes the appropriate allowance for future sea level rise, tide and the total storm surge expected during the designated storm.
Designated Storm	A storm, which may occur in any given year, of such a magnitude as to equal a storm having the designated annual exceedance probability, where the probability, likelihood or chance of a particular event (e.g., a storm or a storm surge) being equaled or exceeded in any one year.
Dwelling Unit	A self-contained room or suite of rooms within a building that is operated as a housekeeping unit, or intended for use as residential premises for one household with sleeping and sanitary facilities and not more than one kitchen facility, but excludes recreational vehicles.
Farm Building	A building or part thereof which does not contain a residential occupancy

and which is associated with and located on, land devoted to the practice of agriculture, and used for the housing of equipment or livestock, or the production, storage or processing of agricultural or horticultural produce or feeds.

Flood Construction Level	The Designated Flood Level plus the allowance for freeboard is used to establish the elevation of the underside of a wooden floor system or top of concrete slab for habitable buildings. In the case of a manufactured home, the ground level or top of concrete or asphalt pad on which it is located shall be equal to or higher than the above described elevation. It also establishes the minimum crest level of a standard dike. Where the designated flood level cannot be determined or where there are overriding factors, an assessed height above the natural boundary of the water body, or above the natural ground elevation may be used.
Floodplain	A lowland area, whether diked, flood proofed, or not which, by reasons of land elevation, is susceptible to flooding from an adjoining watercourse, ocean, lake or other body of water and for administration purposes is taken to be that area submerged by the Designated Flood plus freeboard. In coastal areas, the floodplain includes the area of land that may be subject to future flooding due to sea level rise.
Flood Proofing	The alteration of land or structures either physically or in use to reduce or eliminate flood damage and includes the use of elevation and /or building setbacks from water bodies to maintain a floodway and to allow for potential erosion.
Freeboard	A vertical distance added to a designated flood level, used to establish a flood construction level.
Geodetic Survey Of Canada (G.S.C.) Datum	A vertical distance above Canadian Geodetic Datum (mean sea level as determined by the Canadian Hydrographic Service).
Habitable Area	Any room or space within a building or structure that is or can be used for human occupancy, commercial use, or storage of goods, possessions or equipment (including furnaces) which would be subject to damage if flooded.
Landfill	Land, gravel, earth, rock or any combination thereof placed or deposited by man to raise the level of the ground, but does not include building or construction debris.
Manufactured Home	Means a structure manufactured as a unit, intended to be occupied in a place other than at its manufacture, and designed as a dwelling unit, and includes modular homes and mobile homes and specifically excludes recreation vehicles.
Natural Boundary	The visible high watermark of any lake, river, stream, or other body of water

where the presence and action of the water are so common and usual and so long continued in all ordinary years as to mark upon the soil of the bed of the body of water a character distinct from that of its banks, in vegetation, as well as in the nature of the soils itself, as defined in Section 1 of the *Land Act*. For coastal areas, the natural boundary includes the natural limit of permanent terrestrial vegetation. In addition, the natural boundary includes the best estimate of the edge of dormant or old side channels and marsh areas. |

Natural Ground Elevation	The undisturbed ground elevation prior to site preparation.
Pad	A paved surface on which blocks, posts, runners or strip footings are placed for the purpose of supporting a manufactured home or other habitable area
Professional Engineer	A person who is registered or licensed under the provisions of the <i>Engineers and Geoscientists Act</i> .
Regional District Board	The elected body of the Comox Valley Regional District.
Sea	The Strait of Georgia (Salish Sea).
Setback	Withdrawal of a building or siting of a building or landfill from the natural boundary or other reference line to maintain a floodway and to allow for potential land erosion.
Standard dike	A dike built to a minimum crest elevation equal to the flood construction level and meeting standards of design and construction approved by the Inspector of Dikes and maintained by a diking authority under the <i>Dike Maintenance Act</i> or successor legislation.
Structure	Anything that is constructed or erected, supported by or sunk into land or water, and includes swimming pools, manufactured home pads, and improvements accessory to the principal use of land, but excludes landscaping, paving improvements, signs under 1.0 metre in height, retaining walls under 1.5 metres in height, fencing under 2.5 metres in height.
Watercourse	Any natural or man-made depression with well-defined banks and a bed 0.6 metres or more below the surrounding land serving to give direction to a current of, or acting as a retention area for, water at least six months of the year and having a drainage area of 2 square kilometers or more upstream of the point of consideration.
Wetland	Land seasonally or permanently covered by water and dominated by water-tolerant vegetation. Wetlands include swamps, marshes, bogs and fens but not lands periodically flooded for agricultural purposes.

Part 300

Floodplain Regulations

301 Floodplain Designation

- 1) The following land is designated as floodplain:
 - a) Lands shown as floodplain on the following:
 - i) Schedule B - Floodplain Mapping for the Courtenay, Puntledge and Tsolum Rivers.
 - ii) Schedule C - Floodplain Mapping for the Oyster River.
 - b) Land lower than the flood construction levels specified in Section 302.
 - c) Land within the floodplain setbacks specified in Section 303.

302 Flood Construction Levels

- 1) Where Floodplain Mapping is available, the flood construction level for a specific property shall be determined by interpolation from the flood construction levels shown on the following:
 - a) Schedule B - Floodplain Mapping for the Courtenay, Puntledge and Tsolum Rivers.
 - b) Schedule C - Floodplain Mapping for the Oyster River.
- 2) Where Floodplain Mapping is NOT available, the following elevations are specified as flood construction levels:
 - a) 137.5 metres G.S.C. datum surrounding Comox Lake, where the land is within 100 metres of Comox Lake.
 - b) 3.0 metres above the natural boundary of Cowie Creek and the Browns, Courtenay, Cruickshank, Oyster, Puntledge, Trent, Tsable and Tsolum Rivers, and any other watercourse where the designated flood, as determined by a professional engineer, is greater than 80 cubic metres per second, where the land is within a distance of 200 metres of that watercourse.
 - c) 3.0 metres above the natural boundary of any lake over 15 kilometres at its greatest horizontal distance where the land is within a distance of 200 metres of that lake.
 - d) 1.5 metres above the natural boundary of any other watercourse, where the land is within a distance of 100 metres of that watercourse.
 - e) 1.5 metres above the natural boundary of the sea, any lake, wetland, or pond, where the land is within a distance of 100 metres of that sea, lake, wetland, or pond.
 - f) Robinson Lake, legally described as Lot 27, Sections 21 and 22, Township 4, Comox District, Plan 26336, Except That Part in Plan 26755, is exempted from the minimum flood construction levels, as the water source of the lake is from an aquifer and the lake is a closed system.
- 3) If new construction of habitable area is proposed within 100 metres of the sea and the lands are subject to, or likely subject to, flooding resulting from high tides, storm surge and wave effects, the property owner is required to provide a report from a professional engineer

experienced in coastal engineering prepared in accordance with the Provincial Flood Hazard Area Land Use Management Guidelines and the Engineers and Geoscientists of BC's *Professional Practice Guidelines - Legislated Flood Assessments in a Changing Climate*, as amended from time to time. The report shall:

- a) Confirm that the land may be used safely for the use intended.
 - b) Prescribe the required flood construction level based on minimum allowance for future sea level rise to the year 2100.
- 4) On alluvial fans the flood construction level will be determined by a site specific assessment by a professional engineer pursuant to the provisions of Section 302 of the *Local Government Act* (RSBC, 2015, c. 1) and Section 56 of the *Community Charter* and in accordance with the *Provincial Flood Hazard Area Land Use Management Guidelines*.
- 5) Where more than one flood construction level is applicable, the higher elevation shall be the flood construction level.

303 Floodplain Setbacks

- 1) The following distances are specified as floodplain setbacks:
 - a) 60.0 metres from the natural boundary of Oyster River.
 - b) 30.0 metres from the natural boundary of Cowie Creek, and the Browns, Courtenay, Cruickshank, Puntledge, Trent, Tsable, and Tsolum Rivers, and any other watercourse where the designated flood, as determined by a professional engineer, is greater than 80 cubic metres per second.
 - c) 15.0 metres from the natural boundary of any other watercourse.
 - d) 15.0 metres from the natural boundary of the sea, any lake, wetland, or pond.
 - e) Robinson Lake, legally described as Lot 27, Sections 21 and 22, Township 4, Comox District, Plan 26336, Except That Part in Plan 26755, is exempted from the minimum floodplain setback, as the water source of the lake is from an aquifer and the lake is a closed system.
- 2) If new construction of habitable area is proposed within 100 metres of the sea and the lands are subject to, or likely subject to, flooding resulting from high tides, storm surge and wave effects, the property owner is required to provide a report from a professional engineer experienced in coastal engineering prepared in accordance with the *Provincial Flood Hazard Area Land Use Management Guidelines* and the Engineers and Geoscientists of BC's *Professional Practice Guidelines - Legislated Flood Assessments in a Changing Climate*, as amended from time to time. The report shall:
 - a) Confirm that the land may be used safely for the use intended.
 - b) Prescribe the required floodplain setback.
 - c) Notwithstanding Section 303 (2) b), if meeting the setback would sterilize the lot (i.e. not allow even one of the land uses or structures permitted under the current zoning bylaw), a professional engineer can recommend a reduced setback provided that this is augmented through a restrictive covenant under Section 219 of the *Land Title Act* stipulating the hazard, building requirements and includes a liability disclaimer.

- 3) On alluvial fans the floodplain setback will be determined by a site specific assessment by a professional engineer pursuant to the provisions of Section 302 of the *Local Government Act* (RSBC, 2015, c. 1), Section 56 of the *Community Charter* and in accordance with the *Provincial Flood Hazard Area Land Use Management Guidelines*.
- 4) Where more than one floodplain setback is applicable, the greater of them shall be the floodplain setback.

304 Floodplain Construction Requirements

- 1) A person must construct the underside of any floor system, or the top of any pad supporting any space or room, including a manufactured home, that is used for human occupancy, commercial use, or the storage of goods, possessions or equipment that are susceptible to damage by floodwater above the specified flood construction levels of Section 302.
- 2) A person must not site a building or structure within any floodplain setbacks specified in Section 303.
- 3) A person may use structural support or compacted landfill or a combination of both to elevate the underside of the floor system or the top of the pad above the flood construction levels specified in Section 302. The structural support and compacted landfill shall be protected against scour and erosion from flood flows, wave action, ice and other debris. The structural support and compacted landfill shall be installed and compacted under the direction of a Professional Geotechnical Engineer.
- 4) A person must not extend any compacted landfill required to support a floor system or pad within any floodplain setbacks specified in Section 303.
- 5) A Bylaw Compliance Officer may require that a British Columbia Land Surveyor's certificate be obtained to verify compliance with the flood construction levels of Section 302 and floodplain setbacks of Sections 303. The cost of verification shall be assumed by the landowner.
- 6) Where it is uncertain whether a watercourse has a designated flow greater than 80 cubic metres per second, the Comox Valley Regional District may require the landowner to obtain and pay for a report from a professional engineer or geoscientist experienced in geotechnical engineering to establish the rate of flow.

PART 400

EXEMPTIONS

401 General Exemptions

- 1) The following types of development are exempt from the flood construction levels specified in Section 302 of Schedule A of this Bylaw:
 - a) A renovation of an existing building or structure that does not involve an addition thereto.
 - b) Minor addition to existing building or structure, at the original non-conforming floor elevation, to a maximum of 25 per cent of existing habitable floor area that was existing at the date of the adoption of this bylaw or to a maximum of 50 square metres, whichever is lesser, provided:
 - i) That the degree of non-conformity regarding the setback is not increased (i.e. no closer to the water than existing).
 - ii) The number of dwelling units is not increased.
 - iii) There is no further reduction in the flood construction level.
 - c) A building or portion of the building to be used as non-habitable uses such as a carport, garage or entrance foyer, porches, domestic greenhouses and storage buildings not used for the storage of goods damageable by floodwaters.
 - d) Farm buildings except dwelling units and closed-sided livestock housing.
 - e) Hot water tanks and furnaces behind standard dikes.
 - f) Closed-sided livestock housing behind standard dikes.
 - g) On-loading and off-loading facilities associated with water-oriented industry or portable sawmills provided the main electrical switchgear is placed above the flood construction level.
 - h) Recreation shelters, stands, campsite washhouses and other outdoor facilities susceptible to only marginal damage by floodwaters.

402 Conditional Exemptions

- 1) Flood Construction Levels

The following types of development are exempt from the flood construction levels specified in Section 302 of Schedule A of this Bylaw, subject to the following conditions:

- a) Farm Dwelling Units:

Farm dwelling units greater than 100 metres from the natural boundary of the sea, on parcels of 8.1 hectares or greater and within the Agricultural Land Reserve shall be located with the underside of a wooden floor system or the top of the pad of any habitable area (or in the case of a manufactured home, the top of pad or the ground surface on which it is located) no lower than 1.0 metres above the natural ground elevation taken at any point on the perimeter of the building, or no lower than the flood construction levels specified in Section 302 of Schedule A of this Bylaw, whichever is the lesser.

b) Closed-sided Livestock Housing:

Closed-sided livestock housing not behind standard dikes shall be located with the underside of a wooden floor system or the top of the pad (or in the case of manufactured housing, the top of pad or the ground surface on which it is located) no lower than 1.0 metres above the natural ground elevation taken at any point on the perimeter of the building, or no lower than the flood construction levels specified in Section 302 of Schedule A of this Bylaw, whichever is the lesser.

c) Industrial Uses:

Industrial uses, other than main electrical switchgear, shall be located with the underside of a floor system or the top of the pad (or in the case of a mobile structure, the top of pad or the ground surface in which it is located) no lower than the flood construction levels specified in Section 302 of this bylaw, minus freeboard. Main electrical switchgear shall be no lower than the flood construction level.

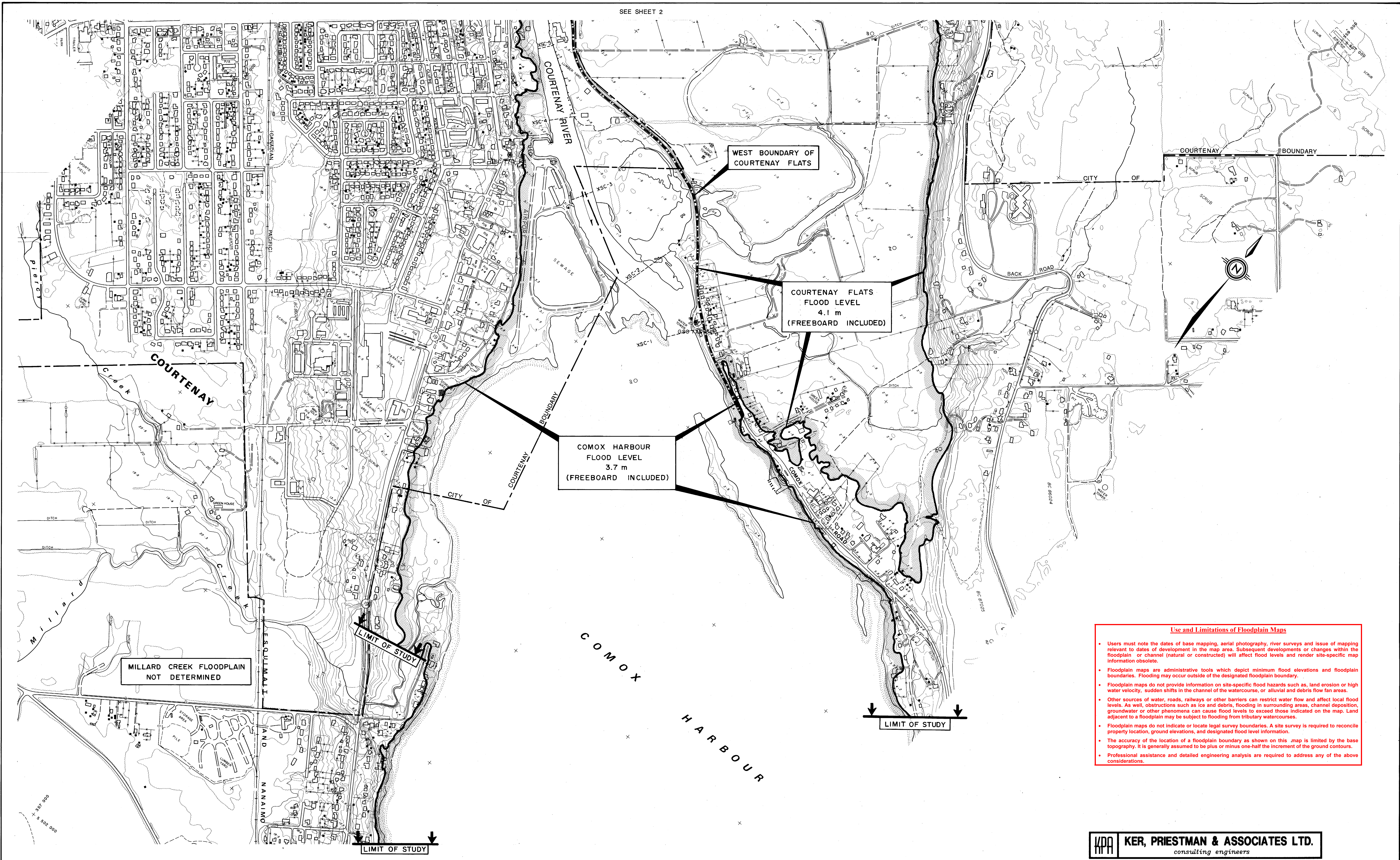
403 Site Specific Exemptions

- 1) Pursuant to Section 524 (7) of the *Local Government Act* (RSBC, 2015, c. 1) a person may make an application to the Comox Valley Regional District to exempt a specific parcel of land or a use, building or other structure on that parcel of land from the provisions of this bylaw. An application for a site specific exemption shall be completed in the form provided by the Comox Valley Regional District and submitted in accordance with the instructions on the application. This provision is not a substitute for any requirements under Section 56 of the *Community Charter*.
- 2) The Comox Valley Regional District Board may provide an exemption from the provisions of this bylaw where:
 - a) The Comox Valley Regional District Board considers the exemption advisable.
 - b) The exemption is consistent with the *Provincial Flood Hazard Area Land Use Management Guidelines*.
 - c) The property owner has provided a report prepared by a professional engineer in accordance with the *Provincial Flood Hazard Area Land Use Management Guidelines* and the Engineers and Geoscientists of BC's *Professional Practice Guidelines - Legislated Flood Assessments in a Changing Climate*, as amended from time to time, that provides a description of the proposed development and specifies conditions that would enable the land to be safely used for the use intended.
 - d) The professional engineer has provided a completed Flood Hazard and Risk Assurance Statement.
- 3) As a condition of a site specific exemption the property owner will be required at their expense to prepare and register a restrictive covenant under Section 219 of the *Land Title Act* in favour of the Comox Valley Regional District:
 - a) Specifying conditions that would enable the land to be safely used for the use intended according to the terms of the report prepared by a professional engineer which will form part of the restrictive covenant.
 - b) Acknowledging that no Disaster Financial Assistance Funding is available for the building or its contents.

- c) Releasing and indemnifying the Comox Valley Regional District from liability in the event any damage is caused by flooding or erosion.

SCHEDULE "B"
FLOODPLAIN MAPPING FOR THE COURTENAY, PUNTLEDGE AND
TSOLUM RIVERS

SEE SHEET 2



Use and Limitations of Floodplain Maps

- Users must note the dates of base mapping, aerial photography, river surveys and issue of mapping relevant to dates of development in the map area. Subsequent developments or changes within the floodplain or channel (natural or constructed) will affect flood levels and render site-specific map information obsolete.
- Floodplain maps are administrative tools which depict minimum flood elevations and floodplain boundaries. Flooding may occur outside of the designated floodplain boundary.
- Floodplain maps do not provide information on site-specific flood hazards such as, land erosion or high water velocity, sudden shifts in the channel of the watercourse, or alluvial and debris flow fan areas.
- Other sources of water, roads, railways or other barriers can restrict water flow and affect local flood levels. As well, obstructions such as ice and debris, flooding in surrounding areas, channel deposition, groundwater or other phenomena can cause flood levels to exceed those indicated on the map. Land adjacent to a floodplain may be subject to flooding from tributary watercourses.
- Floodplain maps do not indicate or locate legal survey boundaries. A site survey is required to reconcile property location, ground elevations, and designated flood level information.
- The accuracy of the location of a floodplain boundary as shown on this map is limited by the base topography. It is generally assumed to be plus or minus one-half the increment of the ground contours.
- Professional assistance and detailed engineering analysis are required to address any of the above considerations.

MILLARD CREEK FLOODPLAIN NOT DETERMINED

KPA KER, PRIESTMAN & ASSOCIATES LTD.
consulting engineers

NOTES

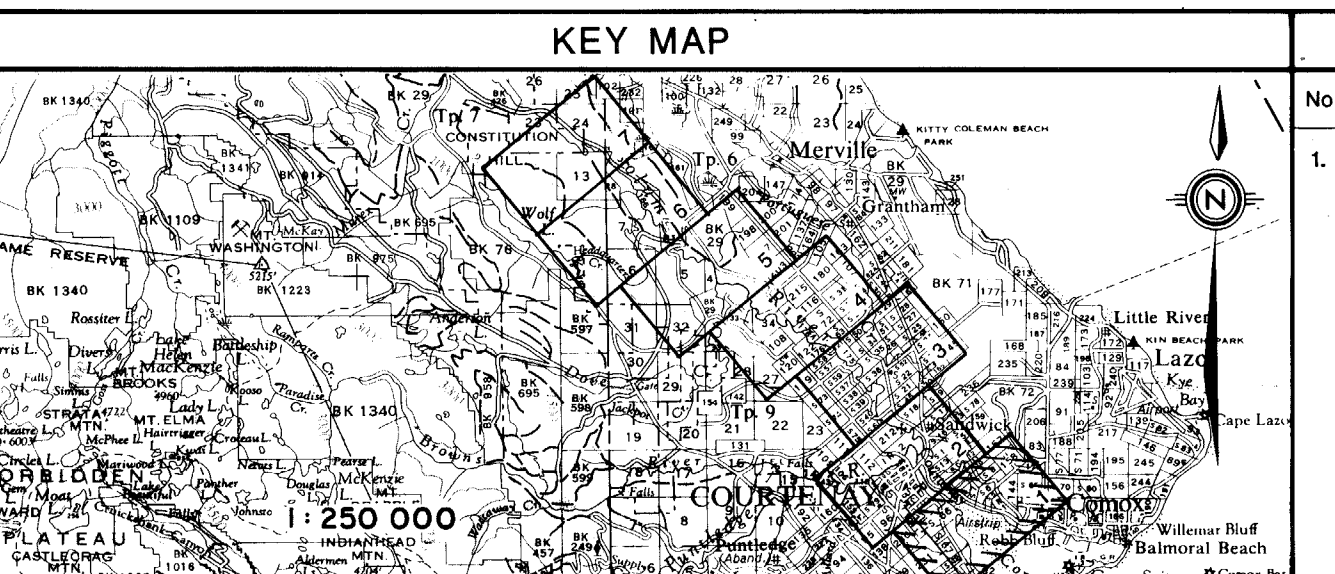
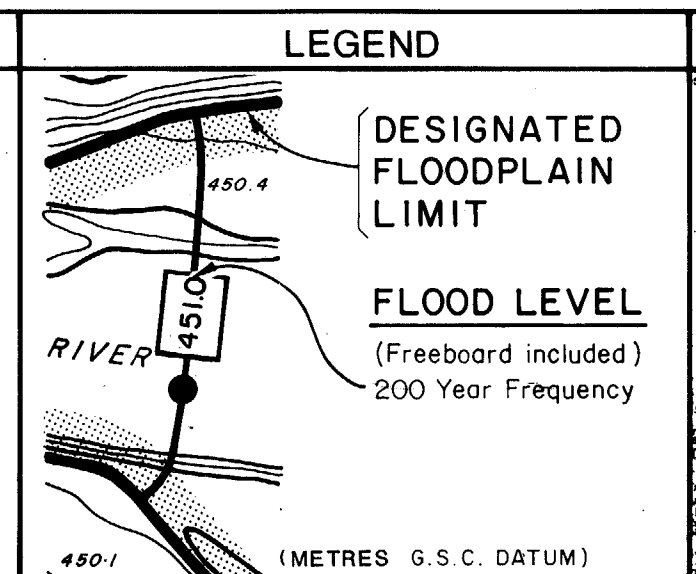
Produced by: Ker, Priestman & Associates Ltd.
300 - 25th Douglas Street
Victoria, B.C.

Survey: River survey done by Surveys Section Water Management Branch, Project 88-PDC-5, dated Sept. 1988.
a) Horizontal control based on provincial network.
b) Elevations are in metres and are referred to Geodetic Survey of Canada datum. (M) Indicates Survey Monument.

Mapping: Base mapping done by Map Production Division, Surveys and Resource Mapping Branch, Project 88-016, dated Jan. 1989.
a) Contour interval 1 metre and greater; spot elevations shown to 0.1 metres, with accuracy to ± 0.3 metres, except where noted.
b) Grid origin referred to U.T.M. Projection Zone 10.

FLOODPLAIN DATA

1. The floodplain areas as depicted on this map have been designated pursuant to the Canada/British Columbia Floodplain Mapping Agreement (1988) by the Minister of the Environment for Canada and the Minister of Environment for British Columbia.
2. The Designated Flood has a statistical frequency of occurrence of once every 200 years.
3. The flood levels were computed using a standard step method modelling technique, assuming open water flow conditions.
4. The floodplain limits assume the absence of all dykes.
5. The floodplain limits and flood levels include an allowance for freeboard.
6. The floodplain limits are not established on the ground by legal survey.
7. The floodplain limits are not set inland for side streams and tributaries.
8. The required setback of buildings from the natural boundaries of lakes and watercourses to allow for the passage of floodwaters and possible bank erosion is not shown. This information is available either through local municipalities or the Ministry of Environment.
9. MAPS AVAILABLE FROM THE MINISTRY OF CROWN LANDS, SURVEYS AND RESOURCE MAPPING BRANCH, MAPS B.C., MAP AND AIR PHOTO SALES, VICTORIA, B.C.



REVISIONS

No.	DESCRIPTION	DATE
1.	REPLACES DRAWING A5240, SHEETS 1-3, DATED JULY, 1979.	

ISSUE OF MAPPING

DATE	SEPT. 30, 1991
DRAWN	J. J.
CHECKED	Y. S.
RIVER SURVEY	M. P.
DESIGNED	B. B.
ENGINEER	<i>[Signature]</i>

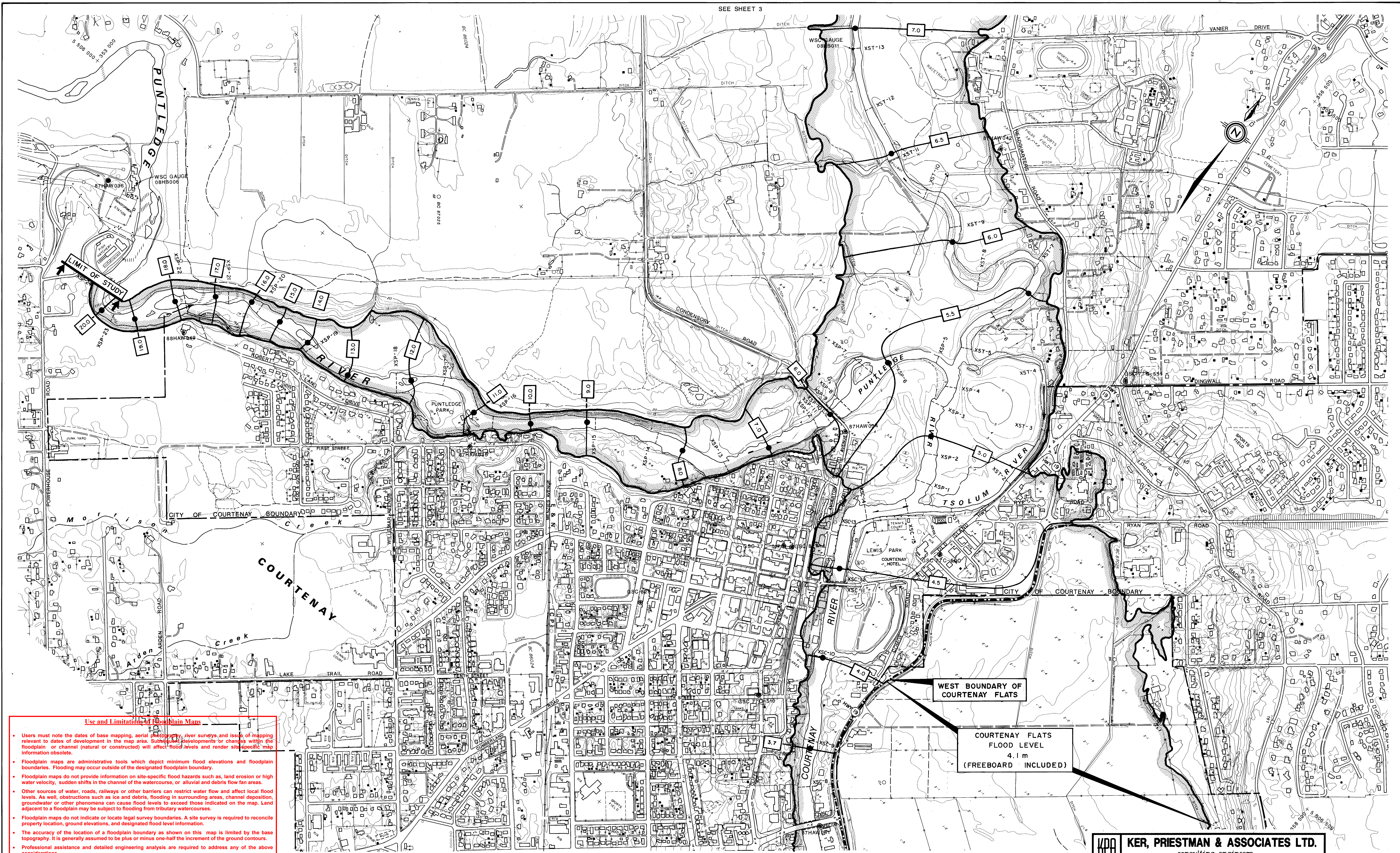
FLOODPLAIN MAPPING
COURTENAY, PUNTLEDGE
and TSOLUM RIVERS

100m 0 100 200 300 400 500m
Scale in metres

ENVIRONMENT CANADA / INLAND WATERS / ENVIRONNEMENT CANADA / EAUX INTERIEURES / COLONIE-BRITANNIQUE / MINISTERE DE L'ENVIRONNEMENT / L'ACCORD CANADA-COLONIE-BRITANNIQUE SUR LA CARTOGRAPHIE DES PLAINES D'INONDATION

FILE No.	92-2800-S.1
N.T.S. MAP No.	92F
SCALE	1 : 5 000
NEGATIVE No.	
DRAWING No. REV.	89-13-1
SHEET	1 of 7

SEE SHEET 3



SEE SHEET 1

Use and Limitations of Floodplain Maps

- Users must note the dates of base mapping, aerial photography, river surveys and issue of mapping relevant to dates of development in the map area. Subsequent developments or changes within the floodplain or channel (natural or constructed) will affect flood levels and render site-specific map information obsolete.
- Floodplain maps are administrative tools which depict minimum flood elevations and floodplain boundaries. Flooding may occur outside of the designated floodplain boundary.
- Floodplain maps do not provide information on site-specific flood hazards such as, land erosion or high water velocity, sudden shifts in the channel of the watercourse, or alluvial and debris flow fan areas.
- Other sources of water, roads, railways or other barriers can restrict water flow and affect local flood levels. As well, obstructions such as ice and debris, flooding in surrounding areas, channel deposition, groundwater or other phenomena can cause flood levels to exceed those indicated on the map. Land adjacent to a floodplain may be subject to flooding from tributary watercourses.
- Floodplain maps do not indicate or locate legal survey boundaries. A site survey is required to reconcile property location, ground elevations, and designated flood level information.
- The accuracy of the location of a floodplain boundary as shown on this map is limited by the base topography. It is generally assumed to be plus or minus one-half the increment of the ground contours.
- Professional assistance and detailed engineering analysis are required to address any of the above considerations.

NOTES

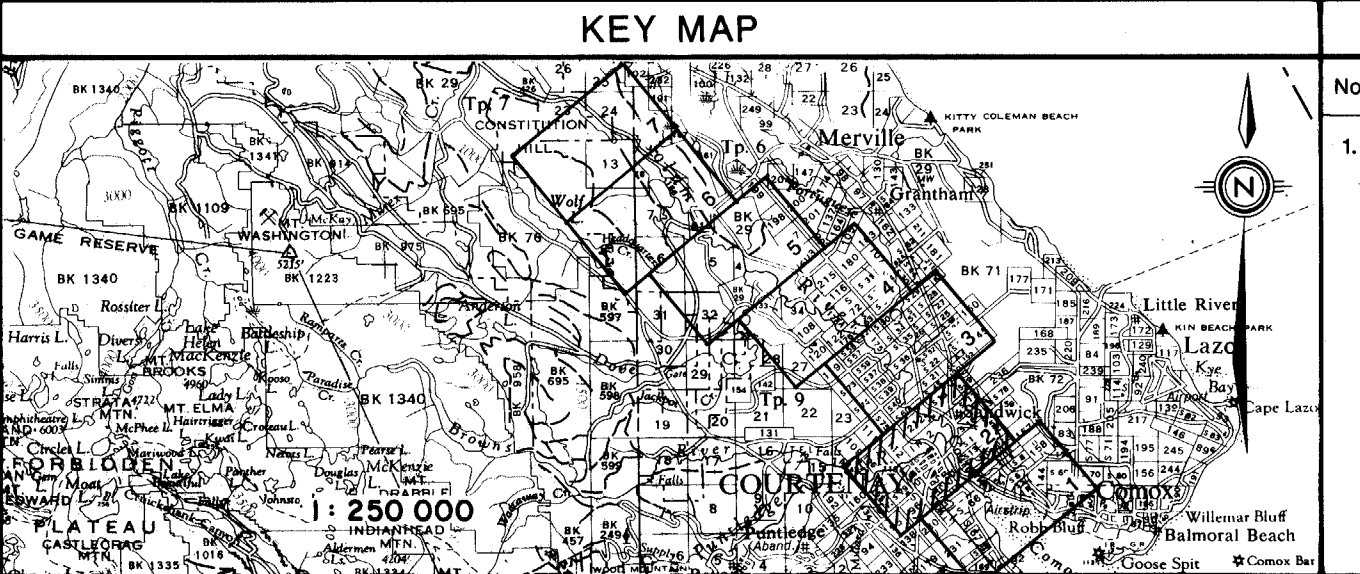
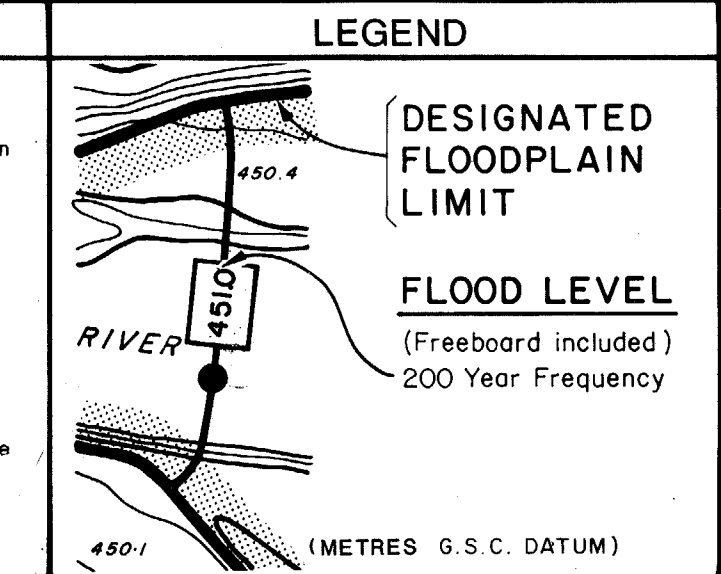
Produced by: Ker, Priestman & Associates Ltd.
300 - 2559 Douglas Street
Victoria, B.C.

Survey: River surveys done by Survey Section Water Management Branch, Project 88-PDC-5, dated Sept. 1988.
a) Not vertical control based on provincial datum.
b) Elevations are in metres and are datum 1988. (1) indicates Survey Monument.

Mapping: Base mapping done by Map Production Division, Survey and Resource Mapping Branch, Project 88-016, dated Jan. 1989.
a) Contour interval 1 metre and greater; spot elevations shown to 0.1 metres, with accuracy to 0.3 metres, except where noted.
b) Grid origin referred to U.T.M. Projection Zone 19.

FLOODPLAIN DATA

- The floodplain areas as depicted on this map have been designated pursuant to the Canada/British Columbia Floodplain Mapping Agreement (1988) by the Minister of the Environment for Canada and the Minister of Environment for British Columbia. Flooding may still occur outside of the designated floodplain areas. The Ministers do not assume any liability by reason of the designation or failure to designate areas on this map.
- The Designated Flood has a statistical frequency of occurrence of once every 200 years.
- The Flood Levels were computed using a standard step method modelling technique, assuming open water flow conditions.
- The Floodplain limits assume the absence of all dykes.
- The Floodplain limits and flood levels include an allowance for freeboard.
- The Floodplain limits are not established on the ground by legal survey.
- The Floodplain limits are not delineated for side streams and tributaries.
- The required setback of buildings from the natural boundaries of lakes and watercourses to allow for the passage of floodwaters and possible bank erosion is not shown. This information is available either through local municipalities or the Ministry of Environment.
- MAPS AND DATA FROM THE MINISTRY OF CROWN LANDS, SURVEYS AND RESOURCE MAPPING BRANCH, M.P.S.B.C., MAP AND AIR PHOTO SALES, VICTORIA, B.C.



REVISIONS

No.	DESCRIPTION	DATE
1.	REPLACES DRAWING AS240, SHEETS 1-3, DATED JULY, 1979.	

ISSUE OF MAPPING

DATE	SEPT. 30, 1991
DRAWN	J.J.
CHECKED	Y.S.
RIVER SURVEY	M. P.
DESIGNED	B. B.
ENGINEER	<i>John Shuk</i>

KPA KER, PRIESTMAN & ASSOCIATES LTD.
consulting engineers

FLOODPLAIN MAPPING
COURTENAY, PUNTLEDGE
and TSOLUM RIVERS

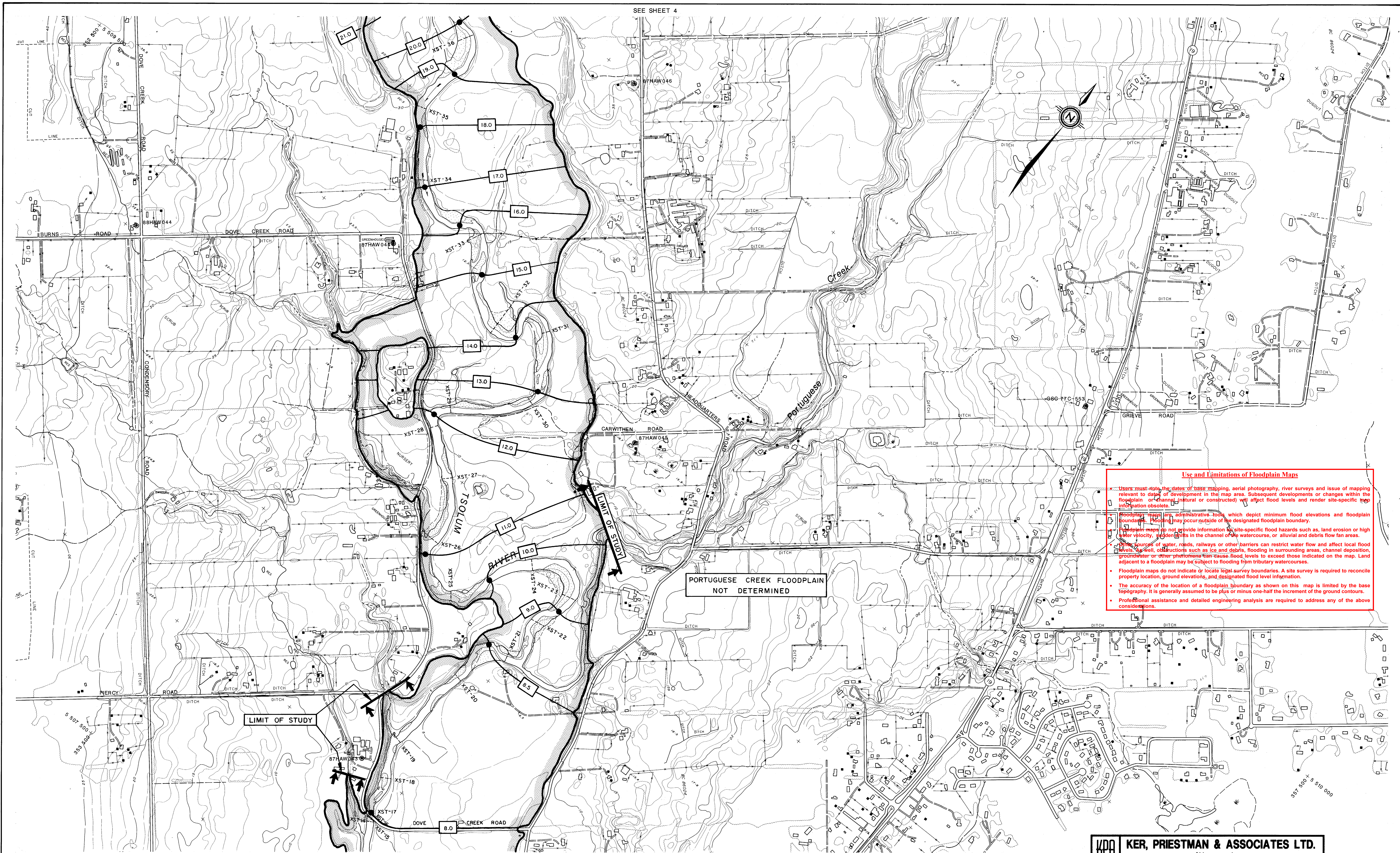
Scale in metres: 0 100 200 300 400 500m

ENVIRONMENT CANADA INLAND WATERS	BRITISH COLUMBIA MINISTRY OF ENVIRONMENT	CANADA-BRITISH COLUMBIA FLOODPLAIN MAPPING AGREEMENT
ENVIRONMENT CANADA EPAK INTERVIEWS	COLOMBIE-BRITANNIQUE MINISTÈRE DE L'ENVIRONNEMENT	L'ACCORD CANADA-COLOMBIE-BRITANNIQUE SUR LA CARTOGRAPHIE DES PLAINES D'INONDATION

FILE No. 92-2800-S-1
N.T.S. MAP No. 92F
SCALE 1:5 000
NEGATIVE No.
DRAWING No. 89-13-2
REV. 2
SHEET 2 of 7

RECOMMENDED *[Signature]* APPROVED *[Signature]*

SEE SHEET 4



Use and Limitations of Floodplain Maps

- Users must note the dates of base mapping, aerial photography, river surveys and issue of mapping relevant to date of development in the map area. Subsequent developments or changes within the floodplain or channel (natural or constructed) will affect flood levels and render site-specific map information obsolete.
- Floodplain maps are administrative tools which depict minimum flood elevations and floodplain boundaries. Flooding may occur outside of the designated floodplain boundary.
- Floodplain maps do not provide information on site-specific flood hazards such as, land erosion or high water velocity, and debris in the channel of the watercourse, or alluvial and debris flow fan areas.
- Some sources of water, roads, railways or other barriers can restrict water flow and affect local flood levels. Well, obstructions such as ice and debris, flooding in surrounding areas, channel deposition, groundwater or other groundwater causes flood levels to exceed those indicated on the map. Land adjacent to a floodplain may be subject to flooding from tributary watercourses.
- Floodplain maps do not indicate or locate legal survey boundaries. A site survey is required to reconcile property location, ground elevations, and designated flood level information.
- The accuracy of the location of a floodplain boundary as shown on this map is limited by the base topography. It is generally assumed to be plus or minus one-half the increment of the ground contours.
- Professional assistance and detailed engineering analysis are required to address any of the above considerations.

PORTUGUESE CREEK FLOODPLAIN NOT DETERMINED

LIMIT OF STUDY

SEE SHEET 2

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consulting engineers

NOTES

Produced by: Ker, Priestman & Associates Ltd.
300 - 2500 Douglas Street
Victoria, B.C.

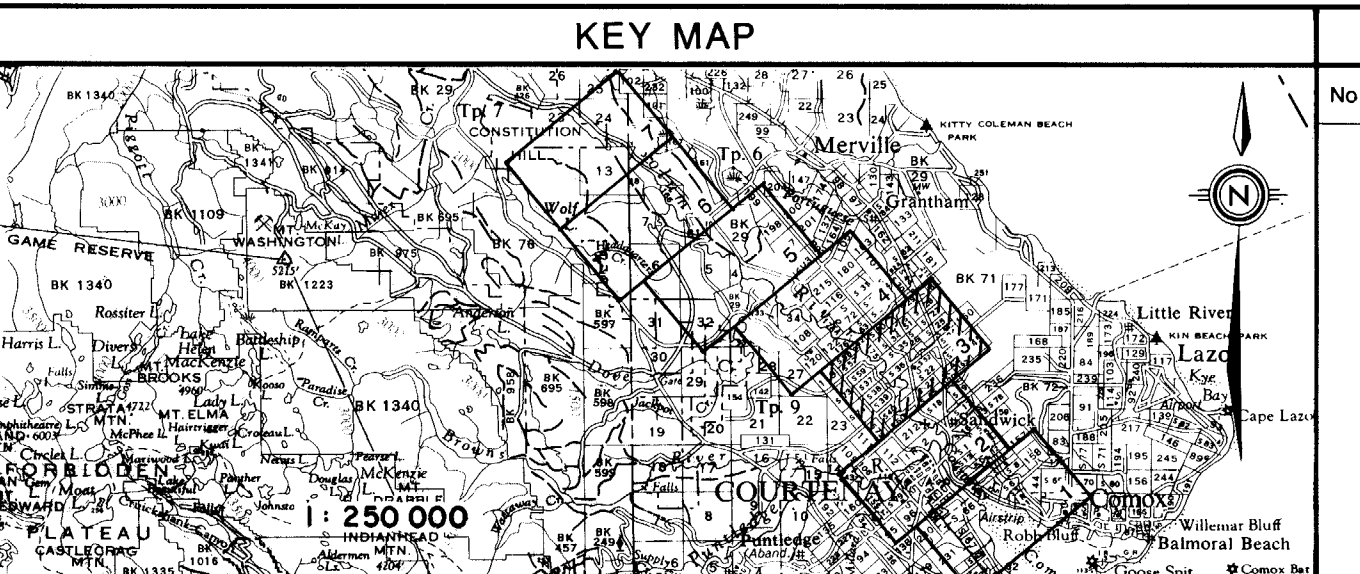
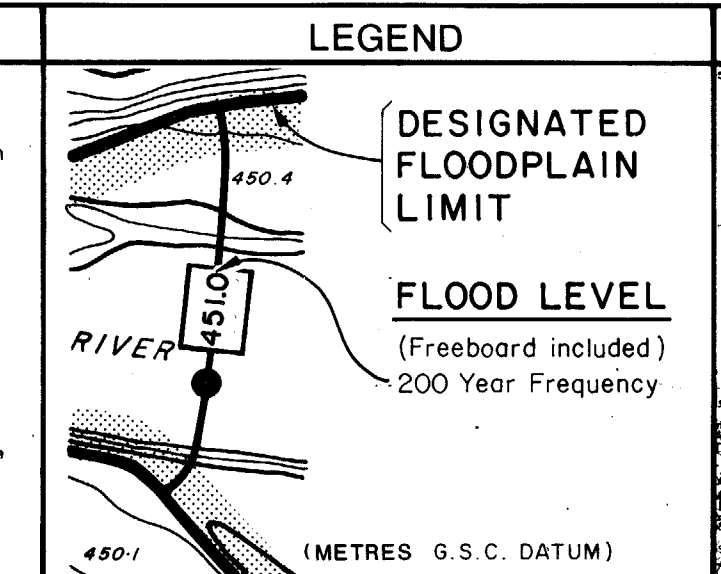
Survey: River survey done by Survey Section
Water Management Branch, Project 88-70C-5,
dated Sept. 1988.
a) Not a control based on provincial
boundaries.
b) Indicates Survey
Monument.

Mapping: Base mapping done by Map Production
Division, Survey and Resource Mapping
Branch, Project 88-106, dated Jan. 1989.

a) Contour interval 1 metre and greater;
spot elevations to 0.1 metres,
with accuracy to 0.2 metres, except
where noted.
b) Grid origin referred to U.T.M.
Projection zone 10.

FLOODPLAIN DATA

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- The flood levels were computed using a standard step method modeling technique, assuming open water flow conditions.
- The floodplain limits assume the absence of all dykes.
- The floodplain limits and flood levels include an allowance for freeboard.
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REVISIONS

No.	DESCRIPTION	DATE

ISSUE OF MAPPING

DATE	SEPT. 30, 1991
DRAWN	J.J.
CHECKED	Y.S.
RIVER SURVEY	M.P.
DESIGNED	B.B.
ENGINEER	Yuhua Shun

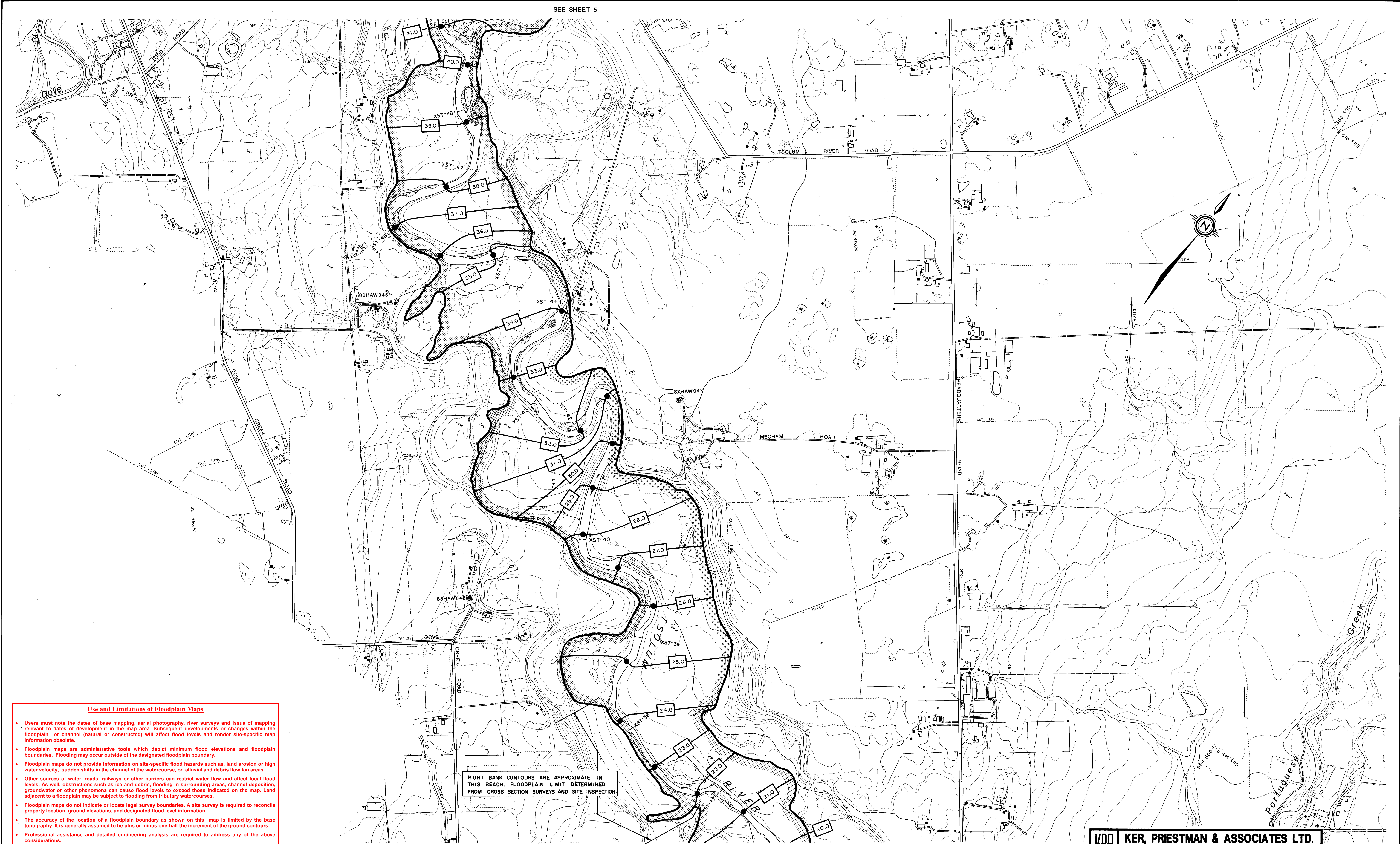
FLOODPLAIN MAPPING
COURTENAY, PUNTLEDGE
and TSOOLUM RIVERS

Scale in metres
100m 0 100 200 300 400 500m

RECOMMENDED: *[Signature]* APPROVED: *[Signature]*

FILE No.	92-2800-S.1
N.T.S. MAP No.	92F
SCALE	1 : 5 000
NEGATIVE No.	
DRAWING No. REV.	89-13-3
SHEET	3 of 7

SEE SHEET 5



Use and Limitations of Floodplain Maps

- Users must note the dates of base mapping, aerial photography, river surveys and issue of mapping relevant to dates of development in the map area. Subsequent developments or changes within the floodplain or channel (natural or constructed) will affect flood levels and render site-specific map information obsolete.
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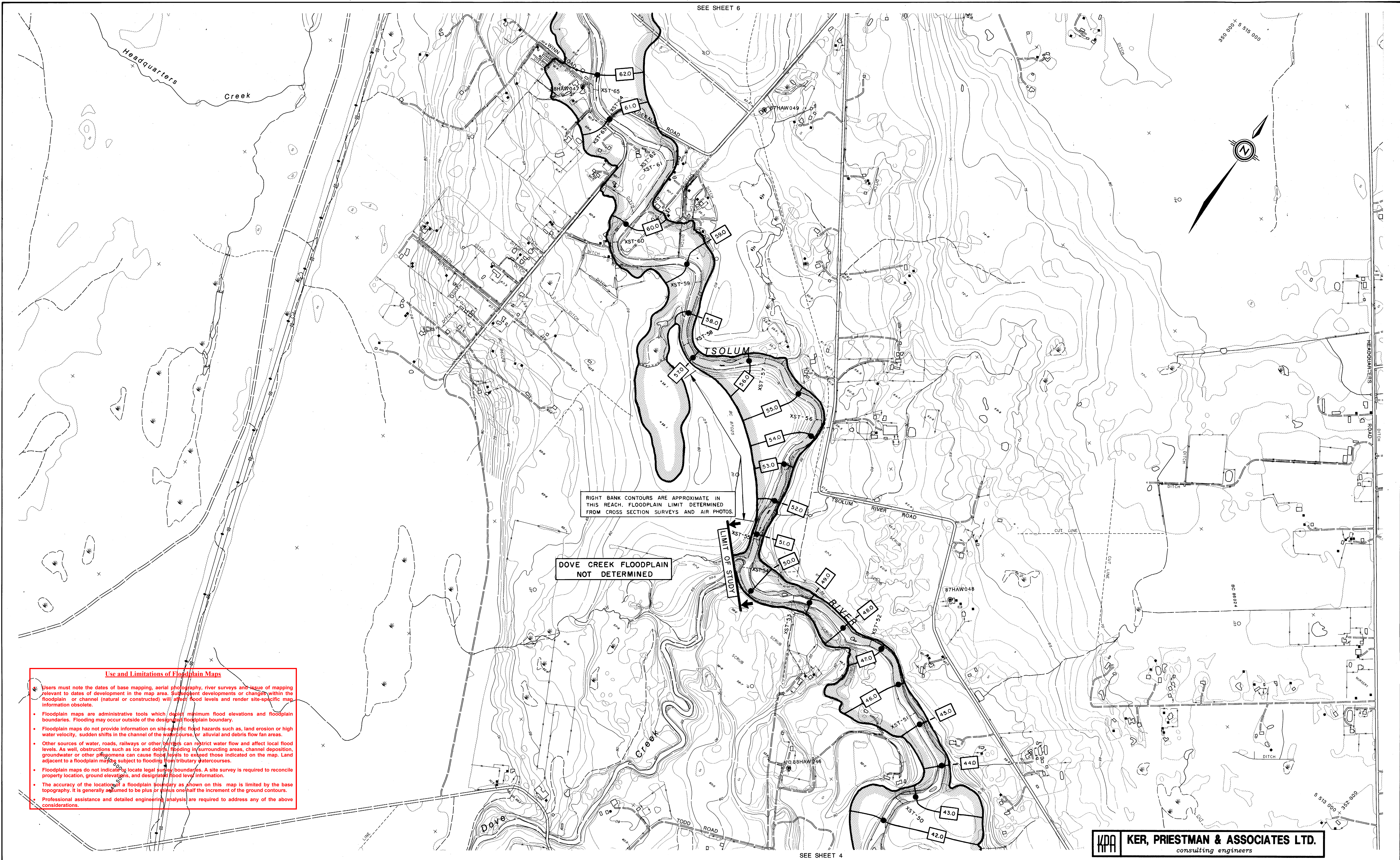
RIGHT BANK CONTOURS ARE APPROXIMATE IN THIS REACH. FLOODPLAIN LIMIT DETERMINED FROM CROSS SECTION SURVEYS AND SITE INSPECTION

SEE SHEET 3

KPA KER, PRIESTMAN & ASSOCIATES LTD.
consulting engineers

<p>NOTES</p> <p>Produced by: Ker, Priestman & Associates Ltd. 300 - 2539 Douglas Street Victoria, B.C.</p> <p>Survey: River survey done by Survey Section Water Management Branch, Project 88-PDC-5, dated Sept. 1988. a) National control based on provincial network. b) Elevations are in metres and are referred to Geodetic Survey of Canada datum. () indicates Survey Monument.</p> <p>Mapping: Base mapping done by Map Production Division, Survey and Resource Mapping Branch, Project 88-016, dated Jan. 1989. a) Contour interval 1 metre and greater; spot elevations shown to 0.3 metres, with accuracy to 0.3 metres, except where noted. b) Grid origin referred to U.T.M. Projection Zone 10.</p>	<p>FLOODPLAIN DATA</p> <p>1. The floodplain areas as depicted on this map have been designated pursuant to the Canada/British Columbia Floodplain Mapping Agreement (1988) by the Minister of the Environment for Canada and the Minister of Environment for British Columbia. Flooding may still occur outside of the designated floodplain areas. The Ministers do not assume any liability by reason of the designation or failure to designate areas on this map.</p> <p>2. The Designated Flood has a statistical frequency of occurrence of once every 200 years.</p> <p>3. The flood levels were computed using a standard step method modelling technique, assuming open water flow conditions.</p> <p>4. The floodplain limits assume the absence of all dikes.</p> <p>5. The floodplain limits and flood levels include an allowance for freeboard.</p> <p>6. The floodplain limits are not established on the ground by legal survey.</p> <p>7. The floodplain limits are not delineated for side streams and tributaries.</p> <p>8. The required setback of buildings from the natural boundaries of lakes and watercourses to allow for the passage of floodwaters and possible bank erosion is not shown. This information is available either through local municipalities or the Ministry of Environment.</p> <p>9. MAPS AVAILABLE FROM THE MINISTRY OF CROWN LANDS, SURVEYS AND RESOURCE MAPPING BRANCH, MAPS B.C., MAP AND AIR PHOTO SALES, VICTORIA, B.C.</p>	<p>LEGEND</p> <p>DESIGNATED FLOODPLAIN LIMIT</p> <p>FLOOD LEVEL (Freeboard included) 200 Year Frequency</p> <p>(METRES G.S.C. DATUM)</p>	<p>KEY MAP</p>	<p>REVISIONS</p> <table border="1"> <thead> <tr> <th>No.</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No.	DESCRIPTION	DATE				<p>ISSUE OF MAPPING DATE: SEPT. 30, 1991</p> <p>ENVIRONMENT CANADA / INLAND WATERS ENvironnement Canada / EAUX INTERIEURES</p> <p>BRITISH COLUMBIA MINISTRY OF ENVIRONMENT COLOMBIE-BRITANNIQUE MINISTÈRE DE L'ENVIRONNEMENT</p> <p>CANADA-BRITISH COLUMBIA FLOODPLAIN MAPPING AGREEMENT L'ACCORD CANADA-COLOMBIE-BRITANNIQUE SUR LA CARTOGRAPHIE DES PLAINES D'INONDATION</p> <p>FLOODPLAIN MAPPING COURTENAY, PUNTLEDGE and TSOLUM RIVERS</p> <p>Scale in metres: 0 100 200 300 400 500m</p> <p>ENGINEER: <i>John Shook</i> RECOMMENDED: <i>[Signature]</i> APPROVED: <i>[Signature]</i></p> <p>FILE No. 92-2800-S.1 N.T.S. MAP No. 92F SCALE 1 : 5 000 NEGATIVE No. DRAWING No. REV. 89-13-4 SHEET 4 of 7</p>
No.	DESCRIPTION	DATE									

SEE SHEET 6



Use and Limitations of Floodplain Maps

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RIGHT BANK CONTOURS ARE APPROXIMATE IN THIS REACH. FLOODPLAIN LIMIT DETERMINED FROM CROSS SECTION SURVEYS AND AIR PHOTOS.

DOVE CREEK FLOODPLAIN NOT DETERMINED

LIMIT OF STUDY

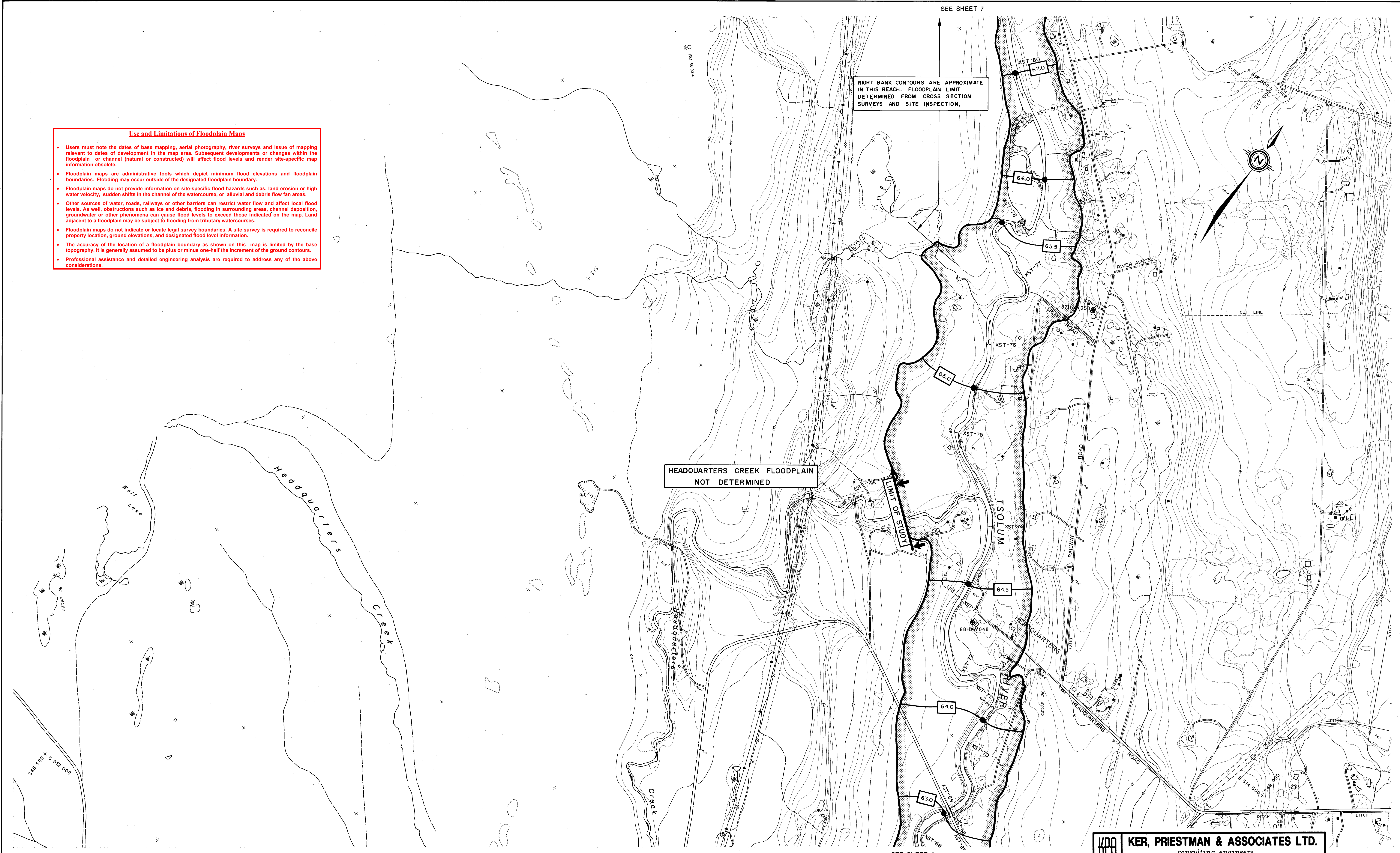
SEE SHEET 4

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consulting engineers

<p>NOTES</p> <p>Produced by: Ker, Priestman & Associates Ltd. 350 Douglas Street Victoria, B.C.</p> <p>Survey: River survey done by Surveys Section Woods Bay Branch, Project 88-PDC-5, dated Sept. 1988. a) Elevation control based on provincial network. b) Elevations are in metres and are referred to Geodetic Survey of Canada datum. (8) Indicate Survey Monument).</p> <p>Mapping: Base mapping done by Map Production Division, Surveys and Resource Mapping Branch, Project 88-019, dated Jan. 1989. a) Contour interval 1 metre and greater; spot elevations shown to 0.1 metres with accuracy to 0.3 metres, except where noted. b) Grid datum referred to U.T.M. Projection Zone 10.</p>	<p>FLOODPLAIN DATA</p> <ol style="list-style-type: none"> The floodplain areas as depicted on this map have been designated pursuant to the Canada/British Columbia Floodplain Mapping Agreement (1988) by the Minister of the Environment for Canada and the Minister of Environment for British Columbia. Flooding may still occur outside of the designated floodplain areas. The Ministers do not assume any liability by reason of the designation or failure to designate areas on this map. The Designated Flood has a statistical frequency of occurrence of once every 200 years. The flood levels were computed using a standard step method modelling technique, assuming open water flow conditions. The floodplain limits assume the absence of all dykes. The floodplain limits and flood levels include an allowance for freeboard. The floodplain limits are not established on the ground by legal survey. The floodplain limits are not delineated for side streams and tributaries. The required setback of buildings from the natural boundaries of lakes and watercourses to allow for the passage of floodwaters and possible bank erosion is not shown. This information is available either through local municipalities or the Ministry of Environment. MAPS AVAILABLE FROM THE MINISTRY OF CROWN LANDS, SURVEYS AND RESOURCE MAPPING BRANCH, MAPS B.C., MAP AND AIR PHOTO SALES, VICTORIA, B.C. 	<p>LEGEND</p> <p>DESIGNATED FLOODPLAIN LIMIT</p> <p>FLOOD LEVEL (Freeboard included) 200 Year Frequency</p> <p>(METRES G.S.C. DATUM)</p>	<p>KEY MAP</p> <p>1:250,000</p>	<p>REVISIONS</p> <table border="1"> <thead> <tr> <th>No.</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No.	DESCRIPTION	DATE				<p>ISSUE OF MAPPING</p> <p>DATE: SEPT. 30, 1991</p> <p>DRAWN: J. J.</p> <p>CHECKED: Y. S.</p> <p>RIVER SURVEY: M. P.</p> <p>DESIGNED: B. B.</p> <p>ENGINEER: <i>Y. S.</i></p> <p>RECOMMENDED: <i>Y. S.</i></p> <p>APPROVED: <i>Y. S.</i></p> <p>FLOODPLAIN MAPPING COURTENAY, PUNTLIDGE and TSOLUM RIVERS</p> <p>Scale in metres 100m 0 100 200 300 400 500m</p> <p>ENVIRONMENT CANADA INLAND WATERS ENVIRONNEMENT CANADA EAUX INTERIEURES</p> <p>B.C. MINISTRY OF ENVIRONMENT COLOMBIE-BRITANNIQUE MINISTRE DE L'ENVIRONNEMENT</p> <p>CANADA BRITISH COLUMBIA FLOODPLAIN MAPPING AGREEMENT</p> <p>FILE No. 92-2800-S.1 N.T.S. MAP No. 92F SCALE 1:5 000 NEGATIVE No. DRAWING No. REV. 89-13-5 SHEET 5 of 7</p>
No.	DESCRIPTION	DATE									

Use and Limitations of Floodplain Maps

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KPA KER, PRIESTMAN & ASSOCIATES LTD.
consulting engineers

<p>NOTES</p> <p>Produced by: Ker, Priestman & Associates Ltd. 300 - 2500 Douglas Street Victoria, B.C.</p> <p>Survey: River surveys done by Surveys Section Water Management Branch, Project 88-PDC-5, dated April, 1989. a) Horizontal control based on provincial network. b) Elevations are in metres and are referred to Geodetic Survey of Canada datum. (M) indicates Survey Monument.</p> <p>Mapping: Base mapping done by Map Production Division, Surveys and Resource Mapping Branch, Project 88-016, dated Jan. 1989. a) Contour interval 1 metre and greater; spot elevations shown to 0.1 metres, with accuracy to ± 0.3 metres, except where noted. b) Grid origin referred to U.T.M. Projection Zone 10.</p>	<p>FLOODPLAIN DATA</p> <ol style="list-style-type: none"> 1. The floodplain areas as depicted on this map have been designated pursuant to the Canada/British Columbia Floodplain Mapping Agreement (1988) by the Minister of the Environment for Canada and the Minister of Environment for British Columbia. Flooding may still occur outside of the designated floodplain areas. The Ministers do not assume any liability by reason of the designation or failure to designate areas on this map. 2. The designated flood has a statistical frequency of occurrence of once every 200 years. 3. The flood levels were computed using a standard step method modelling technique, assuming open water flow conditions. 4. The floodplain limits assume the absence of all dykes. 5. The floodplain limits and flood levels include an allowance for freeboard. 6. The floodplain limits are not established on the ground by legal survey. 7. The floodplain limits are not delineated for side streams and tributaries. 8. The required setback of buildings from the natural boundaries of lakes and watercourses to allow for the passage of floodwaters and possible bank erosion is not shown. This information is available either through local municipalities or the Ministry of Environment. 9. MAPS AVAILABLE FROM THE MINISTRY OF CROWN LANDS, SURVEYS AND RESOURCE MAPPING BRANCH, MAPS B.C., MAP AND AIR PHOTO SALES, VICTORIA, B.C. 	<p>LEGEND</p> <p>DESIGNATED FLOODPLAIN LIMIT</p> <p>FLOOD LEVEL (Freeboard included) 200 Year Frequency</p> <p>(METRES G.S.C. DATUM)</p>	<p>KEY MAP</p> <p>Scale: 1:250,000</p>	<p>REVISIONS</p> <table border="1"> <thead> <tr> <th>No.</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No.	DESCRIPTION	DATE				<p>ISSUE OF MAPPING</p> <p>DATE: SEPT. 30, 1991</p> <p>DRAWN: J. J.</p> <p>CHECKED: Y.S.</p> <p>RIVER SURVEY: M. P.</p> <p>DESIGNED: B. B.</p> <p>ENGINEER: <i>Y. S.</i></p>	<p>ENVIRONMENT CANADA INLAND WATERS L'ENVIRONNEMENT CANADA FAUC INTERIEURES</p> <p>BRITISH COLUMBIA MINISTRY OF ENVIRONMENT COLOMBIE-BRITANNIQUE MINISTÈRE DE L'ENVIRONNEMENT</p> <p>CANADA-BRITISH COLUMBIA FLOODPLAIN MAPPING AGREEMENT L'ACCORD CANADA-COLOMBIE-BRITANNIQUE SUR LA CARTOGRAPHIE DES PLAINES D'INONDATION</p> <p>FLOODPLAIN MAPPING COURTENAY, PUNTLEDGE and TSOLUM RIVERS</p> <p>Scale in metres: 0 100 200 300 400 500m</p> <p>RECOMMENDED: <i>P. H. D.</i></p> <p>APPROVED: <i>E. G. B.</i></p>	<p>FILE NO. 92-2800-S.1</p> <p>N.T.S. MAP No. 92F</p> <p>SCALE 1:5 000</p> <p>NEGATIVE No.</p> <p>DRAWING No. REV. 89-13-6</p> <p>SHEET 6 of 7</p>
No.	DESCRIPTION	DATE											



Use and Limitations of Floodplain Maps

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RIGHT BANK CONTOURS ARE APPROXIMATE IN THIS REACH. FLOODPLAIN LIMIT DETERMINED FROM CROSS SECTION SURVEYS AND SITE INSPECTION.

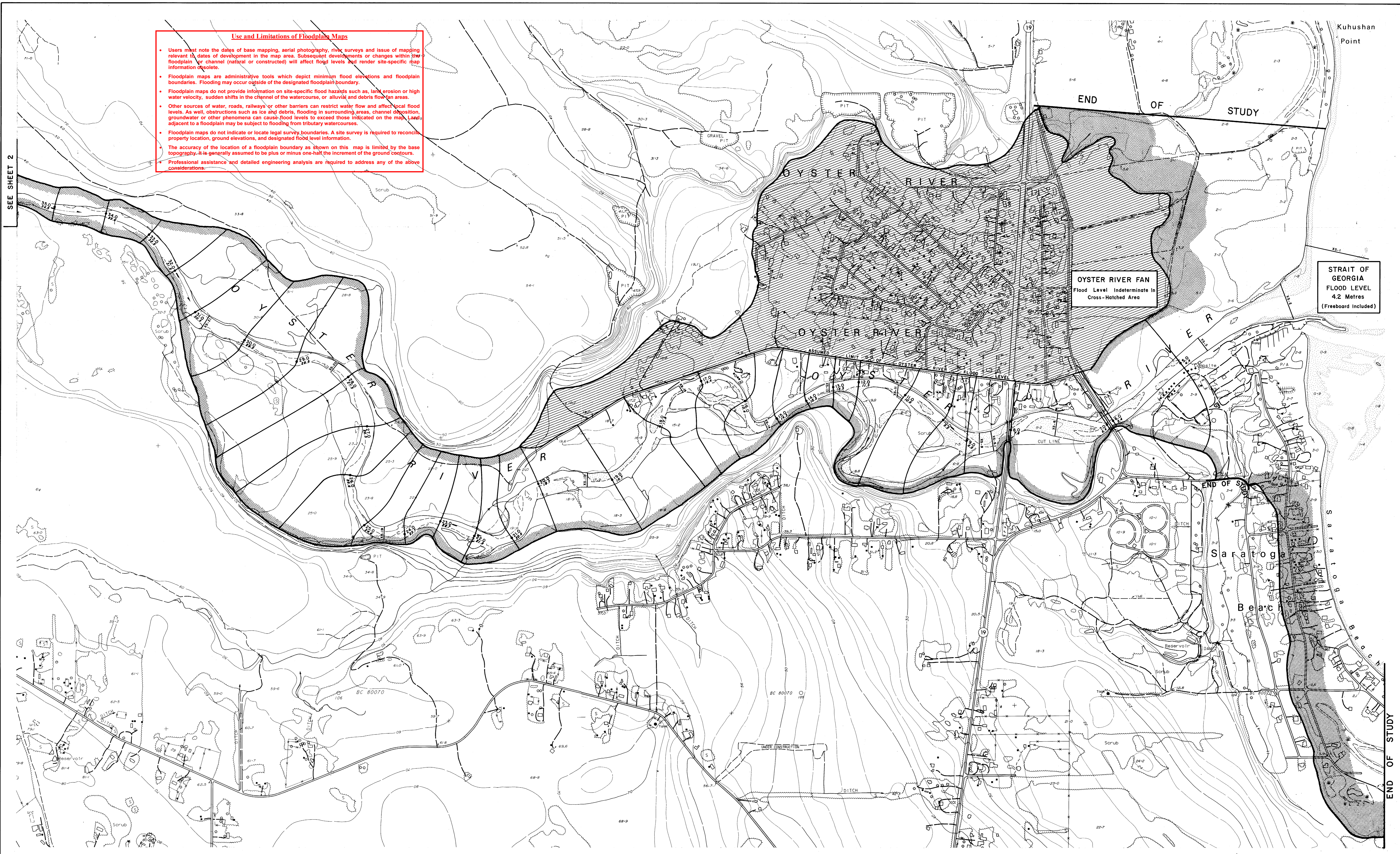
KPA KER, PRIESTMAN & ASSOCIATES LTD.
consulting engineers

<p>NOTES</p> <p>Produced by: Ker, Priestman & Associates Ltd. 300 - 350 Douglas Street Victoria, B.C.</p> <p>Survey: River survey done by Survey Section, Water Management Branch, Project 88-PDC-5, dated Sept. 1988. a) Horizontal control based on provincial datum, 1988. b) Elevations are in metres and are referred to Geodetic Survey of Canada datum, 1988. (1) indicates Survey Monument).</p> <p>Mapping: Base mapping done by Map Production Division, Survey and Resource Mapping Branch, Project 88-016, dated Jan. 1989. a) Contour interval 3 metres and greater; spot elevations shown to 0.1 metres, with accuracy to ± 0.3 metres, except where noted. b) Grid origin referred to U.T.M. Projection Zone 19.</p>	<p>FLOODPLAIN DATA</p> <ol style="list-style-type: none"> 1. The floodplain areas as depicted on this map have been designated pursuant to the Canada/British Columbia Floodplain Mapping Agreement (1988) by the Minister of the Environment for Canada and the Minister of Environment for British Columbia. 2. Flooding may still occur outside of the designated floodplain areas. The Ministers do not assume any liability by reason of the designation or failure to designate areas on this map. 3. The Designated Flood has a statistical frequency of occurrence of once every 200 years. 4. The flood levels were computed using a standard step method modelling technique, assuming open water flow conditions. 5. The floodplain limits assume the absence of all dikes. 6. The floodplain limits and flood levels include an allowance for freeboard. 7. The floodplain limits are not established on the ground by legal survey. 8. The floodplain limits are not delineated for side streams and tributaries. 9. The required setback of buildings from the natural boundaries of lakes and watercourses to allow for the passage of floodwaters and possible bank erosion is not shown. This information is available either through local municipalities or the Ministry of Environment. 10. MAPS AVAILABLE FROM THE MINISTRY OF CROWN LANDS, SURVEYS AND RESOURCE MAPPING BRANCH, MAPS B.C., MAP AND AIR PHOTO SALES, VICTORIA, B.C. 	<p>LEGEND</p> <p>DESIGNATED FLOODPLAIN LIMIT</p> <p>FLOOD LEVEL (Freeboard included) 200 Year Frequency</p> <p>(METRES G.S.C. DATUM)</p>	<p>KEY MAP</p>	<p>REVISIONS</p> <table border="1"> <thead> <tr> <th>No.</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No.	DESCRIPTION	DATE				<p>ISSUE OF MAPPING</p> <p>DATE: SEPT. 30, 1991</p> <p>DRAWN: J. J.</p> <p>CHECKED: Y. S.</p> <p>RIVER SURVEY: M. P.</p> <p>DESIGNED: B. B.</p> <p>ENGINEER: <i>[Signature]</i></p> <p>RECOMMENDED: <i>[Signature]</i></p> <p>APPROVED: <i>[Signature]</i></p> <p>FLOODPLAIN MAPPING COURTENAY, PUNTLEDGE and TSOLUM RIVERS</p> <p>Scale in metres: 0 100 200 300 400 500</p> <p>ENVIRONMENT CANADA INLAND WATERS BRITISH COLUMBIA MINISTRY OF ENVIRONMENT COLUMBIE-BRITANNIQUE MINISTÈRE DE L'ENVIRONNEMENT CANADA BRITISH COLUMBIA FLOODPLAIN MAPPING AGREEMENT L'ACCORD CANADA COLUMBIE-BRITANNIQUE SUR LA CARTOGRAPHIE DES PLAINES D'INONDATION</p> <p>FILE No. 92-2800-S.1 N.T.S. MAP No. 92F SCALE 1:5 000 NEGATIVE No. DRAWING No. 89-13-7 REV. SHEET 7 of 7</p>
No.	DESCRIPTION	DATE									

SCHEDULE "C"
FLOODPLAIN MAPPING FOR
THE OYSTER RIVER

Use and Limitations of Floodplain Maps

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- Floodplain maps are administrative tools which depict minimum flood elevations and floodplain boundaries. Flooding may occur outside of the designated floodplain boundary.
- Floodplain maps do not provide information on site-specific flood hazards such as, bank erosion or high water velocity, sudden shifts in the channel of the watercourse, or alluvial and debris flow areas.
- Other sources of water, roads, railways or other barriers can restrict water flow and affect local flood levels. As well, obstructions such as ice and debris, flooding in surrounding areas, channel obstruction, groundwater or other phenomena can cause flood levels to exceed those indicated on the map. Land adjacent to a floodplain may be subject to flooding from tributary watercourses.
- Floodplain maps do not indicate or locate legal survey boundaries. A site survey is required to reconcile property location, ground elevations, and designated flood level information.
- The accuracy of the location of a floodplain boundary as shown on this map is limited by the base topography. It is generally assumed to be plus or minus one-half the increment of the ground contours.
- Professional assistance and detailed engineering analysis are required to address any of the above considerations.



NOTES

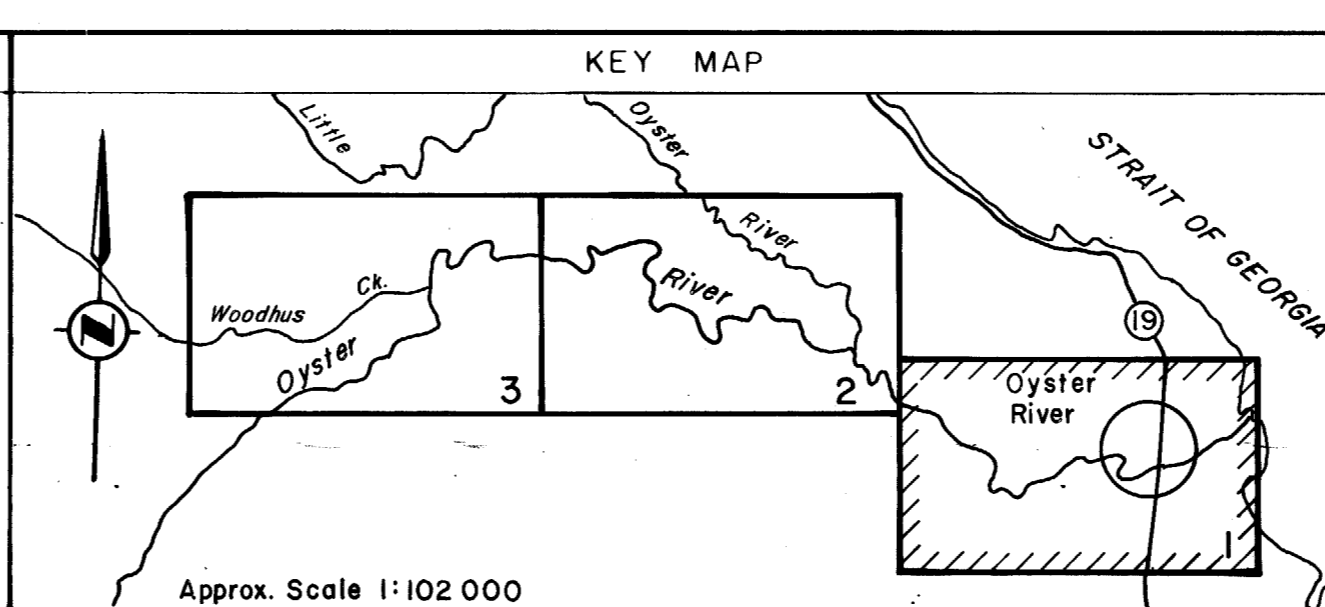
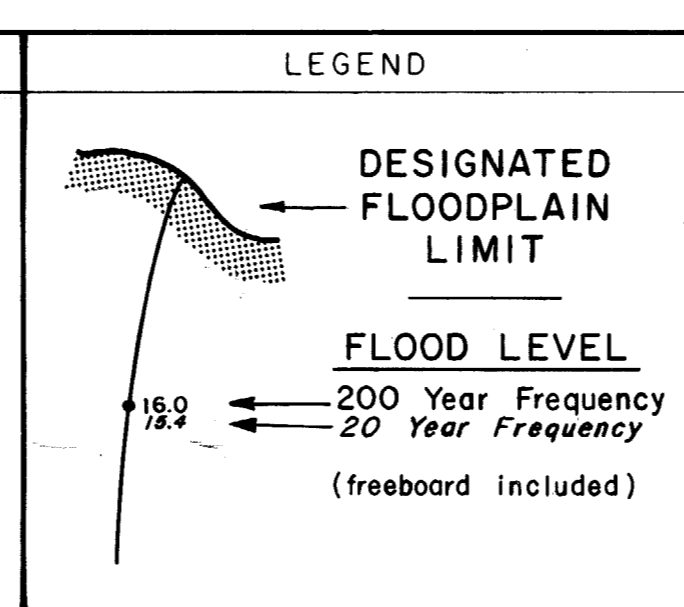
Produced by: British Columbia Water Management Branch
Floodplain Mapping Program.

Survey: River survey done by Planning and Surveys Section, Water Management Branch.
a) Horizontal control based on provincial network.
b) Elevations are in metres and are referred to Geodetic Survey of Canada Datum.

Mapping: Base mapping done by Map Production Division, Surveys and Mapping Branch.
a) Contour interval - 2 metres; spot elevations shown to 0.1 metres, with accuracy to ± 0.5 metres, except where noted.
b) Grid origin referred to U.T.M. Projection Zone 10.
Final Floodplain Mapping produced by Planning Subsection, Water Management Branch.

FLOODPLAIN DATA

a) The Designated Flood has a statistical frequency of occurrence of once every 200 years.
b) Flood levels were computed using a standard step method modelling technique, assuming open water flow conditions.
c) Floodplain limits assume the absence of all dykes.
d) Floodplain limits and flood levels include allowance for freeboard.
e) Position of floodplain boundary not established on the ground by legal survey.
f) Floodplain limits are not delineated for side streams and tributaries.
g) Required setback of buildings from the natural boundaries of lakes and watercourses to allow for the passage of floodwaters and possible bank erosion are not shown. This information is available either through local municipalities or the Ministry of Environment.
h) Areas within the floodplain limit having an elevation above the computed flood level are subject to possible flooding from overflow of upstream banks.



REVISIONS

No.	DESCRIPTION	DATE

TOPOGRAPHIC MAPPING
DATE OF PHOTOGRAPHY
JULY 24, 1980

FLOODPLAIN STUDIES
TECHNICIAN
F. W. DANKS
ENGINEER
R. W. NICHOLS

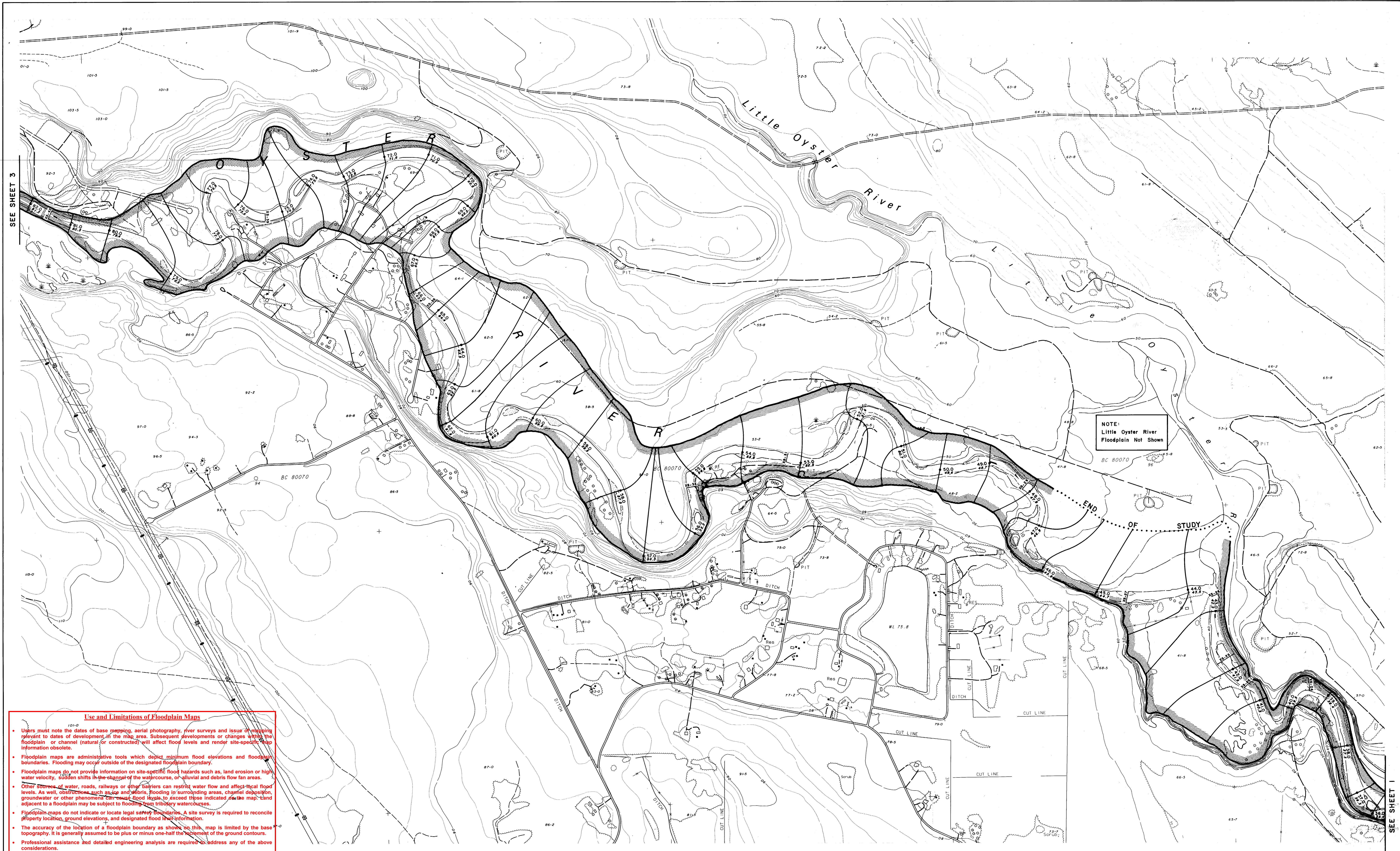
ISSUE OF MAPPING
DATE
MAY 1984

Province of British Columbia Ministry of Environment Water Management Branch

PRELIMINARY FLOODPLAIN MAPPING
OYSTER RIVER

FILE No. 0305030-9
SCALE: 1:5000
NEGATIVE No. 5532-1
DRAWING No. 5532-1
SHEET 1 of 3

Recommended, Section Head [Signature] Approved, Deputy Minister [Signature]



Use and Limitations of Floodplain Maps

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NOTES

Produced by: British Columbia Water Management Branch
Floodplain Mapping Program.

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Water Management Branch.

Mapping: Base mapping done by Map Production Division, Surveys and Mapping Branch.

a) Contour interval - 2 metres; spot elevations shown to 0.1 metres, with accuracy to ± 0.5 metres, except where noted.
b) GP 19 or 19M referred to U.T.M. Projection Zone 10.
Final Floodplain Mapping produced by Planning Subsection, Water Management Branch.

FLOODPLAIN DATA

a) The Designated Flood has a statistical frequency of occurrence of once every 200 years.

b) Flood levels were computed using a standard step method modelling technique, assuming open water flow conditions.

c) Floodplain limits assume the absence of all dykes.

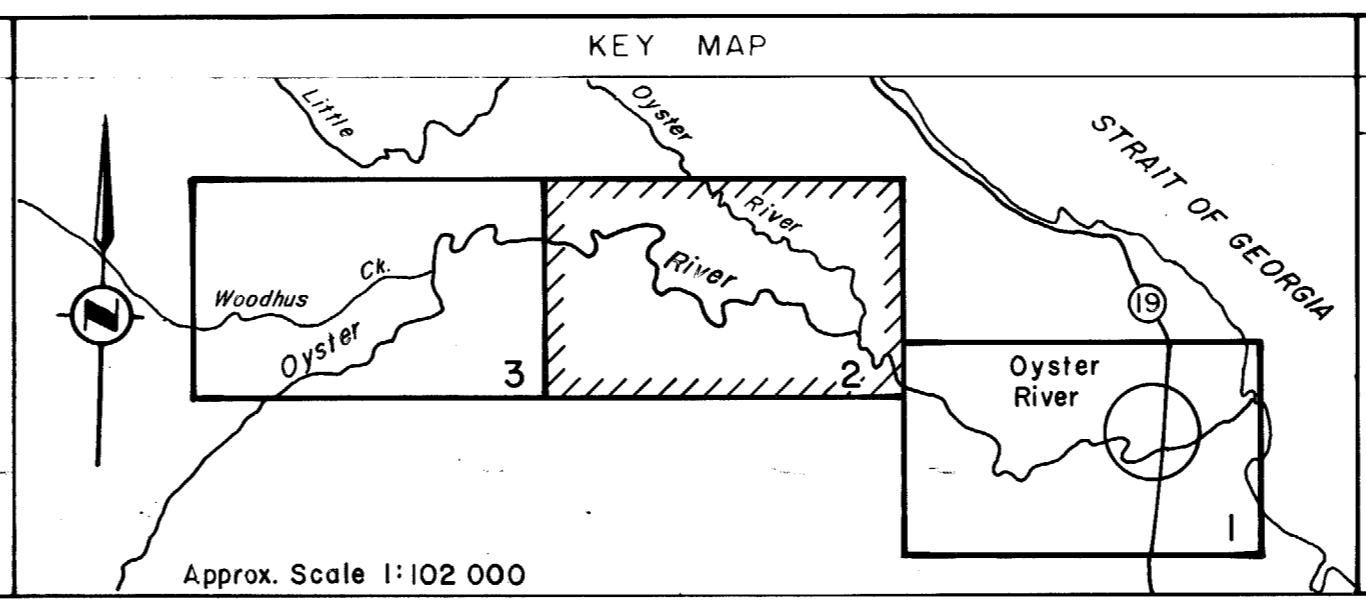
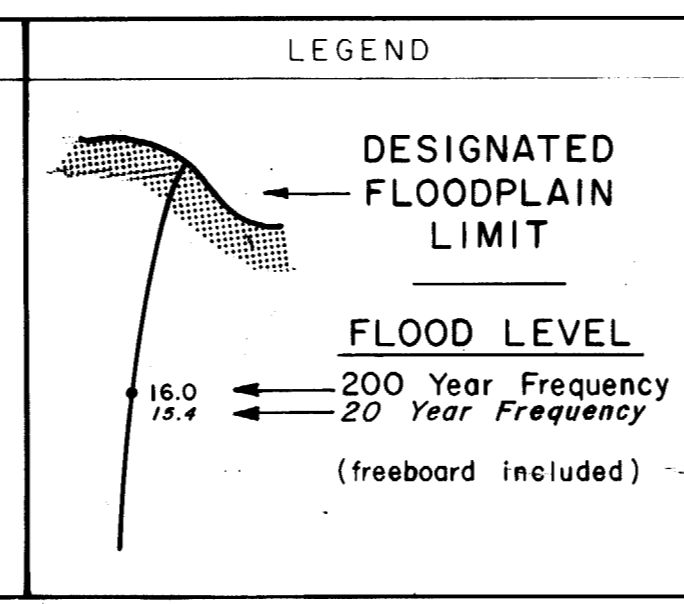
d) Floodplain limits and flood levels include allowance for freeboard.

e) Position of floodplain boundary not established on the ground by legal survey.

f) Floodplain limits are not delineated for side streams and tributaries.

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h) Areas within the floodplain limit having an elevation above the computed flood level are subject to possible flooding from overflow of upstream banks.



REVISIONS

No.	DESCRIPTION	DATE

TOPOGRAPHIC MAPPING

DATE OF PHOTOGRAPHY
JULY 24, 1980

FLOODPLAIN STUDIES

TECHNICIAN
F. W. DANKS

ENGINEER
R. W. NICHOLS

ISSUE OF MAPPING
DATE **MAY 1984**

Province of British Columbia
Ministry of Environment
Water Management Branch

PRELIMINARY FLOODPLAIN MAPPING

OYSTER RIVER

Scale in metres: 0 100 200 300 400 500

Recommended: [Signature] Approved: [Signature]

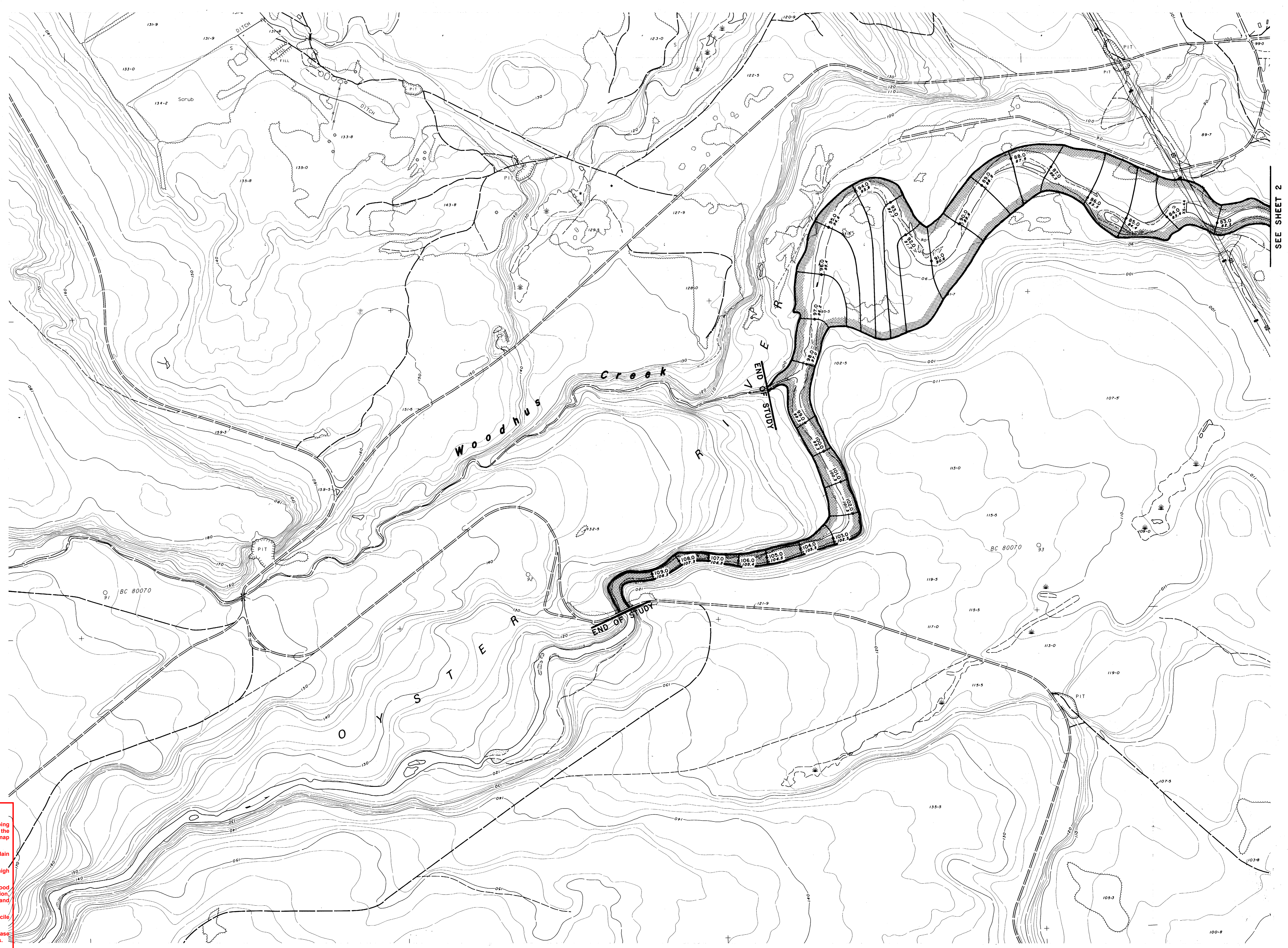
FILE No.
0305030-9

SCALE
1:5000

NEGATIVE No.

DRAWING No.
5532-2

SHEET
2 of 3



SEE SHEET 2

Use and Limitations of Floodplain Maps

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NOTES

Produced by: British Columbia Water Management Branch
Floodplain Mapping Program

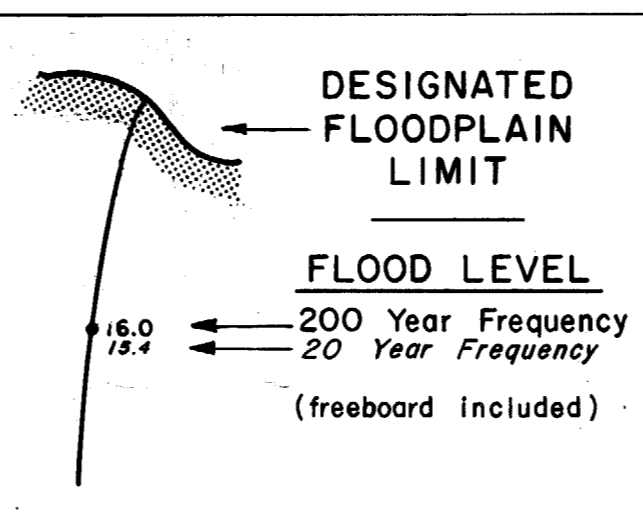
Survey: River survey done by Planning and Surveys Section, Water Management Branch.
a) Horizontal control based on provincial network.
b) Elevations are in metres and are referred to Geodetic Survey of Canada Datum.

Mapping: Base mapping done by Map Production Division, Surveys and Mapping Branch.
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Final Floodplain Mapping produced by Planning Subsection, Water Management Branch.

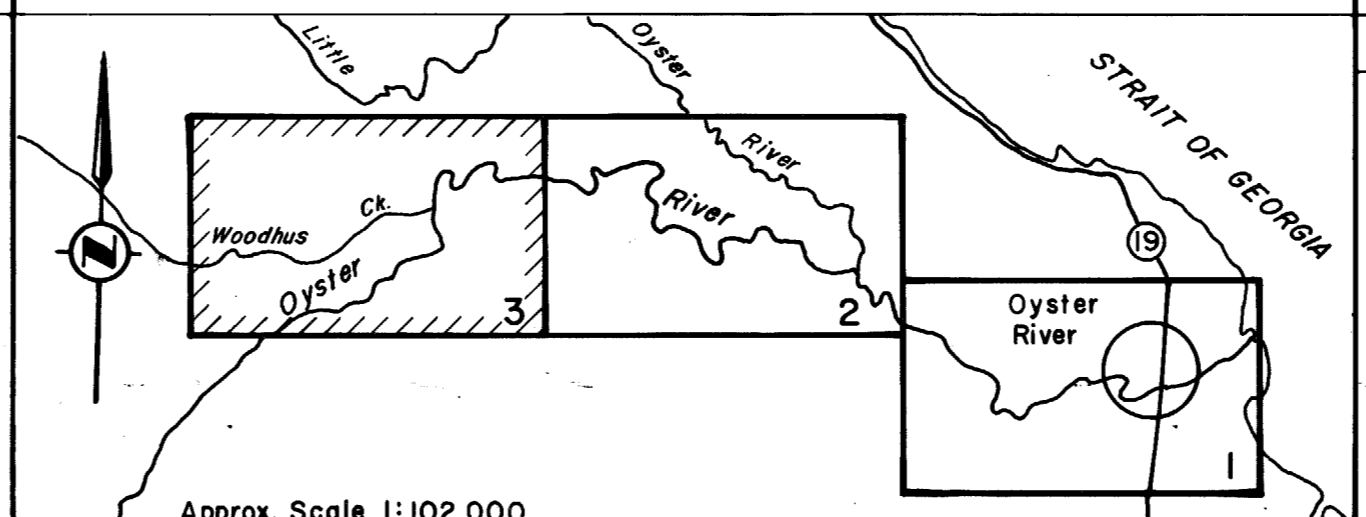
FLOODPLAIN DATA

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LEGEND



KEY MAP



REVISIONS

No.	DESCRIPTION	DATE

TOPOGRAPHIC MAPPING	Province of British Columbia	Ministry of Environment
DATE OF PHOTOGRAPHY	Water Management Branch	
JULY 24, 1980		
FLOODPLAIN STUDIES	PRELIMINARY FLOODPLAIN MAPPING	
TECHNICIAN	OYSTER RIVER	
F.W. DANKS		
ENGINEER		
R.W. NICHOLS		
ISSUE OF MAPPING		
DATE	MAY 1984	

Province of British Columbia	Ministry of Environment	FILE No.
Water Management Branch		0305030-9
PRELIMINARY FLOODPLAIN MAPPING		
OYSTER RIVER		
Scale	1:5000	
Negative No.		
Drawing No.	5532-3	
Sheet	3 of 3	

Approved: *[Signature]* Deputy Minister

Section Head: *[Signature]*