97/45

Ste. Agathe, Manitoba

Flood of the Century

A REPORT
TO THE MANITOBA
WATER COMMISSION

ON THE FLOODING
OF STE. AGATHE, MB.

FLOOD OF THE CENTURY
1997

NOVEMBER 25, 1997

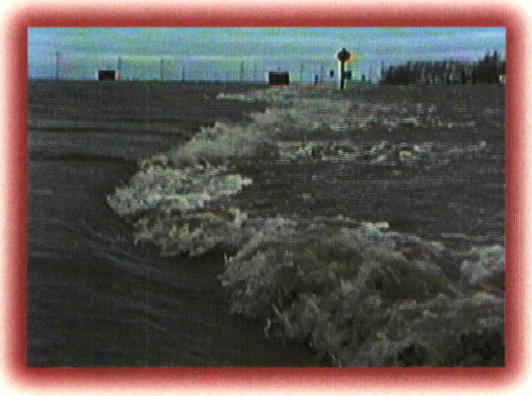
In the early morning hours of April 29th, 1997, The Village of Ste. Agathe, Manitoba, lost it's courageous battle with the Flood of the Century.

The flood waters had made a surprise attack overland from the west of town, rather than from the Red River basin as expected.

The CNR rail bed, lying some 1000 metres just west of town, had served as a barrier for this community, which never had before been flooded in it's history. Eye witness accounts of that evening described the horror and terror as the raging water, which had pooled west of the rail line, came up and over "like a bladder busting". "You could hear the water coming, flowing over like rapids. And it was night, so it was amplified and all the more scary. When the water started coming, it was the beginning of the end". Others described the sight as "a 3 foot wall of water coming across the field. You could see it rolling over and moving at a great speed. It sounded like a waterfall coming". "What I saw could only be described as a flash flood", another commented.

Within minutes the water had come across the field and up to Ste. Agathe's secondary, and last line of defense, a recently constructed sand bag and gravel dike laid on the shoulder of the north bound lane of Highway 75. At approximately 12:30 A.M., the water began coming over Highway 75. At this point, a complete evacuation of the remaining 37 emergency workers and army personnel was ordered. Within 45 minutes, the south end of the town was under 2 metres of water. Emergency personnel fleeing the town looked back to watch an 18 inch wave roll over toward them down the main street in Ste. Agathe. During the next hour, the water trapped in the town by the east side river dike, rose up and over Highway 305 into the higher north side of Ste. Agathe.

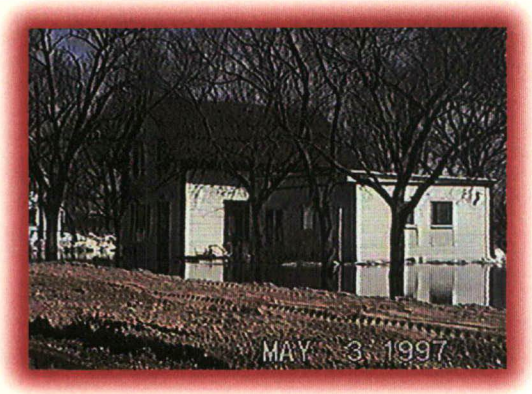
Ste. Agathe was inundated and almost completely under water.



Most of the town residents, who had several days earlier been evacuated, woke in disbelief to the news. Once the initial shock subsided, many questions of how and why this could possibly happen to Ste. Agathe began to surface. Ste. Agathe is the highest point on the Red River between Emerson and the Floodway, deemed high enough by the experts not to require a permanent ring dike, unlike the other valley communities*. The village of Ste. Agathe had successfully defended itself against the floods of 1979, Great Flood of 1950 and all others in between.

The village of Ste. Agathe had rallied at several pre-flood town hall meetings to discuss the diking and protection required based on the forecasted peak levels and volume flow. How could we flood? We had all worked so hard to protect the community we call home.

*Emerson, Roseau River, Letelier, Dominion City, St. Jean-Baptiste, Morris, Rosenort and St. Adolphe



The days following the flooding of Ste. Agathe, proved to be highly stressful, filled with anxiety and depression over our loss. One by one, residents would learn the fate of their homes and businesses. The magnitude of damage was only to be fully realized in the coming days and weeks.

We would learn that 111 of 117 homes in the village of Ste. Agathe had succumbed to the raging Red flood waters or subsequent sewer backup. The 330 residents of the town would continue to be evacuated for at least the next 5 weeks, if they were lucky, awaiting the reconstruction of the town infrastructure and flushing of the contaminated water and sewer system.

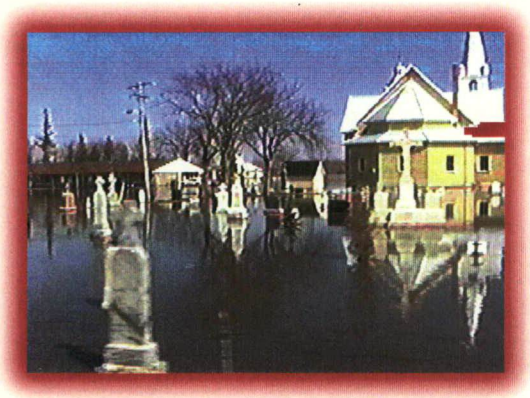
Stress and anxiety would continue as life's normalcy was turned upside down. The prospect of finding temporary housing, replacing lost income and providing the basic necessities of life to our confused and depressed families, not to mention the thought of having to return to a home which had endured 4 feet of main floor flooding. All was to be lost - furnishings, clothing, irreplaceable keepsakes and treasures would be gone. Little was salvageable. What was not tied down, was swept away - what was tied down, was flood water damaged beyond repair. What was not damaged by the chilly flood waters was later damaged by the extremely high humidity levels generated from basements full of water and furnace controls short circuiting, forcing hot moist air throughout the homes for days on end.

The residents of Ste. Agathe were invited to meet at the St. Boniface College autotorium several days following the flood. It was apparent that the pre-occupation of fighting the flood was now lost to the formalities involved with claiming Disaster Financial Assistance and the required steps to be taken for the eventual reentry to Ste. Agathe.

At the same time, many residents in the community had strong suspicions and questions about the flooding of Ste. Agathe. Allegations raised clearly pointed to the unthinkable! Was it possible that the flooding of Ste. Agathe was not, as reported "a freak act of nature", but one which man had had a direct hand in causing? Had man pushed the envelope a little too far in his attempt to control and divert the natural path of the flood water?

In order to investigate these allegations, we must first look back to the events preceding the flood and the defenses of the town.

Even before enduring the Blizzard of the Century in early April 97, it was apparent the Red River valley would likely be faced with a flood equal to or greater than that which we experienced in 1996 when water levels peaked at 771.9 feet ASL. (Above Sea Level) Ste. Agathe's flood stage begins at 771.8 feet ASL. Following the blizzard and after further consultation with American authorities, The Water Resources Branch of Natural Resources, revised their earlier forecasts upward to a projected peak of 774.5 feet ASL with a 50/50 chance of exceeding 1979 levels (773.1 feet ASL) by as much as 3 feet.



By the time Grand Forks, N.D., was swallowed by the Red on April 19th, the forecast had been raised again to the previous upper decile forecast of 775.5-776.5 feet ASL. The following day, April 20th, the forecasted peak was raised an additional foot to 776.5-777.5 feet ASL. On April 27th, the forecasted peak was raised for the last time to 777.5-778.5 feet ASL, based on the forecasted high winds from the south for late on April 27th and April 28th, gusting to a maximum wind speed of 61 kms per hour at mid morning.

By April 25th, the province's Water Resource had met with officials in Ste. Agathe, and recommended our temporary ring dike to be built to 779.5 feel ASL, which included 2 feet of "free board". The dike was surveyed by Water Resources and deemed to be sufficient with minor tune-ups to certain low spots which were then built up with sandbags and gravel over the next couple of days. The dikes were constructed along the main street (Chemin Pembina Trail) in a north/south direction and tied into the dike running north/south along the northbound lane of Highway 75.

For all intents and purposes, the temporary dike was deemed to be sufficient by the province and our local officials were satisfied with the security of the town. Little did we know about what was coming. **Little did we know about the massive construction effort taking place some 2 miles west and 1 mile north of the town.** Little had we heard about the Red Sea pooling behind infrastructure some 10-15 miles south west of town. And little did we know about the intentional blocking of huge drainage culverts and cutting of country roads to release the pressure on flooded sections of land.

As Chairman for the Ste. Agathe Community Development Committee's presentation to The Manitoba Water Commission, I was charged with investigating the allegations made to determine, if in deed there was truth to the allegations, but more importantly, whether there was proof to support the allegations.

Our committee has interviewed numerous members of the provinces Water Resources Branch, Highways Department, Manitoba Emergency Management Organization, EMO reps, Municipal officials, DND personnel, private contractors, equipment operators and local residents. To prepare for these interviews, countless hours have been spent in reviewing all the relative data collected including newspaper acticles, quotes during the flood, television interviews and reports, various internet sites before, during and after the flood; topographical maps, satellite imagery, ground and aerial photographs, amateur video and other historic data available. In addition, careful attention was paid to all data being released and provided by The Water Resources Branch.

We do not claim to be hydrologists nor hydraulic, civil or infrastructure engineers. Yet some of the points we wish to make to The Manitoba Water Commission, come from the technical data which would be used by these professionals. We wish to provide some conclusive evidence which clearly details the most direct causes to Ste. Agathe flooding, whilst at the same time provide The Manitoba Water Commission with recommendations to take back to the minister.

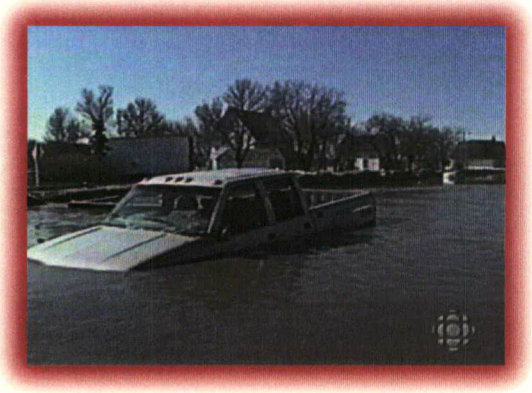
From our interviews and review of the relevant data, flood forecasting is by no means an exact science. In fact, part of the forecasting procedure involves review of historic data. In the case of the Flood of the Century, no historic data was available. Understanding water flow through a hydrologic basin is a big, complex problem to solve and ultimately requires an element of educated guesswork on behalf of the river level forecaster. A model of what should happen is prepared from a variety of data collected. However, it must be understood that at this point that the impact of water flow and volume is exclusively limited to the river channel and immediate adjacent basin.

We do not as yet, have the ability to forecast the impact of overland flooding, nor is it included into the forecast model. In addition, and equally important, we do not have the ability to forecast the impact of dikes, culvert blocking or road cutting. The ever changing infrastructure of roads and rail lines compounds the assessment and forecasting process. The province really didn't understand how these elements would impact and effect their forecast models. The Flood of the Century presented a unique problem of greater magnitude, in that we were dealing with unprecedented volumes and peak levels. This was to be a flood which covered an area never before seen - some 1950 square kilometres.

We do however, allow our engineers to manipulate the Red River drainage basin and design a flood management program that basically was created to protect The City of Winnipeg alone. The Red River Floodway, Shellmouth Dam and Portage Diversion flood management structures protect Winnipeg alone. Yet, they have been paid for through the tax dollars of all Manitobans and Canadians. At the same time, our provincial government has found it necessary, to reduce the size of the Department of Natural Resources to approximately 1/4 of the size it was back in 1979 when we last experienced massive flooding. Perhaps once again, the resources of this and related departments were so taxed and consumed with saving Winnipeg that the rest of us in rural Manitoba were left to fend for ourselves, with only minimal support from the province.

It was a hydrologist with the Department of Highways who recognized the volatility of Winnipeg's south west flank through his own personal research of the area and brought it to the attention of his colleagues in Water Resources. Now it begs for the question to be asked... If Water Resources hadn't been told about the possibility of overland flooding into the La Salle watershed, and subsequently into the **unprotected back door of Winnipeg**, would they have discovered it before it was too late? **And, if the back door to Winnipeg was left open, could it also be possible that the back door to Ste. Agathe was also overlooked and left open** with the erection of the Brunkild and West Dikes?

The flooding of Ste. Agathe can be attributed to a number of factors, of which this Commission has been mandated to **independently investigate,** draw conclusions and report back with recommendations. We would like to detail the following scenario and evidence to support our belief that this was indeed a **"man-made flood"** upon Ste. Agathe.



On or about April 24-25th, huge volumes of water were moving past Morris, MB., backing up the Morris River which in itself was experiencing record spring runoff levels. As the water spilled the banks of the Morris River it began to run north overland, with the flooded Red River channel. The area between Morris and Rosenort, MB., is a large flat plain upon which the water rapidly spread across, until reaching the recently upgraded and raised Highway 205. Here the water pooled for approximately 1 day until this vast plain area filled with the approaching higher water volumes. The flood waters then exploded across Highway 205 and a good portion of Highway 330. The flood plain was making a quick advance northward until it reached the next piece of road infrastructure at the recently upgraded and raised Parker Road near Osborne, MB. Once again, man-made infrastructure would slow the advance of the flood waters. Under a pre-Brunkild Dike scenario the massive body of water would have continued up and over Parker Road and headed in a straight northerly direction into a lower trough area bordered by two natural ridges which make up the area of the West Dike extension (immediately south of Domain, MB.) Within the region are two main drains - the Manness and the Pitura drains which begin south of Highway 305 and head north into the La Salle River watershed.

By April 27th, the overland flood waters had overcome Parker Road and were heading straight north towards the recently upgraded extension of the West Dike just north of Highway 305. Here, the water pooled for next several days, unable to advance further north against the West Dike and trapped by the infrastructure of Highway 330 and the CPR main line to the west; Highway 305 to the north east; and the CNR main line opposite Ste. Agathe to the east.

Late on April 27th, the wind began to blow from the south and would continue to do so throughout the day on April 28th , gusting up to 61 kms an hour mid morning on the 28th.

This caused the water to setup or buildup at the northerly end and possibly added as much as a foot or two to the continually raising level. In addition, and as confirmed by Water Resources, when water hits a wall, it will predictably react as follows:

a) the flow of water will be stopped
b) the water will begin to pool
c) the level of the water will rise or setup
d) the water will seek to move to a lower elevation

Throughout the day on April 28th, the flood water, whipped up by south winds, built up in the area south of the West Dike. In fact, Water Resources reported that the water level had reached to within a foot of the top of the West Dike (on Floodway Road). The possibility of a major breach was imminent. It was at this point that a decision was made jointly by Water Resources and EMO to cut away several sections of the Avonlea Road at the south eastern tip of the dike, to allow the rising water to escape and relieve the building pressure against the dike.

With just days away from the forecasted peak, water continued to rise and built up into the area south of the dike, while at the same time **looking for that lower elevation of escape.** It is also important to point out that the rise of water in a flood basin occurs much faster than the fall of flood waters once the peak has been attained. The pressure the water exerts during this rise or buildup phase is much greater than that of the subsequent fall in flood levels.

Ste. Agathe, MB., is situated in what hydrologists refer to as a "funnel". The ground elevation around Ste. Agathe to the northwest and southeast is quite high, as compared to the town itself, situated along the west banks of the Red River. What this does is force water through a narrow channel or "funnel" northward along the river basin. Under more normal flood elevations of years past, the water in and around Ste. Agathe would rise up and over the banks in the immediate low lying areas only. The majority of the water flow would remain within the banks of the Red, albeit at high levels.

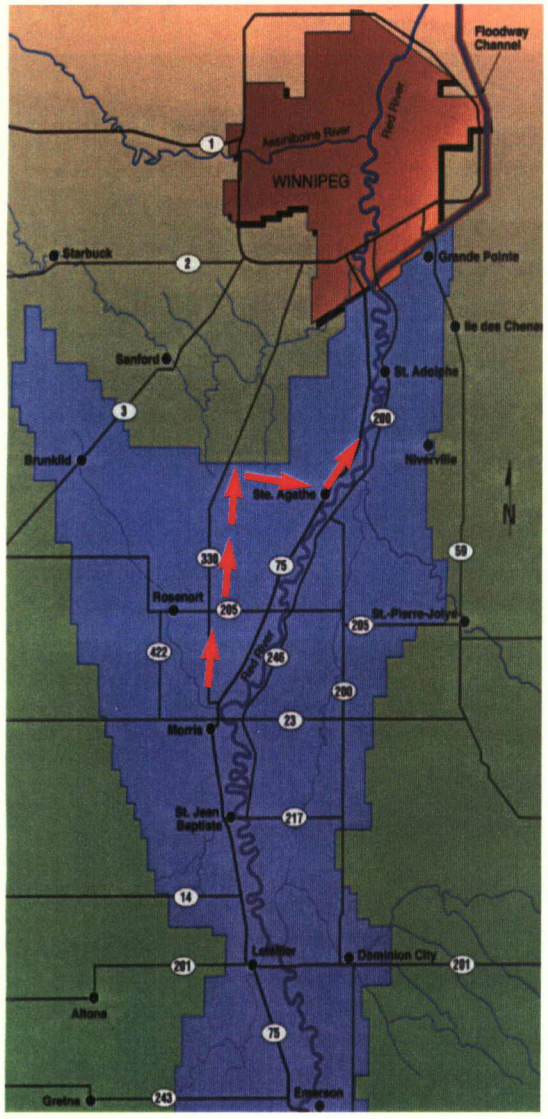
During the Flood of the Century, the high grounds to the northeast and southwest of Ste. Agathe, altered the natural flow pattern of the flood waters by forcing it through the funnel, as the water sought a lower elevation. While it is agreed that most of the land area surrounding Ste. Agathe did in fact flood during the coming peak stages, it must also be understood that the water would seek to return to it's natural path back in the Red River channel and northward towards Ste. Adolphe.

By the end of the day on April 28th, the pooling waters west of Ste. Agathe had built up to a level in excess of 779 feet ASL. We know from survey's conducted that the water surrounding the CanAgra Canola Plant, had risen to almost 779.5 feet ASL, some 6 inches shy of itself flooding. Meanwhile, by 9:00 P.M., April 28th, the winds had shifted from blowing out of the south, south west to blowing out of the west at 28 kms by midnight. That, was likely enough added pressure to **burst the bubble.** The CNR main line finally let go across a 200 metre stretch of track directly behind the Ste. Agathe elevator.

The pressure generated by the pooling flood waters south of the West Dike exploded across the rail line straight east towards The Village of Ste. Agathe. The force of the water was so great that it carried 3 wooden grain bins some 750 metres directly east, before dumping them onto the southbound and northbound lanes of Highway 75, respectively. Garbage, stubble, silt and other debris was also carried on the waves into Ste. Agathe. The direction from which the flood waters had come was clearly evident later on the west side of any obstruction in it's path.

The erection of the Brunkild dike and rising of the West Dike had forced the flood waters pooling south of these **man-made structures** to rise to a point exceeding that of Ste. Agathe's protected dike elevations. The path from the CNR line to the main street in Ste. Agathe drops some 4.5 feet and approximately 6 feet from the Canola plant. This provided an easy route for the water to travel around the higher ground to the north of Highway 305 and east of the West Dike (Floodway Road).

After all, where else was the water to go? It could not move north over the dike. It could not move west to higher elevations. And it certainly wasn't going to move back uphill to the south and the advancing peak flows. **There is only one direction all that water could go. That direction was east, towards the village of Ste. Agathe and into the "funnel".**

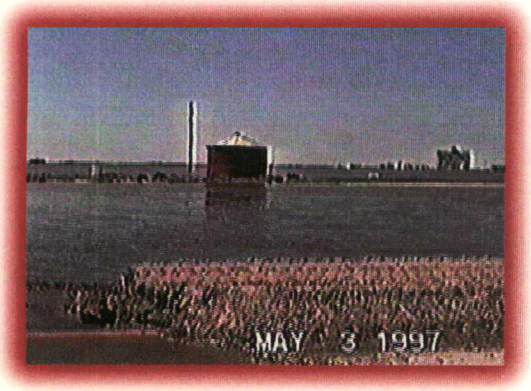


From the eye witness accounts of the wind whipped, wave action we have of early April 29th and from water level surveys conducted, it is quite safe to say that the water which breached the west side of Ste. Agathe, did so at a level in **excess of 779.5 feet** ASL and likely in excess of 780 feet ASL, when wave tops are factored in. Either way, the water entered Ste. Agathe higher than the expected peak of 777.5 feet ASL, overland from the West. **The Water Resources Branch estimated the level of the Red at the moment Ste. Agathe flooded to be 775.7 feet ASL, some 4+ feet lower.**

The difference between the water hitting Ste. Agathe at the predicted peak of 777.5 feet ASL and 779.5+ feet ASL, was all the difference in the world.

To this point, the east side river dike on the main street in Ste. Agathe had easily held off the rising Red. In the aftermath, one questions why there was no warning of the impending doom Ste. Agathe would face. Why, with countless aircraft in the sky providing aerial reconnaissance, was it not apparent that Ste. Agathe was in trouble? Why was there no help coming from the province to save our town, like the many others we viewed nightly on television? Where were the engineers, heavy equipment and army? Why did the satellite imagery not clearly point out to the engineers that the direction of the water moving overland northward would have to be funneled through or very near to the village of Ste. Agathe? **Why was the only town, without a permanent ring dike, left without knowing it's fate.** Interviews with local residents clearly pointed to the fact that government and military officials seemed to be aware of the possibility that Ste. Agathe might be in for some trouble. Why was nothing done? Ste. Agathe was only 2 short miles away from the dike and centered in the channel man had designed to control the flood waters around the City of Winnipeg. Perhaps, the as yet unnamed outside consultant being employed by The Manitoba Water Commission, will be able to confirm this.

Understanding future floods and planning for flood management, has been based on historic data collected during each event. We hope that the provincial government will learn some valid lessons from the flood and take a more proactive stance in preparing and planning for the future. The provincial government must not find themselves venturing into "unknown territory" in the future. Erecting Z-dikes under Emergency Management protocol, without consideration and provision for due diligence in assessing the impact caused by such diversions on peak level predictions, water volume and directional flow, can only be seen as negligent on the part of our provincial government. Furthermore, the provincial government must provide the necessary funding and manpower to Water Resources, which would allow them to more accurately determine the "cause and effect" incurred with changes to our hydrologic basin.



Be it the blocking of culverts to trap the water artificially within it's own watershed, or the cutting of roads to release that building pressure, greater research and computerized modeling is required to follow the movement of water from one location to another.

We **trust** that this commission will indeed provide an **independent review** of the entire flood management process and provide answers to those "key questions from the flood of the century", as promised in the article of November 15th, in the Winnipeg Free Press.

Our committee believes that The Manitoba Water Commission will find that **the flooding of Ste. Agathe was caused by the direct intervention of man to control the direction of the water.** We further recommend, that if this is proven to be true, that **the residents of Ste. Agathe and the town of Ste. Agathe be compensated 100% for the losses and damages incurred.**

We would also ask that the premier of our province, the Honourable Gary Filmon, MLA, retract his earlier comments of May 10th, when he indicated that the "individual home owners (of the Red River valley) assume some responsibility for locating in flood-prone areas", by himself assuming some of the responsibility for the flooding of Ste. Agathe in protecting The City of Winnipeg from complete devastation. Do we need to remind him that **Winnipeg lies some 14 feet below Ste. Agathe** in the very same flood plain and the protection the city enjoys was paid for by all the taxpayers of Manitoba and Canada. Do we further need to remind him in the words of his own Water Resources spokesman that "without the Floodway and dike structure, what is modern day Winnipeg would have been under water with the exception of St. James, Charleswood and Brooklands".

Ste. Agathe had never before flooded, and the Government of Manitoba ruled it did not need to be permanently ring diked. The experts of the time considered that dollars should not be expended to dike Ste. Agathe, as it was not in any apparent danger. **Winnipeg on the other hand, was to be protected at all costs.** Notwithstanding, the Brunkild Dike and West Dike were erected to divert the water away from the natural path northward directly east into the heart of Ste. Agathe.

We would suggest and recommend that now **a permanent ring dike around the village of Ste. Agathe be erected** by the province and at the cost of all taxpayers, as has been the case with other flood management infrastructure.

And finally, we would recommend that before the tender to reconstruct the Brunkild Dike or West Dike extension is approved by the province, that a full impact study is undertaken to ensure the events of this past spring will never happen again to our community or others in the Red River Valley.

In the carefully chosen words of Laura Rance, journalist, describing the Brunkild Dike.... "It's a wall - built under emergency conditions with little consultation or study. It was quite simply designed to keep the ground dry on one side and wet on the other. That's what it has done".

QUOTES OF THE FLOOD

...Before the Flooding of Ste. Agathe

April 22 - Free Press p.A6 - Alf Warketin, River Level Forecaster, Prov. Of Manitoba commenting on river level forecasting...
"It's not easy. There are a lot of unknown's. It's a big, complex world out there. Gauges are not always reliable".

April 23 - Province of Manitoba declares a State of Emergency

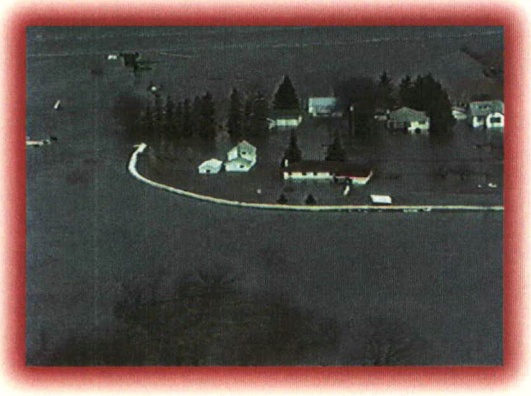
April 24 - Free Press p.A1 - Larry Witney, spokesman for EMO
"The unprecedented size of the flows was making accurate estimates difficult"... "with the large flows we are experiencing, it's becoming a little bit difficult to determine the times of travel from one location to another based on historic data, because we don't have any historic data. We are talking about flows in excess of anything we've ever had".

April 24 - Free Press p.A14 - editorial - see "Flood Forecasts" editorial (page 14).

April 25 - Free Press - Section A - Racing the Red - Brunkild Dike construction

April 26 - Free Press p.A8 - Premier Gary Filmon
"We haven't seen anything like this before so we have to rely on the models and formula from the experts. We have to base our plan on the science and technology information available to us. Everything we are seeing is still within the predicted limits".

QUOTES OF THE FLOOD



...After the Flooding of Ste. Agathe

April 29 - CKY News at Six - EMO describes Flooding of Ste. Agathe as *"a freak act of nature"*

May 3 - Free Press p. A2 - Larry Whitney
"...the water is going to go in unpredictable flow patterns".

May 7 - Free Press p. A1 - Steve Topping, Director Provincial Water Resources Branch
"...this is a flood of unprecedented proportions"... "the provinces forecast was thrown to the wind due to unexpected circumstances". "We really didn't understand that the railway and road infrastructure would effect flooding".

May 10 - Free Press p. A6 - Premier Gary Filmon MLA
"...individual home owners must take some responsibility for locating in flood-prone areas".

May 11 - Free Press p. A7 - see map of estimated flood area for Winnipeg (without the Floodway and diking system)

May 13 - Free Press p. A6 - Also on the list for repair are some roads that were deliberately cut by the province. Premier Gary Filmon was unable to provide details yesterday of there location... he said those location will be reviewed to determine, what, if any, impact such direct government action may have had on communities like Ste. Agathe and Grande Point.

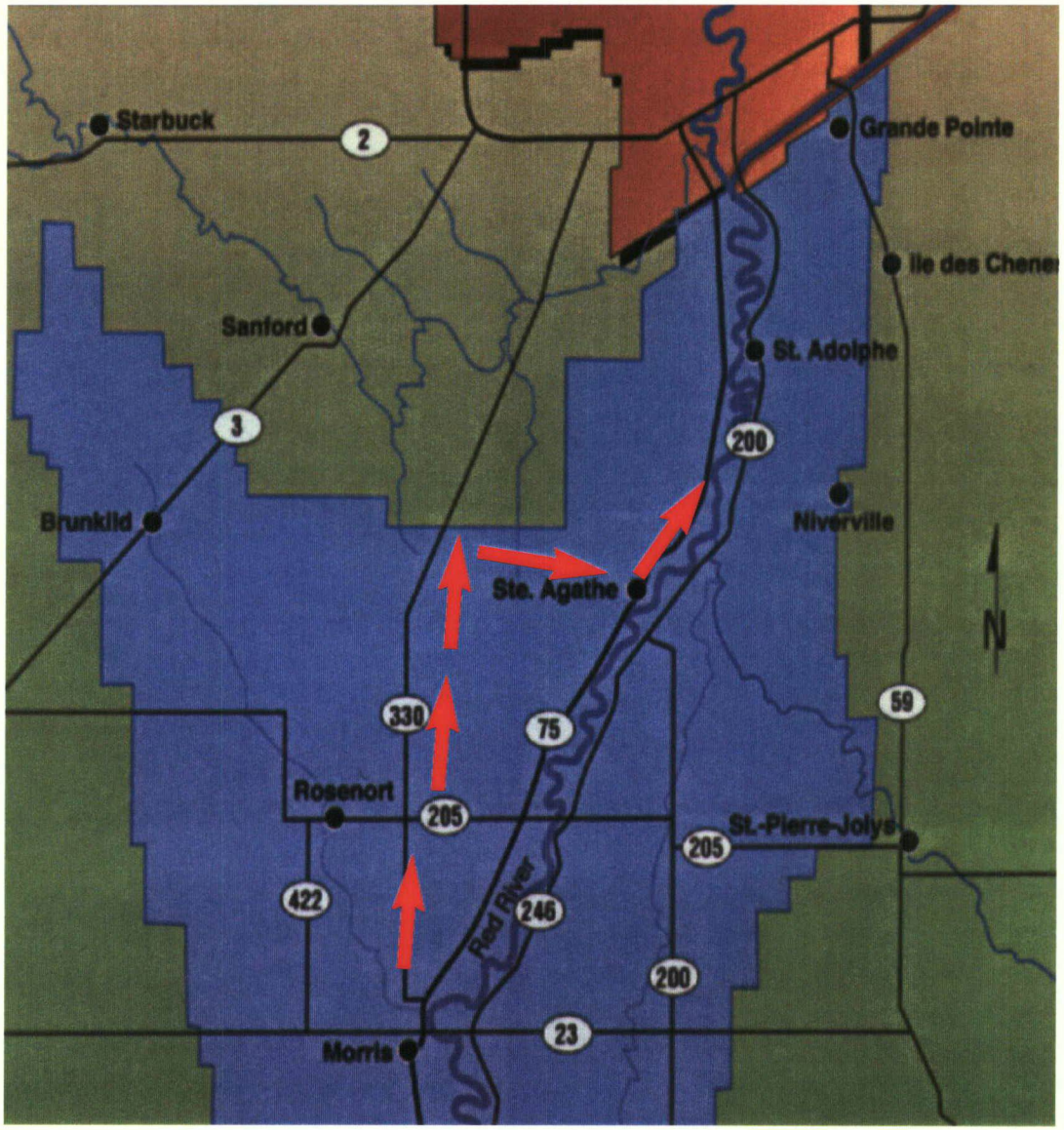
He said some roads in question were holding back the flow, and engineers had to make judgement calls to breach them to prevent even more damage from a sudden rush of water.

May 15 - Free Press p. A2 - Premier Gary Filmon
"The network of roads and rail lines in the Red River valley resulted in a kind of 'ice cube tray', creating barriers that sent water flowing in all directions as it sought it's own level". He acknowledged some roads were cut, but he said that was done to prevent a wall of water from damming up behind them and possibly breaking through to create even greater damage in it's wake.
"They (engineers) weren't manipulating; they were ensuring water flow could take place without damaging effects. The Brunkild Dike did nothing more than keep the water within the Red River watershed", he said.

May 15 - Free Press p. A2 - Gary Doer
"The government must accept some responsibility for what happened at Ste. Agathe when it cut the Avonlea Road on April 28th".

May 17 - Free Press p. b12 - Laura Rance, journalist - describing the Brunkild Dike
"It's a wall - built under emergency conditions with little consultation or study. It was quite simply designed to keep the ground dry on one side and wet on the other. That's what it has done".

"After all, where else was the water to go? It could not move north over the dike. It could not move west to higher elevations. And it certainly wasn't going to move back uphill to the south and the advancing peak flows. There is only one direction all that water could go. That direction was east, towards the village of Ste. Agathe and into the funnel."



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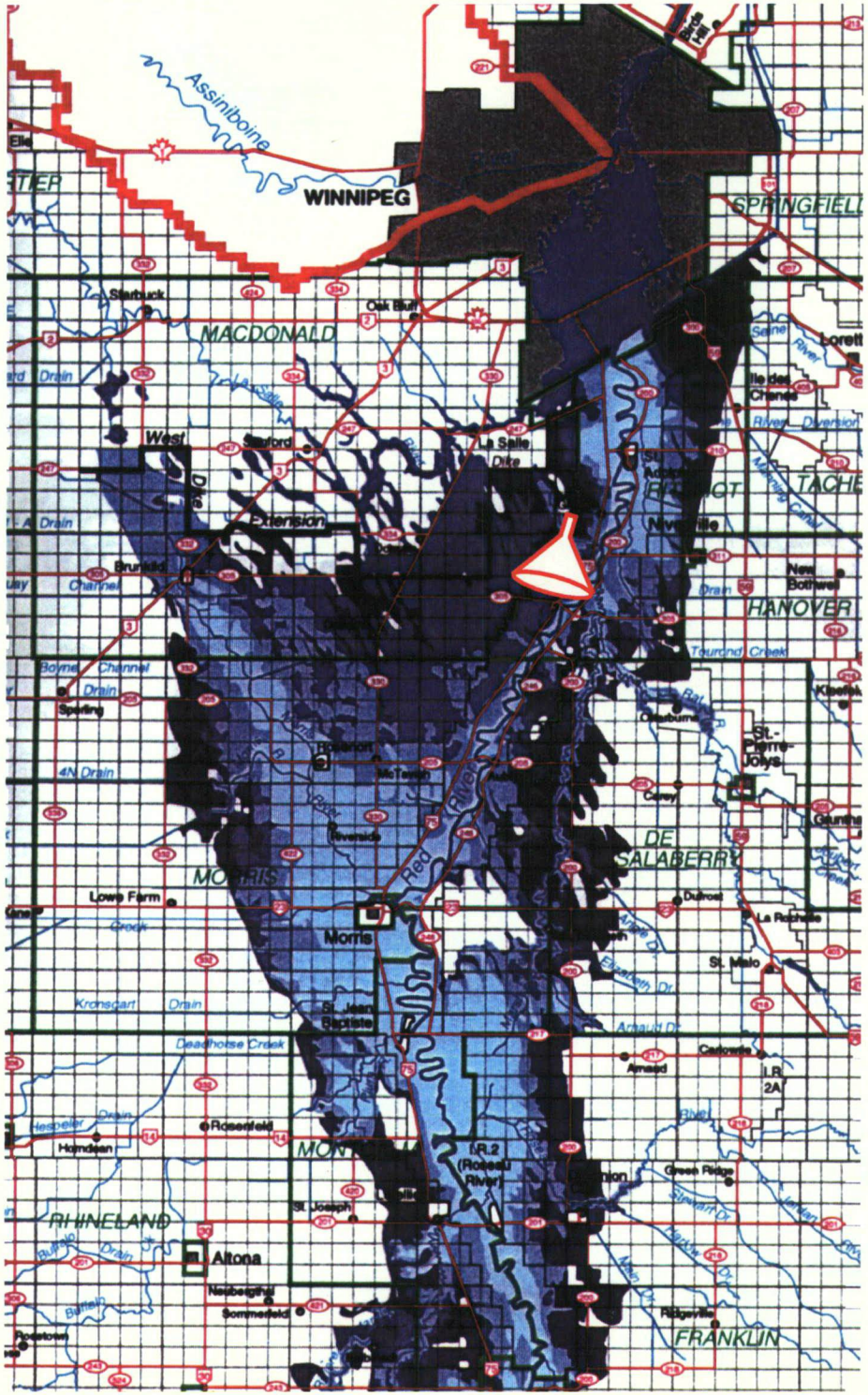
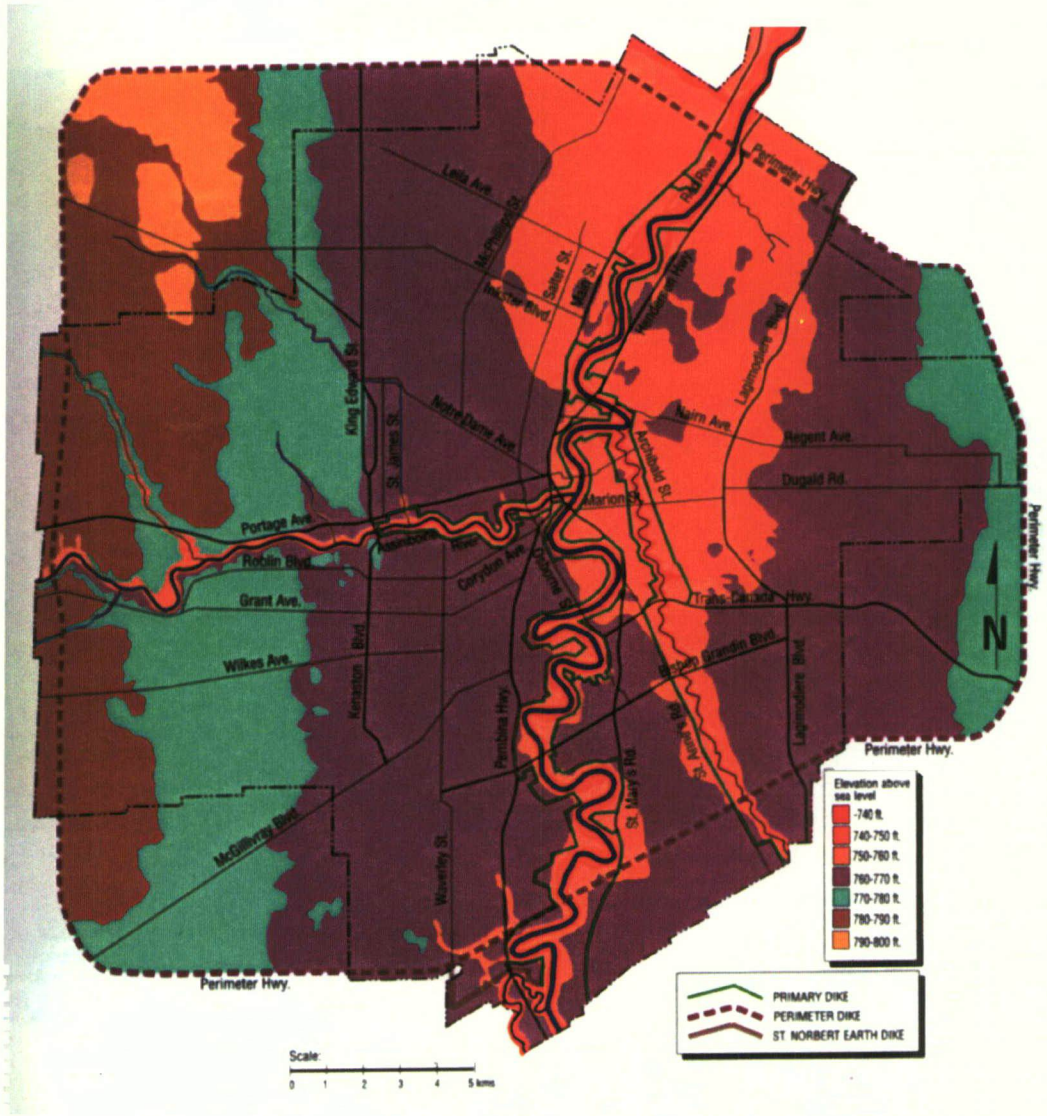


Premier Gary Filmon
"...individual home owners must take some responsibility for locating in flood-prone areas".



April 24 - Free Press p.A14 - editorial - "Flood Forecasts" editorial.

Flood forecasts

This year's Red River flood has already proved the crucial importance of accurate forecasting. If more equipment or more staff would allow the forecasters to do a better job, the government should not hesitate to give them what they need.

Grand Forks, N.D., suffered keenly this year from inaccurate forecasts. Dikes were built to hold off the anticipated 50-foot flood. At its crest, the river reached 54 feet and spilled over all those dikes. Not only was the diking effort wasted, but the chance to build useful dikes was lost. With an accurate forecast sooner, dikes could have been built on higher ground and parts of the city could have been saved.

Even with the bitter experience of Grand Forks unfolding before them, Manitoba flood forecasters were clearly practising an inexact science. The forecasts for the Manitoba stretch of the river rose as the river rose. As a result, after dikes had been built along Kingston Row, a revised forecast persuaded city authorities the Kingston Row peninsula might have to be abandoned. An accurate forecast would have allowed Winnipeg to set up its defences at a line that could be held.

In a complex system such as a hydrologic basin, accurate forecasting will not be easy. Subtleties of the snowbanks and the weather and the way the fields were ploughed last fall will all make a difference to the rate at which water gathers in the tributaries and flows down into the Red River. Even if the forecasters could measure finely the volume of snow and ice in the watershed, they would still not know exactly how the thaw will proceed. There will always be an element of educated guesswork in a flood forecast, as there is in a weather forecast.

It should, however, be possible to narrow the range of errors and improve the precision with a more detailed computer model of the watershed and more data on the current conditions.

Once we are done with this year's flood and the damage has been repaired, it will be time to start preparing for the next flood. One of the preparations should be review of the computer model, review of the observations used to make a forecast and a proposal, complete with cost estimates, of the improvements that could be made. Even if the cost of those improvements is enormous, it will still be worth trying. As they learned in Grand Forks, the difference between 50 feet and 54 feet is all the difference in the world.

The Sainte-Agathe Community Development Committee would like to acknowledge the following government departments, companies and individuals for their contributions to this report:

The Water Resources Branch of the Dept. of Natural Resources
The Department of Highways
Rural Municipality of Ritchot
The Department of National Defense
The Government of Canada
The Canadian Space Agency - Radsarsat
The Province of Manitoba
Dr. Slobodan Simonovic - Natural Resources Institute, U of M

Graphs & Crafts Co. Ltd.
A. J. Topography Co. Ltd .
Linnet Geomatics

The Winnipeg Free Press
The Winnipeg Sun
"A Red Sea Rising" - published by the Winnipeg Free Press
"Faces of the Flood" - published by Stoddard Publishing Co. Ltd.

Mid Canada Video Services Inc.
The Canadian Television Network
The Canadian Broadcasting Corporation

The residents of Ste. Agathe. MB
The residents of The Red River Valley

This report is dedicated to the courage and bravery displayed by the residents of Ste. Agathe and in particular, to the 37 Emergency workers and military personnel present in Ste. Agathe when the Raging Red River came over the west side dike.
We thank God that He carried all to safety and not a single life was lost.

This report was prepared by the following members of the
Sainte Agathe Community Development Committee:
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Special thanks to Mr. Wally Curti and the production facilities of
High Impact Promotions, Winnipeg, for their support in the design and production of this report.

"Had man pushed the envelope a little too far in his attempt to control and divert the natural path of the flood water?"