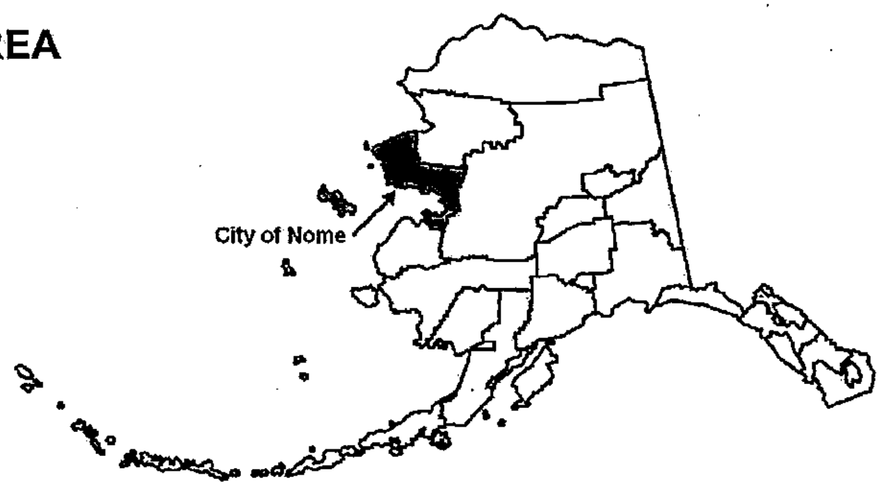
FLOOD INSURANCE STUDY

CITY OF NOME, ALASKA

NOME CENSUS AREA



REVISED:
May 3, 2010

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
020069V000A

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this Flood Insurance Study may be revised and republished at any time. In addition, part of this Flood Insurance Study may be revised by the Letter of Map Revision process, which does not involve republication or redistribution of the Flood Insurance Study. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current Flood Insurance Study components.

Date of Initial FIS Report Effective Date: September 1, 1983

FIS Revision Effective Date: May 3, 2010

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FLOOD INSURANCE STUDY
CITY OF NOME, ALASKA

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and updates information on the existence and severity of flood hazards in the geographic area of the City of Nome and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has revised flood-risk data for various areas of the community that will be used to establish actuarial flood insurance rates and to assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The redelineation for this study was performed by Northwest Hydraulic Consultants (NHC) for the Federal Emergency Management Agency (FEMA), under Contract No. EMS-2001-CO-0067. This work was completed in September 2008.

Pre-Revision Authority:

The hydrologic and hydraulic analyses prior to this revision were performed by the U.S. Army Corps of Engineers, Alaska District, for the Federal Emergency Management Agency under Inter-agency Agreement 1AA-H-9-79, Projected Order No. 7. This work, which was completed in July 1980, covered all significant flooding sources affecting Nome.

1.3 Coordination

The results of the study were reviewed at both the initial and final CCO meeting held on August 26, 2009, and attended by representatives of FEMA, the City of Nome, and NHC. All problems raised at that meeting have been addressed.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated areas of the City of Nome, Nome Division, Alaska.

It was agreed that a detailed coastal study would be performed for approximately 4.5 miles of Norton Sound waterfront. Snake River was identified for detailed riverine study for a distance of approximately 2.5 miles upstream from the mouth.

Those areas studied by detailed methods were chosen with consideration given to all proposed construction and forecasted development through 1985.

Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to and agreed upon by the Federal Emergency Management Agency and the city of Nome.

2.2 Community Description

The City of Nome is located in northwest Alaska on the south coast of the Seward Peninsula. Nome faces south across the Bering Sea. The city lies approximately 530 miles northwest of Anchorage and 520 miles west of Fairbanks.

Nome covers approximately 3.1 square miles and has a population of approximately 2600. Unlike most northwest Alaska communities that developed because of their convenience to hunting or fishing grounds or to sources of fuel, Nome was founded because of a gold strike in 1898. In recent years, the economy and population of Nome have remained essentially static. The local economy is based mainly on government, services and trade, and transportation.

Floodplain development along Norton Sound is primarily residential, with many homes built along Front Street. Floodplain development along Snake River consists primarily of a little industrial and residential development.

Nome has a transitional coast zone climate, largely affected by maritime influences between June and November and with continental influence during the winter when Norton Sound is froze. The mean annual temperature is 26°F, with approximately 77 frost-free days per year. Annual total precipitation is 15 to 20 inches, one-half of which occurs between July and September. Nome often experiences sever winter storms. Winds of over 60 knots have been recorded.

The topography of the Nome area consists of plains and lowlands. Except for a narrow strip along the coast, most of the city area is underlain by permafrost. On the north side of Front Street, the ground is permanently frozen to within 4 to 6 feet of the surface. Sand, gravel, and silt form a thin mantle over bedrock through the sub-region. Watercourses in the area include Snake River and several small tributary creeks.

Tundra is the characteristic vegetation cover of the Nome area. Trees are virtually absent, and plant life is largely confined to lichens and shrubs, mosses, low berry bushes, and grasses. This scant vegetation cover cannot support an abundance of animal life. By contrast, bird and aquatic life is relatively plentiful.

2.3 Principal Flood Problems

The principle flood problem in Nome is due to coastal surges that generally occur during the fall. At that time, ice may be far enough offshore to allow winds a long fetch of open sea.

Storms may come from any quarter, but southeast storms are generally the most severe. The storm winds can develop high waves and a storm surge tide that inundate the streets of Nome.

Storm-induced waves also cause destructive erosion of coastal areas. A comparison of old and new maps showing the Nome waterfront indicates that the easily erodible sandy beach has receded from 50 to 80 feet since 1904 (Reference 1).

Severe storms occurred in September 1900, October 1913, 1935, 1937, 1942, October 1945, October 1946, 1972, and November 1974 (Reference 2). In October 1913, water reportedly reached an elevation of 14 feet above ordinary high tide and destroyed numerous buildings (References 2 and 3). The 1945 storm caused severe damage to waterfront structures (References 2 and 4). In October 1946, a coastal storm created surge estimated at more than 9 feet above normal. Many of the streets of Nome were inundated, flooding buildings and property. Coastal erosion was so severe that several near-shore buildings were undermined and collapsed (References 2, 5, 6, 7, and 8). Three separate storms simultaneously hit the Nome coastline in November 1974, producing flood waters 3 to 5 feet high on Front Street. Extensive damage to streets and structures occurred (References 2 and 8 through 11).

High water in the Snake River channel has historically been the result of coastal flooding. There is no documentation of riverine flooding along Snake River.

2.4 Flood Protection Measures

The U.S. Army Corps of Engineers constructed a rock mound seawall in 1951 which extends approximately 3300 feet along the waterfront. This seawall replaced a smaller scale shore protection attempt which utilized 55-gallon oil drums. The seawall has helped to stabilize the shore at Nome and provides protection during storms by dissipating wave energy. Buildings located along the seaward side of Shore Avenue protect structures father inland from wave attack. The seawall has a minimal effect on the 100-year flood, and no effect on the 500-year flood.

Port facilities constructed in the mouth of Snake River include two parallel concrete and steel jetties. The jetties were constructed in 1940 to lessen storm and ice damage. These jetties have no effect on the 100- and 500-year flooding.

No flood plain ordinances or flood protection ensure are in effect in Nome.

3.0 <u>ENGINEERING METHODS</u>

For the flooding sources studied by detailed methods in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent annual chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 1-percent-annual-chance (100-year) flood in any 50-year period is approximately 40 percent (4 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Riverine

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for floods of the selected recurrence intervals for each flooding source studied in detail in the community.

Flow frequency data for Snake River near Nome (U.S. Geological Survey gage Station 15-6210) were taken from Reference 12. Flow were computed based on 10 years of record at the gage (1965 to 1976) using the log-Pearson Type III frequency analysis and the latest U.S. Water Resources Council guidelines. Flood magnitudes for recurrence intervals up to 10 years are published in Reference 12. These data were plotted on log-probability paper and graphically extrapolated to determine flow of 50-, 100-, and 500-year return frequencies. Comparison of extrapolation flows with flow computed using published multiple-regression equations (Reference 12) showed good agreement. Floodflows were adjusted upward to account for the additional drainage area between the gage and the study reach, using the method outlined in Reference 12.

Peak discharge-drainage area relationships for Snake River are shown in Table 1.

Floodflows used in this study result from runoff from rain or snowmelt and do not include floods caused by backwater due to ice jams or by channel icing (aufeis).

Tidal and Coastal

Analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied in detail affecting the community.

Flood damage from storms in coastal areas is the result of the combination of high Stillwater levels and wave action. Stillwater is composed of astronomical tide, caused by gravitational effects of the sun and moon; storm surge, the rise in water level due to wind stress and low atmospheric pressure; and wave setup, an increase in water level due to shoreward mass transport of water. The runup of breaking waves can cause flooding and structural damage at elevations above the Stillwater level of the flood.

There are no tide records or wave observation data for the Nome coastline. Although there is quite a history of coastal flooding at Nome, the only documented high-water mark is from the 1974 event (Reference 2). Engineering judgment was used to develop a stillwater frequency curve from newspaper and eyewitness accounts of historical floods. No attempt was made to individually analyze the tide, surge, or setup components of the stillwater.

The study contractor provided wind speed-duration-frequency curves for Nome for winds from the south (180°) and southwest (220°) (Reference 13). These curves were adjusted to reflect the May through November ice-free period by performing a frequency analysis of monthly summaries of hourly wind data published in the Climatic Atlas (Reference 14) and shaping the longer duration curves accordingly.

Elevations for floods of the selected recurrence intervals on Norton Sound are shown in Table 2.

Table 1. Summary of Discharges

FLOODING SOURCE AND LOCATION	Discharge Area (Square Miles)	PEAK DISCHARGES (CFS) 10-Percent Annual-Chance	2-Percent Annual-Chance	1-Percent Annual-Chance	0.2-Percent Annual-Chance
Snake River					
At Nome	130	3200	4800	6000	8400

Table 2. Summary of Elevations

FLOODING SOURCE AND LOCATION	Elevation (Feet MLLW) 10-Percent Annual-Chance	2-Percent Annual-Chance	1-Percent Annual-Chance	0.2-Percent Annual-Chance
Norton Sound				
Reach 1	10.5	18.6	21.0	28.7
Reach 2	13.4	24.2	27.0	36.9
Reach 3	10.0	17.3	19.5	26.0
Snake River				
Reach 1	7.8	12.7	14.5	18.0

3.2 Hydraulic Analyses

Riverine

Hydraulic analyses of the shoreline characteristics of the flooding sources studied in detail were carried out to provide estimates of the elevations of floods of the selected recurrence intervals along each of the shorelines.

The results of the backwater analysis indicate that riverine flooding elevations are surpassed by coastal stillwater levels. Since coastal flooding in the more severe case, riverine flood profiles are not shown. The concept of hydraulic floodway (Section 4.2) is not applicable in riverine areas subject to permanent tidal influence; therefore, no floodway was determined for Snake River.

Tidal and Coastal

Hydraulic analyses of the shoreline characteristics of the flooding sources studied in detail were carried out to provide estimates of the elevations of floods of the selected recurrence intervals along each of the shorelines.

The hydraulic analysis for the Nome coastline was performed using methods described in the Shore Protection Manual (Reference 15) and in Coastal Engineering Technical Aids 77-7, 78-2, and 79-1 (References 16, 17, and 18). The results of the analysis yield flood elevations which reflect the combined effects of astronomical tide, storm surge, wave setup, and wave runup.

Wind wave analysis utilized the adjusted wind frequency curves and bathymetric data from the National Ocean Survey Nautical Chart (Reference 19) with wave forecasting methods in the Shore Protection Manual (Reference 15). Wind data (Reference 20) for periods coincident with three historic coastal high-water occurrences were reviewed to determine the return frequencies of winds associated with these events. It was found that the return periods of the winds were very close to the assumed probabilities of the stillwater levels. Therefore, for this study it was assumed that the same meteorological conditions which produce storm surges also generate winds with the same probability of occurrence.

Preliminary computations indicated that deep-water waves generated in the Bering Sea break before reaching Norton Sound and the Nome coastline. Therefore, the shallow-water wave forecasting equations were used. Factors considered in estimating wave heights included length of fetch, sustained wind velocities, and coastal water depth. A 250-mile straight-line fetch distance was assumed, and wind frequency data for winds from the southwest during the ice-free period were used. Southwest winds were used, as fetch from the southwest is greater. However, south winds blowing over the shorter fetch length would produce waves with very similar characteristics.

Waves of various heights, periods, and directions were tracked to shore using a wave refraction and shoaling computer program called WAVES 2. This program is a modified version of the WAVES program (Reference 21). The required input data are ocean bottom topography and wave height, period, direction, and starting location. The results of the wave tracking indicated that wave refraction is insignificant along the Nome coastline. No further analysis of shoaling and refraction was made for this study.

The entire study area is broken into reaches which are determined by average beach slope in the area. It is not uncommon to have adjacent areas with two different 100-year water levels due to wave runup. Locations of the study reaches are shown on the Flood Insurance Rate Map (Exhibit 1). Beach slopes for the study area were taken from the maps (Reference 22).

Wave runup was computed from the curves in Coastal Engineering Technical Aid 78-2 (Reference 17) for Reaches 1 and 3 and from the curves in Coastal Engineering Technical Aid 79-1 (Reference 18) for Reach 2 for the significant and the 1-percent wave heights for events of various recurrence intervals. The effects of high stillwater levels and runup from the significant wave were combined to determine the flood elevations shown in the table. The combined effects of stillwater and runup due to the 1-percent wave are used to establish the limits of the special flood hazard areas shown on the Flood Insurance Rat Map (Exhibit 1).

Breaking waves on the Nome seawall have sufficient energy to overtop the breakwater. Methods outline in Coastal Engineering Technical Aid 77-7 (Reference 16) were used to calculated the rate of overtopping and extent of flooding behind the breakwater. If a portion of the breakwater failed, the volume of water reaching the lowered would increase substantially. However, for this study it is assumed that the breakwater will not fail. Shallow flooding is expected to be 2 feet deep behind the breakwater.

The small-boat harbor is subject to the same storm surge stillwater levels as the open coast. Waves, however, will be reduced due to diffraction and refraction as they enter the harbor area.

The hydraulic analysis used for areas subject to shallow flooding was based on topographic maps (Reference 22) and field investigation by experienced engineers.

The approximate 100-year tidal elevations were determined using the estimated 100-year stillwater elevations.

3.3 Vertical Datum

All FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FIS reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the finalization of the North American Vertical Datum of 1988 (NAVD88), many FIS reports and FIRMs are being prepared using NAVD88 as the referenced vertical datum.

All flood elevations shown in this FIS report and on the FIRM are referenced to the Mean Lower Low Water (MLLW). Structure and ground elevations in the community must, therefore, be referenced to MLLW. It is important to note that adjacent communities may be referenced to a different vertical datum. This may result in differences in Base Flood Elevations (BFEs) across the corporate limits between the communities.

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the Technical Support Data Notebook associated with the FIS report and FIRM for this community. Interested individuals may contact FEMA to access these data.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each FIS provides 1-percent-annual-chance (100-year) flood elevations and delineations of the 1- and 0.2-percent-annual-chance (500-year) floodplain boundaries and 1-percent-annual-chance floodway to assist communities in developing floodplain management measures. This information is presented on the FIRM and in many components of the FIS report, including Flood Profiles, Floodway Data Table and Summary of Stillwater Elevations Table. Users should reference the data presented in the FIS report as well as additional information that may be available at the local map repository before making flood elevation and/or floodplain boundary determinations.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent-annual-chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent-annual-chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For each stream studied by detailed methods, the 1- and 0.2-percent-annual-chance floodplain boundaries have been remapped to represent new topographic data in MLLW. For Reach 2, where the seawall/revetment exists, NHC replaced the Zone AO with a 19.5ft. Zone AE.

A second breakwater was built recently on the Nome shoreline, and the entrance channel to the harbor was relocated flow between the two breakwaters. As a result, the shore between the breakwaters was changed from a Zone VE to an un-numbered Zone V. These changes were accepted by FEMA Region X.

The 1- and 0.2-percent-annual-chance floodplain boundaries are shown on the FIRM (Exhibit 1). On this map, the 1-percent-annual-chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A, AE, V, and VE); and the 0.2-percent-annual-chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1- and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 1-percent-annual-chance floodplain boundary is shown on the FIRM (Exhibit 1).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent-annual-chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1-percent-annual-chance flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced.

No floodway was delineated for Snake River at Nome because the area is under permanent tidal influence. Non-coincident riverine flooding is insignificant in comparison with the high tide levels and is, therefore, not a factor in floodway determinations.

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance risk zone that corresponds to the areas of 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot base flood depths derived from the detailed hydraulic analyses are shown within this zone.

Zone V

Zone V is the flood insurance risk zone that corresponds to the 1-percent-annual-chance coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no BFEs are shown within this zone.

Zone VE

Zone VE is the flood insurance risk zone that corresponds to the 1-percent-annual-chance coastal floodplains that have additional hazards associated with storm waves. Whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2-percent annual chance floodplain, areas within the 0.2-percent annual chance floodplain, and to areas of 1-percent annual chance flooding where average depths are less than 1 foot, areas of 1-percent annual chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent annual chance flood by levees. No base flood elevations or depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 1-percent annual chance floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 1- and 0.2-percent annual chance floodplains.

7.0 OTHER STUDIES

A second breakwater was built recently on the Nome shoreline, and the entrance channel to the harbor was relocated flow between the two breakwaters.

This Flood Insurance Study report either supersedes or is compatible with all previous studies (Reference 23) on streams studied in this report and should be considered authoritative for purposes of the NFIP.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Flood Insurance and Mitigation Division, Federal Emergency Management Agency, 130 228th Street, SW, Bothell, Washington 98011.

9.0 BIBLIOGRAPHY AND REFERENCES

1. Alaska Consultants, City of Nome Comprehensive Development Plan, Prepared for the Alaska State Housing Authority, Fall 1968.

2. U.S. Department of the Army, Corps of Engineers, Alaska District, Memo: Storm Reports, 1979

3. The Seattle Post-Intelligencer, "Two Sections of Nome Destroyed by the Great Storm of Yesterday," "Nome Wrecked by Sea Driven in by Storm," Seattle, Washington, October 7, 1913

4. Anchorage Daily Times, "Nome Streets Under Foot of Sea Water," Anchorage, Alaska, October 30, 1945

5. The Seattle Times, "Gale-Driven Waves Wreck Buildings on Nome's Beach," Seattle, Washington, October 27, 1946

6. The Seattle Times, "Nome Clears Off Storm Wreckage," Seattle, Washington, October 28, 1946

7. Anchorage Daily Times, "Storm Rips Nome's Main Street," Anchorage, Alaska, October 28, 1946

8. L.L. Selkregg, et al., Alaska Regional Profiles: Northwest Region, University of Alaska Arctic Environmental Information and Data Center, Anchorage, Alaska, 1976

9. Anchorage Daily Times, "Nome Flood Waters Recede," "Nome Flood Victims Improvise," Anchorage, Alaska, November 12, 1974

10. Anchorage Daily News, "Storm Appears Headed for Nome," Anchorage, Alaska, November 13, 1974

11. The Nome Nuggett, "Nome Digging Out of Mess," Nome, Alaska, November 22, 1974.

12. U.S. Department of the Interior, Geological Survey, Water Resources Investigations 78-129, Flood Characteristics of Alaskan Streams, R.D. Lamke, Anchorage, Alaska, 1979

13. U.S. Department of the Army, Corps of Engineers, Alaska District, Wind Frequency Curves for Nome, August 30, 1979

14. University of Alaska Environmental Information and Data Center and U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Climatic Atlas of the Outer Continental Shelf Waters and Coastal Regions of Alaska, Vol. II, Bering Sea, Anchorage, Alaska 1977

15. U.S. Department of the Army, Corps of Engineers, Coastal Engineering Research Center, Shore Protection Manual, Vols. I and II (third edition), 1977

16. U.S. Department of the Army, Corps of Engineers, Coastal Engineering Research Center, Predictions of Irregular Wave Overtopping, Coastal Engineering Technical Aid 77-7, John Ahrens, December 1977

17. U.S. Department of the Army, Corps of Engineers, Coastal Engineering Research Center, Revised Wave Runup Curves for Smooth Slopes, Coastal Engineering Technical Aid 78-2, Phillip N. Stoa, July 1978

18. U.S. Department of the Army, Corps of Engineers, Coastal Engineering Research Center, Wave Runup on Rough Slopes, Coastal Engineering Technical Aid 79-1, July 1979

19. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Nautical Charts: 16200 Norton Sound to Bering Strait, Scale 1:400,000, 16206 Nome Harbor and Approaches, Scale: 1:20,000

20. U.S. Department of Commerce, National Oceanic Atmospheric Administration, National Climatic Center, Airways Surface Observations, Nome, Alaska, 1945-1978

21. Stanford University, Department of Civil Engineering, Technical Report 80, Some Applications of a Digital Computer to Hydraulic Engineering Problems, R.S. Dobson, June 1967

22. Air Photo Tech, Inc., Aerial Topography Map of Nome, Alaska, Scale 1:1200, Contour Interval 2 feet, Date of Photography July 31, 1980, Anchorage, Alaska

23. Federal Emergency Management Agency (FEMA), Flood Insurance Study, City of Nome, Alaska, March 1, 1983.

10.0 REVISIONS DESCRIPTION

This section has been added to provide information regarding significant revisions made since the original FIS report and FIRM were printed. Future revisions may be made that do not result in the republishing of the FIS report. All users are advised to contact the Community Map Repository at the address below to obtain the most up-to-date flood hazard data.

City of Nome
102 Division Street
Nome, Alaska 99762

10.1 First Revision

This study was revised May 3, 2010, to change Special Flood Hazard Areas, to utilize aerial imagery, and to update map format. The method of conversion was digital capture of effective flooding and redelineation utilizing new topographic data.

Nome was remapped to represent new topographic data in MLLW. However, 'Reach 2,' where the seawall/revetment exists, will remain effective, AO Zone with a depth of 2ft.

A second breakwater was built on the Nome shoreline, and the entrance channel to the harbor was relocated flow between the two breakwaters. As a result, the shore between the breakwaters was changed from a VE Zone to an un-numbered V Zone.