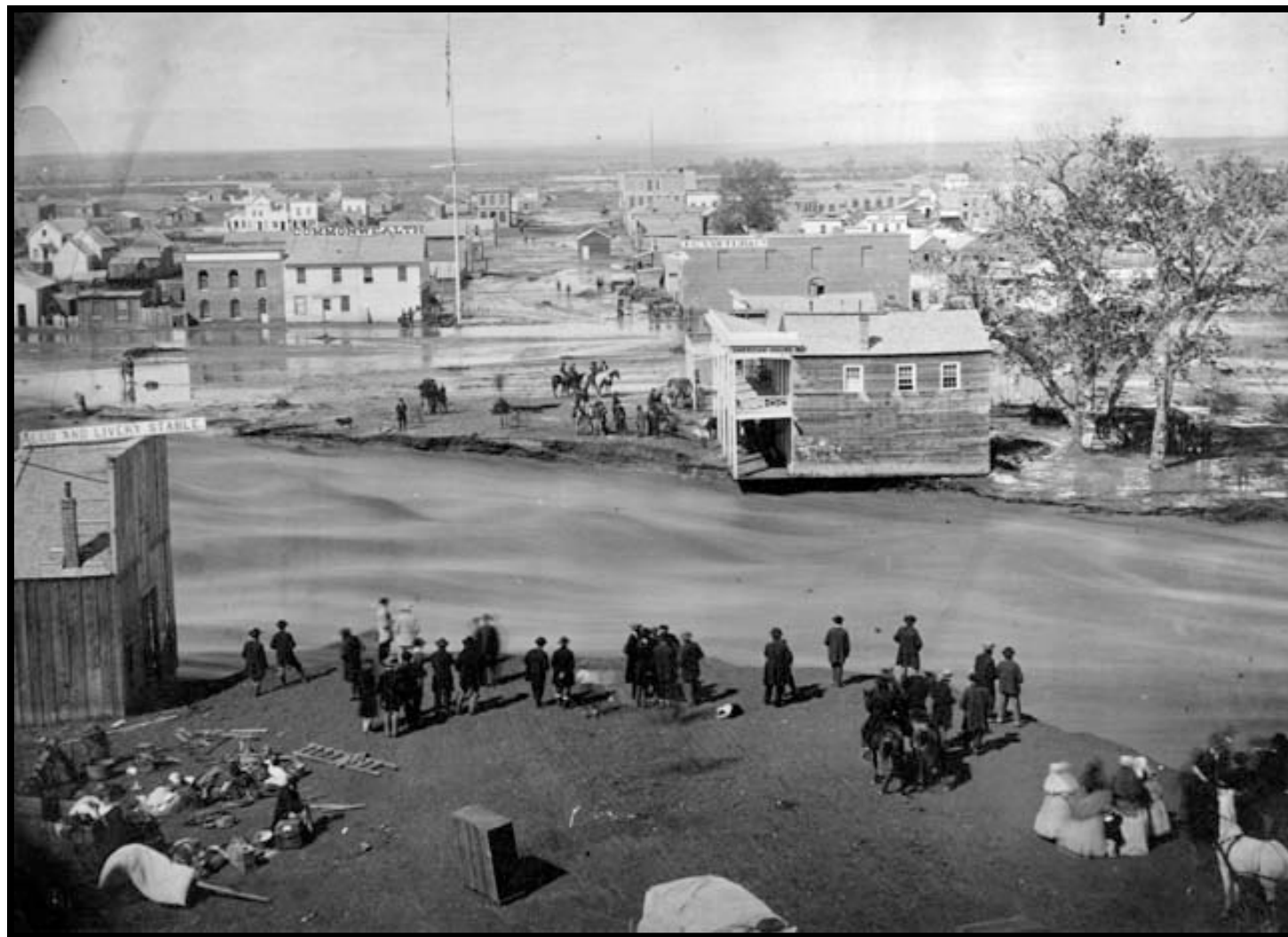


# Creating a Safer Community

Paul A. Hindman, Executive Director  
Kenneth R Wright, WWE  
L. Scott Tucker, Retired



# 1864 Flood



# 1912 Flood



# 1933 Flood



# 1965 Flood



# 1976 Flood



# 1997 Flood



# 2013 Flood





# Flood History-Totals

## DAMAGES


1. South Platte (1965) - \$3b
2. 2013 Flood – \$1-3b (TBD)
3. Pueblo (1921) – \$1.1b
4. South Platte (1973) - \$570m

## DEATHS

1. Big Thompson (1974) – 144
2. Pueblo (1921) – 78
3. Bear Creek (1896) – 27
4. Fort Collins (1995) – 21
5. South Platte (1965) – 21
- ... 2013 Flood - 11

# Enjoy the Presentations





# Urban Drainage History in the Metro Area

Kenneth R. Wright, P.E.

# 1864 West Denver



Photo: Denver Public Library

*A view of West Denver C. S. Harvey the flood in 1864*

# 1888 Golden



Photo: UDFCD





# 1894 Boulder Creek at Boulder

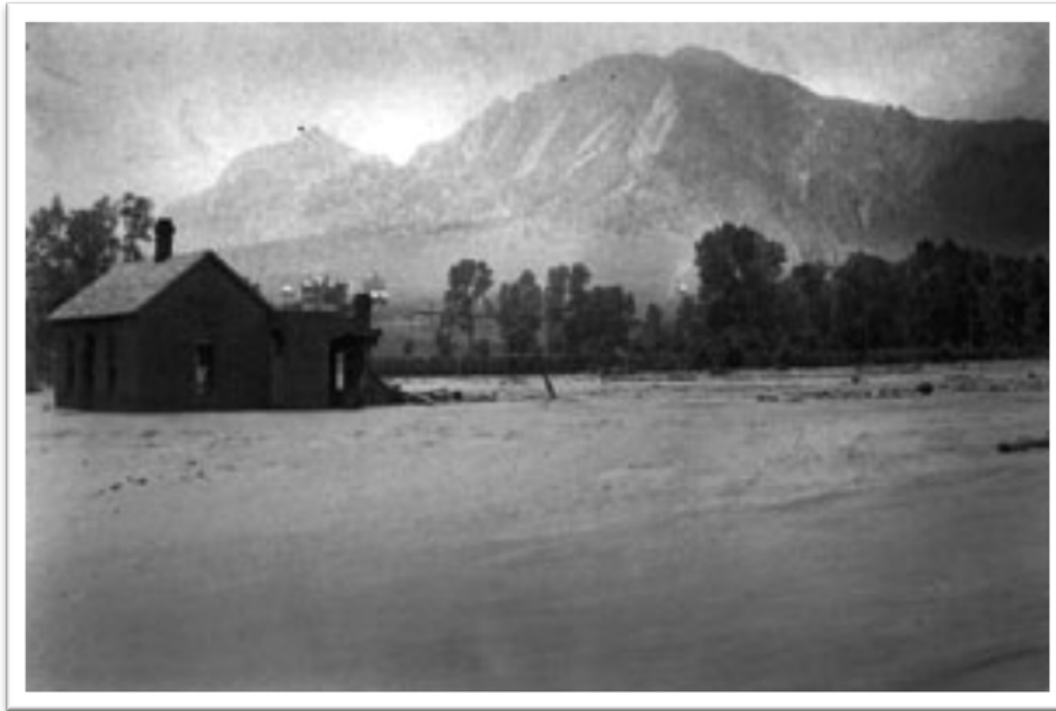


Photo: [FloodSafety.com](http://FloodSafety.com)



# 1894 12th Street, Boulder



Photo: Denver Public Library

# 1895 Black Hawk



Photo: Denver Public Library

## 1896 Bear Creek Near Golden

# A wall of water roared down Bear Creek

The rain started about 7 p.m. Friday, July 25, 1896.

By 8 p.m. Golden was hit by flood waters and a 30-foot wall of water raged down Tucker Gulch.

About the same time a wall of water roared down Bear Creek, crashing into Morrison.

Sgt. Dennis Potter, of the Jefferson County Sheriff's Department, recently completed a report on the Flood of 1896. The report notes that 50 tents were set up in a public park in Morrison, "all filled with sleeping campers," Potter said.

"Witnesses reported seeing people swept away by the flood waters, screaming, but no one could do anything.

At 3 a.m.," he said, "rescue workers were out with lanterns looking for survivors. Twenty-five people were killed in Bear Creek Canyon and Morrison. Five or six were killed in Golden."

Seven people were out on a "romantic buggy ride," Potter said, "and all were killed." Two were the young daughters of a Denver judge.

"Morrison was devastated. It took months to recover. I don't just mean from property damage, but from the tragedy of the deaths. Massive and elaborate funerals went on for months," Potter said.

"It was a freak flood, it all came down at once. It was one of those once-in-a-century things," Potter concluded. "I don't think it will happen again this year."

The 1969 flood is documented in the pages of the Canyon Courier. Four pages of photos printed on May 15, 1969, show extensive damage; there were no deaths.

The flood-damaged area was declared a disaster area. Road damage, alone, was estimated at \$3 million.

Not only were roads and bridges washed out, but a 15-ton boulder fell on Highway 74 blocking traffic west of Morrison, schools were closed, businesses flooded, homes crumpled and phone and electrical service failed.

The weather service said, in five days 9.22 inches of rain fell (one-half of that year's rainfall).







TEXACO  
T

FIRE CHIEF  
29 9/10  
SKY CHIEF  
33 9/10

VALVE EDGE  
RECREATION  
CENTER

ALAMEDA



Alameda Ave.  
EAST  
→

McDonald's

CORAL  
MOTEL

SPEED  
LIMIT  
55  
MINIMUM  
40

SLOWER  
TRAFFIC  
KEEP  
RIGHT



Why not get the best?  
**ZENTH**

SPEED  
LIMIT  
**55**  
MINIMUM  
**40**

SLOWER  
TRAFFIC  
KEEP  
RIGHT

















# 1965 South Platte River, Denver



Photo by Ed Maker/The Denver Post



**Special Aerial Picture Coverage on Flood-Ravaged Areas**

# THE DENVER POST

**FLOOD  
FINAL**

The Voice of the Rocky Mountain Empire

Vol. 73, No. 330

Denver, Colo.—Climate Capital of the World—Thursday, June 17, 1976

Copyright 1976, The Denver Post, Inc.

10 Cents, 84 Pages

# South Platte Torrent Deals Denver Worst Disaster

## Navy Jets Down Pair Of MIGs

SAIGON, South Viet Nam—(AP)—Two U.S. Navy Phantom jets shot down two Communist MIG17 fighters in flames Thursday in a dogfight 50 miles south of Hanoi, the North Viet Nam capital.

The clash occurred while the Phantoms, from the carrier Midway, were flying escort for other U.S. warplanes bombing North Viet Nam targets.

A U.S. spokesman said four Communist jets appeared and turned toward the American planes as if they were going to attack. But apparently they were hit before they had a chance to open fire, he said.

### PARACHUTE SEEN

One parachute was seen opening, but it was not known what happened to the Communist pilot. The other two MIGs escaped.



## Prompt Alarms Keep Toll Low

By LEONARD LARSEN  
Denver Post Staff Writer

The flooding South Platte River, fed by cloudbursts south of Denver, ripped through the metropolitan area late Wednesday in the worst natural disaster of the city's history.

The normally placid South Platte and dry-stream tributaries were turned into half-mile-wide torrents which swept out bridges, flooded thousands of homes, business firms and factories and for a time split the capital city.

Fires touched off by electrical shorts, ruptured gas lines and storage tanks burned throughout the night Wednesday and early Thursday along the river as it roared out of its banks, sweeping tons of debris into the industrial area and railroad yards in central Denver.

Miraculously—and because police and volunteers labored to warn persons in its path—the Denver area flood took a limited human toll.

One man was found dead in three feet of water in the Globeville area of north Denver—either from a heart attack or drowning—and a handful of victims were reported treated at area hospitals for injuries, shock and exposure.

There were unconfirmed reports, however, of other persons missing and possibly killed by the flood violence.

A State Highway Department

### Flood Final

As a special service to our readers, most of the coverage on the disastrous Denver flood will be found in this first section of today's Flood Final. In addition, readers' attention is called to pages 33, 34, 37, 84.















CONSTRUCTED WITH BOND FUNDS MADE AVAILABLE BY THE CITIZENS OF DENVER  
JUNE 30, 1964

**HARVARD GULCH  
FLOOD CONTROL FACILITIES**

CONTRACTORS  
LEON K. SUHM, INCORPORATED  
PETER KIEWIT SONS' COMPANY

CONSULTANTS  
WRIGHT McLAUCHLIN ENGINEERS

SUPERVISION  
ENGINEERING DIVISION, DEPARTMENT OF PUBLIC WORKS

DEDICATED  
THOMAS C. CURRICAN, MAYOR  
APRIL 23, 1967



# DENVER Builds NOW for the future



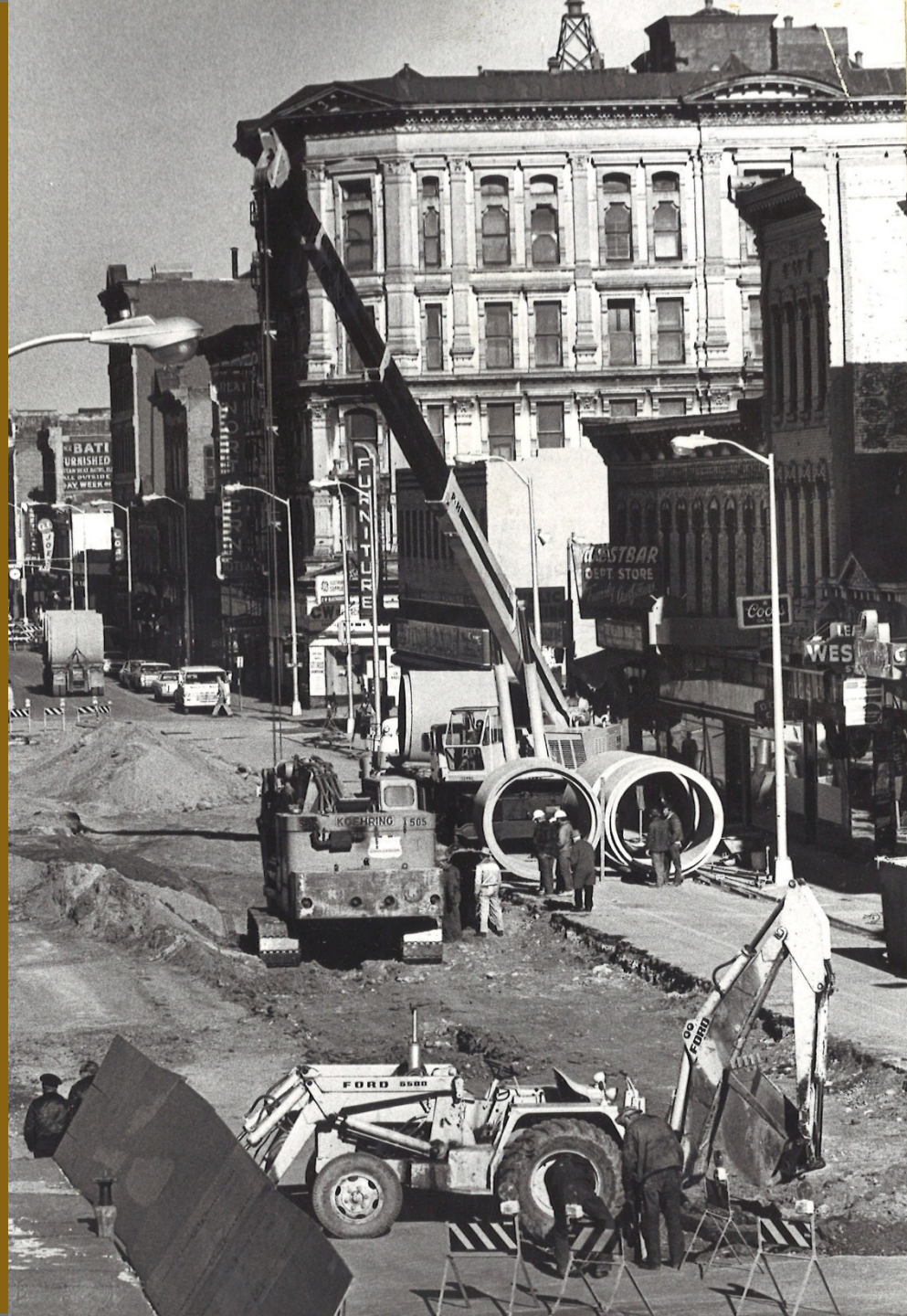
Consulting Engineers  
Wright-McLaughlin Eng.  
Contractor  
Leon K. Suhm



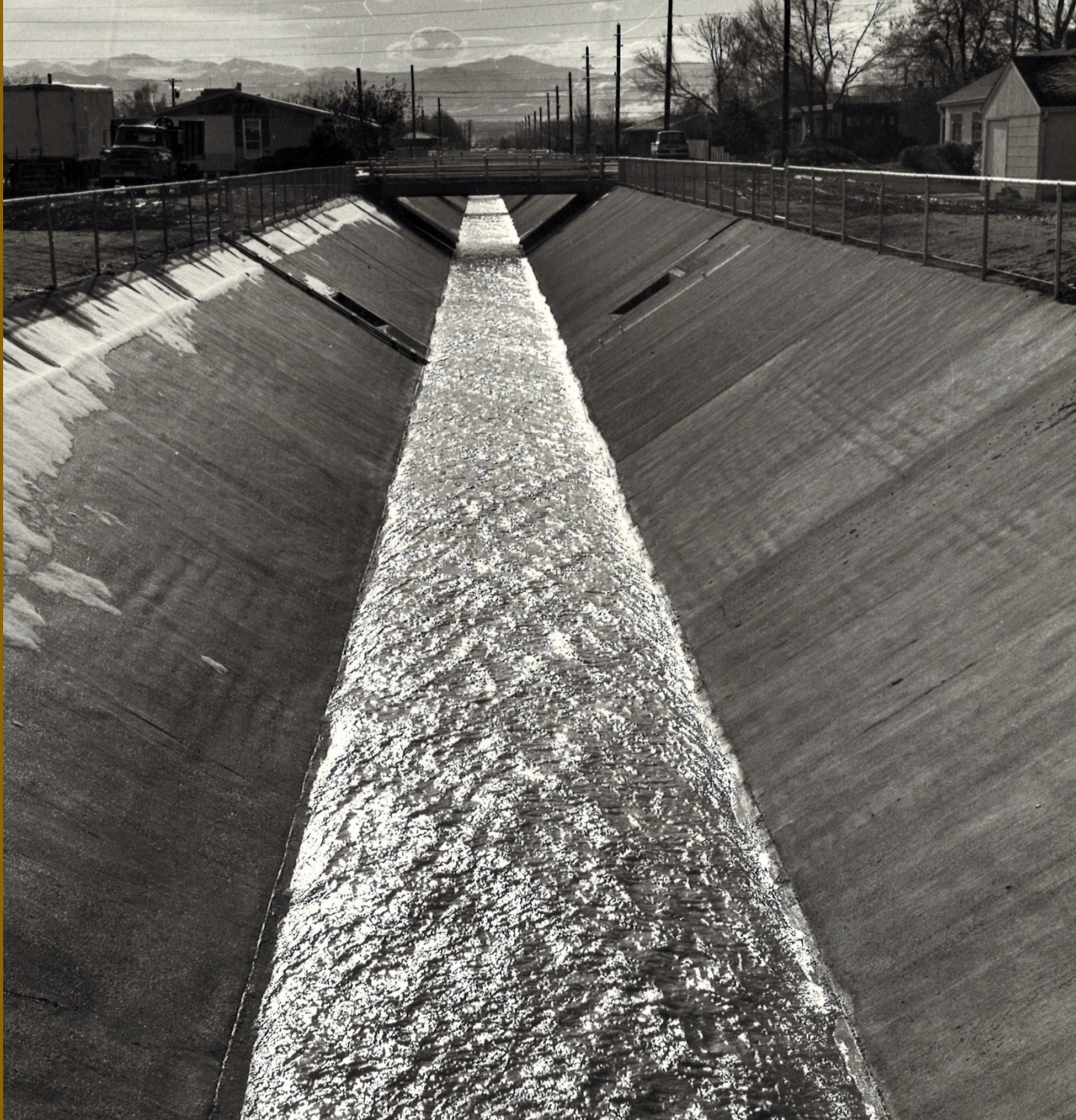
Project No. 9203  
Harvard Gulch Flood Control  
Phase 3, Cost \$662,352  
Total Cost Phase 1,2,3-2.3 Million

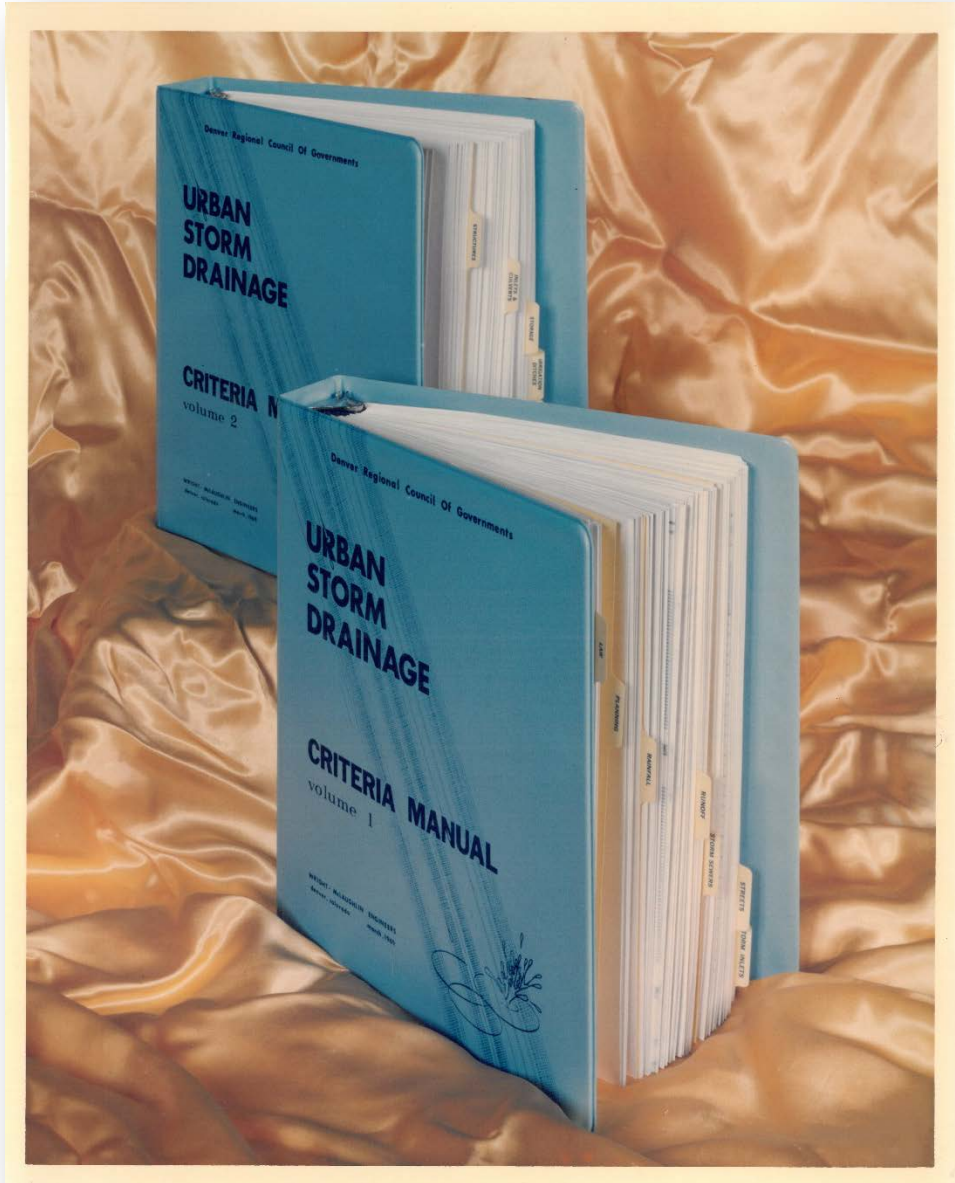
**Thomas G. Currihan, Mayor**



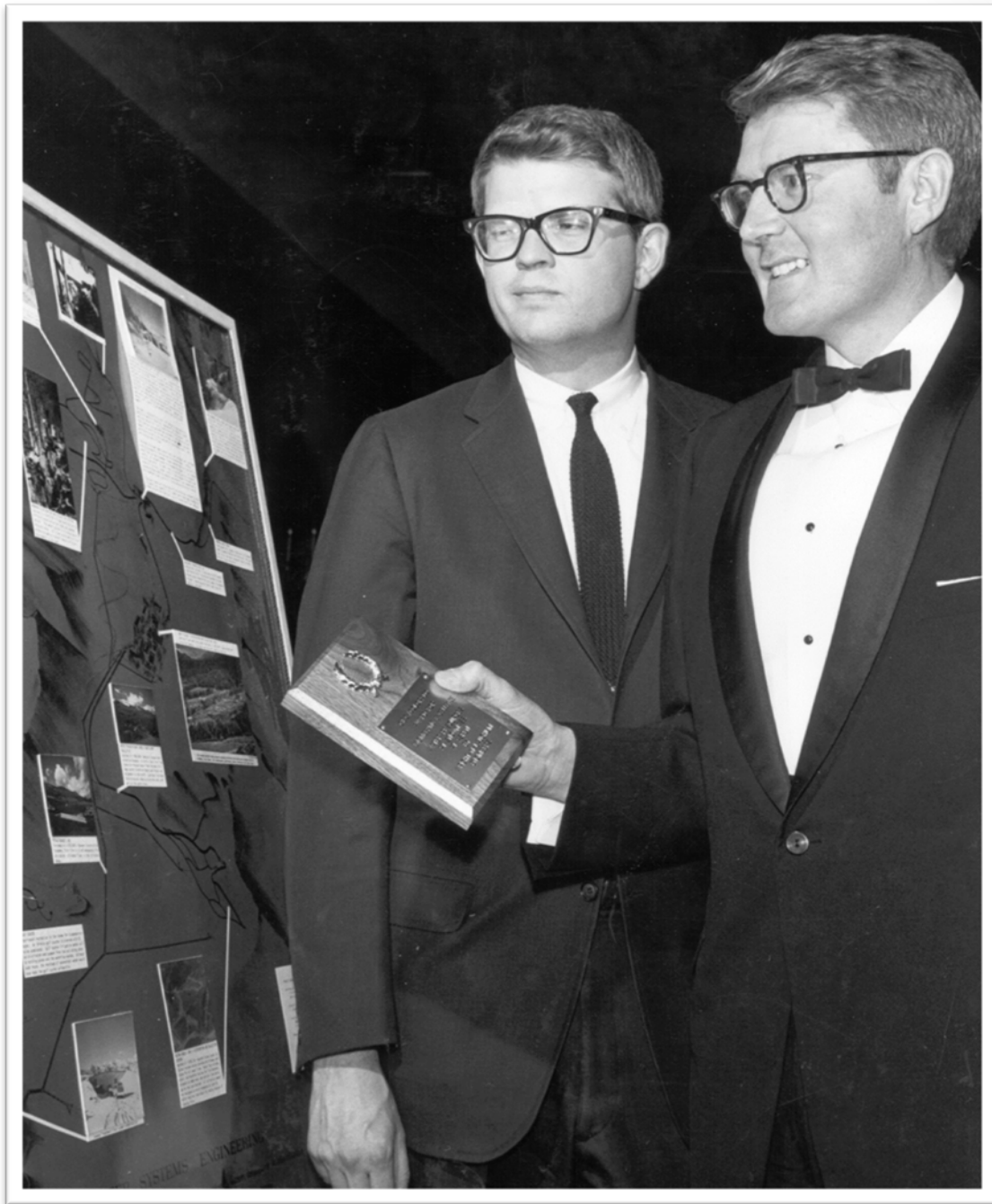






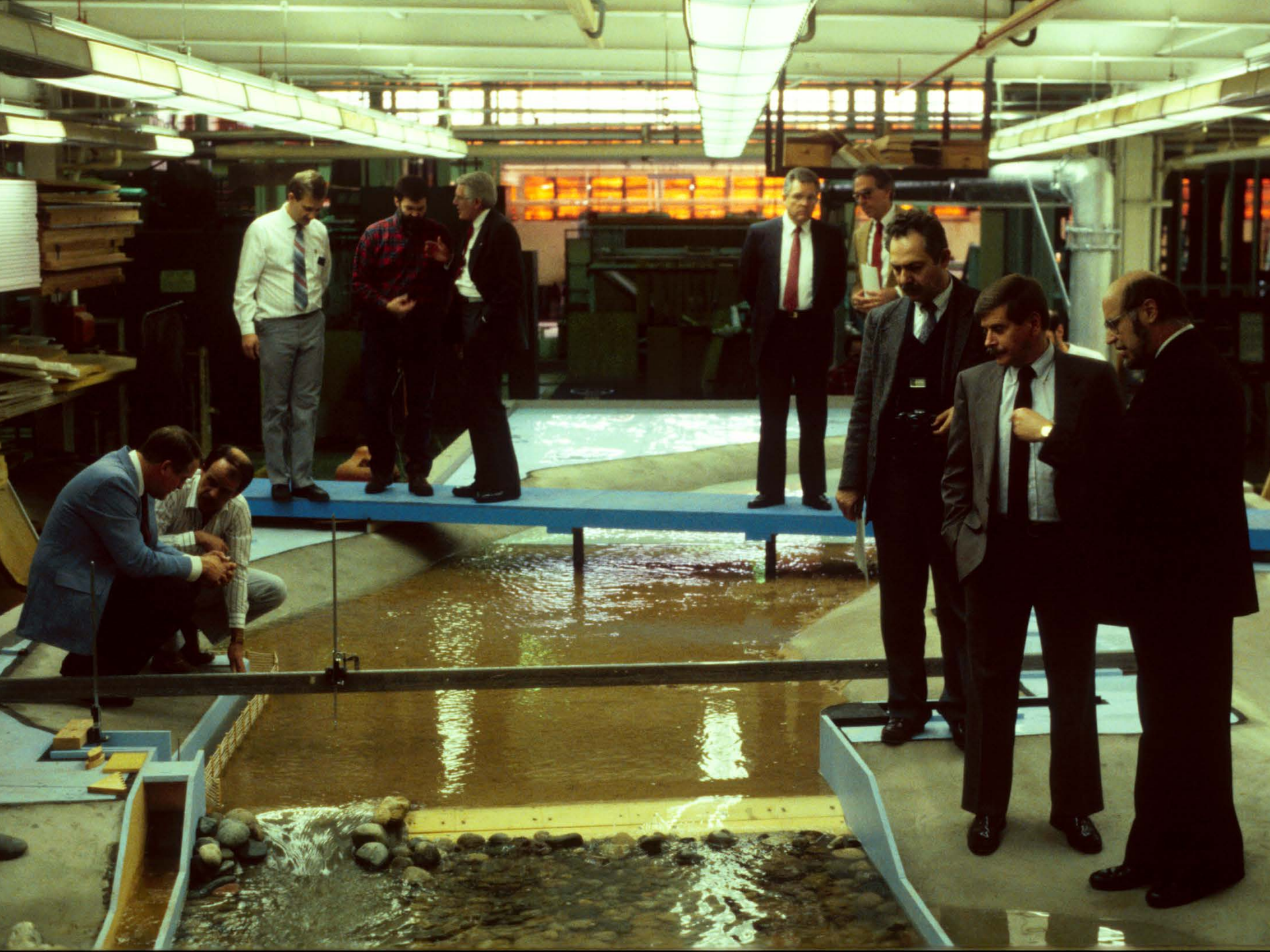












# Colorado Revised Statutes

## ARTICLE 11

### Urban Drainage and Flood Control Act

#### PART 1

##### GENERAL PROVISIONS

**32-11-101. Short title.** This article shall be known and may be cited as the "Urban Drainage and Flood Control Act".

**32-11-102. Legislative declaration.** (1) The general assembly hereby determines, finds, and declares that:

(a) All property to be acquired by the district under this article shall be owned, operated, administered, and maintained for and on behalf of all of the people of the district;

(b) The creation of the district by this article promotes the health, comfort, safety, convenience, and welfare of all the people of the state and is of special benefit to the inhabitants of the district and the property therein;

(c) The provisions in this article of the purposes, powers, duties, privileges, immunities, rights, liabilities, and disabilities concerning the district serve a public use;

(d) The district created by this article is a body corporate and politic, a political subdivision of the state, and a municipal corporation with the powers provided in this article;

(e) Any notice provided for in this article for any purpose is reasonably calculated to inform each person of interest in any proceedings under this article which may directly and adversely affect his legally protected interests, if any;

(f) The necessity for this article results from the large population growth in the urban area included by this article within the district constituting a major portion of the state's population, from the numerous capital improvements and large amount of improved real property situated within such urban area, from the torrential storms occurring sporadically and intermittently in the urban area and other areas draining into such urban area, from the increasing danger of floods therein and the resultant risks to the property and to the health and safety of the persons within the urban area, from the division of the urban area into large areas of incorporated areas and unincorporated areas, from the fragmentation and proliferation of powers, rights, privileges, and duties pertaining to water, flood control, and drainage within such urban area among a substantial number of public bodies, and from the resultant inability of such public bodies to acquire suitable capital improvements for the alleviation of such dangers and







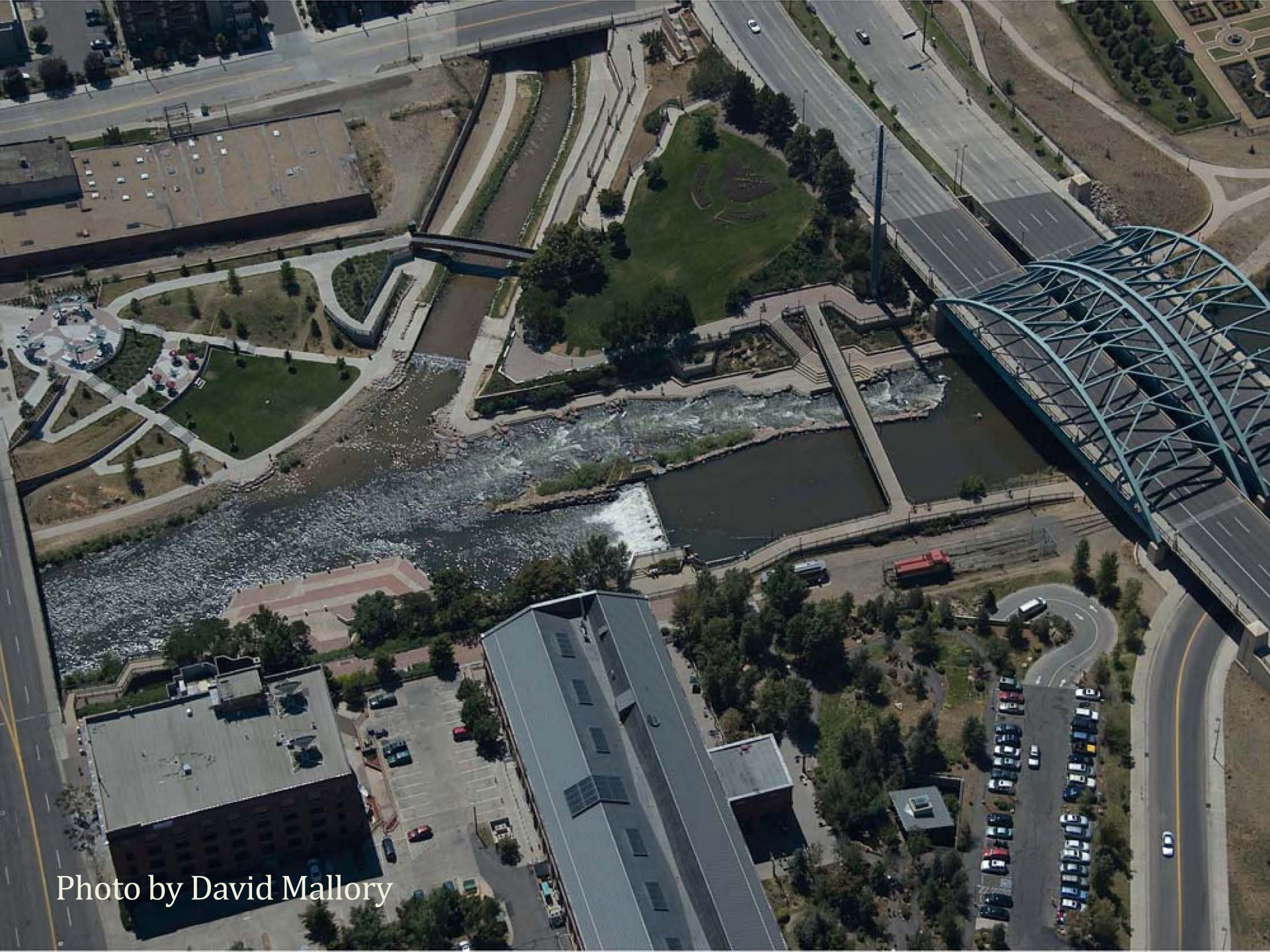


Photo by David Mallory









# FLOODPLAIN PRESERVATION & MITIGATION IN ACTION DURING THE SEPTEMBER 2013 FLOOD

Paul A. Hindman  
Executive Director



# UDFCD Mission Statement

The Urban Drainage and Flood Control District works with local governments to address multi-jurisdictional drainage and flood control challenges in order to protect people, property, and the environment.

# Two-Pronged Approach

Preservation



Mitigation



# Case Study-Westerly Creek

**URBAN DRAINAGE AND FLOOD CONTROL DISTRICT**

**CITY OF AURORA**

**UNITED STATES OF AMERICA**


**OUTFALL SYSTEMS PLANNING**


**Westerly Creek Drainageway Update**


*Draft*


**WESTERLY CREEK  
(UPSTREAM OF THE WESTERLY CREEK DAM)  
MAJOR DRAINAGEWAY PLAN  
Alternative Analysis Report**


Prepared for

 City of Aurora

 Urban Drainage and Flood Control District





 Urban Drainage and Flood Control District

 City of Aurora

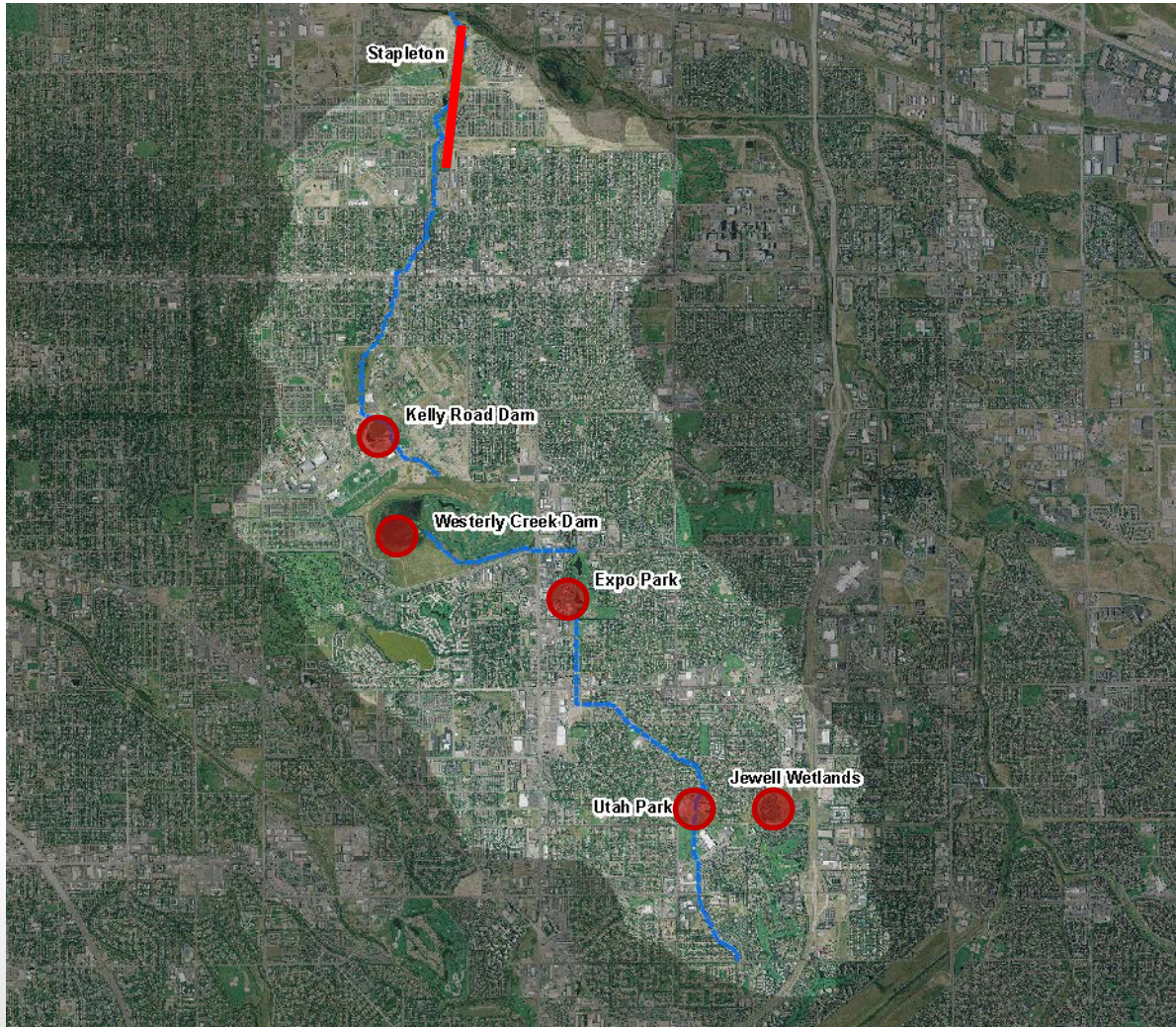
 City and County of Denver



February 2014

**CH2MHILL**  
9193 South Jamaica Street  
Englewood, CO 80112  
303.771.0900



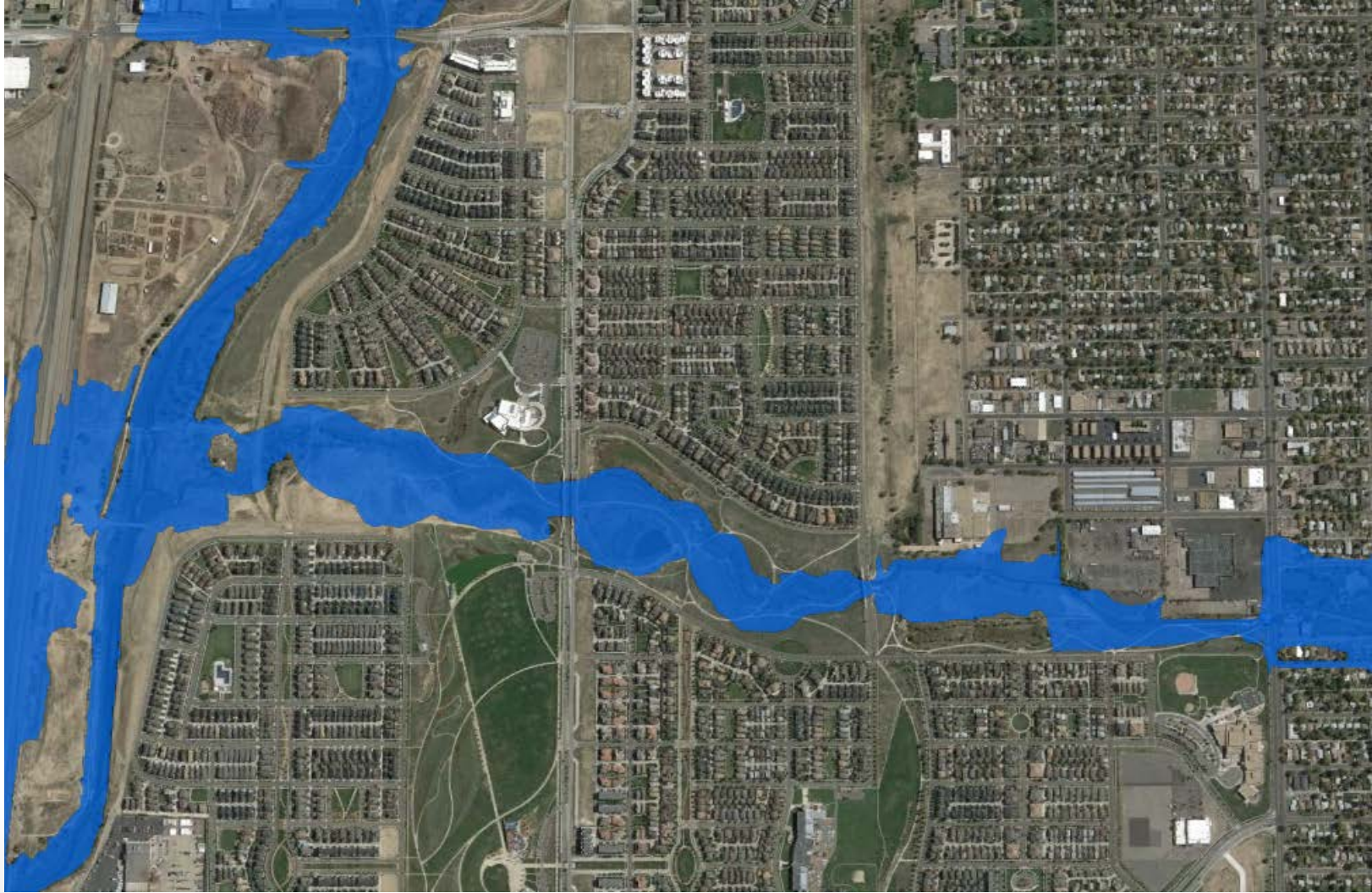
# Westerly Creek, Aurora



-  **Mitigation-**  
Detention Basin
-  **Preservation-**  
Open Space

# PRESERVATION

# Stapleton Redevelopment 2012





# Stapleton Greenway

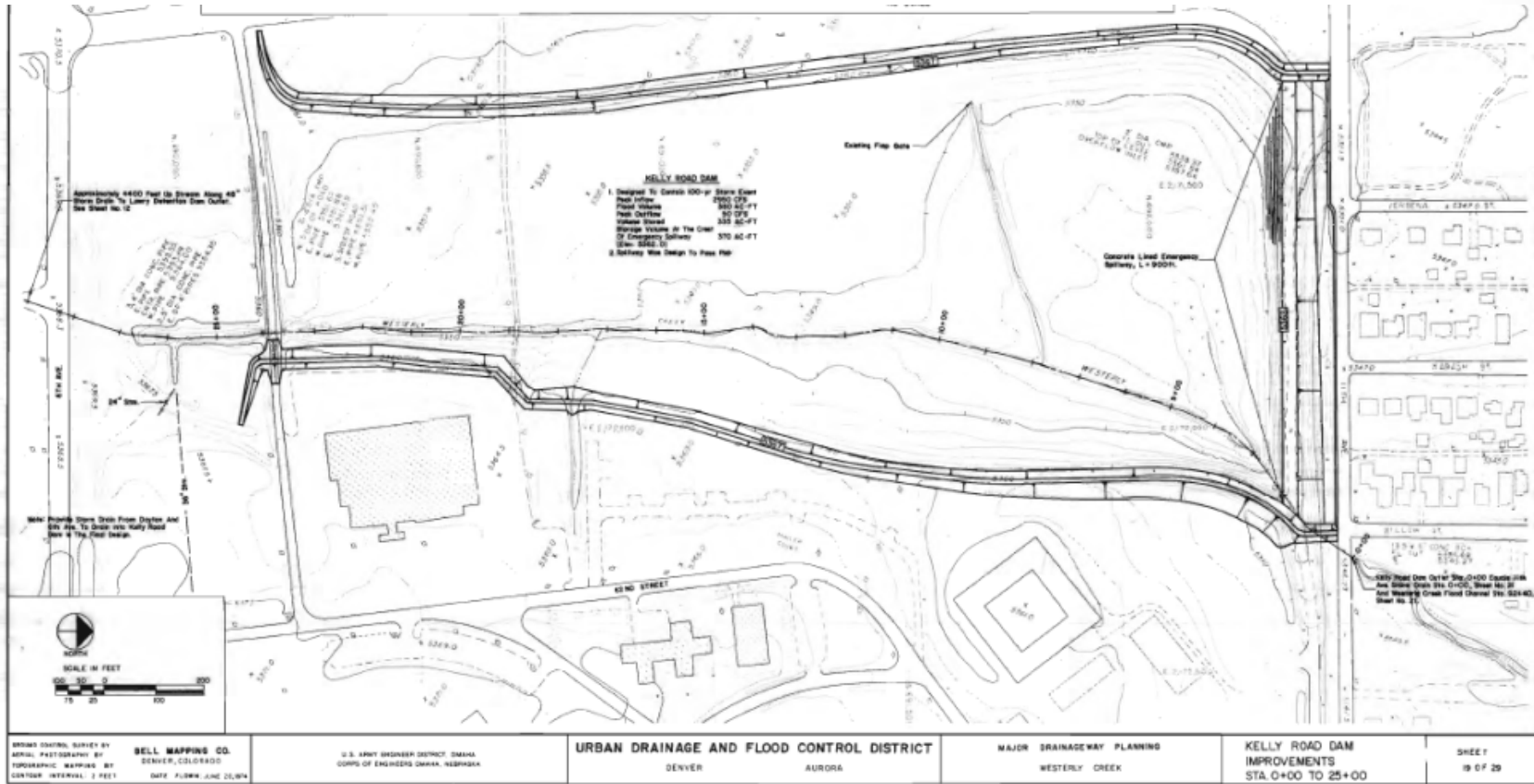


# Stapleton Greenway-2013



# MITIGATION

# Kelly Road Dam Detention 1950's, Rehab 1994



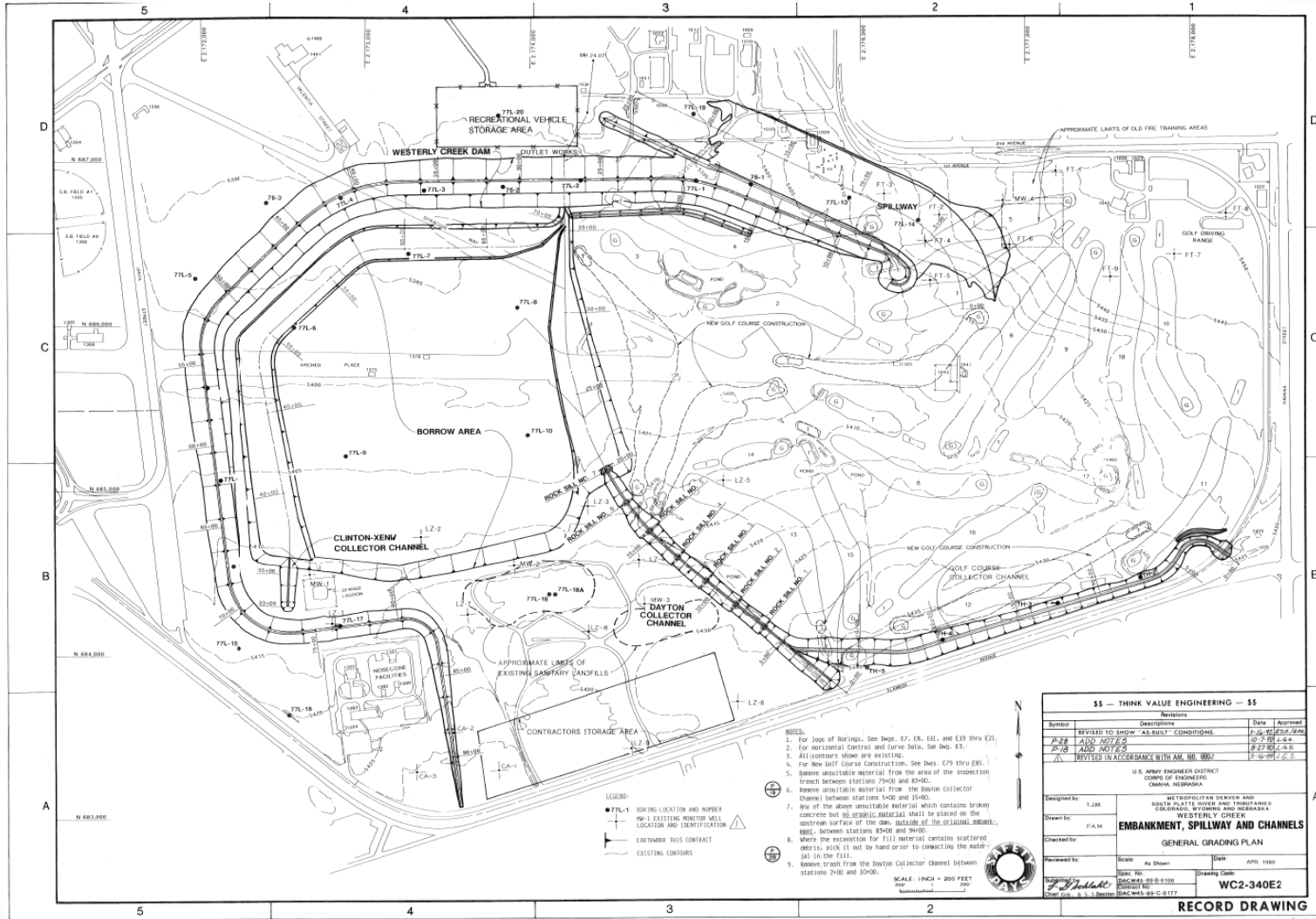
# Kelly Road Dam Detention



# Kelly Road Dam Detention- 2013



# Westerly Creek Dam-Detention 1989



# Westerly Creek Dam

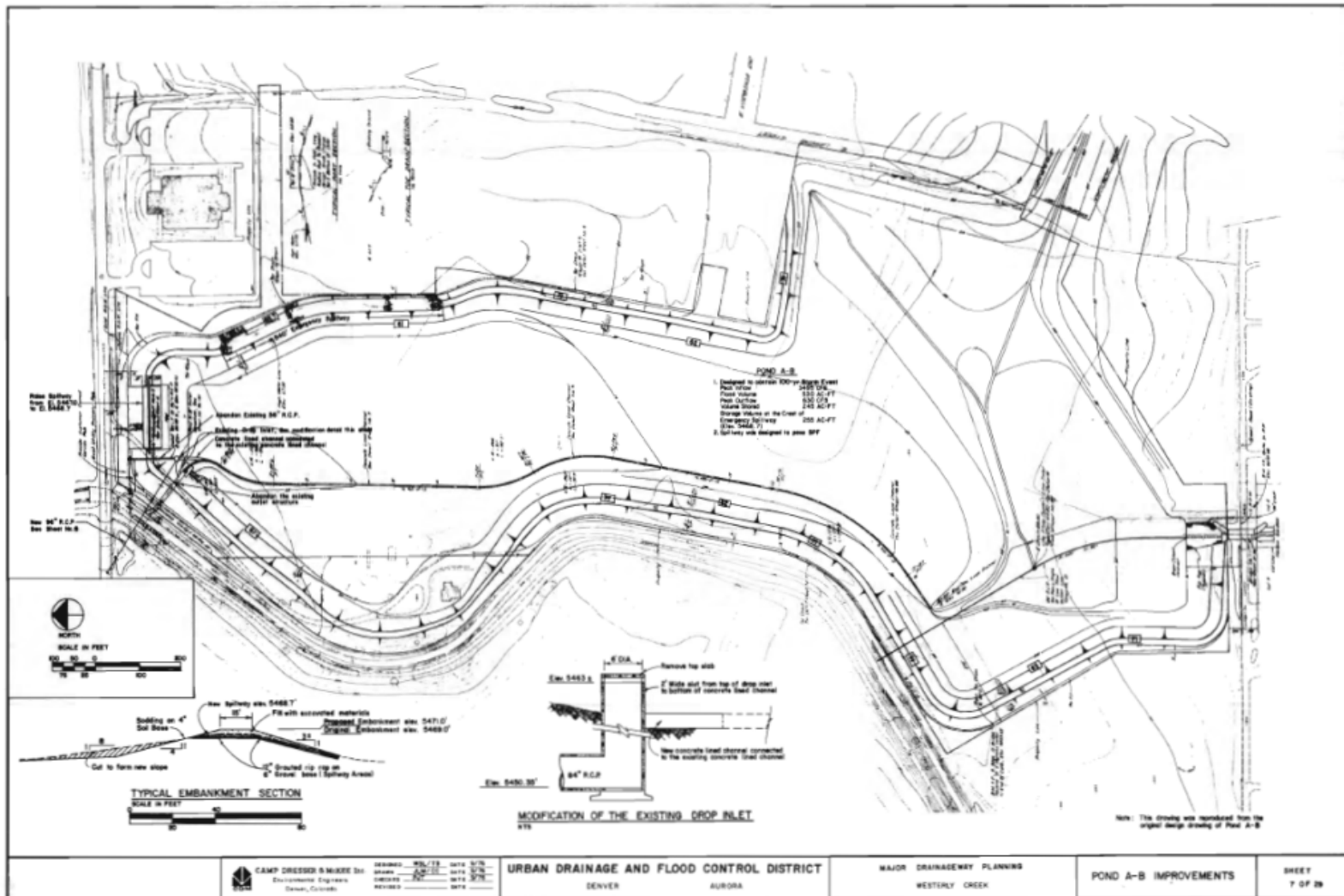




# Westerly Creek Dam-2013



# Expo Park Detention-2000



# Expo Park Detention

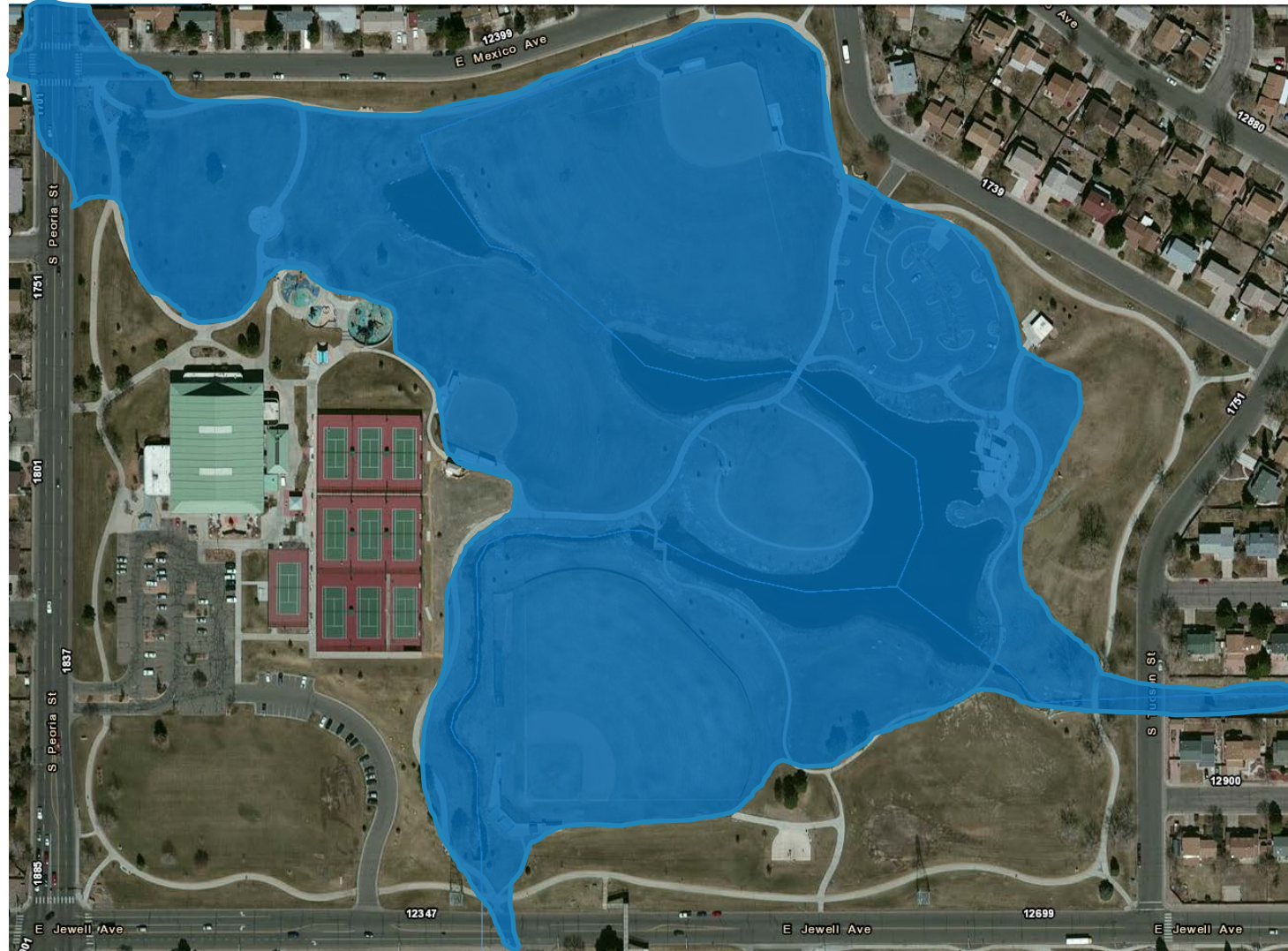


# Expo Park Detention-2013





# Utah Park Detention



# Utah Park Detention-2013



# Jewell Wetlands Detention- 2001



#### GENERAL NOTES

1. The contractor or about the or utilities, in replacement, contractor at
2. The contractor obtains any performance
3. The landscape the correct the locations shall be resp vertical local sewer, storm utilities above project. sho the contracto immediately, conflict con s
4. The contracto hours prior to location of al
5. Any construct of-way resu by the contra
6. The contracto flagmen and safety on and appropriate to with the resu transportation
7. Contractor shi limits of land, and other ma removed from
8. Contractor shi site and adjo outside the li sections shall for demolition repaired at co
9. Basemap info topography a Copies of pla Contractor to elevations.
10. This plan is in Landscape Arj or extent of other drawing items to be i construction t

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4  
5  
6  
7  
8  
9  
10



# Jewell Wetlands Detention



# Jewell Wetlands Detention- 2013



# Damages-Utah Park Spillway



# Other areas without M&P- 2013



# Other areas without M&P- 2013



# Political Choice

