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SALT LAKE COUNTY

EASTSIDE CANAL STUDY

JORDAN AND SALT LAKE CANAL
EAST JORDAN CANAL
EAST JORDAN CANAL EXTENSION
UPPER CANAL

FINAL REPORT

January 2003

HANSEN ALLEN & LUCE INC
ENGINEERS

SALT LAKE COUNTY

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FINAL REPORT

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Feb 11, 2003
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Salt Lake County

Neil Stack - Director of Engineering
Brent Beardall - Project Manager

City Representatives

Dennis Larkin - Holladay City Mayor
Wendell Rigby - Draper City Director of Public Works
Judith Bell - Sandy City Public Utilities Director
Keith Ludwig - Midvale City Engineer

Canal Representatives

Jeff Niermeyer - Salt Lake City Department of Public Utilities Deputy Director
Tim O'Hara - Salt Lake City Department of Public Utilities Canals Manager
Bill Marcoveccio - East Jordan Canal Company President
Richard Oldroyd - Upper Canal Company President

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EXECUTIVE SUMMARY

INTRODUCTION

The major canals on the east side of the Jordan River Valley (Salt Lake County) were constructed in the late 1800's and early 1900's to convey Utah Lake water from the Jordan Narrows to various irrigation systems. Today, urban development has increased the storm drainage use of the canals. At the same time, the actual demand for canal irrigation water has decreased as farms have been urbanized. Also, in recent years, canal capacity has been adversely affected by pond weed, bank instability, seepage, and encroachment.

Presently, the canals on the east side of the Jordan River Valley play key roles in the conveyance of storm runoff. The canals accept storm drainage and convey flows to overflow structures connected to County storm drain systems which convey flows to the Jordan River.

This study includes three major tasks: 1) Evaluation of the tributary storm runoff flows to the canals and creeks, 2) Evaluation of the existing canal capacities, and 3) Evaluation of alternatives for improving the storm drainage capacity of the canals. The following canal segments were evaluated as part of this study and will hereafter be referred to as the Eastside Canals:

- East Jordan Canal from 14600 South to 7000 South.
- East Jordan Canal Extension from 7000 South to Walker Lane.
- Jordan & Salt Lake Canal from 14600 South to 800 South.
  (Hydraulic capacity was evaluated from 14600 South to 3300 South. The canal is piped north of 3300 South).
- Upper Canal from Big Cottonwood Creek to Mill Creek.

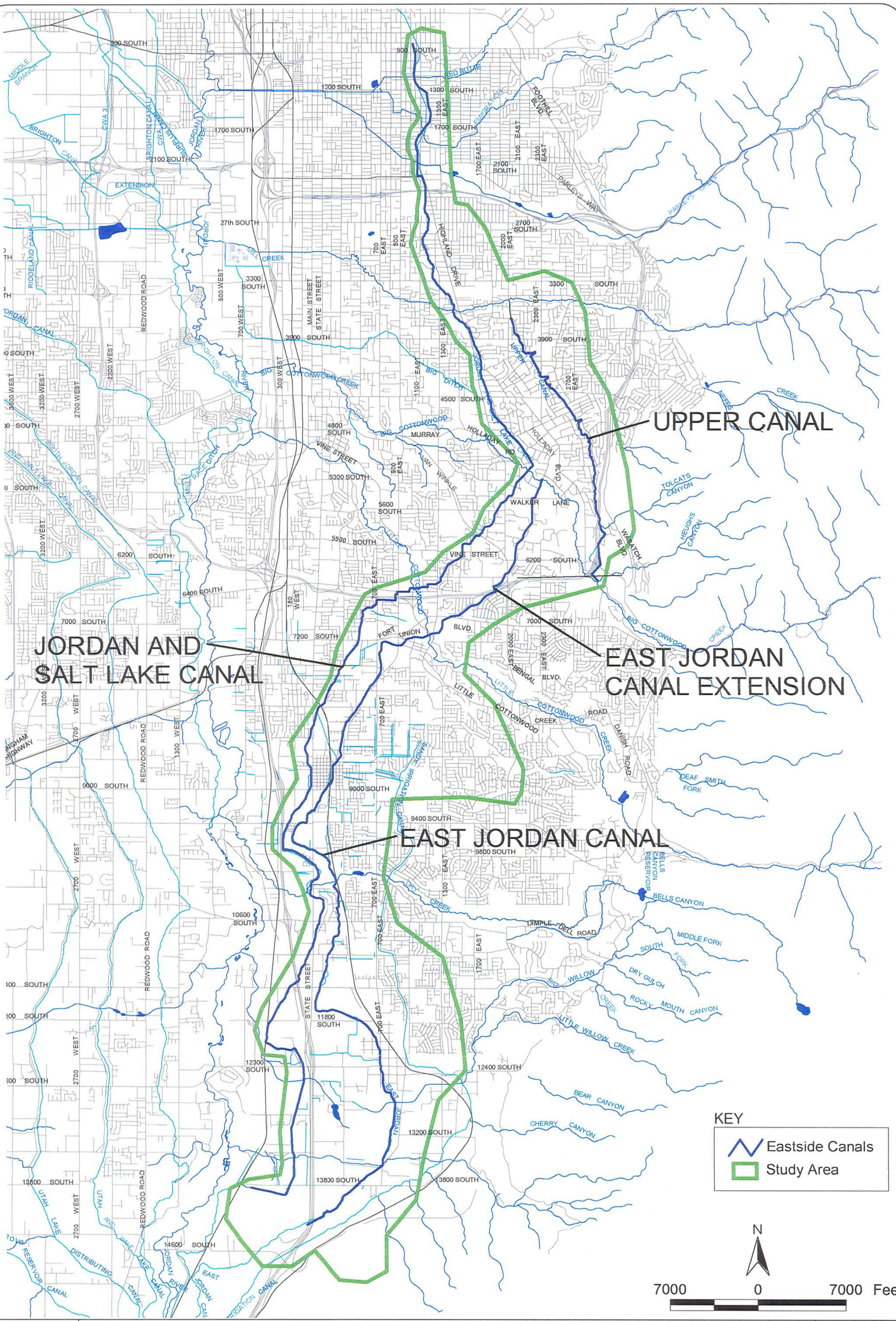
Figure ES-1 is a map of the study area.

STORM DRAINAGE MODEL

The study includes the evaluation of storm runoff from urban areas in Salt Lake County tributary to the above canal segments. To accomplish this, a computer model was developed to simulate runoff during a storm event in the urban areas of Salt Lake County east of the canals. The storm drainage model operates within ArcView GIS and uses the HEC-1 Army Corps of Engineers Flood Hydrograph Package for computing the storm runoff hydrographs.

STORM DRAINAGE CAPACITY

The study also includes the evaluation of the Eastside Canals ability to convey the storm drainage runoff calculated by the canal storm drainage model. The ability of the Eastside Canals to convey the storm drainage runoff is dependent on the canal base irrigation flows, canal capacity above base flow deliveries, and location of storm drain inflows and overflows along the canals. It



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SALT LAKE COUNTY EASTSIDE CANAL STUDY AREA

FIGURE ES-1

was assumed in determining the storm drainage capacity of the Eastside Canals that the overflows release all excess storm water over the canal base flow amount. The U.S. Army Corps of Engineers Hydrologic Engineering Center - River Analysis System (HEC-RAS) software was used to calculate water surface profiles for each of the Eastside Canals. The water surface profiles were used to estimate the capacity of different reaches within the canals.

The models were vital tools in analyzing the storm drainage runoff to the canals and defining the storm drainage capacity of the canals. The models will allow Salt Lake County to continue to update the model, analyze potential drainage deficiencies, and facilitate the analysis of mitigation measures.

PREFERRED SOLUTION FOR IMPROVING STORM DRAINAGE CAPACITY

The study includes an evaluation of the canal storm drainage capacity inadequacies and development of a preferred solution for improving the storm drainage capacity of the Eastside Canals. The Eastside Canals storm drainage capacity improvement projects are presented in Table ES-1.

TABLE ES-1
CONCEPTUAL COSTS FOR RECOMMENDED IMPROVEMENTS TO THE EASTSIDE CANALS

LOCATION	DESCRIPTION	CONCEPTUAL COST [1]
East Jordan Canal - 8720 South to 8750 South	Build up canal bank	$8,000
East Jordan Canal - 6800 South	Build up canal bank	$56,000
East Jordan Canal - 11900 South 625 East	Build up canal bank or install overflow at Van Winkle	$22,000
Jordan and Salt Lake Canal - 5250 South	Build up canal bank	$48,000
Jordan and Salt Lake Canal - 3900 South, Big and Little Cottonwood Creeks, 7200, 10300, and 12400 South	Modify overflows to provide capacity to discharge storm flow	$100,000
Upper Canal - Downstream of 3660 S	Replace headgate with automatic overflow	$30,000
	TOTAL	**$264,000**

1) Costs are in 2002 dollars.

RECOMMENDATIONS

The following is a summary of the recommendations presented in the Salt Lake County Eastside Canal Study:

1. It is recommended that the Eastside Canals Storm Drainage Capacity Improvement Projects be included in the Salt Lake County Flood Control Capital Improvement Plan.

2. It is recommended that a more detailed study of the Jordan and Salt Lake Canal overflow and outfall systems be completed.

3. The Sandy City Storm Drain Master Plan projects have a significant impact on the storm drain capacity in the East Jordan Canal and the Jordan and Salt Lake Canal. It is vital that these projects be implemented. It is recommended that Salt Lake County work with Sandy City in monitoring the progress of the projects.

4. It is recommended that Salt Lake County continue to work with canal owners to help ensure that the Eastside Canals are properly maintained and able to convey the storm drainage runoff discharged into the canals.

5. Model data should be updated as further land use, conveyance, capacity, and storm drainage inflows data become available.

6. It is recommended that the Eastside Canal Study be periodically reviewed and updated.

7. It is recommended that the impact of a proposed inflow into a canal be adequately analyzed to insure it will not create an increased risk of flooding before it is allowed.

8. It is recommended that a feasibility study be conducted to determine the cost and legal issues related to granting Salt Lake County recorded easements for the canals to allow Salt Lake County to protect rights-of-way from encroachment.

9. It is recommended that the County maintain an action plan to optimize the use of the Eastside Canals during a major storm event. For example, have a crew on-call who are trained to operate head gates and monitor key locations in anticipation of and during a major storm event.

CHAPTER I

PROJECT OVERVIEW

This chapter provides an overview of the Salt Lake County Eastside Canal Study. The following topics are presented in this chapter:

- Background
- Authority
- Study Activities
- Study Area

BACKGROUND

The major canals on the east side of the Jordan River Valley (Salt Lake County) were constructed in the late 1800's and early 1900's to convey Utah Lake water from the Jordan Narrows to various irrigation systems. Today, urban development has increased the storm drainage use of the canals. At the same time, the actual demand for canal irrigation water has decreased as farms have been urbanized. Also, in recent years, canal capacity has been adversely affected by pond weed, bank instability, seepage, and encroachment.

Presently, the canals on the east side of the Jordan River Valley play key roles in the conveyance of storm runoff. The canals accept storm drainage and convey flows to overflow structures connected to County storm drain systems which convey flows to the Jordan River.

This study includes three major tasks: 1) Evaluation of the tributary storm runoff flows to the canals and creeks, 2) Evaluation of the existing canal capacities, and 3) Evaluation of alternatives for improving the storm drainage capacity of the canals. The following canal segments were evaluated as part of this study and will hereafter be referred to as the Eastside Canals:

- East Jordan Canal from 14600 South to 7000 South.
- East Jordan Canal Extension from 7000 South to Walker Lane.
- Jordan & Salt Lake Canal from 14600 South to 800 South.
  (Hydraulic capacity was evaluated from 14600 South to 3300 South.
  The canal is piped north of 3300 South).
- Upper Canal from Big Cottonwood Creek to Mill Creek.

The study includes the evaluation of storm runoff from urban areas in Salt Lake County tributary to the above canal segments. To accomplish this, a computer model was developed to simulate runoff during a storm event in the urban areas of Salt Lake County east of the canals. The storm drainage model operates within ArcView GIS and uses the HEC-1 Army Corps of Engineers Flood Hydrograph Package for computing the storm runoff hydrographs.

The study also includes the evaluation of the Eastside Canals ability to convey the storm drainage runoff calculated by the canal storm drainage model. The ability of the Eastside Canals to convey the storm drainage runoff is dependent on the canal base irrigation flows, canal capacity above base flow deliveries, and location of storm drain inflows and overflows along the canals. The U.S. Army Corps of Engineers Hydrologic Engineering Center - River Analysis System (HEC-RAS) software was used to calculate water surface profiles for each of the Eastside Canals. The water surface profiles were used to estimate the capacity of different reaches within the canals.

Not only were the models vital tools in analyzing the storm drainage runoff to the canals and the storm drainage capacity of the canals for the Salt Lake County Eastside Canal Study, but the models will allow Salt Lake County to continue to update the model, analyze potential drainage deficiencies, and facilitate the analysis of mitigation measures.

AUTHORITY

Salt Lake County selected Hansen, Allen & Luce, Inc. (HAL) to assist them in preparation of an Eastside Canal Study. This study has been completed in accordance with an agreement between the Salt Lake County and HAL dated October 2000. Development of the Eastside Canal Study was completed under the direction of, and in cooperation with County staff.

STUDY ACTIVITIES

Specific tasks performed for this storm drainage study included:

Task 1 - Review of Existing Master Plans, Drainage Data, and Canal Data

Information contained in available reports and data was reviewed and summarized to make use of these prior studies to the extent possible. Study activities for this task included the following:

1. Met with County Staff to review project objectives and obtain available drainage studies and standards.
2. Reviewed available drainage studies and data and prepared a summary of the pertinent information available in each document.
3. Met with representatives of each canal company to review irrigation flow requirements and define design irrigation flow requirements.
4. Met with the cities of Draper, Sandy, Midvale, Holladay, and Salt Lake to present study objectives, review and obtain available data, and receive comments.

Task 2 - Data Gathering

Available canal and storm drainage system information was obtained. Study activities for this task included the following:

1. Used available storm drainage facilities mapping, available "as builts", contour mapping and information summarized in Task 1 to prepare the existing facilities GIS coverages and mapping in ArcView GIS.
2. Available mapping and field reconnaissance were used to identify locations where field survey was needed to define canal cross sections and flow control.
3. Surveyed canal cross sections, bridges, overflows, and other identified flow controls.
4. Input survey data into ArcView GIS.
5. Reviewed canal data coverage with Salt Lake County staff.

Task 3 - Definition of Existing Canal Storm Drainage Capacity

Existing canal capacity was defined for the Jordan and Salt Lake Canal, East Jordan Canal, and Upper Canal.

1. Minimum freeboard requirements were selected with Salt Lake County staff.
2. HEC-RAS water surface profile models were prepared for the Eastside Canals.
3. Field reconnaissance was performed during the irrigation season to provide data for calibrating the HEC-RAS models.
4. The HEC-RAS models were calibrated based on field reconnaissance to define capacity available for storm drainage in each canal reach.
5. Predicted canal capacities and irrigation flow requirements were compared to define capacity available for storm drainage in each canal reach.
6. Met with Salt Lake County personnel to present results and receive comments.

Task 4 - Canal Storm Drainage Computer Model Development

A storm drainage computer model was prepared to define tributary storm drainage flowrates and areas of deficient canal capacity. Study activities for this task included the following:

1. Assisted the County in selection of the storm drainage model. The advantages and disadvantages of available storm drainage models were reviewed.
2. Using aerial photography mapping and contour data provided by the County, and drainage basin maps from previous studies; drainage basin and subbasin boundaries and flow paths were delineated.
3. Typical hydrologic characteristics by land use type were defined using data summarized in Task 1.
4. Met with County staff to review drainage basin boundaries and existing hydrologic characteristics. Subbasin boundaries were modified based on input from the County.

5. Using available storm drainage model data and mapping, hydrologic characteristics for each subbasin were developed.
6. Hydrologic characteristics were developed for all model features including conveyances, detentions, confluences, and diversions.
7. Runoff hydrographs at key locations were computed. The storm drainage model was calibrated qualitatively through evaluation with County personnel.
8. Predicted storm drainage flows and irrigation flow requirements were compared with canal capacities. Identified areas of deficiency.
9. Predicted creek flows were compared with creek master plans (Mill Creek, Big Cottonwood Creek, Little Cottonwood Creek, Willow Creek, and Corner Canyon Creek).

Task 5 - Canal Storm Drainage Plan

A canal storm drainage plan was prepared, including recommendations for immediate and future improvement recommendations. Study activities for this task included the following:

1. A workshop with County personnel was held to review modeling results and develop conceptual level solution alternatives.
2. The alternative plans were compared on the basis of conceptual level construction costs, maintenance requirements, and public acceptability.
3. A workshop was held with County personnel to evaluate the alternatives and select the preferred alternative.
4. The preferred drainage plan was refined and recommendations were prioritized.
5. Workshops were held with Salt Lake City, Midvale City, Sandy City, Draper City, East Jordan Canal Company, and Upper Canal Company.

Task 6 - Master Plan Document Preparation

A report was prepared documenting the capability and needs of using the Eastside Canals to convey storm drainage. Study activities for this task included the following:

1. A draft table of contents and outline was prepared. The draft outline was reviewed by County staff. Suggestions received from County staff were used to revise the outline as needed to meet County needs.
2. A draft study report document was prepared.
3. The draft document was presented to County staff for review.
4. Comments from County staff on the draft document were received and the Final Master Plan Document was prepared.

STUDY AREA

The study area includes the tributary area within Salt Lake County east of the Jordan and Salt Lake Canal between 14600 South and 800 South(see Figure ES-1). The study area includes portions of the following Cities: Draper, Sandy, Murray, Salt Lake, Holladay, South Salt Lake, and Midvale.

CHAPTER II

STORM DRAINAGE MODEL DEVELOPMENT

This chapter describes the methodology and process related to the storm drainage model for the Salt Lake County Eastside Canal Study. First, the hydrology and basin characteristics will be discussed followed by a description of the model.

HYDROLOGY AND BASIN CHARACTERISTICS

Design Storm

A design storm is a distribution of rainfall depths over a time increment for a given duration and frequency. Each of the following components of the design storm used in this study are described in this section: frequency, precipitation depth, duration and distribution.

Frequency

Salt Lake County staff selected the 10-year storm event for the storm drain analysis of the Eastside canals because the 10-year event is the design frequency used by the cities with storm drain system tributary to the Eastside Canals and is the generally accepted standard for storm drainage analysis along the Wasatch Front. The 10-year storm by definition has a 10 percent chance of being equaled or exceeded in any given year.

Applying the 100-year or greater storm event in the cities with storm drain systems tributary to the Eastside Canals is a more complex issue. In most of the newer developments, roadways are lower in elevation than adjacent lots which allow the roadways to carry the runoff that exceeds the capacity of the initial storm drainage system. However, the older sections of the County were developed around an existing open channel irrigation system where ditches along roadways deliver irrigation water to adjacent lots and agricultural land. The ditches along the roadways must be higher than the lots, so the roadways are higher in elevation than adjacent properties. Runoff that exceeds the capacity of the initial storm drainage system will collect in low areas between the homes and the roadways, and in some cases may flow through lots between homes. Determining the local storage in existing lots and identifying flow patterns for the 100-year storm event, is not feasible with the topographic information that is currently available.

Precipitation Depth

The Rainfall Intensity Duration Analysis, Salt Lake County, Utah, (TRC North American Weather Consultants and Meteorological Solutions Incorporated, 1999), was used to develop design rainstorm depths for the study area. The TRC report gives design rainfall depths for storms with durations of 1-hour and 6-hours. A 3-hour design storm developed by Salt Lake County was selected by County staff for this study. Rainfall depths for the 3-hour design storm were determined using the precipitation depths for the 1-hour and 6-hour duration storms from the TRC report and a technique developed by the National Oceanic and Atmospheric Administration (NOAA, 1973). Precipitation depths tend to increase with elevation and with proximity to mountains. The 10-year, 3-hour rainfall depths range from 1.19 inches adjacent to the Jordan and Salt Lake Canal to 1.22 inches in the higher elevations of the tributary area (see Table I-1). One average design rainfall value of 1.21 inches was used for the 3-hour duration, 10-year frequency design storm for the entire study area. Table I-1 is a summary of the precipitation depths for the study area from the TRC report.

TABLE II-1
PRECIPITATION DEPTHS

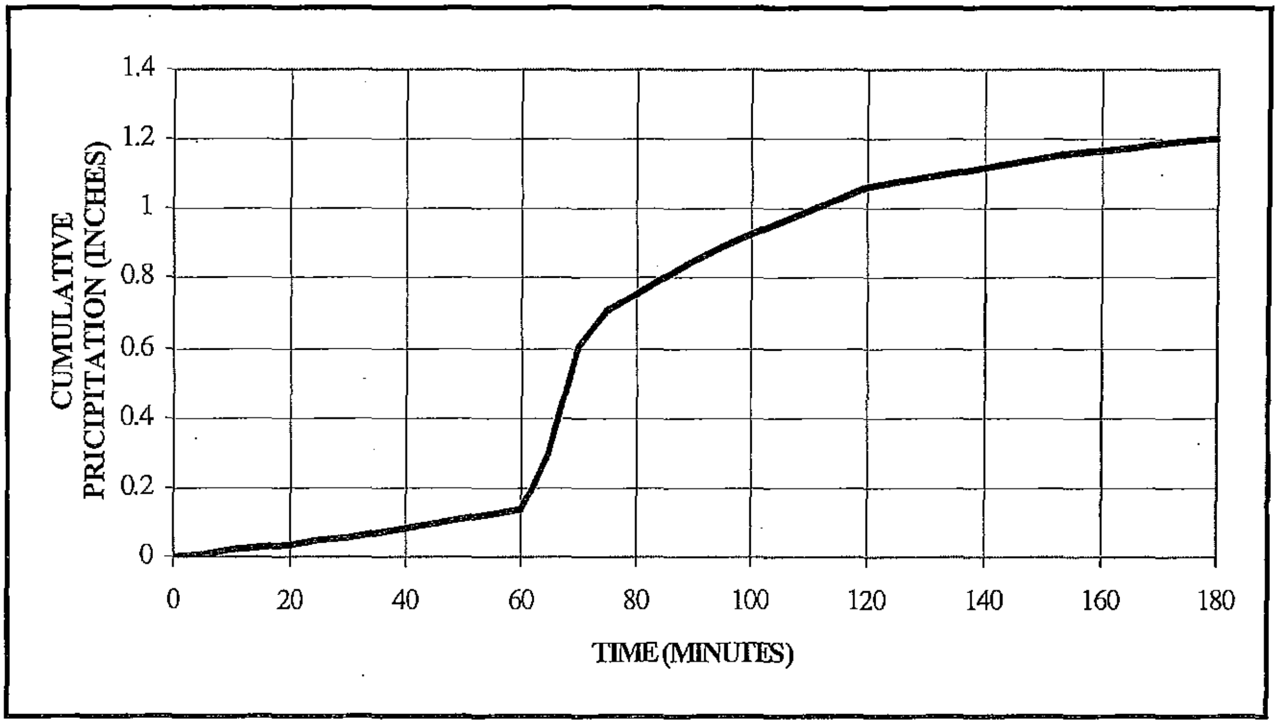
10-Year Storm Duration	Range of Precipitation in Study Area (inches)
1-Hour	0.88 to 0.92
3-Hour	1.19 to 1.22
6-Hour	1.40 to 1.50

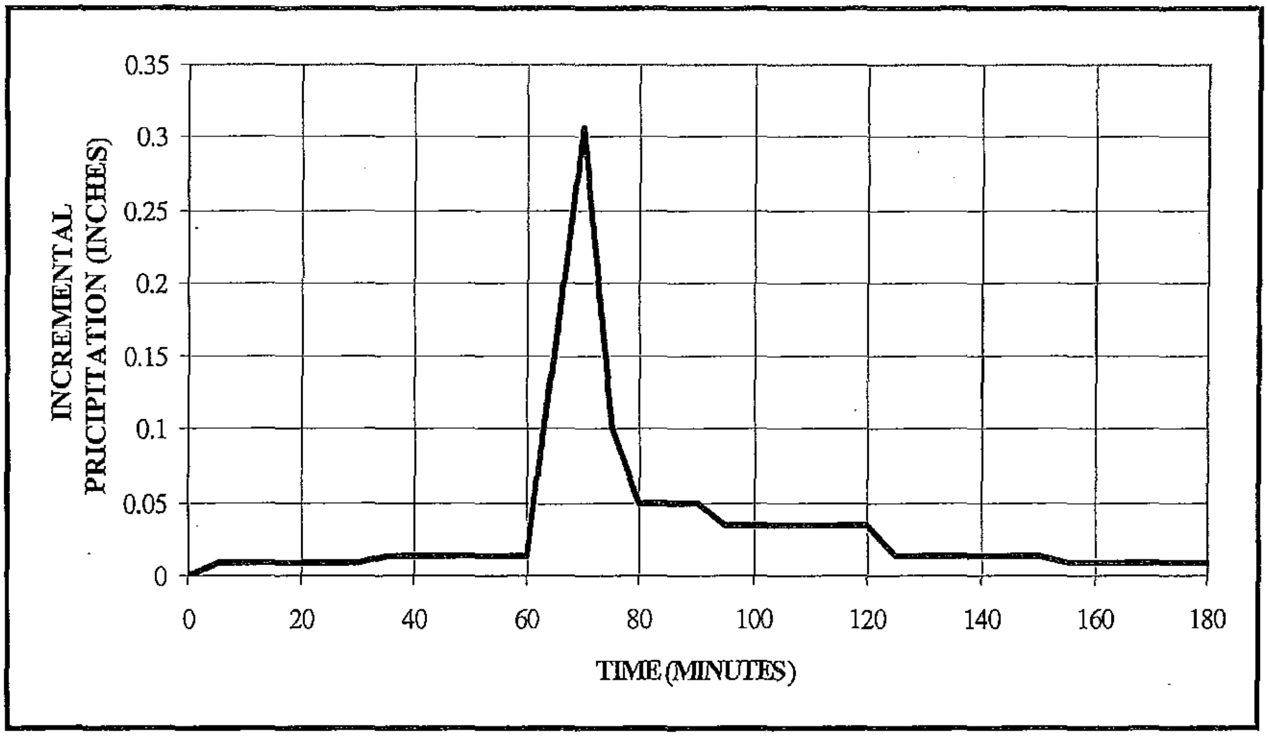
Distribution and Duration

To compute runoff from a given storm, the distribution of the rainfall through time must be known. Critical runoff events from urban areas along the Wasatch Front are caused by cloudburst type storms, characterized by short periods of high intensity rainfall. During the 1960's and early 1970's, Dr. Eugene E. Farmer and Dr. Joel E. Fletcher completed a major study of the precipitation characteristics for storms in northern Utah. This effort has become the definitive source for rainfall distributions appropriate for the Wasatch Front area. In Davis County, Farmer and Fletcher (1971) examined rainfall gage records and classified storms based on whether the heaviest rainfall of the storm fell in the first, second, third, or fourth quarter of the storm period. Farmer and Fletcher found that "first and second quartile storms together comprise 76 percent of those storms containing a burst of 5-minute duration, with a 2-year recurrence interval and 92 percent of storms containing a burst of 10-minute duration, with a 10-year recurrence interval." Farmer and Fletcher developed model storms for first and second quartile storms.

The 3-hour design storm distribution developed by Salt Lake County that is based on the Farmer-Fletcher storm distribution was selected for this study. The 3-hour design storm duration utilizes a Farmer-Fletcher first quartile storm distribution for the central hour of the 3-hour distribution. The remaining two hours of the design storm distribution were distributed symmetrically around the central hour (see Figure II-1).

FIGURE II-1
SALT LAKE COUNTY 10-YEAR, 3-HOUR DESIGN STORM DISTRIBUTION





Drainage Basin Characteristics

A drainage basin is an area where rain or snow melt runoff within it will collect to a common point. Another name for a drainage basin is watershed or catchment. Subbasins are smaller drainage basins located within a larger drainage basin. Drainage subbasin boundaries depend upon both the topography and the location of storm drainage facilities. The drainage subbasin boundaries delineated for the storm drainage model are shown on Figure II-2.

Subbasins were delineated and subbasin characteristics were developed based on the following mapping and data sources:

- Salt Lake County Storm Drainage Master Plan maps showing locations of storm drainage facilities.
- Digital base mapping of Salt Lake County consisting of physical features such as property lines, canals, and streets.
- Aerial photo and contour mapping of Salt Lake County
- The Sandy City Storm Drain Master Plan and HEC1 input files for areas in Sandy City tributary to the Eastside Canals (CH2MHill, 1998).
- The Draper City Storm Drainage Master Plan and Storm Drainage Model for areas in Draper City tributary to the Eastside Canals (HAL, 2001).
- "Soil Survey, Salt Lake County, Utah" (SCS, 1968).
- 7-½ Minute U.S. Geological Survey topographical maps.
- Curve number selection procedures provided by the Soils Conservation Service (SCS, 1972).
- Field reconnaissance.
- Discussions with County staff.

The subbasins characteristics for the area in Sandy City tributary to the Eastside Canals were not developed by HAL. Subbasin characteristics developed by CH2MHill for the Sandy City Storm Drain Master Plan were used directly in the storm drainage model developed for the Eastside Canal Study.

Subbasins for the remainder of the study area not in Sandy City were developed with the following characteristics:

- Subbasin area
- Hydrologic soil type
- Percentage of impervious area
- SCS curve number
- Conveyance characteristics

Hydrologic characteristics of each subbasin are given in the model output provided in Appendix A. Subbasin numbers are illustrated on the Figure II-2. Areas east of the canals not included in the

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SALT LAKE COUNTY EASTSIDE CANAL STUDY
STORM DRAINAGE MODEL

FIGURE II-2

model indicate where storm drainage does not enter the canals but is conveyed directly west toward the Jordan River.

Subbasin Area

Subbasins were delineated within the GIS database using the mapping and data sources. Subbasins varied in size depending upon the level of development within the subbasin and the locations for which hydrographs were needed. Average subbasin size in developed areas was approximately 60-acres.

Hydrologic Soil Type

Hydrologic soil type is a general indication of the soil's infiltration capacity. Soils are assigned a hydrologic type of A, B, C, or D by the Natural Resource Conservation Service (NRCS). Soils of hydrologic soil type A have the highest infiltration rate, and therefore produce the least amount of runoff. Soils of hydrologic soil type D have the lowest infiltration rate, and therefore produce the highest amount of runoff. The soil type data were assigned to each subbasin. The calculation runoff is dependent on the soil hydrologic type.

Impervious Area

Impervious areas within each subbasins were estimated using the GIS model. The impervious area was divided into two components, directly connected impervious areas and unconnected impervious areas. Directly connected impervious areas provide a direct path for runoff from the impervious area to a conveyance such as a pipe, gutter, or channel. Directly connected impervious areas include roadways, parking lots, driveways, and sometimes the roofs of buildings. Runoff from unconnected impervious areas must cross a pervious area before reaching a conveyance. Examples of unconnected impervious areas include sidewalks that are not adjacent to the curb, patios, sheds, and usually some portion of the roof of a house.

Differentiation was made between directly connected and unconnected impervious areas. Runoff from directly connected impervious area reaches the drainage conveyance system quickly and usually determines the magnitude of the peak flow rate upstream from detention. Impervious areas such as back yard patios which drain to grassed or landscaped areas have much less impact on storm runoff peak flows. Based upon field observations, the directly contributing impervious area for a typical residential lot in Salt Lake County is assumed to include the driveway, and 50 percent of the home and garage area. It is assumed that runoff from the remaining 50 percent of the home and garage area flows over grassed areas before reaching the street. For large commercial structures, it was assumed that 100 percent of the roof area is directly connected impervious area.

SCS Curve Number

Each basin was assigned an SCS curve number. The curve number describes the relationship between precipitation and runoff for the pervious and unconnected impervious portions of the subbasin. Curve numbers for each subbasin were estimated using a methodology presented by the Soil Conservation Service (SCS, 1972).

MODEL DESCRIPTION

The Salt Lake County Eastside Canal Study Storm Drainage Model is a combination of an ArcView GIS model and the Army Corps of Engineers (COE) "Flood Hydrograph Package (HEC-1)" linked by the Hydrologic Model Interface (HMI). HMI is a custom user interface developed by HAL to operate within the ArcView GIS environment. HMI provides an interactive link between the user, the GIS database, and HEC-1. A description of the model is contained in Appendix B.

The Eastside Canals Storm Drainage Model incorporates the Army Corps of Engineer's "Flood Hydrograph Package (HEC-1)" for calculation of runoff hydrographs. The kinematic wave modeling method for urban areas was used for all of the subbasins included in the model. The HEC-1 input file is written by HMI from the information within the GIS database.

Model Components

The Storm Drainage Model is comprised of five major components. Each of these model components is described below.

- **Subbasin Elements** - Subbasins are the basic elements for which runoff hydrographs are calculated. Subbasin elements represent a geographic area, and they are described by all of the hydrologic characteristics required by HEC-1 for calculation of a runoff hydrograph. Hydrologic characteristics of the subbasin elements are discussed in above.

- **Conveyance Elements** - Conveyance elements are used to represent routing of runoff through pipes, gutters, and channels. Conveyance elements are described by slope, length, hydraulic roughness, and cross section dimensions.

- **Confluence Elements** - Confluence elements are used to combine runoff hydrographs. Confluences are described by a single value which defines the number of hydrographs to be combined.

- **Diversion Elements** - Diversion elements are used to split runoff hydrographs. Diversions are described by a curve defining the flow of water being diverted for a given base flow. It is also defined by what hydrograph the diverted flow is being diverted to.

- **Detention Basin Elements** - Detention basin elements route runoff through a detention basin. Detention basin elements are described numerically by a stage-volume relationship, a stage discharge relationship, and an initial water level.

- **Connectivity Data** - Connectivity data defines the order in which the model elements are processed by HEC-1. Each model element is assigned a rank and the HEC-1 input file is written according to that rank. The order in which model elements are processed by HEC-1 establishes hydrograph routing and when hydrographs are combined.

Model Tools

All of the data associated with the model elements are contained within the GIS database. HMI accesses the GIS database, calculates hydrologic characteristics of the subbasins, and assembles the data to create input files for HEC-1. Input files are processed by HEC-1 to calculate the runoff hydrographs. Runoff hydrographs are calculated for subbasins, conveyances, confluences, and detention basins. HMI can then read the HEC-1 hydrograph files, identify peak flowrates, and write the hydrograph data to the GIS database. Some of the tools used to accomplish these tasks are as follows:

- **Connectivity Editor** - This tool allows the user to define hydrograph routing by assigning a rank to each of the model elements. The rank establishes the order that the element is written to the HEC-1 file. When a new element is inserted into the model, this tool automatically adjusts the rank of the subsequent elements.

- **Subbasin Analysis** - This tool uses information from the GIS database to calculate subbasin area, the percentages of connected and unconnected impervious area, and the representative SCS curve number for each subbasin.

- **HEC-1 Input File Writer** - The HEC-1 input file writer gathers the model data from the GIS database and writes the input file that is used by HEC-1 to calculate the runoff hydrographs.

Computation of Runoff Hydrographs

Hydrographs were computed for each subbasin, conveyance, confluence, detention basin inlet, and detention basin outlet. The maximum value from each hydrograph is the peak runoff flow rate. HMI determines the peak runoff flow rate for each hydrograph and adds the hydrographs to the GIS database.

Peak flows from the 10-year, 3-hour storm event are shown by reach for each Eastside Canal in Tables II-2, II-3, and II-4. Existing peak flows are flows without the Sandy City Storm Drain Master Plan Projects completed. The future peak flows are with the Sandy City Storm Drain Master Plan Projects completed. Model input and output is provided in Appendix A.

TABLE II-2
EAST JORDAN CANAL (INCLUDING EXTENSION)
10-YEAR, 3-HOUR STORM PEAK FLOW BY REACH

HMI ID	Upstream Station	Downstream Station	Existing 10-Year, 3-Hour Storm Peak Flow (cfs)	Future 10-Year, 3-Hour Storm Peak Flow (cfs) [1]
CV832	38+80	0+00	188.4	19.5
CV763	50+41	38+80	225.4	22.3
CV762	64+77	50+41	233.4	20.7
CV761	77+70	64+77	240.6	20.5
CV813	112+18	77+70	244.3	4.1
CV860	126+07	112+18	255.3	3.8
CV828	197+50	126+07	259.2	0.0
CV808	200+02	197+50	287.1	22.7
CV864	230+47	200+02	286.4	20.2
CV824	252+48	230+47	303.9	19.4
CV756	259+58	252+48	318.7	0.0
CV755	263+04	259+58	312.7	0.0
CV754	275+95	263+04	110.6	0.0
CV753	283+06	275+95	110.0	60.0
CV752	291+35	283+06	106.9	55.5
CV751	314+48	291+35	78.4	20.4
CV750	319+41	314+48	79.1	7.7
CV749	323+28	319+41	78.7	0.0
CV748	326 ~~336~~+47	323+28	72.8	0.0
CV747	334+10	326+47	24.8	24.8
CV821	350+54	334+10	0.0	0.0
CV820	363+55	350+54	44.8	28.9
CV745	375+37	363+55	43.5	22.0
CV744	383+19	375+37	38.3	0.0
CV743	419+78	383+19	30.2	30.2
CV742	436+77	419+78	25.6	25.6
CV816	456+38	436+77	0.0	0.0
CV815	486+49	456+38	56.2	0.0

1. Future flows are less than existing flows because the implementation of the municipal storm drain master plans will decrease the flow of storm runoff to the canal.

TABLE II-2
EAST JORDAN CANAL (INCLUDING EXTENSION)
10-YEAR, 3-HOUR STORM PEAK FLOW BY REACH
(CONTINUED)

HMI ID	Upstream Station	Downstream Station	Existing 10-Year, 3-Hour Storm Peak Flow (cfs)	Future 10-Year, 3-Hour Storm Peak Flow (cfs) [1]
CV740	492+34	486+49	61.6	0.0
CV739	514+43	492+34	50.0	50.0
CV738	522+40	514+43	52.3	52.3
CV863	550+75	522+40	35.1	35.1
CV862	551+94	550+75	0.0	0.0
CV499	568+70	551+94	88.2	88.2
CV379	574+78	568+70	91.5	91.5
CV378	593+79	574+78	88.3	88.3
CV724	597+96	593+79	93.0	93.0
CV723	608+48	597+96	85.1	85.1
CV383	623+00	608+48	86.0	86.0
CV384	637+76	623+00	50.0	50.0
CV232	644+96	637+76	51.9	51.9
CV227	651+58	644+96	50.6	50.6
CV228	658+87	651+58	26.1	26.1
CV234	665+62	658+87	29.6	29.6
CV335	682+63	665+62	11.4	11.4
CV340	696+35	682+63	4.6	4.6
CV273	706+65	696+35	2.0	2.0
CV276	732+37	706+65	1.8	1.8
CV345	738+68	732+37	57.5	57.5
CV347	741+17	738+68	56.8	56.8
CV348	764+54	741+17	55.2	55.2
CV385	793+84	764+54	58.8	58.8
CV537	799+73	793+84	34.2	34.2
CV538	808+66	799+73	37.4	37.4
CV539	818+14	808+66	41.8	41.8

1. Future flows are less than existing flows because the implementation of the municipal storm drain master plans will decrease the flow of storm runoff to the canal.

TABLE II-3
JORDAN AND SALT LAKE CANAL
10-YEAR, 3-HOUR STORM PEAK FLOW BY REACH

HMI ID	Upstream Station	Downstream Station	Existing 10-Year, 3-Hour Storm Peak Flow (cfs)	Future 10-Year, 3-Hour Storm Peak Flow (cfs) [1]
CV794	17+48	0+00	3.4	3.4
CV847	24+62	17+48	0.0	0.0
CV846	39+00	24+62	14.4	14.4
CV845	44+93	39+00	12.0	12.0
CV844	46+71	44+93	22.5	22.5
CV843	54+77	46+71	0.0	0.0
CV842	61+28	54+77	22.3	22.3
CV840	94+61	61+28	22.4	22.4
CV789	118+83	94+61	21.3	21.3
CV838	132+85	118+83	20.4	20.4
CV787	150+81	132+85	18.7	18.7
CV836	171+81	150+81	16.0	16.0
CV835	176+75	171+81	0.0	0.0
CV834	186+27	176+75	37.1	37.1
CV784	219+42	186+27	37.6	37.6
CV783	232+93	219+42	40.7	40.7
CV782	237+91	232+93	39.4	39.4
CV781	254+00	237+91	30.5	30.5
CV810	273+55	254+00	21.3	21.3
CV809	293+32	273+55	8.0	8.0
CV831	324+91	293+32	0.0	0.0
CV830	368+50	324+91	17.9	17.9
CV802	382+24	368+50	17.3	17.3
CV778	398+66	382+24	8.8	8.8
CV827	404+82	398+66	0.0	0.0
CV826	410+95	404+82	50.2	32.1
CV777	428+08	410+95	50.6	29.7
CV776	439+42	428+08	51.5	25.3
CV775	444+85	439+42	51.8	18.1
CV774	462+25	444+85	51.2	9.0

1. Future flows are less than existing flows because the implementation of the municipal storm drain master plans will decrease the flow of storm runoff to the canal.

TABLE II-3
JORDAN AND SALT LAKE CANAL
10-YEAR, 3-HOUR STORM PEAK FLOW BY REACH
(CONTINUED)

HMI ID	Upstream Station	Downstream Station	Existing 10-Year, 3-Hour Storm Peak Flow (cfs)	Future 10-Year, 3-Hour Storm Peak Flow (cfs) [1]
CV773	483+61	462+25	52.4	28.6
CV772	507+26	483+61	53.1	28.8
CV771	514+68	507+26	56.2	28.8
CV736	525+71	514+68	36.2	19.7
CV822	538+82	525+71	20.1	0.0
CV734	569+76	538+82	11.1	0.0
CV733	599+07	569+76	10.8	10.8
CV732	620+12	599+07	7.3	7.3
CV757	628+16	620+12	0.3	0.3
CV819	650+90	628+16	0.0	0.0
CV867	664+96	650+90	38.7	10.4
CV730	674+90	664+96	38.0	7.3
CV729	684+60	674+90	36.5	18.7
CV728	691+09	684+60	35.0	16.0
CV727	707+80	691+09	32.9	11.7
CV497	740+15	707+78	29.0	0.0
CV491	776+06	740+15	20.2	20.2
CV490	784+83	776+06	19.7	19.7
CV489	797+72	784+83	17.6	17.6
CV485	814+17	797+72	14.8	14.8
CV482	833+04	814+17	1.6	1.6
CV866	841+70	833+04	0.0	0.0
CV865	861+03	841+70	77.2	77.1
CV480	861+03	851+04	77.8	77.8
CV479	868+09	861+03	78.0	78.0
CV478	872+70	868+09	79.0	79.0
CV472	882+40	872+70	79.8	79.8
CV470	889+66	882+40	82.1	82.1
CV471	897+18	889+66	85.2	85.2
CV475	928+85	897+18	89.1	89.1
CV534	944+82	928+85	75.0	75.0
CV535	965+64	944+82	41.0	41.1

1. Future flows are less than existing flows because the implementation of the municipal storm drain master plans will decrease the flow of storm runoff to the canal.

TABLE II-4
UPPER CANAL
10-YEAR, 3-HOUR STORM PEAK FLOW BY REACH

HMI ID	Upstream Station	Downstream Station	10-Year, 3-Hour Storm Peak Flow (cfs) [1]
CV870	17+48	0+00	3.4
CV769	24+62	17+48	0.0
CV768	39+00	24+62	14.4
CV767	44+93	39+00	12.0
CV859	46+71	44+93	22.5
CV859	54+77	46+71	0.0
CV869	61+28	54+77	22.3
CV868	94+61	61+28	22.4
CV765	118+83	94+61	21.3
CV764	132+85	118+83	20.4

1. The Upper Canal does not have separate existing and future peak flows because the tributary area is mostly developed and no master plan projects affect the Upper Canal.

CHAPTER III

STORM DRAINAGE CAPACITY

The Eastside Canals play a key role in conveying storm drainage water to overflows where the storm water can be diverted to the Jordan River. The ability of the canals to convey storm water is dependent on canal base flows (irrigation delivery requirements), canal capacity above base flow deliveries, and location of storm drain inflows and overflows along the canals.

HEC-RAS CANAL MODELS

The U.S. Army Corps of Engineers Hydrologic Engineering Center - River Analysis System (HEC-RAS) software can be used to perform one-dimensional steady and unsteady flow channel hydraulics calculations. This software was developed by the United States Government and is available for free download at the Internet site www.hec.usace.army.mil. The most recent version of HEC-RAS is version 3.0 which was released in January of 2001.

The HEC-RAS software was used to generate steady flow models of the Eastside canals. The canal models were used to calculate water surface profiles at given flow rates for each of the canals. The water surface profiles were used to estimate the capacity of different reaches within the canals.

HEC-RAS has the ability to calculate water surface profiles. The input data for a HEC-RAS model consists of geometric and flow data. Geometric data include reach lengths, loss/roughness coefficients, cross sections, and data for structures such as bridges, weirs, and culverts. Steady flow data include flow rates and flow change locations for different reaches along the canals. HEC-RAS has the ability to calculate water surface profiles for subcritical, supercritical, and mixed flow conditions using the energy equation, momentum equation, Yarnell equation, and WSPRO method. For a detailed description of the model methods and capabilities please refer to "HEC-RAS River Analysis System User's Manual", U.S. Army Corps of Engineers, Version 3.0, January 2001.

Model Data and Development

A HEC-RAS model was developed for the Eastside Canals. Data for the model were obtained by conducting a survey of each of the canals including cross sections and structures, contacting canal water masters and taking flow measurements to obtain flow rate inputs, and conducting field visits to sites along the canals to measure canal water surface elevation at structures for the calibration of the models. Each of these steps is described in more detail below.

Canal Surveys

A survey was conducted of the Eastside Canals by Robinson Biehn & Biehn Inc., Professional Land Surveyors, Salt Lake City, Utah. Each structure within the study area for each of the canals was surveyed along with cross sections at various locations along the canals. Cross section survey locations were selected by viewing aerial photos, contour mapping, and computer generated cross sections along each of the canals and selecting locations that appeared to typify reaches of the canal. A survey report, including the survey data (cross section and structure survey points with location and elevation), canal structure sketches, and photographs of the canal structures was prepared for each canal. An AutoCAD file containing each of the survey points was also generated for each canal. Figures C-1 through C-3 of Appendix C are plan and profile drawings of the Eastside Canals.

Geometric Data

Each of the canal models were developed in the same manner. First, an ArcView Shape file of the canal centerline was imported into HEC-RAS. Next, AutoCAD files containing the centerline and survey data for each of the canals were generated. The AutoCAD drawings were used to determine the stationing and distance along the canals to each surveyed cross section and structure. The cross section and structure data were then input into the HEC-RAS model at the correct location along the canal.

A Manning's n value was assigned to each reach of the canal. An initial Manning's n value of 0.04, representing a canal with a clean bottom and brush on the sides, was used for each of the canals. This value was selected by observing canal conditions during a field visit to the canals, and by viewing photographs of the canals at canal structures.

Field Reconnaissance

Field reconnaissance was performed on August 16 and 17, 2001 in order to provide data for calibration of the HEC-RAS canal models. The East Jordan Canal was visited on August 16, 2001 and water level measurements were taken at various structures along the canal. A flow measurement was also taken in Draper at the old overflow to Corner Canyon Creek near the intersection of Stokes Avenue and Fort Street. The section of the Jordan and Salt Lake canal between 14600 South and I-15 was also visited on August 16, and water level measurements were taken at various structures along this section of the canal. On August 17, 2001, water level measurements were taken at various structures along the remainder of the Jordan and Salt Lake Canal, along the Upper Canal, and along the East Jordan Canal Extension. A summary of the field notes is included in Appendix D.

Flow Data

Flow data for the East Jordan Canal on the day of the field visit were obtained from the water master for the East Jordan Canal as 220 cfs at the diversion and 40 cfs at the East Jordan Canal Extension. During the field visit to the East Jordan Canal, the flow was measured at 138 cfs near the old Corner Canyon Creek overflow. For purposes of the model, a flow of 140 cfs was assumed from the beginning of the study at 14600 South to the old Corner Canyon Creek overflow. It was assumed based on information provided by the water master, that from the old Corner Canyon Creek overflow to the beginning of the East Jordan Canal Extension at about 7000 South, there was a linear decrease in flow from 138 cfs to 40 cfs in increments of about 2,000 feet along the canal.

Upon speaking with the water master for the Jordan and Salt Lake Canal it was determined that around the time of the field visit to the canal, flow was approximately 13 cfs. Upon speaking with the water master for the Upper Canal it was determined that around the time of the field visit to the Upper Canal, flow was also approximately 13 cfs.

Assumptions

The assumptions that were made in modeling the canals are as follows:

- Conveyance facilities downstream of lateral weirs and overflow structures are capable of conveying the full amount of overflow.
- All adjustable head gates and diversion structures are closed.
- The canals are free of major obstructions such as fallen trees, beaver dams, etc.
- Automatic overflow weirs are releasing all excess storm water over the canal base flow amount.
- Proposed Sandy City Storm Drain Master Plan improvements to the East Jordan Canal and Jordan and Salt Lake Canal are in place. (For example, new overflows and storm drain bypasses.)

Model Calibration

Calibration of the HEC-RAS canal models can be accomplished by entering measured water surface elevations into HEC-RAS for comparison to water surface profiles generated by the model. The model can be calibrated by adjusting the Manning's n roughness values until the model generated water surface profiles are close to the measured water surface elevations. Calibration information for each of the canal models is included below.

East Jordan Canal

The East Jordan Canal model was used to generate a water surface profile using the flow data as given in the previous section. This water surface profile was compared to the measured water surface elevations to verify the accuracy of the model. The model in most cases generated a water surface profile within 1 foot of the measured water surface elevations. If there appeared to be an excessive difference between the modeled and actual water surface elevation, the Manning's n values downstream of the area of interest were adjusted in order to calibrate the model. There were only a couple of areas along the canal where adjustments were made to the model.

Jordan and Salt Lake Canal

The Jordan and Salt Lake Canal was carrying very low flows during the summer of 2001 when water level measurements were taken. It was determined that due to the low flows and a beaver dam in the canal, an accurate calibration could not be accomplished. It was also determined that reasonable Manning's n values would be selected for the canal based on field observation and canal photographs. A Manning's n value of 0.04 was used for the canal which represents a canal with a clean bottom and brush on the sides. This is the condition for the majority of the canal, however, there were some areas along the canal where pond weed was growing on the bottom of the canal. Due to the difficulties in associating a Manning's n value with the sections of the canal containing pond weed, and due to the fact that pond weed growth would probably be limited under higher flow conditions, it was assumed that all sections of the canal could be modeled with a Manning's n of 0.04.

Upper Canal

Similar to the Jordan and Salt Lake Canal, it was determined that due to low flows in the Upper Canal a calibration would not be performed, but the canal would be modeled using a value for Manning's n of 0.04.

Model Results

In order to evaluate the capacity of the canals, the canal models were used to generate water surface profiles at flows ranging from very low flows to high flows that exceeded the capacity of the canals. Canal reaches were selected for capacity evaluation based on storm drain inflow and overflow locations. It was assumed that the automatic overflows along the canal discharge all storm flow and that the water surface elevation was set at each overflow slightly above the overflow elevation. Limiting sections were selected for each canal reach by using the canal profile and cross section data to select the section within a reach that would be the first to overflow under high flow conditions. The results from HEC-RAS were used to obtain the capacity for each reach of the Eastside Canals at different amounts of freeboard. The maximum capacity was tabulated reach by reach for a freeboard of 0, 0.5, and 1 feet. After reviewing the results of the analysis with Salt Lake County it was determined that1 feet of freeboard would be used to represent the capacity of the Eastside Canals. Canal sections with less freeboard than 0.5 feet would be considered problem areas. The canal capacity reach by reach at 0.5 feet of freeboard is presented for all three canals in Table III-1, Table III-2, and Table III-3. Figures C-1 through C-3 of Appendix C are plan and profile drawings of the Eastside Canals with water surface profiles from the model results.

Tables III-1 through III-3 show the capacity of each canal reach by reach. The capacity varies from one reach to the next and is based on a limiting cross section for each reach. Most portions of a reach will have a greater capacity than what is shown in the table, but the capacity of the limiting section is presented.

TABLE III-1
EAST JORDAN CANAL (INCLUDING EXTENSION) TOTAL CAPACITY BY REACH

Downstream Station[1]	Upstream Station[1]	South Ordinate		Capacity (cfs)	
		Downstream	Upstream	0.5 ft Freeboard	0 ft Freeboard
0+00	115+60	5450[1]	6650	52	60
115+60	173+74	6650	7125	26	70
173+74	275+00	7125	8000	92	~~88~~ ← 113 cfs
275+00	350+54	8000	9000	51	75
350+54	456+38	9000	10250	115	140
456+38	550+75	10250	11400	300	330
550+75	732+37	11400	13520	175	220
732+37	865+53	13520	14600	225	260

1. HEC-RAS stationing is from downstream to upstream and the beginning of the study (Walker Lane) is at Station 19+41.

TABLE III-2
JORDAN AND SALT LAKE CANAL TOTAL CAPACITY BY REACH

Downstream Station[1]	Upstream Station[1]	South Ordinate		Capacity (cfs)	
		Downstream	Upstream	0.5 ft Freeboard	0 ft Freeboard
0+00	24+62	3345	Mill Creek	16	22
24+62	54+77	Mill Creek	3900	50	65
54+77	176+75	3900	Big Cottonwood	48	52
176+75	325+08	Big Cottonwood	Little Cottonwood	50	82
325+08	404+82	Little Cottonwood	7200	70	80
404+82	650+90	7200	10300	60	80
650+90	841+70	10300	12400	68	90
841+70	1032+10	12400	14600	160	200

1. HEC-RAS stationing is from downstream to upstream and begins at about 3345 South 1300 East.

TABLE III-3
UPPER CANAL TOTAL CAPACITY BY REACH

Downstream Station[1]	Upstream Station[1]	South Ordinate		Capacity (cfs)	
		Downstream	Upstream	0.5 ft Freeboard	0 ft Freeboard
0+00	16+60	3515	3660	4.5	9.5
16+60	107+15	3660	4500	60	80
107+15	282+61	4500	6200	45	62

1. HEC-RAS stationing is from downstream to upstream and begins at about 3515 South 2000 East.

CANAL BASE FLOWS

Canal base flows are very important in determining canal storm drainage capacity. The amount of storm drainage water that can be conveyed by the canal can be calculated by subtracting the canal base flow from the maximum capacity of the canal reach by reach. Canal base flows were determined by reviewing "Salt Lake City Corporation, Department of Public Utilities, Jordan & Salt Lake Canal and East Jordan Canal Study", Hansen, Allen, & Luce, Inc., Salt Lake City, Utah, November 1996, by contacting the water master or canal manager for each of the canals to discuss base flows, and by using the canal models to predict base flows based on overflow elevations. These flows are normal current operating base flows. Base flows to satisfy all water rights would be greater than these flows. The canal base flow data for each of the canals is presented in Table III-4 below.

TABLE III-4
NORMAL IRRIGATION BASE FLOWS FOR THE EASTSIDE CANALS

Canal	Reach	Base Flow (cfs)
East Jordan[1]	14600 South - 13520 South	140
	13520 South - 11400 South	130
	11400 South - 9000 South	63
	9000 South - 7125 South	40
	7125 South - 6200 South	26
	6200 South - Walker Lane	13
Jordan and Salt Lake[2]	14600 South - Mill Creek	30
	Mill Creek - 3345 South	20
Upper Canal[3]	Beginning - 3660 South	13
	3660 South - 3515 South	4.5

1. East Jordan Canal base flows were taken from the canal model as flows due to overflow settings, and were verified by the Salt Lake City Department of Public Utilities Canal Manager.
2. The Jordan and Salt Lake Canal base flow was determined by reviewing previous year flows in the canal and consulting with the Salt Lake City Department of Public Utilities Canal Manager.
3. The Upper Canal base flow was determined upon discussion with the canal Water Master and was assumed to be at the capacity of the canal downstream of 3660 South.

Table III-4 shows that base flows in the East Jordan canal range from 13 cfs in the lower portion of the East Jordan Canal Extension to 140 cfs at 14600 South. The Jordan and Salt Lake canal is shown to have a relatively consistent base flow along the length of the canal of about 30 cfs, and the Upper Canal base flow was assumed to be 4.5 cfs in the downstream section of the canal to about 3660 South and 13 cfs in the rest of the canal. The exact base flow is unknown in the lower section of the Upper Canal due to the use of an adjustable head gate at 3660 South.

STORM DRAINAGE CAPACITY

Each of the canal base flows as presented in Table III-4 can be subtracted from the total canal capacities of the canals from Tables III-1 through III-3 to determine the canal storm drainage capacity. The available storm drainage capacity for each canal is presented in Tables III-5 through III-7 below.

TABLE III-5
EAST JORDAN CANAL (INCLUDING EXTENSION)
STORM DRAINAGE CAPACITY WITH 0.5 FOOT FREEBOARD BY REACH

Downstream Station[1]	Upstream Station[1]	South Ordinate		Storm Drainage Capacity (cfs)
		Downstream	Upstream	
0+00	115+60	5450[1]	6650	26
115+60	173+74	6650	7125	0
173+74	275+00	7125	8000	52
275+00	350+54	8000	9000	11
350+54	456+38	9000	10250	52
456+38	550+75	10250	11400	237
550+75	732+37	11400	13520	45
732+37	865+53	13520	14600	85

1. HEC-RAS stationing is from downstream to upstream and the beginning of the study (Walker Lane) is at Station 19+41.

TABLE III-6
JORDAN AND SALT LAKE CANAL
STORM DRAINAGE CAPACITY WITH 0.5 FOOT FREEBOARD BY REACH

Downstream Station[1]	Upstream Station[1]	South Ordinate		Storm Drainage Capacity (cfs)
		Downstream	Upstream	
0+00	24+62	3345	Mill Creek	0
24+62	54+77	Mill Creek	3900	20
54+77	176+75	3900	Big Cottonwood	18
176+75	325+08	Big Cottonwood	Little Cottonwood	20
325+08	404+82	Little Cottonwood	7200	40
404+82	650+90	7200	10300	30
650+90	841+70	10300	12400	38
841+70	1032+10	12400	14600	130

1. HEC-RAS stationing is from downstream to upstream and begins at about 3345 South 1300 East.

TABLE III-7
UPPER CANAL STORM
STORM DRAINAGE CAPACITY WITH 0.5 FOOT FREEBOARD BY REACH

Downstream Station[1]	Upstream Station[1]	South Ordinate		Storm Drainage Capacity (cfs)
		Downstream	Upstream	
0+00	16+60	3515	3660	0
16+60	107+15	3660	4500	47
107+15	282+61	4500	6200	32

1. HEC-RAS stationing is from downstream to upstream and begins at about 3515 South 2000 East.

The calculated canal storm drainage capacity can then be compared to calculated storm drainage inflows to determine where the canals have insufficient capacity to convey expected storm drainage water. Areas along the canals that were identified as having insufficient capacity to convey storm water are presented in Chapter IV of this report.

CANAL OVERFLOW EVALUATION

One of the major assumptions that was made in the evaluation of the canals was that all automatic overflows will discharge all of the upstream storm flows and the flow downstream of the overflows will be reduced to the canal base flow. An evaluation of the existing overflows on the canals was conducted to determine if the current overflows are sufficient. The results of the overflow evaluation are presented in Table III-8 on the following page. Table III-8 also includes overflows that are proposed as a part of the "Storm Drain Master Plan" for Sandy City.

Existing Overflows

Most of the existing overflows on the East Jordan Canal are adequately sized to discharge storm water (See Table III-8). The overflow at 13520 South is the new Corner Canyon Creek overflow. The evaluation of the overflow showed that at the current overflow elevation of the overflow it would need to be about 30 feet wide to discharge all of the storm flow coming into the canal upstream. The East Jordan Canal downstream of the new overflow, however, appears to have sufficient capacity to convey the 10-year, 3-hour storm flows which carry over past the existing 18-foot overflow.

Due to a change in irrigation delivery/base flow in the Jordan and Salt Lake Canal, a preliminary evaluation showed that all of the overflows except the flume at Mill Creek will need to be modified to discharge upstream storm flows. The overflow elevation of the overflows along the Jordan and Salt Lake Canal is generally higher than the base flow water surface elevation. This is due to the decrease in flow carried by the Jordan and Salt Lake Canal in recent years. An in-depth study of how the overflows will need to be modified to discharge upstream storm flows is beyond

TABLE III-8
EASTSIDE CANALS OVERFLOW EVALUATION

Station	Location	Overflow Elevation	Base Flow Water Surface Elevation	Weir Width	Calibration Base Flow (cfs)	Upstream Storm Flow (cfs)	Sufficient	Recommendations/Comments
EAST JORDAN CANAL (INCLUDING EXTENSION)								
115+60	6650 South	4451.11	4450.38	8	26	4	yes	
173+74	Little Cottonwood Cr.	4451.60	4452.42	6.5	36	22	yes	Adjustable by check boards.
275+95	8000 South		4456.84		52	60	-	Sandy City Master Plan proposed overflow.
333+00	8760 South		4459.28		63	25	-	Sandy City Master Plan proposed overflow.
350+54	9000 South	4458.76	4460.04	16	67	29	yes	
383+19	9400 South		4461.74		74	30	-	Sandy City Master Plan proposed overflow.
456+38	10250 South	4465.92	4465.39	12	85	0	yes	
493+17	10600 South		4466.81		93	50	-	Sandy City Master Plan proposed overflow changed to a bypass.
550+75	11400 South	4466.05	4467.82	20	104	88	yes	Sandy Master Plan proposed bypass.
732+37	13520 South	4474.96	4475.36	18	138	58	no	Corner Canyon Creek overflow. Required width = 30 ft.
738+90	13550 South	4475.94	4475.49	6	138	NA	NA	Old overflow, water surface generally below overflow.
JORDAN AND SALT LAKE CANAL								
24+60	Mill Creek	4385.37	4385.47	85	20	14	yes	
54+77	3900 South	4390	4389.97	4	30	22	no	Modify overflow to provide capacity to discharge storm flow.
176+75	Big Cottonwood Cr.	4398.77	4398.36	7.5	30	37	no	Modify overflow to provide capacity to discharge storm flow.
324+90	Little Cottonwood Cr.	4402.58	4402.24	16	30	18	no	Modify overflow to provide capacity to discharge storm flow.
404+82	7200 South	4404.88	4404.28	9.5	30	32	no	Modify overflow to provide capacity to discharge storm flow.
469+10	8000 South		4407.07		30	28/0	-	Sandy City Master Plan proposed overflow.
511+02	8600 South		4407.72		30	28	-	Sandy City Master Plan proposed overflow.
569+76	9400 South		4409.88		30	11	-	Sandy City Master Plan proposed overflow.
650+90	10300 South	4412.73	4412.48	19	30	10	no	Modify overflow to provide capacity to discharge storm flow.
679+14	10600 South		4412.85		30	11	-	Sandy City Master Plan proposed overflow changed to a bypass.
740+15	11400 South		4414.44		30	20	-	Sandy City Master Plan proposed overflow changed to a bypass.
841+70	12400 South	4417.31	4417.40	6	30	77	no	Modify overflow to provide capacity to discharge storm flow
UPPER CANAL								
16+49	3660 South	4542.19	4542.25	4	13	4	no	Replace headgate with an automatic overflow
107+09	4500 South	4560.62	4560.50	17	13	21	yes	

the scope of this study. It is likely that the concrete overflows on the overflows will need to be saw-cut to lower the overflow elevations to the base flow water surface elevation.

The overflow at 4500 South on the Upper Canal is adequately sized to discharge storm water. The overflow located at 3660 South, however, is not adequately designed to automatically discharge excess water. A manual gate has to be opened to regulate the amount of water diverted out of the canal through the overflow. It is recommended that the headgate on the overflow be replaced with an automatic overflow to reduce the possibility of flooding downstream.

Proposed Overflows

As a part of the Sandy City "Storm Drain Master Plan", prepared by CH2MHILL, August 1998, several overflows and storm drain bypasses were proposed on the East Jordan and Jordan and Salt Lake Canals. The proposed overflows are included in Table III-8. An evaluation of the canals was conducted without the Sandy City improvements included in the model. The result was extensive flooding along the canals in the Sandy City area and downstream. Upon meeting with Sandy City staff it was determined that work is proceeding on the 8000 South and 8600 South overflows and the 9400 South overflow will be completed in the future. The overflow at 10250 South (Dry Creek) was recently replaced on the East Jordan Canal. Also, Sandy City indicated they do not plan to install the proposed overflows at 11400 South and 10600 South on the Jordan and Salt Lake Canal and the proposed overflow at 10600 South on the East Jordan Canal. Storm drain pipes that bypass the canals are planned at these three proposed overflow locations, but overflows are not. It was assumed in the models for the Eastside Canals that the proposed overflow locations at 11400 South and 10600 South on the Jordan and Salt Lake Canal and the proposed overflow location at 10600 South on the East Jordan Canal will be bypasses and not overflows.

CHAPTER IV

STORM DRAINAGE CAPACITY INADEQUACIES

The storm drainage inadequacies identified by the storm drainage and surface profile models are described in this chapter. The Eastside Canals were evaluated assuming that improvements suggested as part of the Sandy City Storm Drain Master Plan are implemented (except for the proposed overflows at 11400 South and 10600 South on the Jordan and Salt Lake Canal and 10600 South on the East Jordan Canal which are evaluated as bypasses consistent with current Sandy City planning). Improvements included a number of storm drainage bypasses and new overflows through the Sandy City area (see Table IV-1). Because the Sandy City Storm Drain Master Plan projects have a significant impact on the storm drain capacity in the East Jordan Canal and the Jordan and Salt Lake Canal, it is recommended that the County monitor the progress of Sandy City in implementing the projects. The Sandy City Storm Drain Master Plan improvements do not affect the Upper Canal. The Eastside Canals were evaluated assuming that improvements to overflows identified in Table III-8 are implemented. Without the Sandy City Storm Drain Master Plan improvements and overflow modifications, the East Jordan Canal and Jordan and Salt Lake Canal have many additional and more severe problem areas than the ones identified in this chapter.

TABLE IV-1
SANDY CITY STORM DRAIN MASTER PLAN PROJECTS ASSOCIATED WITH THE EASTSIDE CANALS

PROJECT NUMBER [1]	PROJECT DESCRIPTION	ESTIMATED COST [1]
80S-P1(A-B)	8000 South Outfall from the East Jordan (EJ) Canal overflow to the Jordan and Salt Lake (JSL) Canal overflow to the Jordan River	$4,017,600
86-P1(A-B)	8600 South Outfall from the JSL Canal overflow to the Jordan River	$2,325,900
86S-P3	8760 South Outfall from the EJ Canal overflow to the JSL Canal	$423,100
94S-P3	9400 South Outfall from the EJ Canal overflow to the Jordan River	$354,100
94-P1(A-B)	9400 South Outfall from the JSL Canal overflow to the JSL Canal	$1,103,700
106S-P1	10600 South Outfall from I-15 to the Jordan River	$891,800
106S-P3	10600 South Outfall from the JSL Canal to I-15 (JSL Canal overflow not needed)	$565,400

TABLE IV-1
SANDY CITY STORM DRAIN MASTER PLAN PROJECTS ASSOCIATED WITH THE EASTSIDE CANALS
(CONTINUED)

PROJECT NUMBER [1]	PROJECT DESCRIPTION	ESTIMATED COST [1]
106S-P4	10600 South Outfall from the EJ Canal to I-15 (EJ Canal overflow not needed)	$393,500
114S-P2	11400 South Outfall Casing Under I-15	$609,900
114S-P1	11400 South Outfall from I-15 to Willow Creek (JSL Canal overflow not needed)	$781,200
114S-P3	11400 South Outfall from the EJ Canal overflow to the Union Pacific Railroad	$601,800
		$12,068,000

1) Project Number and Estimated Costs are from Table 6-1 of Sandy City Storm Drain Master Plan prepared in 1998 by CH2MHill

Each identified problem area is described in the following paragraphs. Recommendations and preferred solutions for each of the inadequacies are discussed in Chapter V.

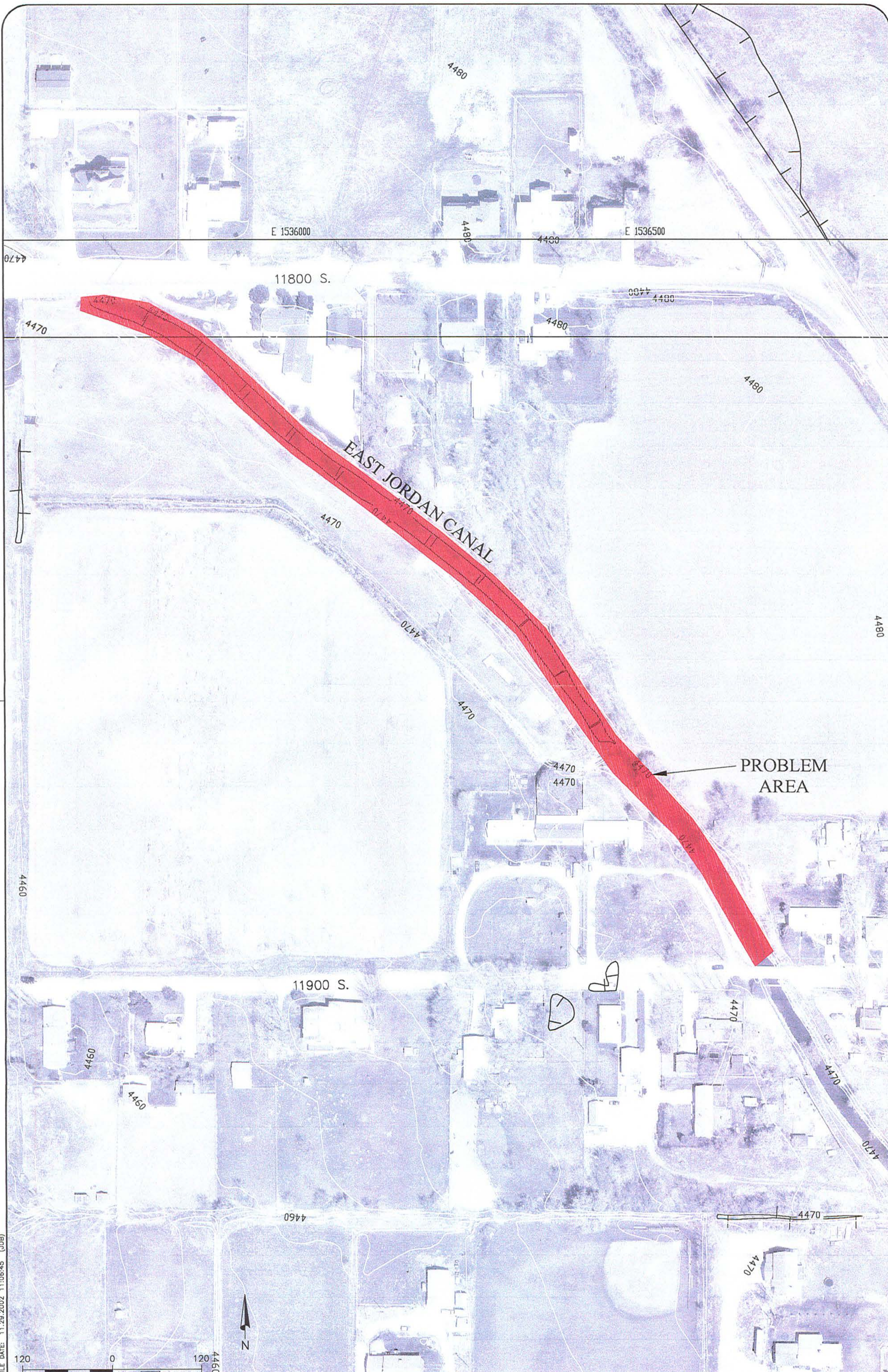
EAST JORDAN CANAL

11900 South 625 East

Downstream of the bridge at 11900 South, a limiting section was identified which has insufficient capacity for the 10-year, 3-hour storm runoff event (see Figure IV-1). The flow in this section with 10 year storm flow on top of base flow is about 216 cfs (130 cfs base and 86 cfs storm flow). The capacity through this section with 0.5 feet of freeboard is 175 cfs which is exceeded by 41 cfs during a 10-year, 3-hour storm. If the water were to overflow the downhill bank in this area, it appears that some driveways would be flooded and additional flooding could result downstream.

8720 South to 8750 South

The canal has a low east bank between the bridges at 8750 South and 8720 South (see Figure IV-2). A feed store is located on the bank at the bridge at 8750 South. City streets and a home are located just beyond this east bank. The total flow through this reach of the canal during a 10-year, 3-hour storm is about 65 cfs (40 cfs base and 25 cfs storm flow). The capacity of the canal through this section with 0.5 feet of freeboard is about 50 cfs.



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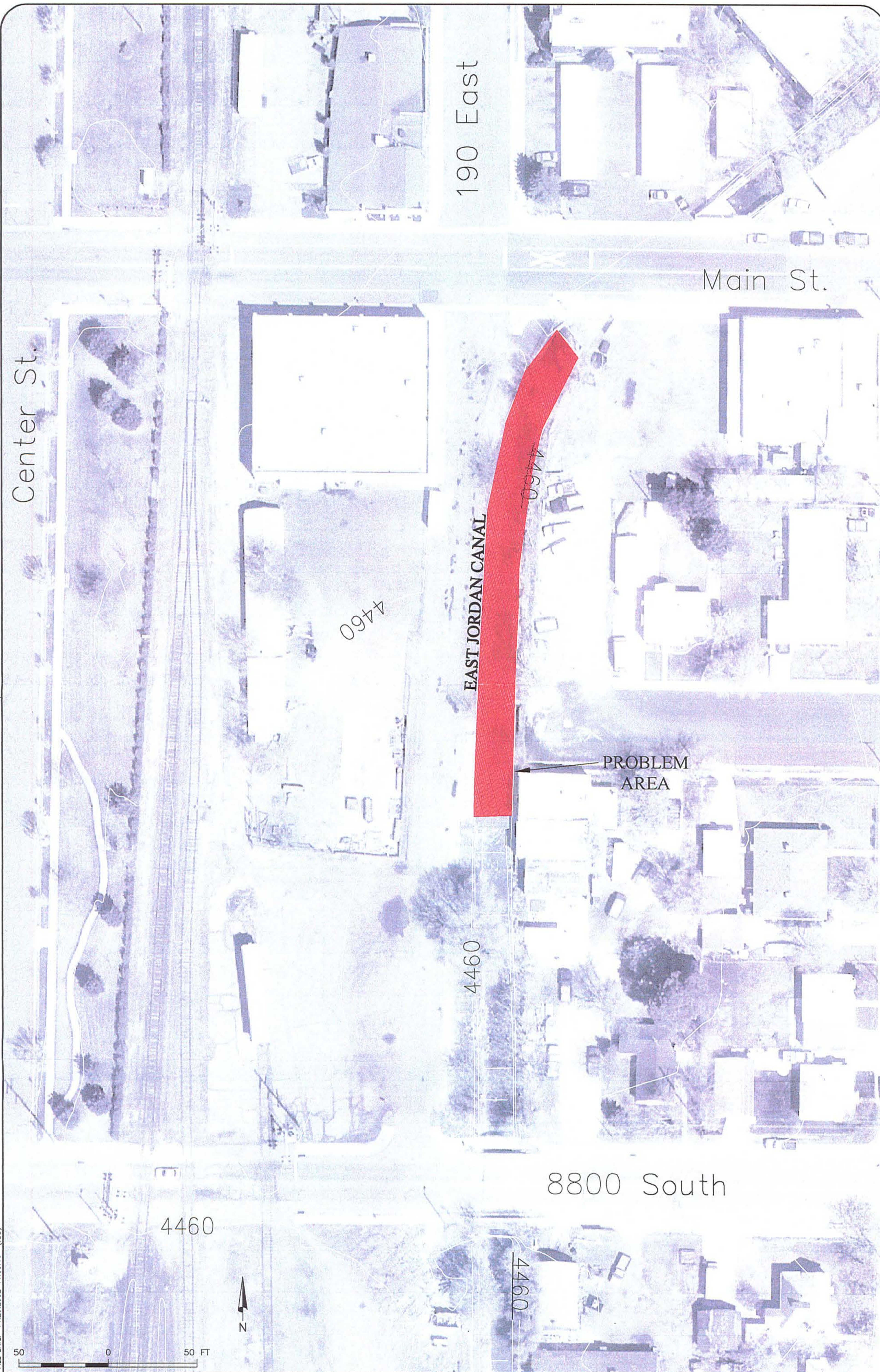
HANSEN ALLEN & LUCE INC ENGINEERS

SALT LAKE COUNTY EASTSIDE CANAL STUDY - EAST JORDAN CANAL
STORM DRAINAGE PROBLEM - 11900 SOUTH 625 EAST

FIGURE IV-1



HANSEN ALLEN & LUCE INC ENGINEERS

SALT LAKE COUNTY EASTSIDE CANAL STUDY - EAST JORDAN CANAL
STORM DRAINAGE CAPACITY PROBLEM - 8720 SOUTH TO 8750 SOUTH

FIGURE IV-2

6800 South

The canal upstream and a short distance downstream of the foot bridge at 6800 South has a low east bank with a school, school playground, and a shed behind the bank (see Figure IV-3). The capacity of the canal at this section (based on the low east bank) is about 26 cfs at 0.5 feet of freeboard. The total flow in the canal through this reach under 10-year, 3-hour storm conditions is slightly above 26 cfs. The capacity of the canal using the west bank elevation is much higher.

JORDAN AND SALT LAKE CANAL

Overflows

The overflow elevation of the overflows along the Jordan and Salt Lake Canal is generally higher than the base flow water surface elevation. This is because flow carried by the Jordan and Salt Lake Canal has decreased in recent years. The following overflows on the Jordan and Salt Lake Canal do not allow the release of excess water over the canal base flow: 3900 South, Big Cottonwood Creek, Little Cottonwood Creek, 7200 South, 10300 South, and12400 South.

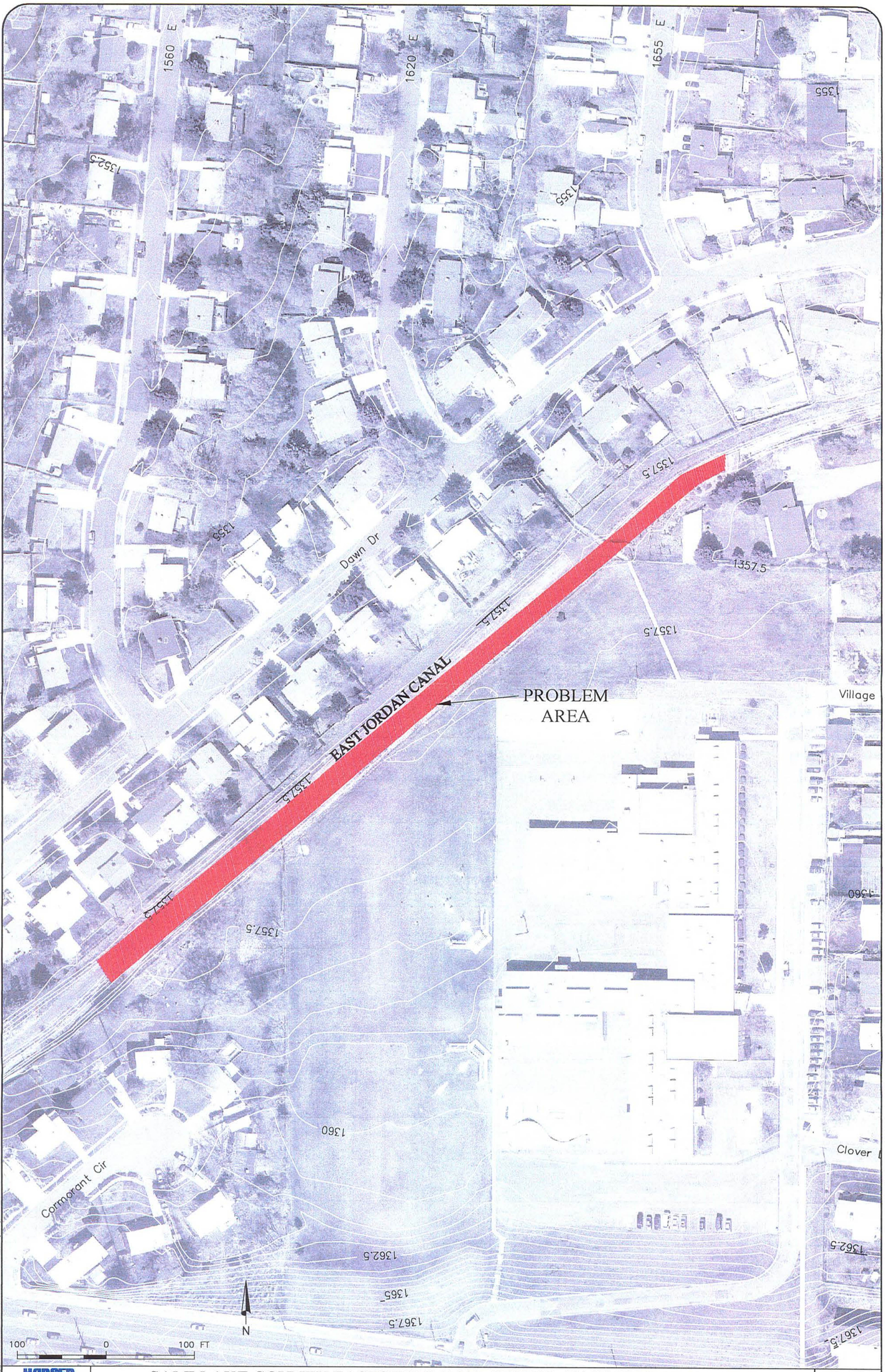
5250 South

The canal upstream of the bridge at 5250 South has a capacity with 0.5 feet of freeboard of 48 cfs (see Figure IV-4). The total flow in this reach of the canal during a 10-year, 3-hour storm is about 68 cfs (30 cfs base and 38 cfs storm flow). If the banks were overtopped at this section of the canal, water would flood a home.

UPPER CANAL

Downstream of 3660 South

The model of the 10-year, 3-hour storm flow on top of a base flow of 13 cfs indicates problems with flooding downstream of the culvert at 3660 South. A large headgate where water can be turned out is located at 3660 South. The water that is not turned out of the canal continues through a culvert across the intersection. Downstream of the intersection the canal turns into a small concrete lined roadside ditch. The model indicates flooding problems along the ditch downstream if the headgate at 3660 South is closed. The total capacity of the ditch downstream of the culvert is about 4.5 cfs to 9.5 cfs with 0.5 feet of freeboard. Predicted flow during a 10-year, 3-hour storm event upstream from the overflow would be about 17 cfs (13 cfs base flow and 4 cfs storm flow).



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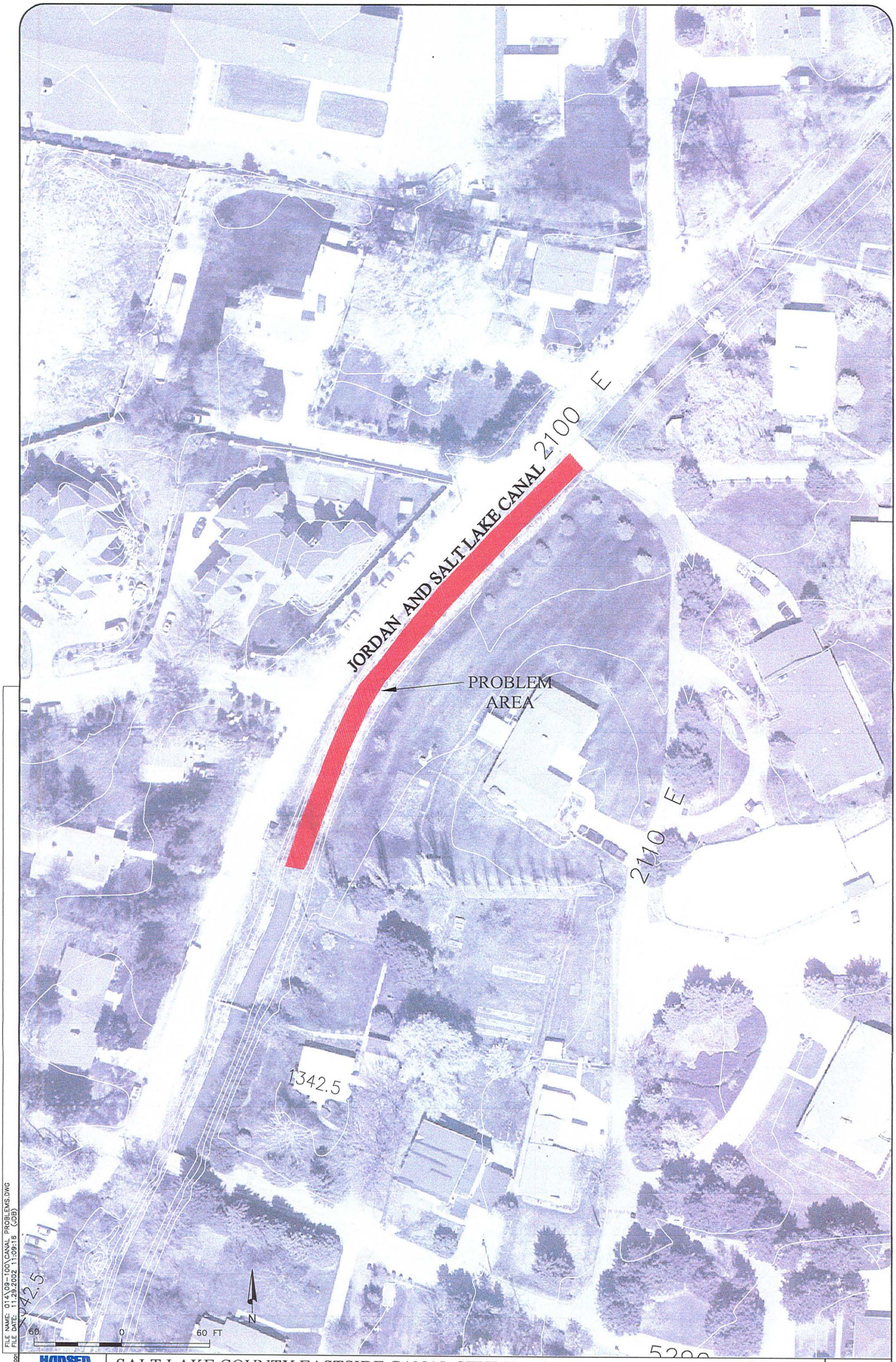
10\2001

SALT LAKE COUNTY EASTSIDE CANAL STUDY - EAST JORDAN CANAL
STORM DRAINAGE CAPACITY PROBLEM - 6800 SOUTH 1650 EAST

FIGURE
IV-3



HANSEN ALLEN & LUCE INC ENGINEERS

SALT LAKE COUNTY EASTSIDE CANAL STUDY - JORDAN AND SALT LAKE CANAL
STORM DRAINAGE PROBLEM - 5250 SOUTH. 2100 EAST

FIGURE IV-4

CHAPTER V

RECOMMENDATIONS

This chapter contains a discussion of the actions HAL recommends to Salt Lake County to improve the storm drainage capacity of the Eastside Canals. The following topics are included in this section:

- Eastside Canals Storm Drainage Capacity Improvement Projects
- Conceptual Construction Costs and Prioritization of Improvements
- Maintenance
- Summary of Recommendations

PREFERRED SOLUTION FOR IMPROVING STORM DRAINAGE CAPACITY

Meetings were held with Salt Lake County personnel to evaluate alternatives for improving the storm drainage capacity of the Eastside Canals. Selection of the preferred alternative was a process of evaluation and refinement, rather than a simple choice between alternatives. Input from County personnel has been very helpful in efficiently eliminating impractical solutions and in formulating practical solutions. The process of selecting a preferred alternative with County staff included: reviewing the list of canal storm drainage inadequacies, brainstorming possible solutions to the problems, screening alternatives based on feasibility and public acceptance, development of alternatives, comparison based on cost and function, and presentation of the alternatives analysis to County staff for selection of the preferred alternative. Preferred solutions were then presented to the respective canal companies and involved cities along with major alternatives for comments. The preferred solution for each inadequacy is described in the following paragraphs. All flows given are peak storm runoff flows in a 10-year, 3-hour storm event.

East Jordan Canal

11900 South 625 East

Downstream of the bridge at 11900 South a limiting section was identified which has insufficient capacity for the 10-year, 3-hour storm runoff event (see Figure IV-1). The preferred solution to the problem is to raise the west bank of the canal to increase the capacity through this reach. The water surface elevation, under 10-year, 3-hour storm conditions, is slightly below the elevation of the west bank. The east bank is significantly higher than the west bank in this area. It is recommended that the west bank be raised by about 1 foot which would give 1 foot of freeboard on the west bank during a 10-year, 3-hour storm. The bank could be raised when the property is developed. The approximate length of the bank needing to be raised is 1,400 feet between the bridges at 11900 South and 11800 South. Figure IV-1 is a location map for this inadequacy.

8720 South to 8750 South

The canal has a low east bank between the bridges at 8750 South and 8720 South (see Figure IV-2). The preferred solution is to raise the east bank to match the elevation of the west bank of the canal through this reach. The 10-year, 3-hour storm water surface elevation through this section is about 4,459.3 feet which is the same as the east bank elevation. If the east bank is raised to the same elevation as the west bank at about 4,460 feet then there will be more than 0.5 feet of freeboard in the canal through this section during a 10-year, 3-hour storm. The total length of the bank that would need to be raised through this section is about 250 feet.

6800 South

The canal upstream and a short distance downstream of the foot bridge at 6800 South has a low east bank with a school, school playground, and homeowners shed behind the bank (see Figure IV-3). The preferred solution is to raise the east bank of canal by about 1.7 feet to be slightly lower than the elevation of the west bank. The total length of bank that would need to be raised through this section is about 900 feet.

Jordan and Salt Lake Canal

Overflows

The overflow elevation of the overflows along the Jordan and Salt Lake Canal is generally higher than the base flow water surface elevation because the flow carried by the Jordan and Salt Lake Canal has decreased in recent years. Modifications to the following overflows on the Jordan and Salt Lake Canal are recommended to allow the release of excess water over the canal base flow: 3900 South, Big Cottonwood Creek, Little Cottonwood Creek, 7200 South, 10300 South, and12400 South. It is recommended that a more detailed study be completed to determine how the overflows and outfalls will need to be modified.

5250 South

The canal upstream of the bridge at 5250 South has insufficient capacity. If the banks were overtopped at this location of the canal, a home would be flooded. It is recommended that the east bank of the canal be raised by about 1 foot and a curb be installed along 2100 East which parallels the canal along the west bank (see Figure IV-4). Alternatively, if a new overflow is installed on the Jordan and Salt Lake Canal at Van Winkle then the problem is taken care of. A new overflow at Van Winkle is currently a part of Salt Lake County's Master Plan.

Upper Canal

Downstream of 3660 South

If the headgate at 3660 South is modeled as being closed, flooding occurs along the ditch downstream. The preferred solution is to modify the overflow at this location to provide for automatic overflow of flows which exceed downstream capacity.

CONCEPTUAL CONSTRUCTION COSTS OF THE CANAL IMPROVEMENTS

Construction costs for improving the storm drainage capacity in the Eastside Canals were estimated for planning purposes (see Table V-1). Unit costs for the construction cost estimates are based on conceptual level engineering. Sources used to estimate construction costs included: The 2002 "Means Heavy Construction Cost Data", price quotes from equipment suppliers, and recent construction bids for similar work.

All costs are presented in 2002 dollars. Recent price and economic trends indicate that future costs are difficult to predict with certainty. Engineering cost estimates given in this study should be regarded as conceptual level as appropriate for use as a planning guide. Only during final design can a more definitive and accurate estimate be provided. A break-down of the cost estimate for each project is provided in Appendix E.

TABLE V-1
CONCEPTUAL COSTS FOR RECOMMENDED IMPROVEMENTS TO THE EASTSIDE CANALS

LOCATION	DESCRIPTION	CONCEPTUAL COST [1]
East Jordan Canal - 8720 South to 8750 South	Build up canal bank	$8,000
East Jordan Canal - 6800 South	Build up canal bank	$56,000
East Jordan Canal - 11900 South 625 East	Build up canal bank or install overflow at Van Winkle	$22,000
Jordan and Salt Lake Canal - 5250 South	Build up canal bank	$48,000
Jordan and Salt Lake Canal - 3900 South, Big and Little Cottonwood Creeks, 7200, 10300, and 12400 South	Modify overflows to provide capacity to discharge storm flow	$100,000
Upper Canal - Downstream of 3660 S	Replace headgate with automatic overflow	$30,000
	TOTAL	**$264,000**

1) Costs are in 2002 dollars.

MAINTENANCE

It is impossible to overstate the importance of effective maintenance in the overall storm water capacity of the Eastside Canals. Without maintenance, the canals will deteriorate, and their storm drainage capacities will be reduced by accumulations of sediments, vegetation, and debris. Historically, the canals have been well maintained. Inadequate maintenance, as with any facility, transforms a productive resource into a multi-faceted liability. It is imperative that sufficient maintenance manpower and equipment are made available to ensure proper function and community acceptance.

Concern was expressed in meetings with Eastside Canal owners that encroachment is becoming a major hinderment to maintenance. Rights-of-way need to be protected from encroachment. A major tool in protecting the rights-of-way for the canals may be to grant recorded easements to the County. It is recommended that a feasibility study be conducted to determine the cost and legal issues related to establishing easements for the canals to Salt Lake County.

It is assumed that if the projects presented in this study for improving storm drainage capacity in the Eastside Canals are completed, the Eastside Canals would be able to convey a 10-year, 3-hour storm event automatically without opening any manually operated head gates. If the head gates were open in anticipation of a storm event, the canal could convey storm drainage runoff from a larger storm event. It is recommended that the County maintain an action plan to optimize the use of the Eastside Canals during a major storm event. For example, have a crew on-call who are trained to operate head gates and monitor key locations in anticipation of and during a major storm event.

NEW STORM DRAINAGE INFLOWS

The Eastside Canals were analyzed assuming the current storm drainage inflows. If a new storm drainage inflow into one of the Eastside Canals is considered, the storm drainage impact of the inflow should be adequately analyzed to insure it will not create an increased risk of flooding during a storm event.

SUMMARY OF RECOMMENDATIONS

1. It is recommended that the Eastside Canals Storm Drainage Capacity Improvement Projects be included in the Salt Lake County Flood Control Capital Improvement Plan.

2. It is recommended that a more detailed study of the Jordan and Salt Lake Canal overflow and outfall systems be completed.

3. The Sandy City Storm Drain Master Plan projects have a significant impact on the storm drain capacity in the East Jordan Canal and the Jordan and Salt Lake Canal. It is vital that these projects be implemented. It is recommended that Salt Lake County work with Sandy City in monitoring the progress of the projects.

4. It is recommended that Salt Lake County continue to work with canal owners to help ensure that the Eastside Canals are properly maintained and able to convey the storm drainage runoff discharged into the canals.

5. Model data should be updated as further land use, conveyance, capacity, and storm drainage inflows data become available.

6. It is recommended that the Eastside Canal Study be periodically reviewed and updated.

7. It is recommended that the impact of a proposed inflow into a canal be adequately analyzed to insure it will not create an increased risk of flooding before it is allowed.

8. It is recommended that a feasibility study be conducted to determine the cost and legal issues related to granting Salt Lake County recorded easements for the canals to allow Salt Lake County to protect rights-of-way from encroachment.

9. It is recommended that the County maintain an action plan to optimize the use of the Eastside Canals during a major storm event. For example, have a crew on-call who are trained to operate head gates and monitor key locations in anticipation of and during a major storm event.

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Utah Administrative Code

Utah Code Annotated

APPENDIX A

STORM DRAINAGE MODEL OUTPUT

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*              JUN   1998               *                         *  HYDROLOGIC ENGINEERING CENTER    *
*            VERSION 4.1                *                         *       609 SECOND STREET           *
*                                       *                         *    DAVIS, CALIFORNIA 95616        *
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT

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 3            ID
 4            IT       1                     240
 5            IO       3

 6            KK   SBC19
 7            BA   0.517
 8            PB    1.21
 9            IN       5
10            PI   0.009   0.009   0.009   0.009   0.009   0.009   0.014   0.014   0.014   0.014
11            PI   0.014   0.014   0.160   0.306   0.100   0.050   0.050   0.050   0.035   0.035
12            PI   0.035   0.035   0.035   0.035   0.014   0.014   0.014   0.014   0.014   0.014
13            PI   0.009   0.009   0.009   0.009   0.009   0.009
14            LS     0.1      98                   67.32     0.1
15            UK      25     .02      .1   13.46
16            UK      70     .02      .4   86.54
17            RD     500     .02     .02     .01    TRAP       2      25
18            RD    2000     .02    .015            CIRC       2
19            KO                                      22

20            KK   CV859Upper Canal
21            RD 1058.60 0.00050   0.030            TRAP    8.00    1.00
22            KO                                      22

23            KK   SBC18
24            BA  0.1642
25            LS     0.1  98.000                  67.635     0.1
26            UK      25     .02      .1   21.36
27            UK      70     .02      .4   78.64
28            RD     600     .02     .02    .013    TRAP       2      25
29            RD    2400    .038     .02            CIRC       2
30            KO                                      22

31            KK   HC368
32            HC       2
33            KO                                      22

34            KK   CV767Upper Canal
35            RD 2028.28 0.00050   0.030            TRAP    8.00    1.00
36            KO                                      22
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KK   SBC17
BA  0.1927
LS      0.1  98.000                     69.166     0.1
UK       25     .02       .1   26.74
UK       70     .02       .4   73.26
RD     1000     .02      .02     .03   TRAP        2       25
RD     3500    .028      .02           TRAP        2       25
KO                                        22

KK   HC369
HC        2
KO                                        22

KK   CV768Upper Canal
RD 2043.84 0.00050   0.030             TRAP     8.00     1.00
KO                                        22

KK   SBC16
BA  0.3566
LS      0.1  98.000                     69.047     0.1
UK       25     .02       .1   26.03
UK       70     .02       .4   73.97
RD      900     .02      .02    .039   TRAP        2       25
RD     5500    .028      .02           TRAP        2       25
KO                                        22

KK   HC370
HC        2
KO                                        22

KK   CV769Upper Canal
RD 4038.60 0.00050   0.030             TRAP     8.00     1.00
KO                                        22

KK     DH35
DT     DR35
DI        0      25       50     100     200     400      800
DQ        0      25       50     100     200     400      800
KO                                        22

KK   SBC15
BA  0.2984
LS      0.1  98.000                     70.613     0.1
UK       25     .02       .1   29.09
UK       70     .02       .4   70.9
RD     2000    .018      .02           TRAP        2       25
KO                                        22

KK   HC37
HC        2
KO                                        22

KK   CV870
RD 1414.47 0.00050   0.030             TRAP     8.00     1.00
KO                                        22

KK   SB419
BA  0.1373
LS      0.1  98.000                     86.000     0.1
UK       20     .02       .1   60.00
UK      300     .04       .4   40.00
RD     2000     .04      .02    .018   TRAP        2       25
RD     3800    .005      .04           TRAP       10        2
KO                                        22

KK   CV539East Jordan Canal
RD 947.634 0.00050   0.030             TRAP    20.00     1.50
KO                                        22

KK   SB647
BA  0.0433
LS      0.1  98.000                     65.000     0.1
UK       40     .02       .1   28.68
UK      150     .05       .4   71.32
RD     1200     .07      .04           TRAP        0        2
KO                                        22
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```
KK    SB85
BA  0.0185
LS      0.1  98.000                              75.000      0.1
UK       20     .02        .1     11.00
UK      200     .05        .4     89.00
RD     1500     .05       .04                      TRAP        0          2
KO                                                   22

KK    HC212
HC        3
KO                                                   22

KK  . CV538East Jordan Canal
RD 893.659 0.00050    0.030                        TRAP    20.00       1.50
KO                                                   22

KK    CV537East Jordan Canal
RD 588.552 0.00050    0.030                        TRAP    20.00       1.50
KO                                                   22

KK    SB483
BA  0.0230
LS      0.1  98.000                              64.205      0.1
UK       25      .1        .1     15.37
UK       80      .1        .4     84.63
RD     1500      .1       .02                      TRAP        2         25
KO                                                   22

KK     DB29
RS              FLOW
SV        0   0.013    0.0267    0.0417     0.058    0.075   0.0938     0.147   0.1617
SE        0     0.5         1       1.5         2      2.5        3         4      4.5
SQ        0     1.2    1.6974    2.0789       2.4    2.684     2.94    3.0135     7.35
KO                                                   22

KK     CV686to East Jordan Canal
RD 150.002 0.10600    0.015                        CIRC     2.00       0.00
KO                                                   22

KK    SB484
BA  0.0496
LS      0.1  98.000                              64.451      0.1
UK       20     .05        .1     22.07
UK       75     .05        .4     77.93
RD     2000     .05       .02                      TRAP        2         25
KO                                                   22

KK    HC310
HC        2
KO                                                   22

KK     CV687to East Jordan Canal
RD 222.905 0.05030    0.015                        CIRC     1.25       0.00
KO                                                   22

KK     CV688to East Jordan Canal
RD 234.031 0.03430    0.015                        CIRC     1.25       0.00
KO                                                   22

KK     CV689to East Jordan Canal
RD 364.368 0.06520    0.015                        CIRC     1.25       0.00
KO                                                   22

KK     CV690to East Jordan Canal
RD 452.124 0.10690    0.015                        CIRC     1.50       0.00
KO                                                   22

KK     DB78
RS              FLOW
SV        0    0.04    0.0842    0.1317     0.183    0.238   0.2961     0.464   0.5104
SE        0     0.5         1       1.5         2      2.5        3         4      4.5
SQ        0   1.895     2.679     3.281     3.789    4.236     4.64     4.756     11.6
KO                                                   22

KK    SB479
BA  0.0179
LS      0.1  98.000                              65.000      0.1
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KK
UK      15     .02      .1   23.38
UK     100      .1      .4   76.62
RD     900     .01    .015              CIRC     1.25
KO                                        22

KK    HC31
HC       2
KO                                        22

KK    CV715to East Jordan Canal
RD 512.804 0.03000   0.015              CIRC     1.25     0.00
KO                                        22

KK    SB475
BA  0.0333
LS     0.1  98.000                    69.369      0.1
UK      30     .02      .1   65.00
UK     300      .1      .4   35.00
RD    1300      .1     .04              TRAP        0        2
KO                                        22

KK    HC312
HC       2
KO                                        22

KK    CV717to East Jordan Canal
RD 1130.45 0.10000   0.030              TRAP     0.00     2.00
KO                                        22

KK    SB477
BA  0.0344
LS     0.1  98.000                    60.000      0.1
UK      25     .05      .1   22.39
UK      70      .1      .4   77.6
RD     500      .1     .02   0.003      TRAP        2       25
RD    1300      .1     .02              TRAP        2       25
KO                                        22

KK    DB80
RS            FLOW
SV       0   0.019  0.0399  0.0625     0.087    0.113   0.1404     0.22    0.242
SE       0     0.5       1     1.5         2      2.5        3        4      4.5
SQ       0   1.796  2.5403  3.1113     3.593    4.017      4.4     4.51       11
KO                                        22

KK    SB478
BA   0.037
LS     0.1  98.000                    60.804      0.1
UK      20     .05      .1   16.16
UK     200      .1      .4   83.84
RD    1200      .1     .02              TRAP        2       25
KO                                        22

KK    HC314
HC       2
KO                                        22

KK    CV713to East Jordan Canal
RD 918.836 0.14000   0.030              TRAP     0.00     2.00
KO                                        22

KK    DB79
RS            FLOW
SV       0    0.04  0.0831    0.13     0.181    0.235   0.2922    0.458   0.5038
SE       0     0.5       1     1.5         2      2.5        3        4      4.5
SQ       0    1.87   2.644   3.239      3.74    4.181     4.58    4.695    11.45
KO                                        22

KK    SB837
BA  0.0369
LS     0.1  98.000                    81.000      0.1
UK      30     .02      .1   35.00
UK     300      .1      .4   65.00
RD    1800      .1     .04              TRAP        0        2
KO                                        22

KK    HC313
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HC       2
KO                                          22

KK   CV716to East Jordan Canal
RD 1984.04 0.10000   0.040                TRAP    0.00    2.00
KO                                          22

KK    HC17
HC       2
KO                                          22

KK   CV726to East Jordan Canal
RD  87.941 0.01000   0.040                TRAP    0.00    2.00
KO                                          22

KK   SB474
BA  0.0665
LS     0.1  98.000                      65.000     0.1
UK      20     .05      .1   22.17
UK      70     .05      .4   77.83
RD     500     .05     .02    .007       TRAP        2      25
RD    2000     .05    .015               CIRC       24
KO                                          22

KK   CV674to East Jordan Canal
RD 314.328 0.03300   0.015                CIRC    2.50    0.00
KO                                          22

KK   CV675to East Jordan Canal
RD 189.127 0.09000   0.015                CIRC    3.00    0.00
KO                                          22

KK   CV673to East Jordan Canal
RD 687.840 0.00800   0.015                CIRC    2.50    0.00
KO                                          22

KK   CV685to East Jordan Canal
RD 146.902 0.00950   0.015                CIRC    2.50    0.00
KO                                          22

KK   CV684to East Jordan Canal
RD 238.739 0.02260   0.015                CIRC    2.50    0.00
KO                                          22

KK   CV676to East Jordan Canal
RD 487.683 0.07130   0.015                CIRC    2.50    0.00
KO                                          22

KK   SB649
BA  0.0502
LS     0.1  98.000                      60.000     0.1
UK      15     .05      .1   24.47
UK      60     .05      .4   75.53
RD     550      .1     .02   .0025       TRAP        2      25
RD    1500     .05    .015               CIRC        2
KO                                          22

KK   CV677to East Jordan Canal
RD 188.712 0.08450   0.015                CIRC    2.00    0.00
KO                                          22

KK   HC216
HC       2
KO                                          22

KK   CV678to East Jordan Canal
RD 423.497 0.05560   0.015                CIRC    2.50    0.00
KO                                          22

KK   CV679to East Jordan Canal
RD 132.897 0.04170   0.015                CIRC    3.00    0.00
KO                                          22

KK   SB648
BA  0.0203
LS     0.1  98.000                      65.000     0.1
UK      20     .05      .1   24.08
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289    UK      50     .05      .4   75.92
290    RD     400    .005     .02    .003    TRAP      2       25
291    RD    1100     .07    .015            CIRC   1.25
292    KO                                      22

293    KK   CV680to East Jordan Canal
294    RD 138.908 0.00500   0.015            CIRC    1.00     0.00
295    KO                                      22

296    KK   HC215
297    HC       2
298    KO                                      22

299    KK   CV681to East Jordan Canal
300    RD 211.329 0.00900   0.015            CIRC    3.50     0.00
301    KO                                      22

302    KK   CV682to East Jordan Canal
303    RD 270.703 0.01790   0.015            CIRC    3.50     0.00
304    KO                                      22

305    KK   SB788
306    BA  0.0396
307    LS     0.1  98.000                  75.000     0.1
308    UK      30     .02      .1   11.00
309    UK     250     .05      .4   89.00
310    RD    1300     .08     .04            TRAP       0        2
311    KO                                      22

312    KK   HC214
313    HC       3
314    KO                                      22

315    KK     DB8
316    RS              FLOW
317    SV       0   0.345  0.7203  1.1269   1.564   2.033   2.5326    3.969   4.3659
318    SE       0     0.5       1     1.5       2     2.5        3        4      4.5
319    SQ       0   32.41   45.83   56.13   64.81   72.46    79.38   81.365   198.45
320    KO                                      22

321    KK   CV683to East Jordan Canal
322    RD 125.889 0.01500   0.015            CIRC    1.67     0.00
323    KO                                      22

324    KK   HC213
325    HC       2
326    KO                                      22

327    KK   CV385East Jordan Canal
328    RD 3075.40 0.00050   0.030            TRAP   20.00     1.50
329    KO                                      22

330    KK   SB789
331    BA  0.0895
332    LS     0.1  98.000                  68.097     0.1
333    UK      30     .02      .1    1.00
334    UK     250     .15      .4   99.00
335    RD    1000     .15     .04     .02    TRAP       0        2
336    RD    2500    .005     .04            TRAP      12        2
337    KO                                      22

338    KK   SB787
339    BA  0.0443
340    LS     0.1  98.000                  65.000     0.1
341    UK      20     .02      .1   19.25
342    UK      75     .02      .4   80.75
343    RD     700     .05     .02    .005    TRAP       2       25
344    RD    2170     .02     .02            TRAP       2       25
345    KO                                      22

346    KK   SB786
347    BA  0.0665
348    LS     0.1  98.000                  63.562     0.1
349    UK      20     .03      .1   10.38
350    UK     100     .03      .4   89.62
351    RD    2250     .03     .02            TRAP       2       25
352    KO                                      22
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353        KK   SB785
354        BA  0.054
355        LS      0.1  98.000                        75.000     0.1
356        UK       25    .025      .1   11.00
357        UK      250     .02      .4   89.00
358        RD      600     .02     .02   0.025     TRAP          2        10
359        RD     2200    .005     .04             TRAP         10         2
360        KO                                        22

361        KK   HC217
362        HC        5
363        KO                                        22

364        KK   CV348East Jordan Canal
365        RD 2251.96 0.00050   0.030              TRAP      20.00      1.50
366        KO                                        22

367        KK   SB874
368        BA  0.0615
369        LS      0.1  98.000                        78.000     0.1
370        UK       20     .02      .1   18.00
371        UK      200     .02      .4   82.00
372        RD     2600    .025     .02             TRAP          2        25
373        KO                                        22

374        KK      HC
375        HC        2
376        KO                                        22

377        KK   CV347East Jordan Canal
378        RD 275.580 0.00050   0.030              TRAP      20.00      1.50
379        KO                                        22

380        KK   SB896
381        BA  0.0577
382        LS      0.1  98.000                        78.000     0.1
383        UK       20     .02      .1   18.00
384        UK      150    0.01      .4   82.00
385        RD     2500     .02     .02             TRAP          2        25
386        KO                                        22
            PAGE 10
387        KK   CV346to East Jordan Canal
388        RD 107.676 0.00300   0.015              CIRC       1.50      0.00
389        KO                                        22

390        KK      HC2
391        HC        2
392        KO                                        22

393        KK   CV345East Jordan Canal
394        RD 594.174 0.00050   0.030              TRAP      20.00      1.50
395        KO                                        22

396        KK     DH36
397        DT     DR36
398        DI        0      25      50     100      200        400       800
399        DQ        0      25      50     100      200        400       800
400        KO                                        22

401        KK   SB169
402        BA  0.0504
403        LS      0.1  98.000                        75.000     0.1
404        UK       20     .02      .1   11.00
405        UK       80     .01      .4   89.00
406        RD     1000     .01     .02             TRAP          2        25
407        KO                                        22

408        KK   HC218
409        HC        2
410        KO                                        22

411        KK   CV276East Jordan Canal
412        RD 2551.74 0.00050   0.030              TRAP      20.00      1.50
413        KO                                        22

414        KK   SB804
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```
BA  0.0273
LS     0.1  98.000                          70.493     0.1
UK      20     .02       .1   11.33
UK      75     .02       .4   88.67
RD    2000     .01      .02                   TRAP       2        25
KO                                              22

KK   CV272to East Jordan Canal
RD 627.594 0.00400   0.015                    CIRC    2.00      0.00
KO                                              22

KK     HC3
HC       2
KO                                              22

KK   CV273East Jordan Canal
RD 1050.47 0.00050   0.030                    TRAP   20.00      1.50
KO                                              22

KK   SB805
BA  0.0450
LS     0.1  98.000                          75.000     0.1
UK      20     .02       .1   11.00
UK      90     .02       .4   89.00
RD    1800    .005      .02                   TRAP       2        25
KO                                              22

KK   CV206to East Jordan Canal
RD 1094.49 0.00100   0.015                    CIRC    1.25      0.00
KO                                              22

KK    DB35
RS            FLOW
SV       0   0.027   0.057  0.0892   0.124   0.161  0.2004   0.314  0.3454
SE       0     0.5       1     1.5       2     2.5       3       4     4.5
SQ       0   2.564  3.6258  4.4406   5.128   5.733    6.28   6.437    15.7
KO                                              22

KK   CV207to East Jordan Canal
RD 532.660 0.00300   0.015                    CIRC    1.25      0.00
KO                                              22

KK   SB806
BA  0.0528
LS     0.1  98.000                          75.000     0.1
UK      30     .02       .1   11.00
UK     200    .005       .4   89.00
RD     400    .005      .04   0.012           TRAP       2         5
RD     900    .005      .04                   TRAP      12         2
KO                                              22

KK   HC219
HC       2
KO                                              22

KK   CV696to East Jordan Canal
RD 303.503 0.00500   0.015                    CIRC    2.00      0.00
KO                                              22

KK   CV342to East Jordan Canal
RD 342.935 0.01000   0.030                    TRAP    1.50      0.50
KO                                              22

KK   CV695to East Jordan Canal
RD 464.597 0.01900   0.015                    CIRC    2.00      0.00
KO                                              22

KK     HC4
HC       2
KO                                              22

KK   CV340East Jordan Canal
RD 1306.12 0.00050   0.030                    TRAP   20.00      1.50
KO                                              22

KK   SB776
BA  0.0415
```

477	LS	0.1	98.000			75.828	0.1	
478	UK	30	.02	.1	11.00			
479	UK	200	.01	.4	89.00			
480	RD	1000	.01	.02		TRAP	1	10
481	KO					22		
482	KK	CV339to East Jordan Canal						
483	RD	548.907	0.01500	0.015		CIRC	2.00	0.00
484	KO					22		
485	KK	SB875						
486	BA	0.044						
487	LS	0.1	98.000			65.000	0.1	
488	UK	25	.02	.1	11.96			
489	UK	200	.01	.4	88.04			
490	RD	1800	.01	.03		TRAP	2	10
491	KO					22		
492	KK	HC220						
493	HC	2						
494	KO					22		
495	KK	CV338to East Jordan Canal						
496	RD	727.333	0.01000	0.030		TRAP	1.50	0.50
497	KO					22		
498	KK	CV337to East Jordan Canal						
499	RD	302.264	0.01000	0.030		TRAP	1.50	0.50
500	KO					22		
501	KK	SB775						
502	BA	0.0504						
503	LS	0.1	98.000			78.000	0.1	
504	UK	20	.02	.1	18.00			
505	UK	120	.02	.4	82.00			
506	RD	400	.01	.03	0.01	TRAP	2	25
507	RD	1700	.01	.02		TRAP	2	25
508	KO					22		
509	KK	HC22						
510	HC	2						
511	KO					22		
512	KK	CV336to East Jordan Canal						
513	RD	623.538	0.01000	0.030		TRAP	1.50	0.50
514	KO					22		
515	KK	SB773						
516	BA	0.043						
517	LS	0.1	98.000			78.000	0.1	
518	UK	30	.02	.1	18.00			
519	UK	200	.005	.4	82.00			
520	RD	1000	.005	.04		TRAP	0	10
521	KO					22		
522	KK	HC222						
523	HC	3						
524	KO					22		
525	KK	CV335East Jordan Canal						
526	RD	1700.71	0.00050	0.030		TRAP	20.00	1.50
527	KO					22		
528	KK	SB772						
529	BA	0.0452						
530	LS	0.1	98.000			78.000	0.1	
531	UK	20	.02	.1	18.00			
532	UK	80	.02	.4	82.00			
533	RD	500	.05	.02	.01	TRAP	2	25
534	RD	1000	.005	.02		TRAP	2	25
535	KO					22		
536	KK	CV239to East Jordan Canal						
537	RD	836.168	0.00700	0.015		CIRC	1.00	0.00

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KO                                                22

KK   SB763
BA  0.0334
LS     0.1   98.000                          81.000      0.1
UK      15      .02        .1    35.00
UK      65      .02        .4    65.00
RD    1200      .02       .02                  TRAP        2         25
KO                                                22

KK   SB77
BA  0.0345
LS     0.1   98.000                          65.000      0.1
UK      40      .02        .1    77.24
UK      75      .05        .4    22.76
RD    2200      .08       .02                  TRAP        2         25
KO                                                22

KK   HC325
HC       2
KO                                                22

KK   CV246to East Jordan Canal
RD  82.167 0.01200    0.015                    CIRC     1.00       0.00
KO                                                22

KK   CV237to East Jordan Canal
RD 675.848 0.00500    0.015                    CIRC     1.50       0.00
KO                                                22

KK   CV238to East Jordan Canal
RD 681.066 0.00500    0.015                    CIRC     1.00       0.00
KO                                                22

KK   HC224
HC       2
KO                                                22

KK   CV240to East Jordan Canal
RD 357.124 0.00700    0.015                    CIRC     1.00       0.00
KO                                                22

KK   SB770
BA  0.0094
LS     0.1   98.000                          80.000      0.1
UK      15      .02        .1    22.00
UK     300     .005        .4    78.00
RD     650     .005       .04                  TRAP       10          2
KO                                                22

KK   HC223
HC       3
KO                                                22

KK   CV234East Jordan Canal
RD 708.474 0.00050    0.030                    TRAP    20.00       1.50
KO                                                22

KK   SB769
BA  0.0165
LS     0.1   98.000                          65.000      0.1
UK      20      .02        .1    24.6
UK      75      .02        .4    75.39
RD     400     .005       .02     .003         TRAP        2         25
RD    1700      .01       .02                  TRAP        2         25
KO                                                22

KK   HC226
HC       2
KO                                                22

KK   CV228East Jordan Canal
RD 760.905 0.00050    0.030                    TRAP    20.00       1.50
KO                                                22
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```
KK    SB60
BA  0.0274
LS      0.1  98.000                      86.000      0.1
UK       40     .02        .1    50.00
UK      100      .1        .4    50.00
RD      900    .015       .02               TRAP        2        25
KO                                            22

KK   CV135to East Jordan Canal
RD 518.341 0.01300   0.015                  CIRC     1.50      0.00
KO                                            22

KK   CV136to East Jordan Canal
RD 170.923 0.03500   0.015                  CIRC     1.50      0.00
KO                                            22

KK   SB762
BA  0.0295
LS      0.1  98.000                      60.000      0.1
UK       30     .02        .1    47.90
UK       25     .02        .4    52.10
RD      900     .02      .015               CIRC     1.25
KO                                            22

KK   HC227
HC        2
KO                                            22

KK   CV138to East Jordan Canal
RD 147.175 0.03400   0.015                  CIRC     1.50      0.00
KO                                            22

KK   CV139to East Jordan Canal
RD 219.902 0.01500   0.015                  CIRC     1.75      0.00
KO                                            22

KK   SB764
BA  0.0334
LS      0.1  98.000                      60.000      0.1
UK       50     .01        .1    63.24
UK       10     .02        .4    36.76
RD      780     .01      .015               CIRC        2
KO                                            22

KK   HC228
HC        2
KO                                            22

KK   CV140to East Jordan Canal
RD 401.330 0.01000   0.015                  CIRC     2.25      0.00
KO                                            22

KK   CV141to East Jordan Canal
RD 419.731 0.01900   0.015                  CIRC     2.25      0.00
KO                                            22

KK   SB766
BA  0.0375
LS      0.1  98.000                      60.000      0.1
UK       50     .01        .1    65.78
UK       20     .02        .4    34.22
RD     1000     .01      .015               CIRC     1.25
KO                                            22

KK   HC229
HC        2
KO                                            22

KK   CV129to East Jordan Canal
RD 731.201 0.05200   0.015                  CIRC     2.25      0.00
KO                                            22

KK   CV130to East Jordan Canal
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```
RD 417.372 0.03800   0.015                CIRC    2.25    0.00
KO                                          22

KK    DB10
RS              FLOW
SV         0   0.237   0.495   0.774   1.075   1.397    1.74   2.727       3
SE         0     0.5       1     1.5       2     2.5       3       4     4.5
SQ         0   7.626  10.785  13.209   15.25   17.05   18.68  19.147    46.7
KO                                          22

KK   CV131to East Jordan Canal
RD 172.257 0.13000   0.015                CIRC    2.00    0.00
KO                                          22

KK   SB767
BA  0.0178
LS       0.1  98.000                    61.864     0.1
UK        40      .1      .1   40.85
UK       200      .1      .4   59.15
RD       600      .2     .02    .001      TRAP       2      25
RD      1300    .005     .04              TRAP      10       2
KO                                          22

KK   SB768
BA  0.0267
LS       0.1  98.000                    65.000     0.1
UK        40    .075      .1   42.72
UK        70     .07      .4   57.28
RD      1950      .1     .02              TRAP       2      25
KO                                          22

KK   HC230
HC         3
KO                                          22

KK   CV132to East Jordan Canal
RD 1033.58 0.02000   0.015                CIRC    2.00    0.00
KO                                          22

KK   CV133to East Jordan Canal
RD 294.204 0.01650   0.015                CIRC    2.00    0.00
KO                                          22

KK   CV134to East Jordan Canal
RD 625.603 0.01780   0.015                CIRC    2.00    0.00
KO                                          22

KK   SB756
BA  0.0285
LS       0.1  98.000                    78.000     0.1
UK        20     .03      .1   19.00
UK        80     .03      .4   81.00
RD      1200     .03     .02              TRAP       2      25
KO                                          22

KK   HC225
HC         3
KO                                          22

KK   CV227East Jordan Canal
RD 653.505 0.00050   0.030                TRAP   20.00    1.50
KO                                          22

KK   SB754
BA  0.0353
LS       0.1  98.000                    78.000     0.1
UK        20     .02      .1   18.00
UK        70     .02      .4   82.00
RD      1500     .01     .04              TRAP       2      25
KO                                          22

KK   HC23
HC         2
KO                                          22
```

```
KK    CV232East Jordan Canal
RD 674.941 0.00050    0.030                  TRAP    20.00     1.50
KO                                             22

KK    SB548
BA   0.0472
LS      0.1   98.000                   65.000      0.1
UK       20      .02       .1   12.23
UK       70      .02       .4   87.77
RD      600      .01      .02    0.01     TRAP        2        25
RD     1300    0.006      .02              TRAP        2        25
KO                                             22

KK    HC232
HC        2
KO                                             22

KK    CV384East Jordan Canal
RD 1487.47 0.00050    0.030                  TRAP    20.00     1.50
KO                                             22

KK    TP010
BA    0.077
LS      0.1       98                          73      0.1
UK       50     0.02      0.1      24
UK       80    0.013      0.5      76
RD     2260    0.014     0.04              TRAP        2        25

KK   RTP01
RD     2150   0.0437    0.015              CIRC      2.5

KK    TP020
BA    0.038
LS      0.1       98                          73      0.1
UK       50     0.02      0.1      30
UK      100     0.01      0.5      70
RD     2650    0.044     0.04              TRAP        2        25

KK   RTP02
RD      550   0.0036    0.015              CIRC        3

KK    TP030
BA     0.05
LS      0.1       98                          73      0.1
UK       50     0.02      0.1      30
UK      120    0.042      0.5      70
RD     2010     0.06     0.04              TRAP        2        25

KK   CTP03
HC        3

KK   RTP033
RD     1800   0.0356    0.015              CIRC      2.5

KK    TP100
BA    0.063
LS      0.1       98                          73      0.1
UK       50     0.02      0.1      26
UK      100     0.04      0.5      74
RD     2000     0.03     0.04              TRAP        2        25

KK   RTP10
RD     1150    0.033    0.015              CIRC        2

KK    TP110
BA 0.06297
LS      0.1       98                          73      0.1
UK       50     0.02      0.1      27
UK      240    0.113      0.5      73
RD     1970    0.035     0.04              TRAP        2        25

KK    TP120
BA    0.038
LS      0.1       98                          73      0.1
```

778	UK	50	0.02	0.1	30						
779	UK	60	0.05	0.5	70						
780	RD	3700	0.029	0.04		TRAP	2	25			
781	KK	TP12									
782	HC	3									
783	KK	ALTHDB									
784	RS	1	FLOW	-							
785	SV	0	0.04	0.41	1.61	3.12	3.5	3.75	0	0	0
786	SQ	0	4.5	8.4	12.9	16.2	54	122	0	0	0
787	SE	96	97	98	100	102	102.5	103			
788	KK	RTP123									
789	RD	2220	0.0072	0.015		CIRC	2.5				
790	KK	TP130									
791	BA	0.06									
792	LS	0.1	98			73	0.1				
793	UK	50	0.02	0.1	22						
794	UK	600	0.052	0.5	78						
795	RD	1590	0.013	0.04		TRAP	2	25			
796	KK	CTP13									
797	HC	3									
798	KK	RTP133									
799	RD	450	0.0267	0.015		CIRC	3				
800	KK	TP200									
801	BA	0.0866									
802	LS	0.1	98			73	0.1				
803	UK	50	0.02	0.1	2						
804	UK	100	0.01	0.5	79						
805	RD	2800	0.122	0.015		CIRC	1.5				
806	KK	RTP20									
807	RD	1500	0.0667	0.015		CIRC	1.5				
808	KK	TP210									
809	BA	0.03859									
810	LS	0.1	98			74	0.1				
811	UK	50	0.02	0.1	33						
812	UK	100	0.09	0.5	67						
813	RD	2370	0.025	0.015		CIRC	2				
814	KK	CTP21									
815	HC	3									
816	KK	TP300									
817	BA	0.05109									
818	LS	0.1	98			74	0.1				
819	UK	50	0.02	0.1	36						
820	UK	100	0.05	0.5	64						
821	RD	1830	0.065	0.04		TRAP	2	25			
822	KK	RTP30									
823	RD	570	0.1193	0.015		CIRC	1.8				
824	KK	TP310									
825	BA	0.02984									
826	LS	0.1	98			71	0.1				
827	UK	50	0.02	0.1	4						
828	UK	200	0.07	0.5	96						
829	RD	850	0.073	0.05		TRAP	2	25			
830	KK	CTP31									
831	HC	2									
832	KK	RTP312									
833	RD	720	0.0653	0.015		CIRC	1.8				
834	KK	TP330									
835	BA	0.06297									

836	LS	0.1	98			73	0.1				
837	UK	50	0.02	0.1	30						
838	UK	110	0.136	0.5	70						
839	RD	2430	0.084	0.04		TRAP	2	25			
840	KK	RTP33									
841	RD	320	0.0031	0.015		CIRC	2				
842	KK	TP320									
843	BA	0.03516									
844	LS	0.1	98			71	0.1				
845	UK	50	0.02	0.1	5						
846	UK	600	0.06	0.5	95						
847	RD	2350	0.003	0.015		CIRC	3				
848	KK	CTP32									
849	HC	3									
850	KK	RTP323									
851	RD	900	0.0022	0.015		CIRC	3				
852	KK	RTP324									
853	RD	480	0.0083	0.015		CIRC	4				
854	KK	CTP325									
855	HC	2									
856	KK	STMDET									
857	RS	1	STOR	0							
858	SV	0	0.001	0.11	1.49	6.6	14.8	15.5	16	17	18
859	SQ	0	21.1	23	26.5	29.5	32.3	61	112	255	441
860	SE	52	58	59	61	63	65	65.5	66	67	68
861	KK	TP450									
862	BA	0.0425									
863	LS	0.1	98			72	0.1				
864	UK	50	0.02	0.1	24						
865	UK	220	0.032	0.5	76						
866	RD	2530	0.018	0.04		TRAP	2	25			
867	KK	CTP45									
868	HC	2									
869	KK	RTP452									
870	RD	700	0.0429	0.015		CIRC	4				
871	KK	TP400									
872	BA	0.125									
873	LS	0.1	98			72	0.1				
874	UK	50	0.02	0.1	24						
875	UK	200	0.03	0.4	76						
876	RD	3530	0.026	0.02		TRAP	2	25			
877	KK	RTP40									
878	RD	1200	0.025	0.015		CIRC	2.3				
879	KK	TP410									
880	BA	0.044									
881	LS	0.1	98			71	0.1				
882	UK	50	0.02	0.1	15						
883	UK	600	0.032	0.5	85						
884	RD	1260	0.008	0.08		TRAP	2	25			
885	KK	CTP41									
886	HC	2									
887	KK	RTP412									
888	RD	1920	0.0089	0.015		CIRC	3				
889	KK	TP430									
890	BA	0.086									
891	LS	0.1	98			73	0.1				
892	UK	50	0.02	0.1	30						
893	UK	320	0.044	0.5	70						

894	RD	2150	0.022	0.04		TRAP	2	25			
895	KK	TP420									
896	BA	0.065									
897	LS	0.1	98			73	0.1				
898	UK	50	0.02	0.1	30						
899	UK	350	0.034	0.5	70						
900	RD	2480	0.013	0.015		CIRC	2.5				
901	KK	CTP42									
902	HC	3									
903	KK	RTP423									
904	RD	400	0.01	0.015		CIRC	3				
905	KK	AELDET									
906	RS	1	FLOW	-							
907	SV	0	0.001	1.48	3.49	6.36	10	10.5	11	0	0
908	SQ	0	25	30.6	35.3	39.4	43.2	82	151	0	0
909	SE	44	47	48	49	50	51	51.5	52		
910	KK	RTP425									
911	RD	1380	0.013	0.015		CIRC	2				
912	KK	TP440									
913	BA	0.089									
914	LS	0.1	98			73	0.1				
915	UK	50	0.02	0.1	32						
916	UK	450	0.013	0.3	68						
917	RD	1680	0.006	0.015		CIRC	2				
918	KK	CTP44									
919	HC	2									
920	KK	RTP442									
921	RD	1050	0.0057	0.015		CIRC	3				
922	KK	TP460									
923	BA	0.053									
924	LS	0.1	98			72	0.1				
925	UK	50	0.02	0.1	22						
926	UK	50	0.02	0.5	78						
927	RD	1840	0.006	0.04		TRAP	2	25			
928	KK	CTP46									
929	HC	3									
930	KK	RTP463									
931	RD	1400	0.0257	0.015		CIRC	4				
932	KK	TP470									
933	BA	0.09									
934	LS	0.1	98			73	0.1				
935	UK	50	0.02	0.1	27						
936	UK	100	0.02	0.5	73						
937	RD	2480	0.032	0.04		TRAP	2	25			
938	KK	CTP47									
939	HC	2									
940	KK	TPDET									
941	RS	1	FLOW	-							
942	SV	0	0.001	0.43	1.79	3.98	6.48	9.16	10	10.5	
943	SQ	0	13.8	15.4	16.9	18.2	19.5	20.7	58	126	
944	SE	90.4	95	96	97	98	99	100	100.5	101	
945	KO					22					
946	KK	CV150to East Jordan Canal									
947	RD	854.077	0.01500	0.015		CIRC	1.00	0.00			
948	KO					22					
949	KK	SB744									
950	BA	0.0176									
951	LS	0.1	98.000			81.000	0.1				

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KK   SB745
BA  0.0225
LS     0.1  98.000                        65.000      0.1
UK      16     .02       .1    15.3
UK      50     .02       .4    84.69
RD    1000     .01     .015                CIRC     2.25
KO                                           22

KK   HC235
HC       3
KO                                           22

KK   CV151to East Jordan Canal
RD 533.677 0.01500    0.015                CIRC     2.25      0.00
KO                                           22

KK   CV152to East Jordan Canal
RD 521.197 0.00410    0.015                CIRC     2.50      0.00
KO                                           22

KK   SB749
BA  0.0308
LS     0.1  98.000                        70.000      0.1
UK      23     .02       .1   27.85
UK      70     .02       .4   72.15
RD     500     .02      .02  0.0035        TRAP        2        25
RD    1000     .02     .015                CIRC     1.25
KO                                           22

KK   CV264to East Jordan Canal
RD 678.145 0.02280    0.015                CIRC     1.25      0.00
KO                                           22

KK   CV156to East Jordan Canal
RD 267.013 0.02000    0.015                CIRC     1.25      0.00
KO                                           22

KK   SB750
BA  0.0196
LS     0.1  98.000                        70.000      0.1
UK      23     .02       .1   26.27
UK      70     .02       .4   73.73
RD     300     .03      .02    .003        TRAP        2        25
RD     300     .03     .015                CIRC     1.25
KO                                           22

KK   HC240
HC       2
KO                                           22

KK   CV158to East Jordan Canal
RD 713.006 0.02000    0.015                CIRC     1.25      0.00
KO                                           22

KK   CV160to East Jordan Canal
RD 214.453 0.03700    0.015                CIRC     1.25      0.00
KO                                           22

KK   SB748
BA  0.0358
LS     0.1  98.000                        60.000      0.1
UK      25     .02       .1   20.43
UK      70     .02       .4   79.57
RD     300     .03      .02    .004        TRAP        2        25
RD    1000     .03     .015                CIRC     1.25
KO                                           22

KK   SB747
BA  0.0557
```

1013	LS	0.1	98.000			60.000	0.1			
1014	UK	25	.02	.1	27.85					
1015	UK	70	.02	.4	72.15					
1016	RD	300	.03	.02	.004	TRAP	2	25		
1017	RD	1200	.03	.02		TRAP	2	25		
1018	KO					22				
1019	KK	HC237								
1020	HC	3								
1021	KO					22				
1022	KK	DB3								
1023	RS		FLOW							
1024	SV	0	0.079	0.165	0.2581	0.358	0.466	0.58	0.909	0.9999
1025	SE	0	0.5	1	1.5	2	2.5	3	4	4.5
1026	SQ	0	7.422	10.496	12.855	14.84	16.6	18.18	18.635	45.45
1027	KO					22				
1028	KK	CV162to East Jordan Canal								
1029	RD	512.875	0.00300	0.015		CIRC	1.50	0.00		
1030	KO					22				
1031	KK	SB752								
1032	BA	0.0278								
1033	LS	0.1	98.000			81.000	0.1			
1034	UK	30	.02	.1	35.00					
1035	UK	200	.01	.4	65.00					
1036	RD	500	.01	.02		TRAP	1	10		
1037	KO					22				
1038	KK	HC238								
1039	HC	2								
1040	KO					22				
1041	KK	DB4								
1042	RS		FLOW							
1043	SV	0	0.015	0.0323	0.0505	0.07	0.091	0.1136	0.178	0.1958
1044	SE	0	0.5	1	1.5	2	2.5	3	4	4.5
1045	SQ	0	1.453	2.0554	2.5173	2.907	3.25	3.56	3.649	8.9
1046	KO					22				
1047	KK	CV154to East Jordan Canal								
1048	RD	117.467	0.00300	0.015		CIRC	1.25	0.00		
1049	KO					22				
1050	KK	SB746								
1051	BA	0.0317								
1052	LS	0.1	98.000			81.000	0.1			
1053	UK	15	.02	.1	35.00					
1054	UK	75	.01	.4	65.00					
1055	RD	500	.01	.04		TRAP	2	25		
1056	KO					22				
1057	KK	HC236								
1058	HC	3								
1059	KO					22				
1060	KK	DB5								
1061	RS		FLOW							
1062	SV	0	0.04	0.0833	0.1303	0.181	0.235	0.2929	0.459	0.5049
1063	SE	0	0.5	1	1.5	2	2.5	3	4	4.5
1064	SQ	0	3.748	5.3001	6.4912	7.495	8.38	9.18	9.4095	22.95
1065	KO					22				
1066	KK	SB753								
1067	BA	0.0360								
1068	LS	0.1	98.000			75.000	0.1			
1069	UK	30	.02	.1	11.00					
1070	UK	150	.01	.4	89.00					
1071	RD	2000	.01	.02		TRAP	2	10		
1072	KO					22				
1073	KK	HC239								
1074	HC	2								

```
KO                                                     22

KK    CV155to East Jordan Canal
RD 1446.35 0.00500    0.015                          CIRC      2.00      0.00
KO                                                     22

KK    SB549
BA  0.0297
LS       0.1  98.000                              75.000       0.1
UK        30       .02        .1    11.00
UK       250       .01        .4    89.00
RD      1350      .005       .04                    TRAP        10          2
KO                                                     22

KK    HC233
HC         3
KO                                                     22

KK    CV383East Jordan Canal
RD 1367.63 0.00050    0.030                          TRAP     20.00      1.50
KO                                                     22

KK    SB74
BA  0.0357
LS       0.1  98.000                              75.000       0.1
UK        15       .02        .1    11.00
UK        20       .05        .4    89.00
RD      2500      .005       .04                    TRAP         2          5
KO                                                     22

KK    HC243
HC         2
KO                                                     22

KK    CV723East Jordan Canal
RD 1096.28 0.00050    0.030                          TRAP     20.00      1.50
KO                                                     22

KK    SB735
BA  0.0299
LS       0.1  98.000                              65.000       0.1
UK        25       .02        .1    26.30
UK        90       .02        .4    73.70
RD       500      .005       .02     .005           TRAP         2         25
RD      1000      .005      .015                    CIRC       .83
KO                                                     22

KK    CV382to East Jordan Canal
RD 604.441 0.02500    0.015                          CIRC      1.25      0.00
KO                                                     22

KK    SB739
BA  0.0382
LS       0.1  98.000                              61.380       0.1
UK        20       .02        .1    35.86
UK        70       .02        .4    64.14
RD      2000      .005       .02                    TRAP         2         25
KO                                                     22

KK    HC244
HC         2
KO                                                     22

KK    CV178to East Jordan Canal
RD 1282.61 0.00700    0.015                          CIRC      1.25      0.00
KO                                                     22

KK    SB738
BA  0.0468
LS       0.1  98.000                              63.783       0.1
UK        20       .02        .1    23.67
UK        70       .02        .4    76.33
RD       700      .005       .02    0.005           TRAP         2         25
RD       700      .005      .015                    CIRC      1.25
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1136          KO                                                22

1137          KK   CV179to East Jordan Canal
1138          RD 267.740 0.01720   0.015               CIRC    1.50     0.00
1139          KO                                                22

1140          KK   HC245
1141          HC       2
1142          KO                                                22

1143          KK   CV176to East Jordan Canal
1144          RD 449.165 0.00700   0.015               CIRC    2.00     0.00
1145          KO                                                22

1146          KK   SB740
1147          BA  0.0294
1148          LS     0.1  98.000                     65.000     0.1
1149          UK      20     .02       .1   27.69
1150          UK      70     .02       .4   72.3
1151          RD     400    .008      .02    .005      TRAP       2       25
1152          RD    1400    .005      .02              TRAP       2       25
1153          KO                                                22

1154          KK   CV164to East Jordan Canal
1155          RD 258.216 0.00500   0.015               CIRC    1.50     0.00
1156          KO                                                22

1157          KK   CV165to East Jordan Canal
1158          RD 758.271 0.00500   0.015               CIRC    1.50     0.00
1159          KO                                                22

1160          KK   CV166to East Jordan Canal
1161          RD 163.804 0.01200   0.015               CIRC    1.50     0.00
1162          KO                                                22

1163          KK   CV167to East Jordan Canal
1164          RD 167.318 0.00500   0.015               CIRC    1.50     0.00
1165          KO                                                22

1166          KK   HC246
1167          HC       2
1168          KO                                                22

1169          KK     DB6
1170          RS             FLOW
1171          SV       0   0.085  0.1775  0.2777    0.385   0.501    0.624    0.978  1.0758
1172          SE       0     0.5       1     1.5        2     2.5        3        4     4.5
1173          SQ       0   7.985  11.293  13.831    15.97   17.86    19.56   20.049    48.9
1174          KO                                                22

1175          KK   CV168to East Jordan Canal
1176          RD 120.059 0.00100   0.015               CIRC    1.00     0.00
1177          KO                                                22

1178          KK   HC242
1179          HC       2
1180          KO                                                22

1181          KK   CV724East Jordan Canal
1182          RD 416.974 0.00050   0.030               TRAP   20.00     1.50
1183          KO                                                22

1184          KK   SB657
1185          BA  0.0173
1186          LS     0.1  98.000                     75.000     0.1
1187          UK      30     .02       .1   35.00
1188          UK     200     .02       .4   65.00
1189          RD    2000    .005      .04              TRAP      10        2
1190          KO                                                22

1191          KK   HC24
1192          HC       2
1193          KO                                                22
```

```
KK   CV378East Jordan Canal
RD 1901.09 0.00050   0.030               TRAP   20.00    1.50
KO                                         22

KK   SB736
BA  0.0263
LS      0.1  98.000                    64.143     0.1
UK       20     .02       .1   28.96
UK       70     .02       .4   71.04
RD      425    .005      .02   0.006    TRAP       2       25
RD      775    .005     .015            CIRC    1.25
KO                                         22

KK   CV182to East Jordan Canal
RD 439.106 0.00200   0.015               CIRC    1.25    0.00
KO                                         22

KK   SB737
BA  0.0359
LS      0.1  98.000                    63.265     0.1
UK       20     .02       .1   24.37
UK       70     .02       .4   75.63
RD      300    .005      .02   0.005    TRAP       2       25
RD      500    .005     .015            CIRC    1.25
KO                                         22

KK   HC249
HC        2
KO                                         22

KK   CV184to East Jordan Canal
RD 809.881 0.00400   0.015               CIRC    2.00    0.00
KO                                         22

KK   CV186to East Jordan Canal
RD 199.074 0.00500   0.015               CIRC    2.00    0.00
KO                                         22

KK   SB655
BA  0.0423
LS      0.1  98.000                    78.947     0.1
UK       20     .02       .1   27.62
UK       70     .02       .4   72.38
RD      500    .005      .02    0.01    TRAP       2       25
RD     1000    .005     .015            CIRC     1.5
KO                                         22

KK   CV189to East Jordan Canal
RD 807.576 0.00100   0.015               CIRC    2.00    0.00
KO                                         22

KK   HC248
HC        2
KO                                         22

KK      DB7
RS            FLOW
SV        0   0.063   0.1316  0.2058    0.286   0.371  0.4626    0.725  0.7975
SE        0     0.5        1     1.5        2     2.5       3        4     4.5
SQ        0    5.92   8.3716  10.253    11.84   13.24    14.5   14.863   36.25
KO                                         22

KK   CV380to East Jordan Canal
RD 122.827 0.00100   0.015               CIRC    1.00    0.00
KO                                         22

KK   HC247
HC        2
KO                                         22

KK   CV379East Jordan Canal
RD 607.516 0.00050   0.030               TRAP   20.00    1.50
KO                                         22
```

```
1254      KK   SB255
1255      BA  0.0099
1256      LS     0.1  98.000                  86.000     0.1
1257      UK      30     .02      .1   60.00
1258      UK     350     .01      .4   40.00
1259      RD     550    .005     .04            TRAP      12        2
1260      KO                                      22

1261      KK   HC250
1262      HC       2
1263      KO                                      22

1264      KK   CV499East Jordan Canal
1265      RD 1797.69 0.00050   0.030            TRAP   20.00     1.50
1266      KO                                      22

1267      KK    DH37
1268      DT    DR37
1269      DI       0      25      50     100     200     400      800
1270      DQ       0      25      50     100     200     400      800
1271      KO                                      22

1272      KK  EJS010
1273      PB    1.06
1274      PI    .010    .010    .010    .010    .010    .010    .015    .015    .015    .015
1275      PI    .015    .015    .134    .160    .095    .051    .051    .051    .035    .035
1276      PI    .035    .035    .035    .035    .015    .015    .015    .015    .015    .015
1277      PI    .010    .010    .010    .010    .010    .010
1278      BA    .109
1279      LU     .46     .73   36.10
1280      IN       5
1281      UI      1.      1.      1.      1.      1.      1.      1.      2.      2.      4.
1282      UI      4.      7.      7.     16.     16.     27.     27.     36.     36.     46.
1283      UI     46.     56.     56.     66.     66.     66.     77.     77.     88.     88.
1284      UI     98.     98.    109.    109.    120.    120.    112.    112.    104.    104.
1285      UI     96.     96.     88.     88.     80.     80.     71.     71.     63.     63.
1286      UI     63.     54.     54.     47.     47.     40.     40.     35.     35.     32.
1287      UI     32.     28.     28.     25.     25.     23.     23.     21.     21.     19.
1288      UI     19.     18.     18.     18.     16.     16.     15.     15.     14.     14.
1289      UI     13.     13.     12.     12.     12.     12.     11.     11.     10.     10.
1290      UI     10.     10.      9.      9.      9.      9.      8.      8.      8.      8.
1291      UI      8.      7.      7.      7.      7.      7.      7.      7.      7.      6.
1292      UI      6.      6.      6.      6.      6.      5.      5.      5.      5.      5.
1293      UI      5.      5.      5.      5.      5.      5.      4.      4.      4.      4.
1294      UI      4.      4.      4.      4.      4.      4.      4.      4.      3.      3.
1295      UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
1296      UI      3.      3.      3.      2.      2.      2.      2.      2.      2.      2.
1297      UI      2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
1298      UI      2.      2.      2.      2.      2.      2.      2.      2.      1.      1.
1299      UI      1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1300      UI      1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1301      UI      1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1302      UI      1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1303      UI      1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1304      UI      1.      1.      1.      1.      1.      1.      0.      0.      0.      0.
1305      UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1306      UI      0.

1307      KK  RJS01
          *
          * NOTE: FULL PIPE CAPACITY IS    25.9-CFS.
          * HYDROGRAPHS SUBSTANTIALLY EXCEEDING THIS CAPACITY SHOULD BE ROUTED USING
          * OTHER METHODS SUCH AS MODIFIED PULS FOR PIPE AND OVERFLOW (STREET) SYSTEMS.
          *
1308      RD    920.   .0174   .0150            CIRC    2.00      .00

1309      KK  EJS020
1310      PB    1.05
1311      PI    .010    .010    .010    .010    .010    .010    .015    .015    .015    .015
1312      PI    .015    .015    .133    .159    .094    .051    .051    .051    .035    .035
1313      PI    .035    .035    .035    .035    .015    .015    .015    .015    .015    .015
1314      PI    .010    .010    .010    .010    .010    .010
1315      BA    .045
1316      LU     .61     .67   24.45
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1317        IN      5
1318        UI     0.      1.      1.      1.      1.      2.      2.      5.     11.     18.
1319        UI    25.     25.     31.     38.     45.     52.     52.     59.     66.     74.
1320        UI    74.     81.     76.     70.     65.     65.     59.     54.     48.     43.
1321        UI    43.     37.     31.     27.     27.     24.     21.     19.     17.     17.
1322        UI    16.     14.     13.     12.     12.     11.     10.     10.     10.      9.
1323        UI     8.      8.      7.      7.      7.      7.      6.      6.      6.      6.
1324        UI     5.      5.      5.      5.      5.      4.      4.      4.      4.      4.
1325        UI     4.      4.      4.      3.      3.      3.      3.      3.      3.      3.
1326        UI     3.      3.      3.      2.      2.      2.      2.      2.      2.      2.
1327        UI     2.      2.      2.      2.      2.      2.      2.      1.      1.      1.
1328        UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1329        UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1330        UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      0.
1331        UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1332        UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1333        UI     0.      0.      0.

1334        KK  CJS02
1335        HC      2

1336        KK  RJS022
            *
            * NOTE: FULL PIPE CAPACITY IS   21.5-CFS.
            * HYDROGRAPHS SUBSTANTIALLY EXCEEDING THIS CAPACITY SHOULD BE ROUTED USING
            * OTHER METHODS SUCH AS MODIFIED PULS FOR PIPE AND OVERFLOW (STREET) SYSTEMS.
            *
1337        RD   1830.   .0120   .0150           CIRC    2.00     .00

1338        KK  RJS023
1339        RD   1450.   .0014   .0450           TRAP    6.00    1.00

1340        KK  EJS030
1341        BA    .035
1342        LU     .71     .61   30.60
1343        IN      5
1344        UI     0.      1.      1.      1.      1.      2.      4.      9.     16.     21.
1345        UI    27.     27.     33.     39.     45.     51.     58.     64.     70.     70.
1346        UI    66.     61.     56.     51.     47.     42.     37.     37.     32.     27.
1347        UI    24.     21.     19.     17.     15.     15.     14.     12.     11.     10.
1348        UI    10.      9.      8.      8.      8.      7.      7.      6.      6.      6.
1349        UI     5.      5.      5.      5.      5.      4.      4.      4.      4.      4.
1350        UI     4.      4.      3.      3.      3.      3.      3.      3.      3.      3.
1351        UI     2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
1352        UI     2.      2.      2.      2.      1.      1.      1.      1.      1.      1.
1353        UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1354        UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1355        UI     1.      1.      0.      0.      0.      0.      0.      0.      0.      0.
1356        UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1357        UI     0.      0.      0.      0.      0.      0.      0.

1358        KK  EJS040
1359        BA    .052
1360        LU     .20     .64   75.00
1361        IN      5
1362        UI     0.      0.      0.      0.      0.      1.      1.      1.      1.      2.
1363        UI     2.      3.      3.      8.      8.     13.     13.     18.     18.     22.
1364        UI    22.     27.     27.     32.     32.     37.     37.     43.     43.     48.
1365        UI    48.     53.     53.     58.     58.     54.     54.     51.     51.     46.
1366        UI    46.     43.     43.     39.     39.     34.     34.     31.     31.     26.
1367        UI    26.     23.     23.     20.     20.     17.     17.     15.     15.     14.
1368        UI    14.     12.     12.     11.     11.     10.     10.      9.      9.      9.
1369        UI     9.      9.      8.      8.      7.      7.      7.      7.      6.      6.
1370        UI     6.      6.      6.      6.      5.      5.      5.      5.      5.      5.
1371        UI     4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
1372        UI     3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
1373        UI     3.      3.      3.      3.      3.      3.      2.      2.      2.      2.
1374        UI     2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
1375        UI     2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
1376        UI     2.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1377        UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1378        UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1379        UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1380        UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
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1381    UI      1.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1382    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1383    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1384    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1385    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1386    UI      0.      0.      0.      0.

1387    KK  CJS1025
1388    HC        3
1389    KO                                      22

1390    KK    HC338
1391    HC        2
1392    KO                                      22

1393    KK    CV863East Jordan Canal
1394    RD 2829.16 0.00050   0.030            TRAP   20.00    1.50
1395    KO                                      22

1396    KK    CP010
1397    PB     1.06
1398    PI     .010    .010    .010    .010    .010    .010    .015    .015    .015    .015
1399    PI     .015    .015    .134    .161    .095    .051    .051    .051    .035    .035
1400    PI     .035    .035    .035    .035    .015    .015    .015    .015    .015    .015
1401    PI     .010    .010    .010    .010    .010    .010
1402    BA     .073
1403    LU      .54     .68   36.26
1404    IN        5
1405    UI       0.      0.      1.      1.      1.      1.      2.      2.      3.      3.
1406    UI       5.      5.     12.     12.     20.     27.     27.     34.     34.     42.
1407    UI      42.     49.     49.     57.     57.     65.     65.     73.     73.     81.
1408    UI      89.     89.     83.     83.     78.     78.     71.     71.     65.     65.
1409    UI      59.     59.     53.     47.     47.     40.     40.     35.     35.     30.
1410    UI      30.     26.     26.     24.     24.     21.     21.     19.     17.     17.
1411    UI      16.     16.     14.     14.     13.     13.     12.     12.     11.     11.
1412    UI      11.     11.     10.      9.      9.      9.      9.      8.      8.      8.
1413    UI       8.      7.      7.      7.      7.      6.      6.      6.      6.      6.
1414    UI       6.      6.      5.      5.      5.      5.      5.      5.      5.      5.
1415    UI       4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
1416    UI       4.      3.      3.      3.      3.      3.      3.      3.      3.      3.
1417    UI       3.      3.      3.      3.      3.      3.      2.      2.      2.      2.
1418    UI       2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
1419    UI       2.      2.      2.      2.      2.      2.      2.      2.      1.      1.
1420    UI       1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1421    UI       1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1422    UI       1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1423    UI       1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
1424    UI       1.      1.      1.      1.      1.      1.      1.      0.      0.      0.
1425    UI       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1426    UI       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1427    UI       0.      0.      0.      0.      0.

1428    KK   RCP01
        *
        * NOTE: FULL PIPE CAPACITY IS   34.6-CFS.
        * HYDROGRAPHS SUBSTANTIALLY EXCEEDING THIS CAPACITY SHOULD BE ROUTED USING
        * OTHER METHODS SUCH AS MODIFIED PULS FOR PIPE AND OVERFLOW (STREET) SYSTEMS.
        *
1429    RD     970.   .0309   .0150            CIRC    2.00     .00

1430    KK    CP020
1431    PB     1.05
1432    PI     .010    .010    .010    .010    .010    .010    .015    .015    .015    .015
1433    PI     .015    .015    .133    .159    .094    .051    .051    .051    .035    .035
1434    PI     .035    .035    .035    .035    .015    .015    .015    .015    .015    .015
1435    PI     .010    .010    .010    .010    .010    .010
1436    BA     .042
1437    LU      .71     .70    9.55
1438    IN        5
1439    UI       0.      1.      1.      1.      1.      2.      5.     11.     18.     18.
1440    UI      24.     31.     38.     45.     52.     59.     59.     66.     73.     81.
1441    UI      75.     70.     64.     64.     59.     54.     48.     43.     37.     37.
1442    UI      31.     27.     24.     21.     19.     17.     17.     16.     14.     13.
1443    UI      12.     11.     11.     10.      9.      9.      8.      8.      7.      7.
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1444    UI     7.     7.     6.     6.     6.     6.     5.     5.     5.     5.
1445    UI     4.     4.     4.     4.     4.     4.     4.     3.     3.     3.
1446    UI     3.     3.     3.     3.     3.     3.     3.     2.     2.     2.
1447    UI     2.     2.     2.     2.     2.     2.     2.     2.     2.     2.
1448    UI     1.     1.     1.     1.     1.     1.     1.     1.     1.     1.
1449    UI     1.     1.     1.     1.     1.     1.     1.     1.     1.     1.
1450    UI     1.     1.     1.     1.     1.     1.     1.     1.     1.     0.
1451    UI     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
1452    UI     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
1453    UI     0.     0.

1454    KK   CP030
1455    BA    .104
1456    LU     .48    .63   7.30
1457    IN      5
1458    UI     0.     0.     0.     0.     1.     1.     1.     1.     1.     1.
1459    UI     1.     1.     1.     1.     2.     2.     2.     2.     4.     4.
1460    UI     4.    10.    10.    10.    16.    16.    16.    22.    22.    22.
1461    UI    22.    28.    28.    28.    34.    34.    34.    40.    40.    40.
1462    UI    47.    47.    47.    47.    53.    53.    53.    60.    60.    60.
1463    UI    66.    66.    66.    66.    73.    73.    73.    68.    68.    68.
1464    UI    63.    63.    63.    58.    58.    58.    58.    53.    53.    53.
1465    UI    48.    48.    48.    43.    43.    43.    43.    38.    38.    38.
1466    UI    33.    33.    33.    28.    28.    28.    24.    24.    24.    24.
1467    UI    22.    22.    22.    19.    19.    19.    17.    17.    17.    15.
1468    UI    15.    15.    15.    14.    14.    14.    13.    13.    13.    12.
1469    UI    12.    12.    12.    11.    11.    11.    10.    10.    10.     9.
1470    UI     9.     9.     9.     9.     9.     9.     8.     8.     8.     8.
1471    UI     8.     8.     7.     7.     7.     7.     7.     7.     7.     6.
1472    UI     6.     6.     6.     6.     6.     6.     6.     6.     6.     5.
1473    UI     5.     5.     5.     5.     5.     5.     5.     5.     5.     5.
1474    UI     5.     5.     4.     4.     4.     4.     4.     4.     4.     4.
1475    UI     4.     4.     4.     4.     4.     4.     4.     4.     3.     3.
1476    UI     3.     3.     3.     3.     3.     3.     3.     3.     3.     3.
1477    UI     3.     3.     3.     3.     3.     3.     3.     3.     3.     3.
1478    UI     3.     3.     3.     3.     2.     2.     2.     2.     2.     2.
1479    UI     2.     2.     2.     2.     2.     2.     2.     2.     2.     2.
1480    UI     2.     2.     2.     2.     2.     2.     2.     2.     2.     2.
1481    UI     2.     2.     2.     2.     2.     2.     2.     2.     2.     2.
1482    UI     2.     2.     2.     2.     1.     1.     1.     1.     1.     1.
1483    UI     1.     1.     1.     1.     1.     1.     1.     1.     1.     1.
1484    UI     1.     1.     1.     1.     1.     1.     1.     1.     1.     1.
1485    UI     1.     1.     1.

1486    KK   CCP03
1487    HC      3

1488    KK   RCP032
        *
        * NOTE: FULL PIPE CAPACITY IS    51.9-CFS.
        * HYDROGRAPHS SUBSTANTIALLY EXCEEDING THIS CAPACITY SHOULD BE ROUTED USING
        * OTHER METHODS SUCH AS MODIFIED PULS FOR PIPE AND OVERFLOW (STREET) SYSTEMS.
        *
1489    RD    850.  .0212  .0150         CIRC   2.50    .00

1490    KK    CRSTD
1491    KM         CRESCENT POND
1492    RS      1    FLOW     -
1493    SV     .0     .0     .4    1.1    2.3    3.9    4.2    4.5
1494    SQ     .0   21.6   27.9   33.0   37.4   41.4   80.0  150.0
1495    SE   74.5   77.0   78.0   79.0   80.0   81.0   81.5   82.0

1496    KK   RCP034
        *
        * NOTE: FULL PIPE CAPACITY IS    24.9-CFS.
        * HYDROGRAPHS SUBSTANTIALLY EXCEEDING THIS CAPACITY SHOULD BE ROUTED USING
        * OTHER METHODS SUCH AS MODIFIED PULS FOR PIPE AND OVERFLOW (STREET) SYSTEMS.
        *
1497    RD    750.  .0160  .0150         CIRC   2.00    .00

1498    KK   EJS050
1499    PB   1.05
1500    PI   .010   .010   .010   .010   .010   .010   .015   .015   .015   .015
1501    PI   .015   .015   .133   .159   .094   .051   .051   .051   .035   .035
```

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PI   .035    .035    .035    .035    .015    .015    .015    .015    .015    .015
PI   .010    .010    .010    .010    .010    .010
BA   .094
LU    .32     .65   17.03
IN      5
UI     1.      1.      1.      1.      1.      1.      2.      2.      3.      3.
UI     6.      6.     15.     15.     25.     25.     34.     34.     43.     43.
UI    52.     52.     62.     62.     72.     72.     82.     92.     92.    102.
UI   102.    112.    112.    104.    104.     97.     97.     89.     89.     82.
UI    82.     74.     74.     66.     66.     59.     59.     51.     51.     43.
UI    43.     37.     37.     33.     29.     29.     26.     26.     24.     24.
UI    22.     22.     20.     20.     18.     18.     17.     17.     15.     15.
UI    14.     14.     13.     13.     12.     12.     12.     12.     11.     11.
UI    10.     10.     10.      9.      9.      9.      9.      8.      8.      8.
UI     8.      7.      7.      7.      7.      7.      7.      6.      6.      6.
UI     6.      6.      6.      6.      6.      5.      5.      5.      5.      5.
UI     5.      5.      4.      4.      4.      4.      4.      4.      4.      4.
UI     4.      4.      4.      4.      3.      3.      3.      3.      3.      3.
UI     3.      3.      3.      3.      3.      3.      3.      3.      3.      2.
UI     2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
UI     2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
UI     2.      1.      1.      1.      1.      1.      1.      1.      1.      1.
UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
UI     1.      1.      1.      1.      1.      0.      0.      0.      0.      0.
UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
UI     0.      0.

KK  CCP1028
HC      2
KO                                   22

KK   HC339
HC      2
KO                                   22

KK   CV738East Jordan Canal
RD 796.779 0.00050   0.030          TRAP   20.00    1.50
KO                                   22

KK  EJS060
PB   1.05
PI   .010    .010    .010    .010    .010    .010    .015    .015    .015    .015
PI   .015    .015    .133    .159    .094    .051    .051    .051    .035    .035
PI   .035    .035    .035    .035    .015    .015    .015    .015    .015    .015
PI   .010    .010    .010    .010    .010    .010
BA   .072
LU    .54     .68   15.75
IN      5
UI     1.      1.      2.      3.      5.     10.     23.     53.     68.     82.
UI    97.    113.    128.    144.    160.    175.    164.    153.    140.    128.
UI   116.    104.     79.     68.     59.     52.     46.     41.     37.     34.
UI    31.     28.     26.     24.     22.     21.     19.     17.     16.     15.
UI    14.     13.     13.     12.     11.     11.     10.     10.     10.      9.
UI     9.      8.      8.      7.      7.      7.      6.      6.      6.      6.
UI     5.      5.      5.      5.      5.      4.      4.      4.      4.      4.
UI     3.      3.      3.      3.      3.      3.      3.      2.      2.      2.
UI     2.      2.      2.      2.      2.      2.      2.      2.      1.      1.
UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
UI     1.      1.      0.
KO                                   22

KK   HC340
HC      2
KO                                   22

KK   CV739East Jordan Canal
RD 2205.41 0.00050   0.030          TRAP   20.00    1.50
KO                                   22

KK   HC34
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1569	HC	2									
1570	KO					22					
1571	KK	EJS090									
1572	PB	1.05									
1573	PI	.010	.010	.010	.010	.010	.010	.015	.015	.015	.015
1574	PI	.015	.015	.133	.159	.094	.051	.051	.051	.035	.035
1575	PI	.035	.035	.035	.035	.015	.015	.015	.015	.015	.015
1576	PI	.010	.010	.010	.010	.010	.010				
1577	BA	.043									
1578	LU	.80	.60	1.00							
1579	IN	5									
1580	UI	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
1581	UI	1.	1.	1.	1.	1.	2.	2.	5.	5.	5.
1582	UI	8.	8.	8.	11.	11.	11.	14.	14.	17.	17.
1583	UI	17.	20.	20.	20.	23.	23.	26.	26.	26.	29.
1584	UI	29.	29.	33.	33.	33.	36.	36.	33.	33.	33.
1585	UI	31.	31.	31.	29.	29.	29.	26.	26.	24.	24.
1586	UI	24.	21.	21.	21.	19.	19.	19.	16.	16.	14.
1587	UI	14.	14.	12.	12.	12.	11.	11.	11.	9.	9.
1588	UI	8.	8.	8.	8.	8.	8.	7.	7.	6.	6.
1589	UI	6.	6.	6.	6.	5.	5.	5.	5.	5.	5.
1590	UI	5.	5.	4.	4.	4.	4.	4.	4.	4.	4.
1591	UI	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
1592	UI	3.	3.	3.	3.	3.	3.	3.	2.	2.	2.
1593	UI	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1594	UI	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1595	UI	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1596	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1597	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1598	UI	1.	1.	1.	1.						
1599	KO					22					
1600	KK	CV815East Jordan Canal									
1601	RD	3022.50	0.00050	0.030		TRAP	20.00	1.50			
1602	KO					22					
1603	KK	DH4									
1604	DT	DR4									
1605	DI	0	25	50	100	200	400	800			
1606	DQ	0	25	50	100	200	400	800			
1607	KO					22					
1608	KK	CV816East Jordan Canal									
1609	RD	1958.06	0.00050	0.030		TRAP	20.00	1.50			
1610	KO					22					
1611	KK	EJC003									
1612	PB	1.08									
1613	PI	.010	.010	.010	.010	.010	.010	.015	.015	.015	.015
1614	PI	.015	.015	.138	.185	.095	.051	.051	.051	.035	.035
1615	PI	.035	.035	.035	.035	.015	.015	.015	.015	.015	.015
1616	PI	.010	.010	.010	.010	.010	.010				
1617	BA	.088									
1618	LU	.40	.75	40.00							
1619	IN	5									
1620	UI	1.	1.	1.	1.	1.	2.	2.	4.	7.	7.
1621	UI	17.	29.	29.	39.	39.	49.	59.	59.	70.	82.
1622	UI	82.	93.	93.	104.	116.	116.	127.	119.	119.	111.
1623	UI	101.	101.	93.	93.	84.	75.	75.	67.	58.	58.
1624	UI	49.	49.	43.	38.	38.	34.	30.	30.	27.	24.
1625	UI	24.	22.	22.	20.	19.	19.	17.	16.	16.	15.
1626	UI	15.	14.	13.	13.	12.	12.	12.	11.	11.	10.
1627	UI	10.	10.	9.	9.	9.	8.	8.	8.	8.	8.
1628	UI	7.	7.	7.	7.	6.	6.	6.	6.	6.	6.
1629	UI	6.	5.	5.	5.	5.	5.	5.	4.	4.	4.
1630	UI	4.	4.	4.	4.	4.	4.	4.	3.	3.	3.
1631	UI	3.	3.	3.	3.	3.	3.	3.	3.	3.	2.
1632	UI	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1633	UI	2.	2.	2.	2.	2.	2.	2.	1.	1.	1.
1634	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1635	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1636	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1637	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.

```
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
UI      0.

KK  RJC004
RD   1600.   .0025    .0500             TRAP     2.00     1.00

KK  EJC005
BA    .049
LU     .40     .75    40.00
IN       5
UI      0.       0.       1.       1.       1.       1.       1.       2.       4.       4.
UI      9.      16.      16.      22.      27.      27.      33.      33.      39.      46.
UI     46.      52.      58.      58.      65.      71.      71.      67.      67.      62.
UI     57.      57.      52.      47.      47.      42.      42.      38.      32.      32.
UI     28.      24.      24.      21.      19.      19.      17.      17.      15.      14.
UI     14.      12.      11.      11.      11.      10.      10.       9.       9.       8.
UI      8.       8.       7.       7.       7.       7.       6.       6.       6.       6.
UI      5.       5.       5.       5.       5.       5.       4.       4.       4.       4.
UI      4.       4.       4.       4.       4.       3.       3.       3.       3.       3.
UI      3.       3.       3.       3.       3.       3.       3.       3.       2.       2.
UI      2.       2.       2.       2.       2.       2.       2.       2.       2.       2.
UI      2.       2.       2.       2.       2.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       0.       0.       0.       0.
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.

KK  CJC006
HC       2
KO                                        22

KK   HC343
HC       2
KO                                        22

KK   CV742East Jordan Canal
RD 1702.14 0.00050    0.030             TRAP    20.00     1.50
KO                                        22

KK  EJC010
PB    1.08
PI    .010    .010     .010     .010     .010     .010     .015     .015     .015     .015
PI    .015    .015     .138     .185     .095     .051     .051     .051     .035     .035
PI    .035    .035     .035     .035     .015     .015     .015     .015     .015     .015
PI    .010    .010     .010     .010     .010     .010
BA    .020
LU     .74     .60    66.80
IN       5
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
UI      0.       1.       1.       1.       1.       2.       2.       2.       4.       4.
UI      6.       6.       6.       7.       7.       9.       9.       9.      10.      10.
UI     12.      12.      12.      14.      14.      16.      16.      16.      17.      17.
UI     19.      19.      19.      18.      18.      16.      16.      15.      15.      15.
UI     14.      14.      13.      13.      13.      11.      11.      10.      10.      10.
UI      9.       9.       7.       7.       7.       6.       6.       6.       6.       6.
UI      5.       5.       4.       4.       4.       4.       4.       4.       4.       3.
UI      3.       3.       3.       3.       3.       3.       3.       3.       3.       2.
UI      2.       2.       2.       2.       2.       2.       2.       2.       2.       2.
UI      2.       2.       2.       2.       2.       2.       2.       2.       2.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       0.       0.
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
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1706   UI     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
1707   UI     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
1708   UI     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
1709   UI     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
1710   UI     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
1711   UI     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
1712   UI     0.     0.     0.     0.     0.     0.

1713   KK  REJ01
       *
       * NOTE: FULL PIPE CAPACITY IS    6.2-CFS.
       * HYDROGRAPHS SUBSTANTIALLY EXCEEDING THIS CAPACITY SHOULD BE ROUTED USING
       * OTHER METHODS SUCH AS MODIFIED PULS FOR PIPE AND OVERFLOW (STREET) SYSTEMS.
       *
1714   RD    870.  .0046  .0150         CIRC   1.50    .00

1715   KK  REJ012
1716   RD   2350.  .0009  .0450         TRAP   6.00   1.00

1717   KK  EJC020
1718   BA    .058
1719   LU     .77    .60  48.00
1720   IN      5
1721   UI     0.     0.     0.     0.     0.     0.     1.     1.     1.     1.
1722   UI     1.     2.     2.     2.     3.     3.     7.     7.     7.    11.
1723   UI    11.    11.    15.    15.    20.    20.    20.    24.    24.    28.
1724   UI    28.    28.    33.    33.    37.    37.    37.    42.    42.    42.
1725   UI    46.    46.    51.    51.    51.    48.    48.    44.    44.    44.
1726   UI    41.    41.    41.    37.    37.    34.    34.    34.    30.    30.
1727   UI    27.    27.    27.    23.    23.    23.    20.    20.    17.    17.
1728   UI    17.    15.    15.    13.    13.    13.    12.    12.    12.    11.
1729   UI    11.    10.    10.    10.     9.     9.     8.     8.     8.     8.
1730   UI     8.     7.     7.     7.     6.     6.     6.     6.     6.     6.
1731   UI     6.     6.     5.     5.     5.     5.     5.     5.     5.     5.
1732   UI     4.     4.     4.     4.     4.     4.     4.     4.     4.     4.
1733   UI     3.     3.     3.     3.     3.     3.     3.     3.     3.     3.
1734   UI     3.     3.     3.     3.     3.     3.     3.     3.     3.     3.
1735   UI     3.     2.     2.     2.     2.     2.     2.     2.     2.     2.
1736   UI     2.     2.     2.     2.     2.     2.     2.     2.     2.     2.
1737   UI     2.     2.     2.     2.     2.     2.     2.     2.     2.     2.
1738   UI     2.     2.     1.     1.     1.     1.     1.     1.     1.     1.
1739   UI     1.     1.     1.     1.     1.     1.     1.     1.     1.     1.
1740   UI     1.     1.     1.     1.     1.

1741   KK  CEJ02
       * COMBINES EJC010 WITH EJC020
1742   HC      2
1743   KO                               22

1744   KK   HC344
1745   HC      2
1746   KO                               22

1747   KK   CV743East Jordan Canal
1748   RD 3645.25 0.00050   0.030       TRAP  20.00   1.50
1749   KO                               22

1750   KK  EJC040
1751   PB   1.07
1752   PI   .010   .010   .010   .010   .010   .010   .015   .015   .015   .015
1753   PI   .015   .015   .137   .183   .094   .050   .050   .050   .035   .035
1754   PI   .035   .035   .035   .035   .015   .015   .015   .015   .015   .015
1755   PI   .010   .010   .010   .010   .010   .010
1756   BA   .052
1757   LU    .20    .56  95.00
1758   IN      5
1759   UI     0.     0.     1.     1.     1.     1.     2.     2.     4.    10.
1760   UI    10.    17.    23.    23.    30.    30.    36.    43.    43.    50.
1761   UI    57.    57.    64.    70.    70.    77.    72.    72.    67.    62.
1762   UI    62.    57.    51.    51.    46.    41.    41.    35.    30.    30.
1763   UI    26.    23.    23.    20.    20.    18.    16.    16.    15.    14.
1764   UI    14.    12.    12.    12.    11.    10.    10.     9.     9.     9.
1765   UI     8.     8.     8.     7.     7.     7.     6.     6.     6.     6.
1766   UI     6.     5.     5.     5.     5.     5.     5.     4.     4.     4.
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1767	UI	4.	4.	4.	4.	4.	4.	3.	3.	3.	3.
1768	UI	3.	3.	3.	3.	3.	3.	3.	3.	2.	2.
1769	UI	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1770	UI	2.	2.	2.	2.	2.	2.	1.	1.	1.	1.
1771	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1772	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1773	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1774	UI	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
1775	UI	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1776	UI	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1777	UI	0.	0.	0.	0.						
1778	KO					22					
1779	KK	CV745East Jordan Canal									
1780	RD	1181.91	0.00050	0.030		TRAP	20.00	1.50			
1781	KO					22					
1782	KK	EJC050									
1783	PB	1.07									
1784	PI	.010	.010	.010	.010	.010	.010	.015	.015	.015	.015
1785	PI	.015	.015	.137	.183	.094	.050	.050	.050	.035	.035
1786	PI	.035	.035	.035	.035	.015	.015	.015	.015	.015	.015
1787	PI	.010	.010	.010	.010	.010	.010				
1788	BA	.049									
1789	LU	.36	.73	48.97							
1790	IN	5									
1791	UI	1.	1.	1.	2.	3.	6.	15.	25.	34.	43.
1792	UI	53.	62.	72.	82.	92.	103.	113.	105.	98.	90.
1793	UI	82.	75.	67.	59.	51.	44.	38.	33.	30.	27.
1794	UI	24.	22.	20.	18.	17.	15.	14.	13.	12.	12.
1795	UI	11.	10.	10.	9.	9.	8.	8.	7.	7.	7.
1796	UI	6.	6.	6.	6.	5.	5.	5.	5.	5.	4.
1797	UI	4.	4.	4.	4.	3.	3.	3.	3.	3.	3.
1798	UI	3.	3.	2.	2.	2.	2.	2.	2.	2.	2.
1799	UI	2.	2.	2.	2.	1.	1.	1.	1.	1.	1.
1800	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1801	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1802	UI	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1803	KO					22					
1804	KK	HC347									
1805	HC	2									
1806	KO					22					
1807	KK	CV820East Jordan Canal									
1808	RD	1305.97	0.00050	0.030		TRAP	20.00	1.50			
1809	KO					22					
1810	KK	DH6									
1811	DT	DR6									
1812	DI	0	25	50	100	200	400	800			
1813	DQ	0	25	50	100	200	400	800			
1814	KO					22					
1815	KK	CV821East Jordan Canal									
1816	RD	1646.58	0.00050	0.030		TRAP	20.00	1.50			
1817	KO					22					
1818	KK	EJC055									
1819	PB	1.06									
1820	PI	.010	.010	.010	.010	.010	.010	.015	.015	.015	.015
1821	PI	.015	.015	.136	.176	.094	.050	.050	.050	.035	.035
1822	PI	.035	.035	.035	.035	.015	.015	.015	.015	.015	.015
1823	PI	.010	.010	.010	.010	.010	.010				
1824	BA	.114									
1825	LU	.40	.75	45.49							
1826	IN	5									
1827	UI	1.	1.	1.	1.	2.	2.	2.	2.	4.	4.
1828	UI	8.	8.	18.	18.	30.	30.	41.	41.	52.	52.
1829	UI	63.	63.	74.	74.	86.	86.	98.	98.	111.	111.
1830	UI	123.	135.	135.	126.	126.	117.	117.	108.	108.	98.
1831	UI	98.	89.	89.	80.	80.	71.	71.	61.	61.	52.
1832	UI	52.	45.	45.	40.	40.	36.	36.	32.	32.	28.
1833	UI	28.	26.	26.	24.	22.	22.	20.	20.	18.	18.

1834	UI	17.	17.	16.	16.	15.	15.	14.	14.	13.	13.
1835	UI	12.	12.	12.	12.	11.	11.	10.	10.	10.	10.
1836	UI	9.	9.	9.	9.	8.	8.	8.	8.	8.	7.
1837	UI	7.	7.	7.	7.	7.	6.	6.	6.	6.	6.
1838	UI	6.	6.	6.	5.	5.	5.	5.	5.	5.	5.
1839	UI	5.	5.	5.	4.	4.	4.	4.	4.	4.	4.
1840	UI	4.	4.	4.	4.	3.	3.	3.	3.	3.	3.
1841	UI	3.	3.	3.	3.	3.	3.	3.	3.	2.	2.
1842	UI	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1843	UI	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1844	UI	2.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1845	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1846	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1847	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1848	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1849	UI	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
1850	UI	0.	0.	0.							
1851	KK	RJC056									
1852	KM		TO EJC 065								
1853	RD	700.	.0014	.0450		TRAP	6.00	1.00			
1854	KO					22					
1855	KK	HC348									
1856	HC	2									
1857	KO					22					
1858	KK	CV747East Jordan Canal									
1859	RD	760.388	0.00050	0.030		TRAP	20.00	1.50			
1860	KO					22					
1861	KK	HC349									
1862	HC	2									
1863	KO					22					
1864	KK	EJC075									
1865	PB	1.06									
1866	PI	.010	.010	.010	.010	.010	.010	.015	.015	.015	.015
1867	PI	.015	.015	.136	.176	.094	.050	.050	.050	.035	.035
1868	PI	.035	.035	.035	.035	.015	.015	.015	.015	.015	.015
1869	PI	.010	.010	.010	.010	.010	.010				
1870	BA	.032									
1871	LU	.40	.75	40.00							
1872	IN	5									
1873	UI	0.	0.	0.	1.	1.	1.	1.	3.	3.	7.
1874	UI	11.	11.	15.	19.	19.	23.	27.	27.	32.	36.
1875	UI	36.	41.	45.	50.	50.	46.	43.	43.	40.	36.
1876	UI	36.	33.	29.	29.	26.	23.	23.	19.	17.	15.
1877	UI	15.	13.	12.	12.	10.	10.	10.	9.	8.	8.
1878	UI	7.	7.	7.	6.	6.	5.	5.	5.	5.	5.
1879	UI	5.	4.	4.	4.	4.	4.	4.	3.	3.	3.
1880	UI	3.	3.	3.	3.	3.	3.	3.	2.	2.	2.
1881	UI	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1882	UI	2.	2.	2.	2.	2.	1.	1.	1.	1.	1.
1883	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1884	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1885	UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1886	UI	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1887	UI	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1888	UI	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1889	UI	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
1890	UI	0.	0.	0.	0.	0.					
1891	KO					22					
1892	KK	CV750East Jordan Canal									
1893	RD	467.771	0.00050	0.030		TRAP	20.00	1.50			
1894	KO					22					
1895	KK	EJC080									
1896	PB	1.06									
1897	PI	.010	.010	.010	.010	.010	.010	.015	.015	.015	.015
1898	PI	.015	.015	.136	.176	.094	.050	.050	.050	.035	.035
1899	PI	.035	.035	.035	.035	.015	.015	.015	.015	.015	.015
1900	PI	.010	.010	.010	.010	.010	.010				

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BA    .088
LU     .40      .75    40.50
IN       5
UI      1.       1.       1.       1.       1.       2.       2.       4.       7.       7.
UI     17.      29.      29.      39.      49.      49.      60.      60.      71.      82.
UI     82.      93.     105.     105.     116.     128.     128.     119.     119.     111.
UI    102.     102.      93.      85.      85.      76.      67.      67.      58.      58.
UI     50.      43.      43.      38.      34.      34.      30.      27.      27.      25.
UI     25.      22.      20.      20.      19.      18.      18.      16.      15.      15.
UI     14.      14.      13.      12.      12.      12.      11.      11.      10.      10.
UI     10.       9.       9.       9.       8.       8.       8.       8.       8.       7.
UI      7.       7.       7.       7.       6.       6.       6.       6.       6.       6.
UI      5.       5.       5.       5.       5.       5.       5.       5.       4.       4.
UI      4.       4.       4.       4.       4.       4.       3.       3.       3.       3.
UI      3.       3.       3.       3.       3.       3.       3.       3.       2.       2.
UI      2.       2.       2.       2.       2.       2.       2.       2.       2.       2.
UI      2.       2.       2.       2.       2.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       0.       0.
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.

KO                                          22

KK   HC352
HC       2
KO                                          22

KK   CV751East Jordan Canal
RD 2312.55 0.00050   0.030               TRAP    20.00     1.50
KO                                          22

KK  EJC083
PB    1.06
PI    .010     .010     .010     .010     .010     .010     .015     .015     .015     .015
PI    .015     .015     .136     .176     .094     .050     .050     .050     .035     .035
PI    .035     .035     .035     .035     .015     .015     .015     .015     .015     .015
PI    .010     .010     .010     .010     .010     .010
BA    .065
LU     .50      .71    39.65
IN       5
UI      0.       0.       0.       1.       1.       1.       1.       1.       1.       2.
UI      2.       4.       4.       9.       9.      16.      16.      21.      21.      21.
UI     27.      27.      33.      33.      39.      39.      45.      45.      52.      52.
UI     58.      58.      64.      64.      70.      70.      66.      66.      66.      61.
UI     61.      56.      56.      52.      52.      47.      47.      42.      42.      37.
UI     37.      32.      32.      27.      27.      24.      24.      24.      21.      21.
UI     19.      19.      17.      17.      15.      15.      14.      14.      12.      12.
UI     11.      11.      11.      11.      10.      10.      10.       9.       9.       8.
UI      8.       8.       8.       7.       7.       7.       7.       6.       6.       6.
UI      6.       6.       6.       5.       5.       5.       5.       5.       5.       5.
UI      5.       5.       4.       4.       4.       4.       4.       4.       4.       4.
UI      4.       4.       4.       4.       3.       3.       3.       3.       3.       3.
UI      3.       3.       3.       3.       3.       3.       3.       3.       3.       2.
UI      2.       2.       2.       2.       2.       2.       2.       2.       2.       2.
UI      2.       2.       2.       2.       2.       2.       2.       2.       2.       2.
UI      2.       2.       2.       2.       2.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI      1.       1.       1.       1.       1.       1.       1.       0.       0.       0.
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
UI      0.       0.       0.       0.

KK  RJC084
KM          TO EJC 086
RD    700.    .0007    .0450              TRAP     6.00     1.00

KK  EJC086
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BA    .12
LU    .38      .72    52.49
IN      5
UI     1.       1.       1.       1.       1.       1.       1.       2.       2.       4.
UI     4.       7.       7.       7.      17.      17.      29.      29.      39.      39.
UI    49.      49.      59.      59.      59.      70.      70.      82.      82.      93.
UI    93.     104.     104.     116.     116.     127.     127.     127.     119.     119.
UI   111.     111.     102.     102.      93.      93.      84.      84.      84.      75.
UI    75.      67.      67.      58.      58.      49.      49.      43.      43.      38.
UI    38.      38.      34.      34.      30.      30.      27.      27.      25.      25.
UI    22.      22.      20.      20.      20.      19.      19.      17.      17.      16.
UI    16.      15.      15.      14.      14.      14.      13.      13.      12.      12.
UI    12.      12.      11.      11.      10.      10.      10.      10.      10.       9.
UI     9.       9.       9.       8.       8.       8.       8.       8.       8.       8.
UI     7.       7.       7.       7.       7.       7.       6.       6.       6.       6.
UI     6.       6.       6.       6.       6.       5.       5.       5.       5.       5.
UI     5.       5.       5.       4.       4.       4.       4.       4.       4.       4.
UI     4.       4.       4.       4.       4.       4.       4.       3.       3.       3.
UI     3.       3.       3.       3.       3.       3.       3.       3.       3.       3.
UI     3.       3.       3.       3.       2.       2.       2.       2.       2.       2.
UI     2.       2.       2.       2.       2.       2.       2.       2.       2.       2.
UI     2.       2.       2.       2.       2.       2.       2.       2.       1.       1.
UI     1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI     1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI     1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI     1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI     1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI     1.       1.       1.       1.       1.       1.       1.       0.       0.       0.
UI     0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
UI     0.       0.

KK  CJC087
KM        (083-086)
HC      2

KO                                     22

KK   HC353
HC      2
KO                                     22

KK   CV752East Jordan Canal
RD 829.323 0.00050    0.030           TRAP    20.00     1.50
KO                                     22

KK  EJC090
PB   1.06
PI   .010     .010     .010     .010     .010     .010     .015     .015     .015     .015
PI   .015     .015     .136     .176     .094     .050     .050     .050     .035     .035
PI   .035     .035     .035     .035     .015     .015     .015     .015     .015     .015
PI   .010     .010     .010     .010     .010     .010
BA   .043
LU    .51      .70    47.90
IN      5
UI     0.       0.       0.       0.       0.       1.       1.       1.       1.       1.
UI     1.       3.       3.       6.       6.      11.      11.      15.      15.      19.
UI    19.      23.      23.      27.      27.      31.      31.      35.      35.      40.
UI    40.      44.      44.      48.      48.      45.      45.      42.      42.      39.
UI    39.      39.      35.      35.      32.      32.      29.      29.      26.      26.
UI    22.      22.      19.      19.      16.      16.      14.      14.      13.      13.
UI    11.      11.      10.      10.       9.       9.       8.       8.       8.       8.
UI     7.       7.       7.       7.       6.       6.       6.       6.       5.       5.
UI     5.       5.       5.       5.       5.       4.       4.       4.       4.       4.
UI     4.       4.       4.       3.       3.       3.       3.       3.       3.       3.
UI     3.       3.       3.       3.       3.       3.       3.       3.       3.       2.
UI     2.       2.       2.       2.       2.       2.       2.       2.       2.       2.
UI     2.       2.       2.       2.       2.       2.       2.       2.       2.       2.
UI     2.       2.       2.       2.       1.       1.       1.       1.       1.       1.
UI     1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI     1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI     1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI     1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
UI     1.       1.       1.       0.       0.       0.       0.       0.       0.       0.
UI     0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
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UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
UI      0.      0.      0.      0.      0.      0.      0.

KO                                      22

KK   HC354
HC       2
KO                                      22

KK   CV753East Jordan Canal
RD 692.566 0.00050   0.030            TRAP   20.00    1.50
KO                                      22

KK   HC355
HC       2
KO                                      22

KK   SBC43
BA  0.2473
LS     0.1  98.000                   57.458     0.1
UK      25     .02      .1   27.48
UK      70     .02      .4   72.52
RD     700     .02     .02     .03    TRAP        2      25
RD    5000     .01    .015            CIRC        2
KO                                      22

KK   CV824East Jordan Canal
RD 2200.62 0.00050   0.030            TRAP   20.00    1.50
KO                                      22

KK   SBC44
BA  0.072
LS     0.1  98.000                   68.503     0.1
UK      25     .02      .1   34.53
UK      70     .02      .4   65.47
RD    2400     .02     .02            TRAP        2      25
KO                                      22

KK   HC360
HC       2
KO                                      22

KK   CV864East Jordan Canal
RD 3011.47 0.00050   0.030            TRAP   20.00    1.50
KO                                      22

KK   SB88
BA  0.1008
LS     0.1  98.000                   68.990     0.1
UK      25     .02      .1   27.15
UK      70     .02      .4   72.85
RD    2150     .02     .02            TRAP        2      25
KO                                      22

KK   HC36
HC       2
KO                                      22

KK   CV808East Jordan Canal
RD 251.887 0.00050   0.030            TRAP   20.00    1.50
KO                                      22

KK   SB880
BA  0.1068
LS     0.1  98.000                   72.619     0.1
UK      25     .02      .1   38.56
UK      70     .02      .4   61.44
RD     950     .02     .02     .03    TRAP        2      25
RD    2450    .015     .02            CIRC      1.5
KO                                      22
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KK   HC404
HC       2
KO                                                  22

KK   CV872
RD 2200.07 0.00050   0.030                   TRAP   20.00     1.50
KO                                                  22

KK   SB894
BA  0.0779
LS     0.1  98.000                         78.559     0.1
UK      25     .02       .1    14.12
UK      60     .02       .4    85.88
RD     400     .01      .02     .008         TRAP       2       25
RD    1500     .01      .02                  TRAP       2       25
KO                                                  22

KK   CV860East Jordan Canal
RD 1048.21 0.00050   0.030                   TRAP   20.00     1.50
KO                                                  22

KK   SB895
BA  0.0375
LS     0.1  98.000                         63.619     0.1
UK      25    0.02       .1    14.87
UK      60     .02       .4    85.13
RD     800     .01      .02                  TRAP       2       25
KO                                                  22

KK   HC408
HC       2
KO                                                  22

KK   CV813East Jordan Canal
RD 3447.81 0.00050   0.030                   TRAP   20.00     1.50
KO                                                  22

KK   SBC3
BA  0.1480
LS     0.1  98.000                         63.897     0.1
UK      25     .02       .1    10.02
UK      70     .02       .4    89.98
RD    1200     .02      .02     .019         TRAP       2       25
RD    2500     .02      .02                  TRAP       2       25
KO                                                  22

KK   SBC23
BA  0.1314
LS     0.1  98.000                         74.047     0.1
UK      25     .02       .1    35.66
UK      70     .02       .4    64.34
RD    1300     .02      .02     .014         TRAP       2       25
RD    1950    .029      .02                  TRAP       2       25
KO                                                  22

KK   HC362
HC       3
KO                                                  22

KK   CV761East Jordan Canal
RD 1292.96 0.00050   0.030                   TRAP   20.00     1.50
KO                                                  22

KK   SBC20
BA  0.0996
LS     0.1  98.000                         65.287     0.1
UK      25     .02       .1    13.13
UK      70     .02       .1    86.87
RD    2300     .02      .02                  TRAP       2       25
KO                                                  22

KK   HC363
HC       2
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KO                                                  22

KK    CV762East Jordan Canal
RD 1436.25 0.00050    0.030                       TRAP    20.00     1.50
KO                                                  22

KK    SBC2
BA   0.1769
LS       0.1   98.000                           63.877      0.1
UK        25      .02       .1     9.16
UK        70      .02       .4    90.84
RD      1300      .02      .02     .065       TRAP         2       25
RD      2200     .015      .02                TRAP         2       25
KO                                                  22

KK    HC364
HC         2
KO                                                  22

KK    CV763East Jordan Canal
RD 1161.54 0.00050    0.030                       TRAP    20.00     1.50
KO                                                  22

KK    SBC30
BA   0.162
LS       0.1   98.000                           63.928      0.1
UK        25      .02       .1     7.75
UK        70      .02       .4    92.25
RD      1800      .01      .03                TRAP         2       25
KO                                                  22

KK    HC365
HC         2
KO                                                  22

KK    CV832East Jordan Canal
RD 3752.84 0.00050    0.030                       TRAP    20.00     1.50
KO                                                  22

KK    SB573
BA   0.2316
LS       0.1   98.000                           86.000      0.1
UK        30      .02       .1    60.00
UK       400      .01       .4    40.00
RD      3000      .01      .04                TRAP         2        2
KO                                                  22

KK    CV535Jordan Salt Lake Canal
RD 2082.32 0.00050    0.030                       TRAP    12.00     1.00
KO                                                  22

KK    SB572
BA   0.1474
LS       0.1   98.000                           60.000      0.1
UK        40      .02       .1    36.57
UK       350      .02       .4    63.43
RD      2000      .02      .02                TRAP         2       25
KO                                                  22

KK    SB57
BA   0.144
LS       0.1   98.000                           86.000      0.1
UK        30      .02       .1    60.00
UK       400     .005       .4    40.00
RD      2000     .005      .04                TRAP         2        2
KO                                                  22

KK    HC25
HC         3
KO                                                  22

KK    CV534Jordan Salt Lake Canal
RD 1644.53 0.00050    0.030                       TRAP    12.00     1.00
KO                                                  22
```

```
2220    KK   SB376
2221    BA  0.0626
2222    LS     0.1  98.000                          86.000     0.1
2223    UK      30     .02        .1   60.00
2224    UK     400     .04        .4   40.00
2225    RD    1000    .005       .04                  TRAP       0        2
2226    KO                                              22

2227    KK   SB374
2228    BA  0.1247
2229    LS     0.1  98.000                          63.036     0.1
2230    UK      20     .02        .1   14.46
2231    UK     200    .005        .4   85.54
2232    RD    2500    .005       .02                  TRAP       2       25
2233    KO                                              22

2234    KK   HC326
2235    HC       2
2236    KO                                              22

2237    KK   CV474to Jordan Salt Lake Canal
2238    RD 559.369 0.00300   0.015                    CIRC    1.50     0.00
2239    KO                                              22

2240    KK   SB38
2241    BA  0.0170
2242    LS     0.1  98.000                          86.000     0.1
2243    UK      20     .02        .1   60.00
2244    UK     200    .005        .4   40.00
2245    RD     800    .005       .04                  TRAP       0        2
2246    KO                                              22

2247    KK   SB382
2248    BA  0.0503
2249    LS     0.1  98.000                          86.000     0.1
2250    UK      30     .02        .1   60.00
2251    UK     400   .0005        .4   40.00
2252    RD     900    .005       .04                  TRAP       0        2
2253    KO                                              22

2254    KK   HC252
2255    HC       4
2256    KO                                              22

2257    KK   CV475Jordan Salt Lake Canal
2258    RD 3104.84 0.00050   0.030                    TRAP   12.00     1.00
2259    KO                                              22

2260    KK   SB574
2261    BA  0.0292
2262    LS     0.1  98.000                          76.500     0.1
2263    UK      30     .02        .1   11.00
2264    UK     400    .005        .4   89.00
2265    RD     520    .005       .04                  TRAP      10        2
2266    KO                                              22

2267    KK   HC253
2268    HC       2
2269    KO                                              22

2270    KK   CV471Jordan Salt Lake Canal
2271    RD 751.670 0.00050   0.030                    TRAP   12.00     1.00
2272    KO                                              22

2273    KK   SB575
2274    BA  0.0334
2275    LS     0.1  98.000                          78.741     0.1
2276    UK      30     .02        .1   11.00
2277    UK     200    .007        .4   89.00
2278    RD     500    .007       .04                  TRAP       1       10
2279    KO                                              22

2280    KK   HC254
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```
HC       2
KO                                                 22

KK   CV470Jordan Salt Lake Canal
RD 722.289 0.00050   0.030                       TRAP    12.00     1.00
KO                                                 22

KK   SB576
BA  0.0316
LS     0.1  98.000                             78.643      0.1
UK      50    .005       .1   29.99
UK     100    .005       .4   70.0
RD    1000    .007      .04                      TRAP        2        5
KO                                                 22

KK   HC255
HC       2
KO                                                 22

KK   CV472Jordan Salt Lake Canal
RD 968.687 0.00050   0.030                       TRAP    12.00     1.00
KO                                                 22

KK   SB577
BA  0.0448
LS     0.1  98.000                             75.000      0.1
UK      20     .02       .1   11.00
UK      75     .01       .4   89.00
RD     500    .001      .02                      TRAP        2       25
KO                                                 22

KK   HC256
HC       2
KO                                                 22

KK   CV478Jordan Salt Lake Canal
RD 460.627 0.00050   0.030                       TRAP    12.00     1.00
KO                                                 22

KK   SB579
BA  0.0184
LS     0.1  98.000                             86.000      0.1
UK      10     .02       .1   60.00
UK     300    .005       .4   40.00
RD     500    .005      .04                      TRAP       10        2
KO                                                 22

KK   HC257
HC       2
KO                                                 22

KK   CV479Jordan Salt Lake Canal
RD 705.693 0.00050   0.030                       TRAP    12.00     1.00
KO                                                 22

KK   SB578
BA  0.0333
LS     0.1  98.000                             86.000      0.1
UK      40     .01       .1   60.00
UK     200     .01       .4   40.00
RD    1100    .005      .04                      TRAP       10        2
KO                                                 22

KK   HC258
HC       2
KO                                                 22

KK   CV480Jordan Salt Lake Canal
RD 970.488 0.00050   0.030                       TRAP    12.00     1.00
KO                                                 22

KK   SB609
BA  0.0287
LS     0.1  98.000                             86.000      0.1
```

2341	UK	20	.02	.1	60.00			
2342	UK	300	.005	.4	40.00			
2343	RD	1300	.005	.04		TRAP	10	2
2344	KO					22		
2345	KK	HC259						
2346	HC	2						
2347	KO					22		
2348	KK	CV865Jordan Salt Lake Canal						
2349	RD	932.093	0.00050	0.030		TRAP	12.00	1.00
2350	KO					22		
2351	KK	DH4						
2352	DT	DR4						
2353	DI	0	25	50	100	200	400	800
2354	DQ	0	25	50	100	200	400	800
2355	KO					22		
2356	KK	CV866Jordan Salt Lake Canal						
2357	RD	885.275	0.00050	0.030		TRAP	12.00	1.00
2358	KO					22		
2359	KK	SB358						
2360	BA	0.0185						
2361	LS	0.1	98.000			71.161	0.1	
2362	UK	30	.01	.1	30.33			
2363	UK	30	.005	.4	69.67			
2364	RD	1000	.005	.04		TRAP	10	2
2365	KO					22		
2366	KK	HC260						
2367	HC	2						
2368	KO					22		
2369	KK	CV482Jordan Salt Lake Canal						
2370	RD	1885.79	0.00050	0.030		TRAP	12.00	1.00
2371	KO					22		
2372	KK	SB595						
2373	BA	0.0148						
2374	LS	0.1	98.000			74.000	0.1	
2375	UK	30	.02	.1	66.43			
2376	UK	20	.02	.4	33.57			
2377	RD	400	.005	.02		TRAP	2	25
2378	KO					22		
2379	KK	SB262						
2380	BA	0.0196						
2381	LS	0.1	98.000			74.000	0.1	
2382	UK	30	.01	.1	60.60			
2383	UK	25	.02	.4	39.40			
2384	RD	500	.005	.02		TRAP	2	25
2385	KO					22		
2386	KK	HC274						
2387	HC	2						
2388	KO					22		
2389	KK	CV486to Jordan Salt Lake Canal						
2390	RD	613.371	0.01200	0.015		CIRC	1.25	0.00
2391	KO					22		
2392	KK	CV488to Jordan Salt Lake Canal						
2393	RD	372.438	0.01000	0.015		CIRC	1.25	0.00
2394	KO					22		
2395	KK	CV487to Jordan Salt Lake Canal						
2396	RD	597.840	0.00500	0.015		CIRC	1.25	0.00
2397	KO					22		
2398	KK	SB602						
2399	BA	0.047						

```
LS     0.1  98.000                       75.000     0.1
UK      40     .02       .1   59.10
UK      80     .02       .4   40.90
RD     500     .01      .02   .0025        TRAP       2        25
RD    1000     .01     .015                CIRC    1.25
KO                                           22

KK   HC262
HC       3
KO                                           22

KK   CV485Jordan Salt Lake Canal
RD 1630.82 0.00050    0.030                TRAP   12.00      1.00
KO                                           22

KK   SB877
BA  0.0260
LS     0.1  98.000                       86.000     0.1
UK      30     .02       .1   60.00
UK     250     .02       .4   40.00
RD    1300    .005      .04                TRAP      10         2
KO                                           22

KK   HC263
HC       2
KO                                           22

KK   CV489Jordan Salt Lake Canal
RD 1288.49 0.00050    0.030                TRAP   12.00      1.00
KO                                           22

KK   SB206
BA  0.0387
LS     0.1  98.000                       81.000     0.1
UK      25     .02       .1   35.00
UK     200     .01       .4   65.00
RD     400     .01      .04    .014        TRAP       2         2
RD    2000     .02      .04                TRAP       2         2
KO                                           22

KK   HC264
HC       2
KO                                           22

KK   CV490Jordan Salt Lake Canal
RD 869.690 0.00050    0.030                TRAP   12.00      1.00
KO                                           22

KK   SB593
BA  0.0533
LS     0.1  98.000                       65.000     0.1
UK      20     .02       .1   36.54
UK      60     .02       .4   63.46
RD    1700     .02     .015                CIRC     1.5
KO                                           22

KK   CV215to Jordan Salt Lake Canal
RD 218.710 0.01000    0.015                CIRC    2.00      0.00
KO                                           22

KK     DB38
RS            FLOW
SV       0   0.066    0.138   0.215       0.299   0.389     0.484    0.759     0.83
SE       0     0.5        1     1.5           2     2.5         3        4      4.5
SQ       0   2.784   3.9375  4.8225       5.569   6.226      6.82   6.9905    17.05
KO                                           22

KK   HC265
HC       2
KO                                           22

KK   CV491Jordan Salt Lake Canal
RD 3566.19 0.00050    0.030                TRAP   12.00      1.00
KO                                           22
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2461     KK   HC266
2462     HC       3
2463     KO                                           22

2464     KK  JSL010
2465     PB    1.04
2466     PI    .010     .010     .010     .010     .010     .010     .015     .015     .015     .015
2467     PI    .015     .015     .131     .157     .093     .050     .050     .050     .034     .034
2468     PI    .034     .034     .034     .034     .015     .015     .015     .015     .015     .015
2469     PI    .010     .010     .010     .010     .010     .010
2470     BA    .077
2471     LU     .77      .49     4.93
2472     IN       5
2473     UI      1.       1.       2.       3.       5.       9.      22.      22.      37.      50.
2474     UI     64.      77.      91.     106.     121.     135.     150.     165.     154.     143.
2475     UI    132.     121.     121.     109.      98.      87.      75.      64.      55.      49.
2476     UI     44.      39.      35.      32.      29.      26.      25.      23.      23.      21.
2477     UI     19.      18.      17.      16.      15.      14.      13.      13.      12.      11.
2478     UI     11.      10.      10.      10.       9.       9.       9.       8.       8.       8.
2479     UI      7.       7.       7.       6.       6.       6.       6.       5.       5.       5.
2480     UI      5.       5.       4.       4.       4.       4.       4.       4.       3.       3.
2481     UI      3.       3.       3.       3.       3.       3.       2.       2.       2.       2.
2482     UI      2.       2.       2.       2.       2.       2.       2.       2.       2.       2.
2483     UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
2484     UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
2485     UI      1.       1.       1.       1.       1.       1.       1.       0.

2486     KK  JSL020
2487     BA    .107
2488     LU     .68      .48    25.49
2489     IN       5
2490     UI      1.       1.       1.       1.       2.       2.       2.       2.       4.       8.
2491     UI      8.      18.      18.      31.      31.      41.      41.      52.      63.      63.
2492     UI     75.      75.      87.      87.      99.      99.     112.     124.     124.     136.
2493     UI    136.     127.     127.     118.     118.     109.      99.      99.      90.      90.
2494     UI     80.      80.      72.      72.      62.      53.      53.      46.      46.      40.
2495     UI     40.      36.      36.      32.      32.      29.      26.      26.      24.      24.
2496     UI     22.      22.      20.      20.      19.      17.      17.      16.      16.      15.
2497     UI     15.      14.      14.      13.      12.      12.      12.      12.      11.      11.
2498     UI     10.      10.      10.       9.       9.       9.       9.       8.       8.       8.
2499     UI      8.       8.       7.       7.       7.       7.       7.       7.       7.       7.
2500     UI      6.       6.       6.       6.       6.       5.       5.       5.       5.       5.
2501     UI      5.       5.       5.       5.       4.       4.       4.       4.       4.       4.
2502     UI      4.       4.       4.       4.       4.       3.       3.       3.       3.       3.
2503     UI      3.       3.       3.       3.       3.       3.       3.       2.       2.       2.
2504     UI      2.       2.       2.       2.       2.       2.       2.       2.       2.       2.
2505     UI      2.       2.       2.       2.       2.       2.       2.       2.       2.       1.
2506     UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
2507     UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
2508     UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
2509     UI      1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
2510     UI      1.       1.       1.       1.       1.       1.       1.       1.       0.       0.
2511     UI      0.       0.       0.       0.       0.       0.       0.

2512     KK  RJS02
         *
         * NOTE: FULL PIPE CAPACITY IS    23.9-CFS.
         * HYDROGRAPHS SUBSTANTIALLY EXCEEDING THIS CAPACITY SHOULD BE ROUTED USING
         * OTHER METHODS SUCH AS MODIFIED PULS FOR PIPE AND OVERFLOW (STREET) SYSTEMS.
         *
2513     RD     270.   .0148    .0150              CIRC     2.00      .00

2514     KK  CCP1032
2515     HC        2

2516     KO                                           22

2517     KK    CV727Jordan Salt Lake Canal
2518     RD 1679.20 0.00050   0.030               TRAP    12.00     1.00
2519     KO                                           22

2520     KK  JSL030
2521     PB    1.04
```

PI	.010	.010	.010	.010	.010	.010	.015	.015	.015	.015
PI	.015	.015	.131	.157	.093	.050	.050	.050	.034	.034
PI	.034	.034	.034	.034	.015	.015	.015	.015	.015	.015
PI	.010	.010	.010	.010	.010	.010				
BA	.08									
LU	.67	.45	17.70							
IN	5									
UI	1.	1.	1.	2.	2.	2.	4.	7.	7.	17.
UI	29.	29.	39.	50.	61.	61.	72.	84.	84.	95.
UI	107.	107.	118.	130.	122.	122.	113.	104.	104.	95.
UI	86.	86.	77.	69.	59.	59.	51.	44.	44.	39.
UI	34.	34.	31.	27.	25.	25.	23.	21.	21.	19.
UI	18.	18.	16.	15.	14.	14.	13.	13.	13.	12.
UI	11.	11.	11.	10.	9.	9.	9.	8.	8.	8.
UI	8.	8.	7.	7.	7.	7.	7.	6.	6.	6.
UI	6.	6.	5.	5.	5.	5.	5.	5.	5.	4.
UI	4.	4.	4.	4.	4.	4.	4.	3.	3.	3.
UI	3.	3.	3.	3.	3.	3.	3.	3.	3.	2.
UI	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
UI	2.	2.	2.	2.	1.	1.	1.	1.	1.	1.
UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
UI	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.
UI	0.									
KO					22					
KK	HC328									
HC	2									
KO					22					
KK	CV728Jordan Salt Lake Canal									
RD	615.597	0.00050	0.030		TRAP	12.00	1.00			
KO					22					
KK	JSL040									
PB	1.04									
PI	.010	.010	.010	.010	.010	.010	.015	.015	.015	.015
PI	.015	.015	.131	.157	.093	.050	.050	.050	.034	.034
PI	.034	.034	.034	.034	.015	.015	.015	.015	.015	.015
PI	.010	.010	.010	.010	.010	.010				
BA	.070									
LU	.65	.45	14.85							
IN	5									
UI	1.	1.	1.	1.	1.	2.	3.	3.	6.	6.
UI	14.	23.	23.	31.	40.	40.	48.	57.	57.	66.
UI	76.	76.	85.	85.	94.	103.	103.	97.	90.	90.
UI	83.	76.	76.	69.	61.	61.	55.	55.	47.	40.
UI	40.	35.	31.	31.	27.	24.	24.	22.	20.	20.
UI	18.	17.	17.	15.	15.	14.	13.	13.	12.	11.
UI	11.	11.	10.	10.	9.	9.	9.	8.	8.	8.
UI	7.	7.	7.	7.	7.	6.	6.	6.	6.	6.
UI	6.	5.	5.	5.	5.	5.	5.	5.	5.	4.
UI	4.	4.	4.	4.	4.	4.	4.	3.	3.	3.
UI	3.	3.	3.	3.	3.	3.	3.	3.	3.	2.
UI	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
UI	2.	2.	2.	2.	2.	2.	2.	2.	1.	1.
UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
UI	1.	1.	1.	1.	1.	1.	1.	1.	1.	0.
UI	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
UI	0.	0.	0.	0.	0.	0.	0.			
KO					22					
KK	HC329									
HC	2									
KO					22					
KK	CV729Jordan Salt Lake Canal									
RD	954.789	0.00050	0.030		TRAP	12.00	1.00			
KO					22					

```
2589    KK   HC330
2590    HC       2
2591    KO                                     22

2592    KK  JSL050
2593    PB    1.04
2594    PI    .010    .010    .010    .010    .010    .010    .015    .015    .015    .015
2595    PI    .015    .015    .131    .157    .093    .050    .050    .050    .034    .034
2596    PI    .034    .034    .034    .034    .015    .015    .015    .015    .015    .015
2597    PI    .010    .010    .010    .010    .010    .010
2598    BA    .05
2599    LU     .49     .40    22.0
2600    IN       5
2601    UI      0.      0.      1.      1.      2.      2.      3.      5.     11.     11.
2602    UI     19.     26.     26.     33.     40.     47.     47.     55.     62.     70.
2603    UI     70.     77.     85.     85.     80.     74.     68.     68.     62.     56.
2604    UI     50.     50.     45.     39.     39.     33.     29.     25.     25.     22.
2605    UI     20.     18.     18.     16.     15.     14.     14.     13.     12.     12.
2606    UI     11.     10.      9.      9.      9.      8.      8.      8.      7.      7.
2607    UI      7.      7.      6.      6.      6.      6.      5.      5.      5.      5.
2608    UI      5.      5.      4.      4.      4.      4.      4.      4.      4.      4.
2609    UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
2610    UI      3.      2.      2.      2.      2.      2.      2.      2.      2.      2.
2611    UI      2.      2.      2.      2.      2.      2.      1.      1.      1.      1.
2612    UI      1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
2613    UI      1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
2614    UI      1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
2615    UI      1.      1.      0.      0.      0.      0.      0.      0.      0.      0.
2616    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2617    UI      0.      0.      0.      0.      0.

2618    KO                                     22

2619    KK    CV730Jordan Salt Lake Canal
2620    RD 980.614 0.00050   0.030            TRAP   12.00    1.00
2621    KO                                     22

2622    IN       5

2623    KK  JSL060
2624    PB    1.04
2625    PI    .010    .010    .010    .010    .010    .010    .015    .015    .015    .015
2626    PI    .015    .015    .131    .157    .093    .050    .050    .050    .034    .034
2627    PI    .034    .034    .034    .034    .015    .015    .015    .015    .015    .015
2628    PI    .010    .010    .010    .010    .010    .010
2629    BA    .054
2630    LU     .50     .55   20.00
2631    IN       5
2632    KM
2633    KM                     *************************************
2634    KM                     *COMBINE SH/JSL MODEL WITH DRY CREEK*
2635    KM                     *************************************
2636    KM
2637    UI      1.      1.      1.      2.      2.      3.      6.     14.     24.     33.
2638    UI     42.     51.     51.     60.     70.     80.     89.     99.    109.    102.
2639    UI     95.     95.     87.     80.     72.     65.     58.     49.     42.     42.
2640    UI     37.     32.     29.     26.     23.     21.     19.     19.     17.     16.
2641    UI     15.     14.     13.     12.     11.     11.     11.     10.      9.      9.
2642    UI      8.      8.      7.      7.      7.      7.      6.      6.      6.      6.
2643    UI      5.      5.      5.      5.      5.      5.      4.      4.      4.      4.
2644    UI      4.      4.      4.      3.      3.      3.      3.      3.      3.      3.
2645    UI      3.      2.      2.      2.      2.      2.      2.      2.      2.      2.
2646    UI      2.      2.      2.      2.      1.      1.      1.      1.      1.      1.
2647    UI      1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
2648    UI      1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
2649    UI      1.      1.      1.      1.      0.      0.      0.      0.      0.      0.
2650    UI      0.      0.      0.      0.      0.      0.

2651    KO                                     22

2652    KK    HC33
2653    HC       2
2654    KO                                     22
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KK    CV867Jordan Salt Lake Canal
RD 1399.58 0.00050    0.030                TRAP   12.00     1.00
KO                                           22

KK       DH3
DT       DR3
DI         0        25        50       100       200       400       800
DQ         0        25        50       100       200       400       800
KO                                           22

KK    CV819Jordan Salt Lake Canal
RD 2341.43 0.00050    0.030                TRAP   12.00     1.00
KO                                           22

KK   JSL200
PB     1.09
PI     .009      .009      .009      .009      .009      .009      .015      .015      .015      .015
PI     .015      .015      .141      .211      .094      .050      .050      .050      .034      .034
PI     .034      .034      .034      .034      .015      .015      .015      .015      .015      .015
PI     .009      .009      .009      .009      .009      .009
BA     .073
LU      .80       .60      1.00
IN        5
UI       0.        0.        0.        0.        0.        0.        1.        1.        1.        1.
UI       1.        2.        2.        4.        4.        4.        9.        9.       15.       15.
UI      15.       20.       20.       26.       26.       26.       31.       31.       37.       37.
UI      37.       43.       43.       48.       48.       48.       54.       54.       54.       60.
UI      60.       66.       66.       66.       62.       62.       58.       58.       58.       53.
UI      53.       48.       48.       48.       44.       44.       39.       39.       39.       35.
UI      35.       30.       30.       30.       26.       26.       22.       22.       22.       20.
UI      20.       17.       17.       17.       16.       16.       14.       14.       14.       13.
UI      13.       12.       12.       12.       11.       11.       10.       10.       10.        9.
UI       9.        8.        8.        8.        8.        8.        7.        7.        7.        7.
UI       7.        6.        6.        6.        6.        6.        6.        6.        6.        5.
UI       5.        5.        5.        5.        5.        5.        5.        5.        5.        4.
UI       4.        4.        4.        4.        4.        4.        4.        4.        4.        4.
UI       4.        4.        3.        3.        3.        3.        3.        3.        3.        3.
UI       3.        3.        3.        3.        3.        3.        3.        3.        3.        3.
UI       3.        3.        2.        2.        2.        2.        2.        2.        2.        2.
UI       2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
UI       2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
UI       2.        2.        1.        1.        1.        1.        1.        1.        1.        1.
UI       1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
UI       1.        1.        1.        1.        1.

KK   RJS20
RD    1600.     .0025     .0450                TRAP    6.00     1.00

KO                                           22

KK     HC332
HC         2
KO                                           22

KK    CV757Jordan Salt Lake Canal
RD 689.358 0.00050    0.030                TRAP   12.00     1.00
KO                                           22

KK   JSL500
PB     1.09
PI     .009      .009      .009      .009      .009      .009      .015      .015      .015      .015
PI     .015      .015      .141      .211      .094      .050      .050      .050      .034      .034
PI     .034      .034      .034      .034      .015      .015      .015      .015      .015      .015
PI     .009      .009      .009      .009      .009      .009
BA     .06
LU      .80       .60      1.00
IN        5
UI       0.        0.        0.        0.        0.        0.        0.        1.        1.        1.
UI       1.        1.        1.        1.        1.        1.        3.        3.        3.        6.
UI       6.        6.       11.       11.       11.       14.       14.       14.       18.       18.
UI      22.       22.       22.       26.       26.       26.       30.       30.       30.       35.
UI      35.       35.       39.       39.       39.       43.       43.       43.       47.       47.
UI      47.       44.       44.       44.       41.       41.       41.       38.       38.       38.
UI      35.       35.       35.       31.       31.       31.       28.       28.       28.       25.
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2721   UI    25.     25.     21.     21.     21.     18.     18.     18.     16.     16.
2722   UI    16.     14.     14.     14.     12.     12.     12.     11.     11.     10.
2723   UI    10.     10.      9.      9.      9.      8.      8.      8.      8.      8.
2724   UI     8.      7.      7.      7.      6.      6.      6.      6.      6.      6.
2725   UI     6.      6.      6.      5.      5.      5.      5.      5.      5.      5.
2726   UI     5.      5.      4.      4.      4.      4.      4.      4.      4.      4.
2727   UI     4.      4.      4.      4.      3.      3.      3.      3.      3.      3.
2728   UI     3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
2729   UI     3.      3.      3.      3.      2.      2.      2.      2.      2.      2.
2730   UI     2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
2731   UI     2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
2732   UI     2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
2733   UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
2734   UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
2735   UI     1.      1.      1.      1.      1.      1.
2736   KK  RJS50
       *
       * NOTE: FULL PIPE CAPACITY IS  116.1-CFS.
       * HYDROGRAPHS SUBSTANTIALLY EXCEEDING THIS CAPACITY SHOULD BE ROUTED USING
       * OTHER METHODS SUCH AS MODIFIED PULS FOR PIPE AND OVERFLOW (STREET) SYSTEMS.
       *
2737   RD    900.   .0400   .0150           CIRC    3.00     .00

2738   KK  JSL510
2739   PB    1.09
2740   PI   .009    .009    .009    .009    .009    .009    .015    .015    .015    .015
2741   PI   .015    .015    .140    .211    .094    .050    .050    .050    .034    .034
2742   PI   .034    .034    .034    .034    .015    .015    .015    .015    .015    .015
2743   PI   .009    .009    .009    .009    .009    .009
2744   BA   .068
2745   LU    .30     .64   47.50
2746   IN      5
2747   UI     0.      0.      0.      0.      0.      0.      0.      1.      1.      1.
2748   UI     1.      1.      2.      2.      2.      3.      3.      3.      7.      7.
2749   UI     7.     12.     12.     17.     17.     17.     21.     21.     21.     26.
2750   UI    26.     26.     31.     31.     31.     36.     36.     41.     41.     41.
2751   UI    46.     46.     46.     51.     51.     51.     55.     55.     55.     52.
2752   UI    52.     48.     48.     48.     44.     44.     44.     41.     41.     41.
2753   UI    37.     37.     37.     33.     33.     29.     29.     29.     25.     25.
2754   UI    25.     22.     22.     22.     19.     19.     19.     16.     16.     15.
2755   UI    15.     15.     13.     13.     13.     12.     12.     12.     11.     11.
2756   UI    11.     10.     10.      9.      9.      9.      8.      8.      8.      8.
2757   UI     8.      8.      7.      7.      7.      7.      7.      6.      6.      6.
2758   UI     6.      6.      6.      5.      5.      5.      5.      5.      5.      5.
2759   UI     5.      5.      5.      5.      4.      4.      4.      4.      4.      4.
2760   UI     4.      4.      4.      4.      4.      3.      3.      3.      3.      3.
2761   UI     3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
2762   UI     3.      3.      3.      3.      3.      3.      3.      3.      2.      2.
2763   UI     2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
2764   UI     2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
2765   UI     2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
2766   UI     2.      2.      1.      1.      1.      1.      1.      1.      1.      1.
2767   UI     1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
2768   UI     1.      1.      1.      1.      1.      1.      1.

2769   KK   COMMERCIAL DETENTION, DISCHARGE LIMITED TO 0.3 CFS/ACRE
2770   RS      1    STOR     .00
2771   SV     .0      .5     1.0     1.5
2772   SQ     .0     7.0     7.0     7.0
2773   SE     .0     1.0     2.0     3.0

2774   KK   CCP1033
2775   HC      2
2776   KO                                    22

2777   KK    HC333
2778   HC      2
2779   KO                                    22

2780   KK    CV732Jordan Salt Lake Canal
2781   RD 2151.40 0.00050   0.030           TRAP   12.00    1.00
2782   KO                                    22

2783   KK   JSL520
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2784    PB    1.09
2785    PI    .009    .009    .009    .009    .009    .009    .015    .015    .015    .015
2786    PI    .015    .015    .140    .211    .094    .050    .050    .050    .034    .034
2787    PI    .034    .034    .034    .034    .015    .015    .015    .015    .015    .015
2788    PI    .009    .009    .009    .009    .009    .009
2789    BA    .053
2790    LU     .78     .60   38.60
2791    IN       5
2792    UI      0.      0.      0.      0.      0.      0.      0.      1.      1.      1.
2793    UI      1.      1.      1.      1.      1.      2.      2.      2.      6.      6.
2794    UI      6.     10.     10.     13.     13.     13.     17.     17.     17.     20.
2795    UI     20.     20.     24.     24.     24.     28.     28.     28.     32.     32.
2796    UI     35.     35.     35.     39.     39.     39.     43.     43.     43.     40.
2797    UI     40.     40.     38.     38.     34.     34.     34.     32.     32.     32.
2798    UI     29.     29.     29.     26.     26.     26.     23.     23.     23.     20.
2799    UI     20.     17.     17.     17.     14.     14.     14.     13.     13.     13.
2800    UI     11.     11.     11.     10.     10.      9.      9.      9.      8.      8.
2801    UI      8.      8.      8.      8.      7.      7.      7.      6.      6.      6.
2802    UI      6.      6.      5.      5.      5.      5.      5.      5.      5.      5.
2803    UI      5.      4.      4.      4.      4.      4.      4.      4.      4.      4.
2804    UI      4.      4.      4.      4.      4.      3.      3.      3.      3.      3.
2805    UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
2806    UI      3.      3.      2.      2.      2.      2.      2.      2.      2.      2.
2807    UI      2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
2808    UI      2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
2809    UI      2.      2.      2.      2.      2.      2.      1.      1.      1.      1.
2810    UI      1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
2811    UI      1.      1.      1.      1.      1.      1.      1.      1.      1.      1.
2812    UI      1.

2813    KK   COMMERCIAL DETENTION, DISCHARGE LIMITED TO 0.3 CFS/ACRE
2814    RS       1    STOR     .00
2815    SV      .0      .5     1.0     1.5
2816    SQ      .0     4.0     4.0     4.0
2817    SE      .0     1.0     2.0     3.0

2818    KO                                      22

2819    KK   HC334
2820    HC       2
2821    KO                                      22

2822    KK   CV733Jordan Salt Lake Canal
2823    RD 2927.79 0.00050   0.030            TRAP   12.00    1.00
2824    KO                                      22

2825    KK   HC335
2826    HC       2
2827    KO                                      22

2828    KK  JSL550
2829    PB    1.09
2830    PI    .009    .009    .009    .009    .009    .009    .015    .015    .015    .015
2831    PI    .015    .015    .140    .211    .094    .050    .050    .050    .034    .034
2832    PI    .034    .034    .034    .034    .015    .015    .015    .015    .015    .015
2833    PI    .009    .009    .009    .009    .009    .009
2834    BA    .102
2835    LU     .40     .75   51.00
2836    IN       5
2837    UI      0.      0.      0.      0.      1.      1.      1.      1.      1.      2.
2838    UI      2.      2.      3.      3.      5.      5.      5.     11.     11.     11.
2839    UI     19.     19.     19.     26.     26.     33.     33.     33.     40.     40.
2840    UI     40.     48.     48.     55.     55.     55.     63.     63.     63.     71.
2841    UI     71.     78.     78.     78.     86.     86.     86.     81.     81.     81.
2842    UI     75.     75.     69.     69.     69.     63.     63.     63.     57.     57.
2843    UI     51.     51.     51.     46.     46.     46.     39.     39.     39.     34.
2844    UI     34.     29.     29.     29.     26.     26.     26.     23.     23.     20.
2845    UI     20.     20.     18.     18.     18.     17.     17.     17.     15.     15.
2846    UI     14.     14.     14.     13.     13.     13.     12.     12.     11.     11.
2847    UI     11.     10.     10.     10.     10.     10.      9.      9.      9.      8.
2848    UI      8.      8.      8.      8.      8.      7.      7.      7.      7.      7.
2849    UI      7.      7.      7.      6.      6.      6.      6.      6.      6.      6.
2850    UI      6.      5.      5.      5.      5.      5.      5.      5.      5.      5.
2851    UI      5.      5.      5.      5.      4.      4.      4.      4.      4.      4.
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2852    UI     4.     4.     4.     4.     4.     4.     4.     4.     3.     3.
2853    UI     3.     3.     3.     3.     3.     3.     3.     3.     3.     3.
2854    UI     3.     3.     3.     3.     3.     3.     3.     3.     3.     3.
2855    UI     2.     2.     2.     2.     2.     2.     2.     2.     2.     2.
2856    UI     2.     2.     2.     2.     2.     2.     2.     2.     2.     2.
2857    UI     2.     2.     2.     2.     2.     2.     2.     2.     2.     2.
2858    UI     2.     2.     1.     1.     1.     1.     1.     1.     1.     1.
2859    UI     1.     1.     1.     1.     1.     1.     1.     1.     1.     1.
2860    UI     1.     1.     1.     1.     1.     1.

2861    KK  COMMERCIAL DETENTION, DISCHARGE LIMITED TO 0.3 CFS/ACRE
2862    RS      1   STOR    .00
2863    SV     .0     .5    2.0    4.0
2864    SQ     .0   20.0   20.0   20.0
2865    SE     .0    1.0    2.0    3.0
2866    KO                                22

2867    KK   CV736Jordan Salt Lake Canal
2868    RD 1114.34 0.00050  0.030        TRAP   12.00    1.00
2869    KO                                22

2870    KK   HC359
2871    HC      2
2872    KO                                22

2873    KK  JSL560
2874    PB   1.09
2875    PI   .009   .009   .009   .009   .009   .009   .015   .015   .015   .015
2876    PI   .015   .015   .140   .211   .094   .050   .050   .050   .034   .034
2877    PI   .034   .034   .034   .034   .015   .015   .015   .015   .015   .015
2878    PI   .009   .009   .009   .009   .009   .009
2879    BA   .122
2880    LU    .39    .74  52.73
2881    IN      5
2882    UI     1.     1.     1.     1.     2.     2.     3.     5.     5.     9.
2883    UI     9.    21.    21.    36.    48.    48.    62.    62.    75.    75.
2884    UI    88.   102.   102.   117.   117.   131.   131.   145.   159.   159.
2885    UI   149.   149.   139.   139.   127.   117.   117.   106.   106.    94.
2886    UI    94.    84.    72.    72.    62.    62.    54.    54.    47.    42.
2887    UI    42.    38.    38.    34.    34.    31.    28.    28.    26.    26.
2888    UI    24.    24.    22.    20.    20.    19.    19.    18.    18.    16.
2889    UI    15.    15.    15.    15.    14.    14.    13.    12.    12.    11.
2890    UI    11.    11.    11.    10.    10.    10.    10.    10.     9.     9.
2891    UI     9.     8.     8.     8.     8.     8.     8.     7.     7.     7.
2892    UI     7.     7.     6.     6.     6.     6.     6.     6.     6.     5.
2893    UI     5.     5.     5.     5.     5.     5.     5.     5.     4.     4.
2894    UI     4.     4.     4.     4.     4.     4.     3.     3.     3.     3.
2895    UI     3.     3.     3.     3.     3.     3.     3.     3.     3.     3.
2896    UI     2.     2.     2.     2.     2.     2.     2.     2.     2.     2.
2897    UI     2.     2.     2.     2.     2.     2.     2.     2.     2.     2.
2898    UI     2.     1.     1.     1.     1.     1.     1.     1.     1.     1.
2899    UI     1.     1.     1.     1.     1.     1.     1.     1.     1.     1.
2900    UI     1.     1.     1.     1.     1.     1.     1.     1.     1.     1.
2901    UI     1.     1.     1.     1.     1.     1.     1.     1.     1.     1.
2902    UI     1.     1.     1.     1.     1.     1.     1.     1.     1.     0.

2903    KK  COMMERCIAL DETENTION, DISCHARGE LIMITED TO 0.3 CFS/ACRE
2904    RS      1   STOR    .00
2905    SV     .0     .5    2.0    4.0
2906    SQ     .0   29.0   29.0   29.0
2907    SE     .0    1.0    2.0    3.0

2908    KO                                22

2909    KK   CV771Jordan Salt Lake Canal
2910    RD 730.047 0.00050  0.030        TRAP   12.00    1.00
2911    KO                                22

2912    KK   SBC32
2913    BA  0.0919
2914    LS     0.1  98.000              66.523     0.1
2915    UK      25    .02     .1  18.93
2916    UK      70    .02     .4  81.07
2917    RD    1800   .018    .02         TRAP       2      25
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KO                                                  22

KK    HC372
HC        2
KO                                                  22

KK    CV772Jordan Salt Lake Canal
RD 2393.10 0.00050   0.030                        TRAP    12.00     1.00
KO                                                  22

KK    SBC33
BA  0.0613
LS      0.1  98.000                             75.236      0.1
UK       25     .02        .1   30.96
UK       70     .02        .4   69.04
RD     1000     .02       .02                     TRAP        2       25
KO                                                  22

KK    HC373
HC        2
KO                                                  22

KK    CV773Jordan Salt Lake Canal
RD 2116.01 0.00050   0.030                        TRAP    12.00     1.00
KO                                                  22

KK    HC374
HC        2
KO                                                  22

KK     SBC8
BA  0.1474
LS      0.1  98.000                             61.642      0.1
UK       25     .02        .1   20.18
UK       70     .02        .4   79.82
RD     2880    .018      .015                     CIRC      2.5       25
KO                                                  22

KK    CV774Jordan Salt Lake Canal
RD 1747.54 0.00050   0.030                        TRAP    12.00     1.00
KO                                                  22

KK    SBC47
BA  0.0966
LS      0.1  98.000                             64.464      0.1
UK       25     .02        .1   31.32
UK       70     .02        .4   68.68
RD      650     .02       .02    .023             TRAP        2       25
RD     3000    .018       .02                     TRAP        2       25
KO                                                  22

KK    HC375
HC        2
KO                                                  22

KK    CV775Jordan Salt Lake Canal
RD 526.226 0.00050   0.030                        TRAP    12.00     1.00
KO                                                  22

KK    SBC46
BA  0.1328
LS      0.1  98.000                             57.337      0.1
UK       25     .02        .1   23.8
UK       70     .02        .4   76.19
RD      800     .02       .02    .036             TRAP        2       25
RD     2500    .016       .02                     TRAP        2       25
KO                                                  22

KK    HC376
HC        2
KO                                                  22

KK    CV776Jordan Salt Lake Canal
RD 1144.16 0.00050   0.030                        TRAP    12.00     1.00
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2978   KO                                                22

2979   KK    SB879
2980   BA   0.0980
2981   LS      0.1  98.000                           58.927     0.1
2982   UK       25     .02       .1    27.00
2983   UK       70     .02       .4    73.00
2984   RD      800     .02      .02     .032         TRAP        2        25
2985   RD     2500    .016      .02                  TRAP        2        25
2986   KO                                                22

2987   KK    HC377
2988   HC        2
2989   KO                                                22

2990   KK    CV777Jordan Salt Lake Canal
2991   RD 1698.26 0.00050    0.030                   TRAP    12.00      1.00
2992   KO                                                22

2993   KK    SB878
2994   BA   0.0859
2995   LS      0.1  98.000                           52.771     0.1
2996   UK       25     .02       .1    19.40
2997   UK       70     .02       .4    80.60
2998   RD      900     .02      .02     .029         TRAP        2        25
2999   RD     1600     .02      .02                  TRAP        2        25
3000   KO                                                22

3001   KK    HC403
3002   HC        2
3003   KO                                                22

3004   KK    CV826Jordan Salt Lake Canal
3005   RD 678.338 0.00050    0.030                   TRAP    12.00      1.00
3006   KO                                                22

3007   KK     DH42
3008   DT     DR42
3009   DI        0      25       50      100          200      400       800
3010   DQ        0      25       50      100          200      400       800
3011   KO                                                22

3012   KK    CV827Jordan Salt Lake Canal
3013   RD 553.719 0.00050    0.030                   TRAP    12.00      1.00
3014   KO                                                22

3015   KK      SBC
3016   BA   0.1008
3017   LS      0.1  98.000                           64.578     0.1
3018   UK       25     .02       .1    28.37
3019   UK       70     .02       .4    71.63
3020   RD     1500    .014      .04                  TRAP        1         2
3021   KO                                                22

3022   KK    HC378
3023   HC        2
3024   KO                                                22

3025   KK    CV778Jordan Salt Lake Canal
3026   RD 1660.02 0.00050    0.030                   TRAP    12.00      1.00
3027   KO                                                22

3028   KK    SBC10
3029   BA    0.121
3030   LS      0.1  98.000                           70.703     0.1
3031   UK       25     .02       .1    30.22
3032   UK       70     .02       .4    69.78
3033   RD     1800    .009      .02                  CIRC      1.5        25
3034   KO                                                22

3035   KK    CV803to Jordan Salt Lake Canal
3036   RD 1216.18 0.00050    0.030                   CIRC     3.50      1.00
3037   KO                                                22
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```
3038   KK    HC402
3039   HC        2
3040   KO                                              22

3041   KK    CV802Jordan Salt Lake Canal
3042   RD 1376.60 0.00050   0.030                   TRAP   12.00     1.00
3043   KO                                              22

3044   KK      SBC2
3045   BA   0.1047
3046   LS      0.1  98.000                     51.963      0.1
3047   UK       25     .02        .1   27.20
3048   UK       70     .02        .4   72.80
3049   RD      700     .02       .02    .015    TRAP        2        25
3050   RD     1900    .013       .02            TRAP        2        25
3051   KO                                              22

3052   KK    HC379
3053   HC        2
3054   KO                                              22

3055   KK    CV830Jordan Salt Lake Canal
3056   RD 4324.49 0.00050   0.030                   TRAP   12.00     1.00
3057   KO                                              22

3058   KK      DH1
3059   DT      DR1
3060   DI        0      25        50     100     200      400       800
3061   DQ        0      25        50     100     200      400       800
3062   KO                                              22

3063   KK    CV831Jordan Salt Lake Canal
3064   RD 3184.80 0.00050   0.030                   TRAP   12.00     1.00
3065   KO                                              22

3066   KK     SBC1
3067   BA   0.0912
3068   LS      0.1  98.000                     73.552      0.1
3069   UK       25     .02        .1   29.76
3070   UK       70     .02        .4   70.24
3071   RD     2200    .009       .02            TRAP        2        25
3072   KO                                              22

3073   KK    HC380
3074   HC        2
3075   KO                                              22

3076   KK    CV809Jordan Salt Lake Canal
3077   RD 1961.34 0.00050   0.030                   TRAP   12.00     1.00
3078   KO                                              22

3079   KK    SB882
3080   BA   0.1958
3081   LS      0.1  98.000                     69.681      0.1
3082   UK       25     .02        .1   26.76
3083   UK       70     .02        .4   73.24
3084   RD     1000     .02       .02     .03    TRAP        2        25
3085   RD     5100   .0095       .04            TRAP        1         2
3086   KO                                              22

3087   KK    HC405
3088   HC        2
3089   KO                                              22

3090   KK    CV810Jordan Salt Lake Canal
3091   RD 1961.18 0.00050   0.030                   TRAP   12.00     1.00
3092   KO                                              22

3093   KK    SB883
3094   BA   0.1747
3095   LS      0.1  98.000                     72.607      0.1
3096   UK       25     .02        .1   28.95
3097   UK       70     .02        .4   71.05
3098   RD      650     .02       .02    .019    TRAP        2        25
```

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RD    4500    .009    .015                CIRC       3
KO                                          22

KK    HC38
HC       2
KO                                          22

KK    CV781Jordan Salt Lake Canal
RD 1611.44 0.00050   0.030                TRAP   12.00    1.00
KO                                          22

KK    SB885
BA   0.1088
LS      0.1  98.000                     69.967     0.1
UK       25     .02      .1    24.9
UK       70     .02      .4    75.09
RD      700     .02     .02     .013      TRAP       2      25
RD     1300    .013     .02               TRAP       2      25
KO                                          22

KK    SB884
BA   0.087
LS      0.1  98.000                     66.641     0.1
UK       25     .02      .1    17.15
UK       70     .02      .4    82.85
RD      600     .02     .02      .01      TRAP       2      25
RD     1850    .018     .02               TRAP       2      25
KO                                          22

KK    HC382
HC       3
KO                                          22

KK    CV782Jordan Salt Lake Canal
RD 486.150 0.00050   0.030                TRAP   12.00    1.00
KO                                          22

KK    SBC12
BA   0.1032
LS      0.1  98.000                     66.004     0.1
UK       25     .02      .1    16.89
UK       70     .02      .4    83.1
RD      500     .02     .02     .015      TRAP       2      25
RD     3100    .013     .02               TRAP       2      25
KO                                          22

KK    HC383
HC       2
KO                                          22

KK    CV783Jordan Salt Lake Canal
RD 1298.99 0.00050   0.030                TRAP   12.00    1.00
KO                                          22

KK     SBC3
BA   0.1389
LS      0.1  98.000                     65.658     0.1
UK       25     .02      .1    11.32
UK       70     .02      .4    88.68
RD      650     .02     .02     .019      TRAP       2      25
RD     3200    .013     .02               TRAP       2      25
KO                                          22

KK    HC384
HC       2
KO                                          22

KK    CV784Jordan Salt Lake Canal
RD 3328.37 0.00050   0.030                TRAP   12.00    1.00
KO                                          22

KK     SBC4
BA   0.1240
LS      0.1  98.000                     66.117     0.1
```

3160	UK	25	.02	.1	8.94			
3161	UK	70	.02	.4	91.06			
3162	RD	700	.02	.02	.015	TRAP	2	25
3163	RD	1650	.01	.02		TRAP	2	25
3164	KO					22		
3165	KK	HC385						
3166	HC	2						
3167	KO					22		
3168	KK	CV834Jordan Salt Lake Canal						
3169	RD	1021.80	0.00050	0.030		TRAP	12.00	1.00
3170	KO					22		
3171	KK	DH15						
3172	DT	DR15						
3173	DI	0	25	50	100	200	400	800
3174	DQ	0	25	50	100	200	400	800
3175	KO					22		
3176	KK	CV835Jordan Salt Lake Canal						
3177	RD	454.062	0.00050	0.030		TRAP	12.00	1.00
3178	KO					22		
3179	KK	SBC42						
3180	BA	0.1496						
3181	LS	0.1	98.000			59.186	0.1	
3182	UK	25	.02	.1	20.83			
3183	UK	70	.02	.4	79.17			
3184	RD	600	.02	.02	.02	TRAP	2	25
3185	RD	3200	.038	.02		TRAP	2	25
3186	KO					22		
3187	KK	SBC4						
3188	BA	0.1429						
3189	LS	0.1	98.000			67.247	0.1	
3190	UK	25	.02	.1	16.30			
3191	UK	70	.02	.4	83.70			
3192	RD	400	.02	.02	.016	TRAP	2	25
3193	RD	3000	.022	.02		TRAP	2	25
3194	KO					22		
3195	KK	HC386						
3196	HC	3						
3197	KO					22		
3198	KK	CV836Jordan Salt Lake Canal						
3199	RD	2099.51	0.00050	0.030		TRAP	12.00	1.00
3200	KO					22		
3201	KK	SBC40						
3202	BA	0.0874						
3203	LS	0.1	98.000			69.479	0.1	
3204	UK	25	.02	.1	22.68			
3205	UK	70	.02	.4	77.32			
3206	RD	500	.02	.02	.01	TRAP	2	25
3207	RD	2500	.023	.02		TRAP	2	25
3208	KO					22		
3209	KK	HC387						
3210	HC	2						
3211	KO					22		
3212	KK	CV787Jordan Salt Lake Canal						
3213	RD	1789.28	0.00050	0.030		TRAP	12.00	1.00
3214	KO					22		
3215	KK	SBC5						
3216	BA	0.0824						
3217	LS	0.1	98.000			69.628	0.1	
3218	UK	25	.02	.1	26.32			
3219	UK	70	.02	.4	73.68			
3220	RD	600	.02	.02	.013	TRAP	2	25
3221	RD	1000	.024	.02		TRAP	2	25

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KO                                               22

KK   HC388
HC       2
KO                                               22

KK   CV838Jordan Salt Lake Canal
RD 1389.92 0.00050   0.030                     TRAP   12.00    1.00
KO                                               22

KK    SBC6
BA  0.099
LS      0.1  98.000                          67.025     0.1
UK       25     .02       .1   19.99
UK       70     .02       .4   80.0
RD     1400     .02      .02     .05       TRAP       2      25
RD     2000    .029      .02               TRAP       2      25
KO                                               22

KK   HC389
HC       2
KO                                               22

KK   CV789Jordan Salt Lake Canal
RD 2452.77 0.00050   0.030                     TRAP   12.00    1.00
KO                                               22

KK   SBC39
BA  0.0898
LS      0.1  98.000                          69.199     0.1
UK       25     .02       .1   23.03
UK       70     .02       .4   76.97
RD      500     .02      .02    .018       TRAP       2      25
RD     2200    .037      .04               TRAP       1       2
KO                                               22

KK    SBC7
BA  0.0893
LS      0.1  98.000                          66.398     0.1
UK       25     .02       .1   15.37
UK       70     .02       .4   84.63
RD     1200     .04      .02               TRAP       2      25
KO                                               22

KK   HC390
HC       3
KO                                               22

KK   CV840Jordan Salt Lake Canal
RD 3180.67 0.00050   0.030                     TRAP   12.00    1.00
KO                                               22

KK   CV841Jordan Salt Lake Canal
RD 133.046 0.00050   0.030                     TRAP   12.00    1.00
KO                                               22

KK   SBC38
BA  0.056
LS      0.1  98.000                          66.742     0.1
UK       25     .02       .1   15.93
UK       70     .02       .4   84.07
RD     1300    .065      .04               TRAP       1       2
KO                                               22

KK   HC39
HC       2
KO                                               22

KK   CV842Jordan Salt Lake Canal
RD 692.136 0.00050   0.030                     TRAP   12.00    1.00
KO                                               22

KK    DH19
DT    DR19
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3282   DI      0      25      50     100     200     400     800
3283   DQ      0      25      50     100     200     400     800
3284   KO                                     22

3285   KK   CV843Jordan Salt Lake Canal
3286   RD 805.949 0.00050   0.030            TRAP   12.00    1.00
3287   KO                                     22

3288   KK   SBC34
3289   BA  0.1443
3290   LS     0.1  98.000                   66.766    0.1
3291   UK      25     .02      .1   18.69
3292   UK      70     .02      .4   81.3
3293   RD    3500     .04     .04            TRAP      1       2
3294   KO                                     22

3295   KK   HC392
3296   HC       2
3297   KO                                     22

3298   KK   CV844Jordan Salt Lake Canal
3299   RD 177.532 0.00050   0.030            TRAP   12.00    1.00
3300   KO                                     22

3301   KK   CV845Jordan Salt Lake Canal
3302   RD 508.973 0.00050   0.030            TRAP   12.00    1.00
3303   KO                                     22

3304   KK   SBC35
3305   BA  0.0820
3306   LS     0.1  98.000                   69.749    0.1
3307   UK      25     .02      .1   25.65
3308   UK      70     .02      .4   74.35
3309   RD    3800     .04     .02            TRAP      2      25
3310   KO                                     22

3311   KK   HC393
3312   HC       2
3313   KO                                     22

3314   KK   CV846Jordan Salt Lake Canal
3315   RD 1469.64 0.00050   0.030            TRAP   12.00    1.00
3316   KO                                     22

3317   KK     DH2
3318   DT     DR2
3319   DI       0      25      50     100     200     400     800
3320   DQ       0      25      50     100     200     400     800
3321   KO                                     22

3322   KK   CV847Jordan Salt Lake Canal
3323   RD 714.150 0.00050   0.030            TRAP   12.00    1.00
3324   KO                                     22

3325   KK   SBC36
3326   BA  0.0408
3327   LS     0.1  98.000                   79.620    0.1
3328   UK      25     .02      .1   30.59
3329   UK      70     .02      .4   69.4
3330   RD     600    .068     .04            TRAP      1       2
3331   KO                                     22

3332   KK   HC394
3333   HC       2
3334   KO                                     22

3335   KK   CV794Jordan Salt Lake Canal
3336   RD 3372.27 0.00050   0.030            TRAP   12.00    1.00
3337   KO                                     22

3338   KK   SB892
3339   BA  0.0152
3340   LS     0.1  98.000                   85.624    0.1
3341   UK      25     .02      .1   72.33
```

3342	UK	70	.02	.4	27.67			
3343	RD	300	.027	.02		TRAP	2	25
3344	KO					22		
3345	KK	HC395						
3346	HC	2						
3347	KO					22		
3348	KK	CV795Jordan Salt Lake Canal						
3349	RD	2306.96	0.00050	0.030		TRAP	12.00	1.00
3350	KO					22		
3351	KK	SB889						
3352	BA	0.0392						
3353	LS	0.1	98.000			74.017	0.1	
3354	UK	25	.02	.1	36.03			
3355	UK	70	.02	.4	63.97			
3356	RD	875	.028	.02		TRAP	2	25
3357	KO					22		
3358	KK	HC396						
3359	HC	2						
3360	KO					22		
3361	KK	CV811Jordan Salt Lake Canal						
3362	RD	327.074	0.00050	0.030		DEEP	4.00	1.00
3363	KO					22		
3364	KK	SB89						
3365	BA	0.0536						
3366	LS	0.1	98.000			72.117	0.1	
3367	UK	25	.02	.1	32.96			
3368	UK	70	.02	.4	67.04			
3369	RD	700	.02	.02	.02	TRAP	2	25
3370	RD	790	.03	.02		TRAP	2	25
3371	KO					22		
3372	KK	HC406						
3373	HC	2						
3374	KO					22		
3375	KK	CV812Jordan Salt Lake Canal						
3376	RD	1643.38	0.00050	0.030		DEEP	4.00	1.00
3377	KO					22		
3378	KK	SBC37						
3379	BA	0.0917						
3380	LS	0.1	98.000			69.980	0.1	
3381	UK	25	.02	.1	28.3			
3382	UK	70	.02	.4	71.69			
3383	RD	600	.025	.02	.01	TRAP	2	25
3384	RD	2200	.008	.02		CIRC	3	
3385	KO					22		
3386	KK	HC397						
3387	HC	2						
3388	KO					22		
3389	KK	CV848Jordan Salt Lake Canal						
3390	RD	649.746	0.00050	0.030		DEEP	4.00	1.00
3391	KO					22		
3392	KK	CV849Jordan Salt Lake Canal						
3393	RD	2458.50	0.00050	0.030		DEEP	4.00	1.00
3394	KO					22		
3395	KK	SBC25						
3396	BA	0.0770						
3397	LS	0.1	98.000			83.154	0.1	
3398	UK	25	.02	.1	61.80			
3399	UK	70	.02	.4	38.20			
3400	RD	500	.02	.04	.008	TRAP	2	25
3401	RD	1200	.04	.04		CIRC	2	
3402	KO					22		

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3403    KK   HC398
3404    HC       2
3405    KO                                             22

3406    KK   CV850Jordan Salt Lake Canal
3407    RD 2061.98 0.00050   0.030                   DEEP      4.00      1.00
3408    KO                                             22

3409    KK   CV851Jordan Salt Lake Canal
3410    RD 1102.84 0.00050   0.030                   DEEP      4.00      1.00
3411    KO                                             22

3412    KK   SBC26
3413    BA  0.1115
3414    LS     0.1  98.000                         76.578       0.1
3415    UK      25       .02     0.1    12.02
3416    UK      70       .02      .4    87.98
3417    RD     700       .01     .02     .007      TRAP          2        25
3418    RD    1400       .02     .02               TRAP          2        25
3419    KO                                             22

3420    KK   HC399
3421    HC       2
3422    KO                                             22

3423    KK   CV852Jordan Salt Lake Canal
3424    RD 1816.31 0.00050   0.030                   DEEP      4.00      1.00
3425    KO                                             22

3426    KK   CV853Jordan Salt Lake Canal
3427    RD 179.587 0.00050   0.030                   DEEP      4.00      1.00
3428    KO                                             22

3429    KK   SBC27
3430    BA  0.1592
3431    LS     0.1  98.000                         76.806       0.1
3432    UK      25       .02      .1    13.89
3433    UK      70       .02      .4    86.1
3434    RD    1000       .02     .02               TRAP          2        25
3435    KO                                             22

3436    KK   HC400
3437    HC       2
3438    KO                                             22

3439    KK   CV854Jordan Salt Lake Canal
3440    RD 4591.21 0.00050   0.030                   DEEP      4.00      1.00
3441    KO                                             22

3442    KK   CV855Jordan Salt Lake Canal
3443    RD 430.389 0.00050   0.030                   DEEP      4.00      1.00
3444    KO                                             22

3445    KK   SBC28
3446    BA  0.1700
3447    LS     0.1  98.000                         71.392       0.1
3448    UK      25       .02      .1    10.00
3449    UK      65       .02      .4    90.00
3450    RD    1800       .01     .02               TRAP          2        25
3451    KO                                             22

3452    KK   HC40
3453    HC       2
3454    KO                                             22

3455    KK   CV856Jordan Salt Lake Canal
3456    RD 1440.59 0.00050   0.030                   DEEP      4.00      1.00
3457    KO                                             22

3458    KK   CV857Jordan Salt Lake Canal
3459    RD 741.144 0.00050   0.030                   DEEP      4.00      1.00
3460    KO                                             22
3461    ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING            (--->) DIVERSION OR PUMP FLOW

 NO.       (.) CONNECTOR          (<---) RETURN OF DIVERTED OR PUMPED FLOW

   6    SBC19
            V
            V
  20    CV859
            .
            .
  23        .       SBC18
            .           .
            .           .
  31    HC368............
            V
            V
  34    CV767
            .
            .
  37        .       SBC17
            .           .
            .           .
  45    HC369............
            V
            V
  48    CV768
            .
            .
  51        .       SBC16
            .           .
            .           .
  59    HC370............
            V
            V
  62    CV769
            .
            .
  66        .------->    DR35
  65     DH35
            .
            .
  70        .       SBC15
            .           .
            .           .
  77    HC371............
            V
            V
  80    CV870
            .
            .
  83        .       SB419
            .           V
            .           V
  91        .       CV539
            .           .
            .           .
  94        .           .       SB647
            .           .           .
            .           .           .
 101        .           .           .       SB851
            .           .           .           .
            .           .           .           .
 108        .       HC212........................
            .           V
            .           V
 111        .       CV538
            .           V
            .           V
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114         .       CV537
            .           .
            .           .
117         .           .       SB483
            .           .           V
            .           .           V
124         .           .        DB29
            .           .           V
            .           .           V
130         .           .       CV686
            .           .           .
            .           .           .
133         .           .           .       SB484
            .           .           .           .
            .           .           .           .
140         .           .       HC310............
            .           .           V
            .           .           V
143         .           .       CV687
            .           .           V
            .           .           V
146         .           .       CV688
            .           .           V
            .           .           V
149         .           .       CV689
            .           .           V
            .           .           V
152         .           .       CV690
            .           .           V
            .           .           V
155         .           .        DB78
            .           .           .
            .           .           .
161         .           .           .       SB479
            .           .           .           .
            .           .           .           .
168         .           .       HC311............
            .           .           V
            .           .           V
171         .           .       CV715
            .           .           .
            .           .           .
174         .           .           .       SB475
            .           .           .           .
            .           .           .           .
181         .           .       HC312............
            .           .           V
            .           .           V
184         .           .       CV717
            .           .           .
            .           .           .
187         .           .           .       SB477
            .           .           .           V
            .           .           .           V
195         .           .           .        DB80
            .           .           .           .
            .           .           .           .
201         .           .           .           .       SB478
            .           .           .           .           .
            .           .           .           .           .
208         .           .           .       HC314............
            .           .           .           V
            .           .           .           V
211         .           .           .       CV713
            .           .           .           V
            .           .           .           V
214         .           .           .        DB79
            .           .           .           .
            .           .           .           .
220         .           .           .           .       SB837
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227                                     HC313............
                                            V
                                            V
230                                     CV716
233                         HC17............
                               V
                               V
236                        CV726
239                                     SB474
                                            V
                                            V
247                                     CV674
                                            V
                                            V
250                                     CV675
                                            V
                                            V
253                                     CV673
                                            V
                                            V
256                                     CV685
                                            V
                                            V
259                                     CV684
                                            V
                                            V
262                                     CV676
265                                                   SB649
                                                          V
                                                          V
273                                                   CV677
276                                     HC216............
                                            V
                                            V
279                                     CV678
                                            V
                                            V
282                                     CV679
285                                                   SB648
                                                          V
                                                          V
293                                                   CV680
296                                     HC215............
                                            V
                                            V
299                                     CV681
                                            V
                                            V
302                                     CV682
305                                                   SB788
312                        HC214........................
                               V
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315            .           .        DB81
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321            .           .       CV683
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324            .       HC213............
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327            .       CV385
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330            .           .       SB789
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338            .           .           .       SB787
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346            .           .           .           .       SB786
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353            .           .           .           .           .       SB785
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361            .       HC217................................................
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364            .       CV348
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367            .           .       SB874
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374            .         HC1............
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380            .           .       SB896
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387            .           .       CV346
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390            .         HC2............
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397            .           .------->    DR36
396            .        DH36
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401            .           .       SB169
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408            .       HC218............
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411            .       CV276
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414            .           .       SB804
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421            .           .       CV272
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424            .          HC3............
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430            .            .       SB805
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437            .            .       CV206
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440            .            .        DB35
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446            .            .       CV207
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449            .            .           .       SB806
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457            .            .       HC219............
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460            .            .       CV696
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463            .            .       CV342
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466            .            .       CV695
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469            .          HC4............
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472            .        CV340
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475            .            .       SB776
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485            .            .           .       SB875
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492            .            .       HC220............
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498            .            .       CV337
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501            .            .           .       SB775
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509            .            .       HC221............
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515            .            .           .       SB773
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522            .      HC222.........................
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525            .      CV335
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528            .          .       SB772
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565            .          .       HC224.............
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571            .          .           .        SB770
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578            .      HC223.........................
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643             .             .              .          SB766
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659             .             .           DB10
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715             .         HC231...............
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718             .         CV232
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798            .           .      RTP133
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800            .           .           .       TP200
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806            .           .           .      RTP201
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814     .     .     CTP211......................
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832     .     .          .    RTP312
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887     .     .          .    RTP412
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1779              .       .       CV745
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1782              .       .           .     EJC050
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1815              .       .       CV821
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1818              .       .           .     EJC055
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1851              .       .           .     RJC056
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1861          HC349......................
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1864               .     EJC075
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1892               .      CV750
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1895               .          .    EJC080
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1924               .      HC352..........
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1927               .      CV751
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1930               .          .    EJC083
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1965               .          .    RJC084
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1968               .          .         .        EJC086
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1999               .          .    CJC087..............
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2003               .      HC353..........
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2006               .      CV752
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2009               .          .    EJC090
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2050          HC355............
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2074               .      CV864
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2090            .           .       SB880
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2098            .       HC404............
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2101            .       CV872
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2104            .           .       SB894
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2112            .           .       CV860
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2115            .           .           .       SB895
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2122            .           .       HC408............
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2144            .           .       HC362........................
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2163            .           .           .       SBC21
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2184            .           .       HC365............
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2190    .    .      .    SB573
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2207    .    .      .      .      .    SB571
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2214    .    .      .    HC251.................
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2217    .    .      .    CV534
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2220    .    .      .      .    SB376
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2254    .    .      .    HC252.......................
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2257    .    .      .    CV475
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2270    .    .      .    CV471
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2273    .    .      .      .    SB575
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2280    .    .      .    HC254.........
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2283    .    .      .    CV470
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2286    .    .      .      .    SB576
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2296    .    .      .    CV472
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2352    .    .    .        .------->     DR41
2351    .    .    .     DH41
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2359    .    .    .        .      SB358
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2386    .    .    .        .      HC274............
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2392    .    .    .        .      CV488
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2395    .    .    .        .      CV487
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2666                .         .         .     JSL200
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2738                .         .         .          .     JSL510
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2870               .     HC359..........
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3059            .           .           .-------->     DR11
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3063            .           .       CV831
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 3157            .            .             .          SBC4
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 3168            .            .         CV834
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 3172            .            .             .------->     DR15
 3171            .            .          DH15
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3176             .          .        CV835
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3179             .          .            .        SBC42
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3201             .          .            .        SBC40
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3215             .          .            .         SBC5
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3223             .          .        HC388............
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3229             .          .            .         SBC6
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3281             .          .            .-------->       DR19
3280             .          .         DH19
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3288          .          .           .        SBC34
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3318          .          .           .------->    DR21
3317          .          .        DH21
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3325          .          .           .        SBC36
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3378          .          .           .        SBC37
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                   .              .            V
                   .              .            V
3426               .              .         CV853
                   .              .            .
                   .              .            .
3429               .              .            .        SBC27
                   .              .            .             .
                   .              .            .             .
3436               .              .         HC400............
                   .              .            V
                   .              .            V
3439               .              .         CV854
                   .              .            V
                   .              .            V
3442               .              .         CV855
                   .              .            .
                   .              .            .
3445               .              .            .        SBC28
                   .              .            .             .
                   .              .            .             .
3452               .              .         HC401............
                   .              .            V
                   .              .            V
3455               .              .         CV856
                   .              .            V
                   .              .            V
3458               .              .         CV857
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(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	SBC19	134.	1.18	11.	11.	11.	.52		
ROUTED TO	CV859	70.	1.18	10.	10.	10.	.52		
HYDROGRAPH AT	SBC18	68.	1.18	5.	5.	5.	.16		
2 COMBINED AT	HC368	138.	1.18	15.	15.	15.	.68		
ROUTED TO	CV767	33.	1.58	13.	13.	13.	.68		
HYDROGRAPH AT	SBC17	71.	1.25	8.	8.	8.	.19		
2 COMBINED AT	HC369	95.	1.25	21.	21.	21.	.87		
ROUTED TO	CV768	44.	2.02	19.	19.	19.	.87		
HYDROGRAPH AT	SBC16	107.	1.30	14.	14.	14.	.36		
2 COMBINED AT	HC370	129.	1.30	33.	33.	33.	1.23		
ROUTED TO	CV769	59.	2.23	26.	26.	26.	1.23		
DIVERSION TO	DR35	59.	.00	26.	26.	26.	1.23		
HYDROGRAPH AT	DH35	0.	.00	0.	0.	0.	1.23		
HYDROGRAPH AT	SBC15	158.	1.18	14.	14.	14.	.30		
2 COMBINED AT	HC371	158.	1.18	14.	14.	14.	1.53		
ROUTED TO	CV870	67.	1.18	12.	12.	12.	1.53		
HYDROGRAPH AT	SB419	68.	1.38	13.	13.	13.	.14		
ROUTED TO	CV539	42.	1.50	12.	12.	12.	.14		
HYDROGRAPH AT	SB647	24.	1.17	2.	2.	2.	.04		
HYDROGRAPH AT	SB851	4.	1.18	0.	0.	0.	.02		
3 COMBINED AT	HC212	47.	1.50	15.	15.	15.	.20		
ROUTED TO	CV538	37.	1.68	14.	14.	14.	.20		
ROUTED TO	CV537	34.	1.88	13.	13.	13.	.20		
HYDROGRAPH AT	SB483	7.	1.17	1.	1.	1.	.02		
ROUTED TO	DB29	2.	1.28	1.	1.	1.	.02	1.74	1.28
ROUTED TO	CV686	2.	1.28	1.	1.	1.	.02		
HYDROGRAPH AT	SB484	20.	1.18	2.	2.	2.	.05		
2 COMBINED AT	HC310	22.	1.18	2.	2.	2.	.07		
ROUTED TO	CV687	22.	1.18	2.	2.	2.	.07		
ROUTED TO	CV688	21.	1.18	2.	2.	2.	.07		
ROUTED TO	CV689	21.	1.20	2.	2.	2.	.07		
ROUTED TO	CV690	21.	1.20	2.	2.	2.	.07		
ROUTED TO	DB78	4.	1.73	2.	2.	2.	.07	2.75	1.75
HYDROGRAPH AT	SB479	9.	1.17	1.	1.	1.	.02		
2 COMBINED AT	HC311	11.	1.17	3.	3.	3.	.09		
ROUTED TO	CV715	11.	1.18	3.	3.	3.	.09		
HYDROGRAPH AT	SB475	44.	1.17	3.	3.	3.	.03		
2 COMBINED AT	HC312	54.	1.17	6.	6.	6.	.12		
ROUTED TO	CV717	54.	1.18	6.	6.	6.	.12		
HYDROGRAPH AT	SB477	16.	1.17	1.	1.	1.	.03		

ROUTED TO	DB80	4.	1.32	1.	1.	1.	.03	2.57	1.32
HYDROGRAPH AT	SB478	12.	1.17	1.	1.	1.	.04		
2 COMBINED AT	HC314	15.	1.17	2.	2.	2.	.07		
ROUTED TO	CV713	15.	1.18	2.	2.	2.	.07		
ROUTED TO	DB79	4.	2.05	2.	2.	2.	.07	2.47	2.07
HYDROGRAPH AT	SB837	25.	1.17	3.	3.	3.	.04		
2 COMBINED AT	HC313	27.	1.17	5.	5.	5.	.11		
ROUTED TO	CV716	27.	1.23	5.	5.	5.	.11		
2 COMBINED AT	HC17	74.	1.20	11.	11.	11.	.23		
ROUTED TO	CV726	73.	1.20	11.	11.	11.	.23		
HYDROGRAPH AT	SB474	31.	1.15	2.	2.	2.	.07		
ROUTED TO	CV674	30.	1.17	2.	2.	2.	.07		
ROUTED TO	CV675	30.	1.17	2.	2.	2.	.07		
ROUTED TO	CV673	30.	1.18	2.	2.	2.	.07		
ROUTED TO	CV685	29.	1.18	2.	2.	2.	.07		
ROUTED TO	CV684	29.	1.20	2.	2.	2.	.07		
ROUTED TO	CV676	29.	1.20	2.	2.	2.	.07		
HYDROGRAPH AT	SB649	26.	1.15	2.	2.	2.	.05		
ROUTED TO	CV677	26.	1.17	2.	2.	2.	.05		
2 COMBINED AT	HC216	50.	1.18	4.	4.	4.	.12		
ROUTED TO	CV678	49.	1.18	4.	4.	4.	.12		
ROUTED TO	CV679	49.	1.18	4.	4.	4.	.12		
HYDROGRAPH AT	SB648	9.	1.18	1.	1.	1.	.02		
ROUTED TO	CV680	9.	1.18	1.	1.	1.	.02		
2 COMBINED AT	HC215	58.	1.18	5.	5.	5.	.14		
ROUTED TO	CV681	57.	1.18	5.	5.	5.	.14		
ROUTED TO	CV682	56.	1.20	5.	5.	5.	.14		
HYDROGRAPH AT	SB788	9.	1.17	1.	1.	1.	.04		
3 COMBINED AT	HC214	136.	1.20	16.	16.	16.	.41		
ROUTED TO	DB81	52.	1.33	16.	16.	16.	.41	1.32	1.33
ROUTED TO	CV683	52.	1.33	16.	16.	16.	.41		
2 COMBINED AT	HC213	74.	1.67	29.	29.	29.	.61		
ROUTED TO	CV385	59.	2.28	24.	24.	24.	.61		
HYDROGRAPH AT	SB789	0.	2.03	0.	0.	0.	.09		
HYDROGRAPH AT	SB787	12.	1.25	1.	1.	1.	.04		
HYDROGRAPH AT	SB786	10.	1.22	1.	1.	1.	.07		
HYDROGRAPH AT	SB785	4.	1.43	1.	1.	1.	.05		
5 COMBINED AT	HC217	63.	2.22	27.	27.	27.	.86		
ROUTED TO	CV348	55.	2.67	23.	23.	23.	.86		
HYDROGRAPH AT	SB874	15.	1.23	2.	2.	2.	.06		
2 COMBINED AT	HC1	58.	2.67	25.	25.	25.	.92		
ROUTED TO	CV347	57.	2.72	24.	24.	24.	.92		
HYDROGRAPH AT	SB896	14.	1.25	2.	2.	2.	.06		
ROUTED TO	CV346	13.	1.25	2.	2.	2.	.06		
2 COMBINED AT	HC2	59.	2.70	26.	26.	26.	.98		

ROUTED TO	CV345	58.	2.82	25.	25.	25.	.98		
DIVERSION TO	DR36	58.	.00	25.	25.	25.	.98		
HYDROGRAPH AT	DH36	0.	.00	0.	0.	0.	.98		
HYDROGRAPH AT	SB169	10.	1.18	1.	1.	1.	.05		
2 COMBINED AT	HC218	10.	1.18	1.	1.	1.	1.03		
ROUTED TO	CV276	2.	2.77	1.	1.	1.	1.03		
HYDROGRAPH AT	SB804	3.	1.30	1.	1.	1.	.03		
ROUTED TO	CV272	3.	1.33	1.	1.	1.	.03		
2 COMBINED AT	HC3	3.	1.33	1.	1.	1.	1.06		
ROUTED TO	CV273	2.	3.35	1.	1.	1.	1.06		
HYDROGRAPH AT	SB805	5.	1.30	1.	1.	1.	.05		
ROUTED TO	CV206	3.	1.42	1.	1.	1.	.05		
ROUTED TO	DB35	3.	1.58	1.	1.	1.	.05	.57	1.58
ROUTED TO	CV207	3.	1.63	1.	1.	1.	.05		
HYDROGRAPH AT	SB806	7.	1.27	1.	1.	1.	.05		
2 COMBINED AT	HC219	7.	1.27	2.	2.	2.	.10		
ROUTED TO	CV696	7.	1.28	2.	2.	2.	.10		
ROUTED TO	CV342	7.	1.32	2.	2.	2.	.10		
ROUTED TO	CV695	7.	1.32	2.	2.	2.	.10		
2 COMBINED AT	HC4	7.	1.32	3.	3.	3.	1.16		
ROUTED TO	CV340	5.	2.25	2.	2.	2.	1.16		
HYDROGRAPH AT	SB776	8.	1.18	1.	1.	1.	.04		
ROUTED TO	CV339	8.	1.20	1.	1.	1.	.04		
HYDROGRAPH AT	SB875	6.	1.27	1.	1.	1.	.04		
2 COMBINED AT	HC220	13.	1.20	2.	2.	2.	.09		
ROUTED TO	CV338	13.	1.25	2.	2.	2.	.09		
ROUTED TO	CV337	13.	1.27	2.	2.	2.	.09		
HYDROGRAPH AT	SB775	12.	1.27	2.	2.	2.	.05		
2 COMBINED AT	HC221	25.	1.27	4.	4.	4.	.14		
ROUTED TO	CV336	25.	1.30	4.	4.	4.	.14		
HYDROGRAPH AT	SB773	9.	1.25	1.	1.	1.	.04		
3 COMBINED AT	HC222	33.	1.28	7.	7.	7.	1.34		
ROUTED TO	CV335	11.	2.28	6.	6.	6.	1.34		
HYDROGRAPH AT	SB772	12.	1.20	2.	2.	2.	.05		
ROUTED TO	CV239	12.	1.25	2.	2.	2.	.05		
HYDROGRAPH AT	SB763	23.	1.17	2.	2.	2.	.03		
HYDROGRAPH AT	SB771	49.	1.18	4.	4.	4.	.03		
2 COMBINED AT	HC325	71.	1.18	6.	6.	6.	.07		
ROUTED TO	CV246	71.	1.18	6.	6.	6.	.07		
ROUTED TO	CV237	63.	1.20	6.	6.	6.	.07		
ROUTED TO	CV238	54.	1.23	6.	6.	6.	.07		
2 COMBINED AT	HC224	66.	1.23	8.	8.	8.	.11		
ROUTED TO	CV240	63.	1.25	8.	8.	8.	.11		
HYDROGRAPH AT	SB770	3.	1.20	0.	0.	0.	.01		
3 COMBINED AT	HC223	66.	1.25	14.	14.	14.	1.46		

ROUTED TO	CV234	30.	1.28	13.	13.	13.	1.46		
HYDROGRAPH AT	SB769	5.	1.30	1.	1.	1.	.02		
2 COMBINED AT	HC226	34.	1.30	14.	14.	14.	1.48		
ROUTED TO	CV228	26.	2.10	13.	13.	13.	1.48		
HYDROGRAPH AT	SB60	26.	1.18	3.	3.	3.	.03		
ROUTED TO	CV135	25.	1.20	3.	3.	3.	.03		
ROUTED TO	CV136	25.	1.20	3.	3.	3.	.03		
HYDROGRAPH AT	SB762	29.	1.17	2.	2.	2.	.03		
2 COMBINED AT	HC227	49.	1.17	5.	5.	5.	.06		
ROUTED TO	CV138	48.	1.18	5.	5.	5.	.06		
ROUTED TO	CV139	48.	1.18	5.	5.	5.	.06		
HYDROGRAPH AT	SB764	36.	1.17	3.	3.	3.	.03		
2 COMBINED AT	HC228	84.	1.18	8.	8.	8.	.09		
ROUTED TO	CV140	83.	1.18	8.	8.	8.	.09		
ROUTED TO	CV141	81.	1.20	8.	8.	8.	.09		
HYDROGRAPH AT	SB766	42.	1.18	4.	4.	4.	.04		
2 COMBINED AT	HC229	122.	1.18	12.	12.	12.	.13		
ROUTED TO	CV129	121.	1.20	12.	12.	12.	.13		
ROUTED TO	CV130	120.	1.20	12.	12.	12.	.13		
ROUTED TO	DB10	19.	2.07	11.	11.	11.	.13	2.99	2.08
ROUTED TO	CV131	19.	2.08	11.	11.	11.	.13		
HYDROGRAPH AT	SB767	8.	1.27	1.	1.	1.	.02		
HYDROGRAPH AT	SB768	22.	1.17	2.	2.	2.	.03		
3 COMBINED AT	HC230	36.	1.18	14.	14.	14.	.17		
ROUTED TO	CV132	37.	1.22	14.	14.	14.	.17		
ROUTED TO	CV133	36.	1.22	14.	14.	14.	.17		
ROUTED TO	CV134	36.	1.23	14.	14.	14.	.17		
HYDROGRAPH AT	SB756	10.	1.17	1.	1.	1.	.03		
3 COMBINED AT	HC225	52.	2.05	27.	27.	27.	1.68		
ROUTED TO	CV227	51.	2.07	26.	26.	26.	1.68		
HYDROGRAPH AT	SB754	6.	1.32	1.	1.	1.	.04		
2 COMBINED AT	HC231	53.	2.07	27.	27.	27.	1.71		
ROUTED TO	CV232	52.	2.13	26.	26.	26.	1.71		
HYDROGRAPH AT	SB548	7.	1.27	1.	1.	1.	.05		
2 COMBINED AT	HC232	53.	2.12	27.	27.	27.	1.76		
ROUTED TO	CV384	50.	2.38	24.	24.	24.	1.76		
HYDROGRAPH AT	TP010	17.	1.35	3.	3.	3.	.08		
ROUTED TO	RTP011	17.	1.38	3.	3.	3.	.08		
HYDROGRAPH AT	TP020	12.	1.32	2.	2.	2.	.04		
ROUTED TO	RTP021	12.	1.33	2.	2.	2.	.04		
HYDROGRAPH AT	TP030	21.	1.23	2.	2.	2.	.05		
3 COMBINED AT	CTP031	41.	1.27	7.	7.	7.	.16		
ROUTED TO	RTP033	41.	1.30	7.	7.	7.	.16		
HYDROGRAPH AT	TP100	20.	1.27	3.	3.	3.	.06		
ROUTED TO	RTP101	20.	1.30	3.	3.	3.	.06		

HYDROGRAPH AT	TP110	21.	1.27	3.	3.	3.	.06		
HYDROGRAPH AT	TP120	8.	1.48	2.	2.	2.	.04		
3 COMBINED AT	TP121	46.	1.28	7.	7.	7.	.16		
ROUTED TO	ALTHDB	11.	2.13	7.	7.	7.	.16	98.94	2.15
ROUTED TO	RTP123	11.	2.22	6.	6.	6.	.16		
HYDROGRAPH AT	TP130	15.	1.28	2.	2.	2.	.06		
3 COMBINED AT	CTP131	61.	1.30	16.	16.	16.	.39		
ROUTED TO	RTP133	61.	1.30	16.	16.	16.	.39		
HYDROGRAPH AT	TP200	35.	1.17	3.	3.	3.	.09		
ROUTED TO	RTP201	35.	1.18	3.	3.	3.	.09		
HYDROGRAPH AT	TP210	23.	1.18	2.	2.	2.	.04		
3 COMBINED AT	CTP211	84.	1.28	21.	21.	21.	.52		
HYDROGRAPH AT	TP300	28.	1.22	3.	3.	3.	.05		
ROUTED TO	RTP301	27.	1.22	3.	3.	3.	.05		
HYDROGRAPH AT	TP310	2.	1.22	0.	0.	0.	.03		
2 COMBINED AT	CTP311	29.	1.22	3.	3.	3.	.08		
ROUTED TO	RTP312	29.	1.23	3.	3.	3.	.08		
HYDROGRAPH AT	TP330	26.	1.23	3.	3.	3.	.06		
ROUTED TO	RTP331	25.	1.25	3.	3.	3.	.06		
HYDROGRAPH AT	TP320	2.	1.27	0.	0.	0.	.04		
3 COMBINED AT	CTP321	55.	1.25	7.	7.	7.	.18		
ROUTED TO	RTP323	47.	1.28	7.	7.	7.	.18		
ROUTED TO	RTP324	47.	1.30	7.	7.	7.	.18		
2 COMBINED AT	CTP325	131.	1.28	28.	28.	28.	.69		
ROUTED TO	STMDET	28.	2.52	20.	20.	20.	.69	61.83	2.58
HYDROGRAPH AT	TP450	8.	1.40	2.	2.	2.	.04		
2 COMBINED AT	CTP451	35.	1.42	21.	21.	21.	.74		
ROUTED TO	RTP452	35.	1.42	21.	21.	21.	.74		
HYDROGRAPH AT	TP400	37.	1.27	5.	5.	5.	.13		
ROUTED TO	RTP401	37.	1.28	5.	5.	5.	.13		
HYDROGRAPH AT	TP410	4.	1.48	1.	1.	1.	.04		
2 COMBINED AT	CTP411	40.	1.28	6.	6.	6.	.17		
ROUTED TO	RTP412	40.	1.33	6.	6.	6.	.17		
HYDROGRAPH AT	TP430	29.	1.28	4.	4.	4.	.09		
HYDROGRAPH AT	TP420	35.	1.18	3.	3.	3.	.06		
3 COMBINED AT	CTP421	79.	1.30	13.	13.	13.	.32		
ROUTED TO	RTP423	79.	1.32	13.	13.	13.	.32		
ROUTED TO	AELDET	29.	1.65	13.	13.	13.	.32	47.69	1.65
ROUTED TO	RTP425	29.	1.68	13.	13.	13.	.32		
HYDROGRAPH AT	TP440	50.	1.18	4.	4.	4.	.09		
2 COMBINED AT	CTP441	73.	1.20	17.	17.	17.	.41		
ROUTED TO	RTP442	69.	1.23	17.	17.	17.	.41		
HYDROGRAPH AT	TP460	9.	1.42	2.	2.	2.	.05		
3 COMBINED AT	CTP461	104.	1.23	40.	40.	40.	1.20		
ROUTED TO	RTP463	104.	1.25	40.	40.	40.	1.20		

HYDROGRAPH AT	TP470	27.	1.28	4.	4.	4.	.09		
2 COMBINED AT	CTP471	129.	1.25	44.	44.	44.	1.29		
ROUTED TO	TPDET	31.	3.85	15.	15.	15.	1.29	100.13	3.85
ROUTED TO	CV150	31.	3.88	15.	15.	15.	1.29		
HYDROGRAPH AT	SB744	12.	1.17	1.	1.	1.	.02		
HYDROGRAPH AT	SB745	7.	1.17	1.	1.	1.	.02		
3 COMBINED AT	HC235	33.	1.17	17.	17.	17.	1.33		
ROUTED TO	CV151	32.	1.18	17.	17.	17.	1.33		
ROUTED TO	CV152	31.	3.90	16.	16.	16.	1.33		
HYDROGRAPH AT	SB749	17.	1.17	1.	1.	1.	.03		
ROUTED TO	CV264	17.	1.20	1.	1.	1.	.03		
ROUTED TO	CV156	17.	1.20	1.	1.	1.	.03		
HYDROGRAPH AT	SB750	11.	1.17	1.	1.	1.	.02		
2 COMBINED AT	HC240	25.	1.18	2.	2.	2.	.05		
ROUTED TO	CV158	25.	1.20	2.	2.	2.	.05		
ROUTED TO	CV160	25.	1.20	2.	2.	2.	.05		
HYDROGRAPH AT	SB748	15.	1.17	1.	1.	1.	.04		
HYDROGRAPH AT	SB747	30.	1.18	2.	2.	2.	.06		
3 COMBINED AT	HC237	66.	1.18	6.	6.	6.	.14		
ROUTED TO	DB3	18.	1.35	6.	6.	6.	.14	2.89	1.35
ROUTED TO	CV162	18.	1.38	6.	6.	6.	.14		
HYDROGRAPH AT	SB752	20.	1.17	2.	2.	2.	.03		
2 COMBINED AT	HC238	27.	1.18	7.	7.	7.	.17		
ROUTED TO	DB4	22.	1.35	7.	7.	7.	.17	5.71	1.35
ROUTED TO	CV154	22.	1.38	7.	7.	7.	.17		
HYDROGRAPH AT	SB746	22.	1.17	2.	2.	2.	.03		
3 COMBINED AT	HC236	51.	1.25	26.	26.	26.	1.53		
ROUTED TO	DB5	46.	1.52	24.	24.	24.	1.53	5.36	1.52
HYDROGRAPH AT	SB753	5.	1.25	1.	1.	1.	.04		
2 COMBINED AT	HC239	48.	1.40	25.	25.	25.	1.57		
ROUTED TO	CV155	48.	1.48	24.	24.	24.	1.57		
HYDROGRAPH AT	SB549	3.	1.32	1.	1.	1.	.03		
3 COMBINED AT	HC233	91.	2.13	49.	49.	49.	3.35		
ROUTED TO	CV383	86.	2.40	44.	44.	44.	3.35		
HYDROGRAPH AT	SB741	3.	1.52	1.	1.	1.	.04		
2 COMBINED AT	HC243	88.	2.38	45.	45.	45.	3.39		
ROUTED TO	CV723	85.	2.58	41.	41.	41.	3.39		
HYDROGRAPH AT	SB735	12.	1.22	1.	1.	1.	.03		
ROUTED TO	CV382	12.	1.23	1.	1.	1.	.03		
HYDROGRAPH AT	SB739	15.	1.28	2.	2.	2.	.04		
2 COMBINED AT	HC244	26.	1.25	3.	3.	3.	.07		
ROUTED TO	CV178	25.	1.28	3.	3.	3.	.07		
HYDROGRAPH AT	SB738	16.	1.22	2.	2.	2.	.05		
ROUTED TO	CV179	16.	1.23	2.	2.	2.	.05		
2 COMBINED AT	HC245	39.	1.27	5.	5.	5.	.11		

ROUTED TO	CV176	39.	1.28	5.	5.	5.	.11		
HYDROGRAPH AT	SB740	10.	1.27	1.	1.	1.	.03		
ROUTED TO	CV164	10.	1.28	1.	1.	1.	.03		
ROUTED TO	CV165	10.	1.32	1.	1.	1.	.03		
ROUTED TO	CV166	10.	1.32	1.	1.	1.	.03		
ROUTED TO	CV167	10.	1.33	1.	1.	1.	.03		
2 COMBINED AT	HC246	47.	1.30	6.	6.	6.	.14		
ROUTED TO	DB6	19.	1.52	6.	6.	6.	.14	2.70	1.52
ROUTED TO	CV168	18.	1.55	6.	6.	6.	.14		
2 COMBINED AT	HC242	94.	2.42	47.	47.	47.	3.53		
ROUTED TO	CV724	93.	2.52	45.	45.	45.	3.53		
HYDROGRAPH AT	SB657	5.	1.38	1.	1.	1.	.02		
2 COMBINED AT	HC241	94.	2.50	46.	46.	46.	3.55		
ROUTED TO	CV378	88.	2.80	39.	39.	39.	3.55		
HYDROGRAPH AT	SB736	14.	1.18	1.	1.	1.	.03		
ROUTED TO	CV182	11.	1.22	1.	1.	1.	.03		
HYDROGRAPH AT	SB737	17.	1.17	1.	1.	1.	.04		
2 COMBINED AT	HC249	26.	1.18	2.	2.	2.	.06		
ROUTED TO	CV184	24.	1.22	2.	2.	2.	.06		
ROUTED TO	CV186	24.	1.23	2.	2.	2.	.06		
HYDROGRAPH AT	SB655	20.	1.20	2.	2.	2.	.04		
ROUTED TO	CV189	11.	1.23	2.	2.	2.	.04		
2 COMBINED AT	HC248	35.	1.23	4.	4.	4.	.10		
ROUTED TO	DB7	13.	1.45	4.	4.	4.	.10	2.32	1.45
ROUTED TO	CV380	12.	1.50	4.	4.	4.	.10		
2 COMBINED AT	HC247	93.	2.67	44.	44.	44.	3.66		
ROUTED TO	CV379	91.	2.80	42.	42.	42.	3.66		
HYDROGRAPH AT	SB255	10.	1.18	1.	1.	1.	.01		
2 COMBINED AT	HC250	92.	2.80	42.	42.	42.	3.67		
ROUTED TO	CV499	88.	3.12	36.	36.	36.	3.67		
DIVERSION TO	DR37	88.	.00	36.	36.	36.	3.67		
HYDROGRAPH AT	DH37	0.	.00	0.	0.	0.	3.67		
HYDROGRAPH AT	EJS010	21.	1.78	7.	7.	7.	.11		
ROUTED TO	RJS011	21.	1.80	7.	7.	7.	.11		
HYDROGRAPH AT	EJS020	7.	1.50	2.	2.	2.	.05		
2 COMBINED AT	CJS021	26.	1.77	9.	9.	9.	.15		
ROUTED TO	RJS022	26.	1.82	9.	9.	9.	.15		
ROUTED TO	RJS023	23.	2.03	8.	8.	8.	.15		
HYDROGRAPH AT	EJS030	7.	1.47	2.	2.	2.	.04		
HYDROGRAPH AT	EJS040	21.	1.72	7.	7.	7.	.05		
3 COMBINED AT	CJS102	44.	1.88	17.	17.	17.	.24		
2 COMBINED AT	HC338	44.	1.88	17.	17.	17.	3.91		
ROUTED TO	CV863	35.	2.43	14.	14.	14.	3.91		
HYDROGRAPH AT	CP010	14.	1.70	4.	4.	4.	.07		
ROUTED TO	RCP011	14.	1.72	4.	4.	4.	.07		

HYDROGRAPH AT	CP020	3.	1.47	1.	1.	1.	.04		
HYDROGRAPH AT	CP030	5.	2.15	2.	2.	2.	.10		
3 COMBINED AT	CCP031	18.	1.75	7.	7.	7.	.22		
ROUTED TO	RCP032	18.	1.77	7.	7.	7.	.22		
ROUTED TO	CRSTD	18.	1.77	7.	7.	7.	.22	76.55	1.77
ROUTED TO	RCP034	18.	1.78	7.	7.	7.	.22		
HYDROGRAPH AT	EJS050	18.	1.68	4.	4.	4.	.09		
2 COMBINED AT	CCP102	36.	1.72	11.	11.	11.	.31		
2 COMBINED AT	HC339	54.	2.27	24.	24.	24.	4.22		
ROUTED TO	CV738	52.	2.38	23.	23.	23.	4.22		
HYDROGRAPH AT	EJS060	8.	1.38	2.	2.	2.	.07		
2 COMBINED AT	HC340	54.	2.35	25.	25.	25.	4.29		
ROUTED TO	CV739	50.	2.70	21.	21.	21.	4.29		
2 COMBINED AT	HC341	67.	1.18	34.	34.	34.	5.82		
HYDROGRAPH AT	EJS090	0.	1.93	0.	0.	0.	.04		
ROUTED TO	CV815	0.	3.92	0.	0.	0.	.04		
DIVERSION TO	DR4	0.	.00	0.	0.	0.	.04		
HYDROGRAPH AT	DH4	0.	.00	0.	0.	0.	.04		
ROUTED TO	CV816	0.	.00	0.	0.	0.	.04		
HYDROGRAPH AT	EJC003	27.	1.60	7.	7.	7.	.09		
ROUTED TO	RJC004	23.	1.80	7.	7.	7.	.09		
HYDROGRAPH AT	EJC005	15.	1.58	4.	4.	4.	.05		
2 COMBINED AT	CJC006	35.	1.75	10.	10.	10.	.14		
2 COMBINED AT	HC343	35.	1.75	10.	10.	10.	.18		
ROUTED TO	CV742	26.	2.10	9.	9.	9.	.18		
HYDROGRAPH AT	EJC010	6.	1.83	2.	2.	2.	.02		
ROUTED TO	REJ011	6.	1.90	2.	2.	2.	.02		
ROUTED TO	REJ012	5.	2.67	2.	2.	2.	.02		
HYDROGRAPH AT	EJC020	13.	1.90	5.	5.	5.	.06		
2 COMBINED AT	CEJ021	13.	2.32	6.	6.	6.	.08		
2 COMBINED AT	HC344	38.	2.12	15.	15.	15.	.26		
2 COMBINED AT	CV743	96.	2.40	49.	49.	49.	6.08		
HYDROGRAPH AT	EJC040	30.	1.58	8.	8.	8.	.05		
ROUTED TO	CV745	22.	1.82	8.	8.	8.	.05		
HYDROGRAPH AT	EJC050	23.	1.42	5.	5.	5.	.05		
2 COMBINED AT	HC347	33.	1.67	13.	13.	13.	.10		
ROUTED TO	CV820	29.	1.97	12.	12.	12.	.10		
DIVERSION TO	DR6	29.	.00	12.	12.	12.	.10		
HYDROGRAPH AT	DH6	0.	.00	0.	0.	0.	.10		
ROUTED TO	CV821	0.	.00	0.	0.	0.	.10		
HYDROGRAPH AT	EJC055	31.	1.70	9.	9.	9.	.11		
ROUTED TO	RJC056	29.	1.80	9.	9.	9.	.11		
2 COMBINED AT	HC348	29.	1.80	9.	9.	9.	.22		
ROUTED TO	CV747	25.	1.97	9.	9.	9.	.22		
2 COMBINED AT	HC349	116.	2.18	58.	58.	58.	6.29		

HYDROGRAPH AT	EJC075	10.	1.55	2.	2.	2.	.03
ROUTED TO	CV750	8.	1.68	2.	2.	2.	.03
HYDROGRAPH AT	EJC080	26.	1.60	7.	7.	7.	.09
2 COMBINED AT	HC352	33.	1.62	9.	9.	9.	.12
ROUTED TO	CV751	20.	2.17	8.	8.	8.	.12
HYDROGRAPH AT	EJC083	14.	1.78	4.	4.	4.	.06
ROUTED TO	RJC084	11.	1.90	4.	4.	4.	.06
HYDROGRAPH AT	EJC086	36.	1.77	11.	11.	11.	.12
2 COMBINED AT	CJC087	47.	1.80	15.	15.	15.	.19
2 COMBINED AT	HC353	61.	1.88	23.	23.	23.	.31
ROUTED TO	CV752	55.	2.05	22.	22.	22.	.31
HYDROGRAPH AT	EJC090	11.	1.73	4.	4.	4.	.04
2 COMBINED AT	HC354	64.	2.00	26.	26.	26.	.35
ROUTED TO	CV753	60.	2.15	25.	25.	25.	.35
2 COMBINED AT	HC355	176.	2.18	82.	82.	82.	6.64
HYDROGRAPH AT	SBC43	59.	1.25	9.	9.	9.	.25
ROUTED TO	CV824	19.	1.97	7.	7.	7.	.25
HYDROGRAPH AT	SBC44	22.	1.23	3.	3.	3.	.07
2 COMBINED AT	HC360	26.	1.97	10.	10.	10.	.32
ROUTED TO	CV864	20.	2.58	7.	7.	7.	.32
HYDROGRAPH AT	SB881	25.	1.22	3.	3.	3.	.10
2 COMBINED AT	HC361	25.	1.22	11.	11.	11.	.42
ROUTED TO	CV808	23.	2.58	11.	11.	11.	.42
HYDROGRAPH AT	SB880	40.	1.22	5.	5.	5.	.11
2 COMBINED AT	HC404	57.	1.22	16.	16.	16.	.53
ROUTED TO	CV872	25.	2.90	13.	13.	13.	.53
HYDROGRAPH AT	SB894	9.	1.27	2.	2.	2.	.08
ROUTED TO	CV860	4.	1.82	2.	2.	2.	.08
HYDROGRAPH AT	SB895	6.	1.18	1.	1.	1.	.04
2 COMBINED AT	HC408	6.	1.18	3.	3.	3.	.12
ROUTED TO	CV813	4.	3.42	1.	1.	1.	.12
HYDROGRAPH AT	SBC31	11.	1.33	2.	2.	2.	.15
HYDROGRAPH AT	SBC23	42.	1.25	6.	6.	6.	.13
3 COMBINED AT	HC362	50.	1.27	9.	9.	9.	.39
ROUTED TO	CV761	20.	1.65	8.	8.	8.	.39
HYDROGRAPH AT	SBC20	11.	1.25	2.	2.	2.	.10
2 COMBINED AT	HC363	24.	1.62	9.	9.	9.	.49
ROUTED TO	CV762	21.	2.08	8.	8.	8.	.49
HYDROGRAPH AT	SBC21	13.	1.30	2.	2.	2.	.18
2 COMBINED AT	HC364	25.	2.05	10.	10.	10.	.67
ROUTED TO	CV763	22.	2.25	9.	9.	9.	.67
HYDROGRAPH AT	SBC30	9.	1.30	2.	2.	2.	.16
2 COMBINED AT	HC365	25.	2.20	11.	11.	11.	.83
ROUTED TO	CV832	19.	3.13	6.	6.	6.	.83
HYDROGRAPH AT	SB573	116.	1.25	19.	19.	19.	.23

ROUTED TO	CV535	41.	1.65	16.	16.	16.	.23
HYDROGRAPH AT	SB572	50.	1.22	7.	7.	7.	.15
HYDROGRAPH AT	SB571	69.	1.25	11.	11.	11.	.14
3 COMBINED AT	HC251	133.	1.25	34.	34.	34.	.52
ROUTED TO	CV534	75.	1.98	31.	31.	31.	.52
HYDROGRAPH AT	SB376	35.	1.20	5.	5.	5.	.06
HYDROGRAPH AT	SB374	11.	1.35	2.	2.	2.	.12
2 COMBINED AT	HC326	42.	1.20	8.	8.	8.	.19
ROUTED TO	CV474	38.	1.25	8.	8.	8.	.19
HYDROGRAPH AT	SB381	10.	1.18	1.	1.	1.	.02
HYDROGRAPH AT	SB382	28.	1.20	4.	4.	4.	.05
4 COMBINED AT	HC252	116.	1.27	44.	44.	44.	.78
ROUTED TO	CV475	89.	2.08	38.	38.	38.	.78
HYDROGRAPH AT	SB574	3.	1.20	0.	0.	0.	.03
2 COMBINED AT	HC253	90.	2.08	38.	38.	38.	.81
ROUTED TO	CV471	85.	2.17	37.	37.	37.	.81
HYDROGRAPH AT	SB575	4.	1.20	1.	1.	1.	.03
2 COMBINED AT	HC254	86.	2.17	37.	37.	37.	.84
ROUTED TO	CV470	82.	2.30	36.	36.	36.	.84
HYDROGRAPH AT	SB576	7.	1.28	1.	1.	1.	.03
2 COMBINED AT	HC255	84.	2.27	37.	37.	37.	.87
ROUTED TO	CV472	80.	2.43	35.	35.	35.	.87
HYDROGRAPH AT	SB577	4.	1.23	1.	1.	1.	.04
2 COMBINED AT	HC256	81.	2.45	36.	36.	36.	.92
ROUTED TO	CV478	79.	2.52	35.	35.	35.	.92
HYDROGRAPH AT	SB579	11.	1.17	1.	1.	1.	.02
2 COMBINED AT	HC257	80.	2.50	36.	36.	36.	.94
ROUTED TO	CV479	78.	2.60	34.	34.	34.	.94
HYDROGRAPH AT	SB578	16.	1.25	3.	3.	3.	.03
2 COMBINED AT	HC258	81.	2.58	37.	37.	37.	.97
ROUTED TO	CV480	78.	2.72	35.	35.	35.	.97
HYDROGRAPH AT	SB609	14.	1.25	2.	2.	2.	.03
2 COMBINED AT	HC259	79.	2.70	37.	37.	37.	1.00
ROUTED TO	CV865	77.	2.85	34.	34.	34.	1.00
DIVERSION TO	DR41	77.	.00	34.	34.	34.	1.00
HYDROGRAPH AT	DH41	0.	.00	0.	0.	0.	1.00
ROUTED TO	CV866	0.	.00	0.	0.	0.	1.00
HYDROGRAPH AT	SB358	4.	1.27	1.	1.	1.	.02
2 COMBINED AT	HC260	4.	1.27	1.	1.	1.	1.02
ROUTED TO	CV482	2.	2.37	1.	1.	1.	1.02
HYDROGRAPH AT	SB595	10.	1.18	1.	1.	1.	.01
HYDROGRAPH AT	SB262	12.	1.18	2.	2.	2.	.02
2 COMBINED AT	HC274	22.	1.18	3.	3.	3.	.03
ROUTED TO	CV486	22.	1.20	3.	3.	3.	.03
ROUTED TO	CV488	21.	1.22	3.	3.	3.	.03

ROUTED TO	CV487	20.	1.23	3.	3.	3.	.03		
HYDROGRAPH AT	SB602	27.	1.20	4.	4.	4.	.05		
3 COMBINED AT	HC262	46.	1.22	7.	7.	7.	1.10		
ROUTED TO	CV485	15.	1.70	6.	6.	6.	1.10		
HYDROGRAPH AT	SB877	12.	1.27	2.	2.	2.	.03		
2 COMBINED AT	HC263	19.	1.62	8.	8.	8.	1.12		
ROUTED TO	CV489	18.	2.07	7.	7.	7.	1.12		
HYDROGRAPH AT	SB206	12.	1.25	2.	2.	2.	.04		
2 COMBINED AT	HC264	21.	2.03	9.	9.	9.	1.16		
ROUTED TO	CV490	20.	2.13	9.	9.	9.	1.16		
HYDROGRAPH AT	SB593	21.	1.17	2.	2.	2.	.05		
ROUTED TO	CV215	21.	1.17	2.	2.	2.	.05		
ROUTED TO	DB38	5.	1.58	2.	2.	2.	.05	1.83	1.60
2 COMBINED AT	HC265	25.	2.10	11.	11.	11.	1.22		
ROUTED TO	CV491	20.	2.92	7.	7.	7.	1.22		
3 COMBINED AT	HC266	64.	3.02	26.	26.	26.	2.58		
HYDROGRAPH AT	JSL010	3.	1.43	1.	1.	1.	.08		
HYDROGRAPH AT	JSL020	14.	1.67	5.	5.	5.	.11		
ROUTED TO	RJS021	14.	1.67	5.	5.	5.	.11		
2 COMBINED AT	CCP103	16.	1.67	5.	5.	5.	.18		
ROUTED TO	CV727	12.	2.07	5.	5.	5.	.18		
HYDROGRAPH AT	JSL030	8.	1.55	2.	2.	2.	.08		
2 COMBINED AT	HC328	17.	1.92	7.	7.	7.	.26		
ROUTED TO	CV728	16.	2.08	7.	7.	7.	.26		
HYDROGRAPH AT	JSL040	6.	1.58	2.	2.	2.	.07		
2 COMBINED AT	HC329	20.	1.93	9.	9.	9.	.33		
ROUTED TO	CV729	19.	2.22	8.	8.	8.	.33		
2 COMBINED AT	HC330	77.	2.92	34.	34.	34.	2.91		
HYDROGRAPH AT	JSL050	10.	1.62	2.	2.	2.	.05		
ROUTED TO	CV730	7.	1.87	2.	2.	2.	.05		
HYDROGRAPH AT	JSL060	8.	1.53	2.	2.	2.	.05		
2 COMBINED AT	HC331	13.	1.73	4.	4.	4.	.11		
ROUTED TO	CV867	10.	2.07	4.	4.	4.	.11		
DIVERSION TO	DR3	10.	.00	4.	4.	4.	.11		
HYDROGRAPH AT	DH3	0.	.00	0.	0.	0.	.11		
ROUTED TO	CV819	0.	.00	0.	0.	0.	.11		
HYDROGRAPH AT	JSL200	0.	1.85	0.	0.	0.	.07		
ROUTED TO	RJS201	0.	2.52	0.	0.	0.	.07		
2 COMBINED AT	HC332	0.	2.52	0.	0.	0.	.18		
ROUTED TO	CV757	0.	3.20	0.	0.	0.	.18		
HYDROGRAPH AT	JSL500	0.	2.00	0.	0.	0.	.06		
ROUTED TO	RJS501	0.	2.03	0.	0.	0.	.06		
HYDROGRAPH AT	JSL510	20.	1.93	6.	6.	6.	.07		
ROUTED TO	COMMER	7.	1.97	4.	4.	4.	.07	1.91	2.95
2 COMBINED AT	CCP103	7.	2.03	4.	4.	4.	.13		

2 COMBINED AT	HC333	7.	3.13	4.	4.	4.	.31		
ROUTED TO	CV732	7.	3.73	3.	3.	3.	.31		
HYDROGRAPH AT	JSL520	9.	1.95	3.	3.	3.	.05		
ROUTED TO	COMMER	4.	2.57	2.	2.	2.	.05	1.06	2.97
2 COMBINED AT	HC334	11.	3.45	5.	5.	5.	.36		
ROUTED TO	CV733	11.	3.98	2.	2.	2.	.36		
2 COMBINED AT	HC335	81.	3.08	37.	37.	37.	3.27		
HYDROGRAPH AT	JSL550	28.	1.92	9.	9.	9.	.10		
ROUTED TO	COMMER	20.	2.00	9.	9.	9.	.10	1.07	2.32
ROUTED TO	CV736	20.	2.70	8.	8.	8.	.10		
2 COMBINED AT	HC359	98.	2.98	45.	45.	45.	3.37		
HYDROGRAPH AT	JSL560	46.	1.63	12.	12.	12.	.12		
ROUTED TO	COMMER	29.	1.63	12.	12.	12.	.12	1.17	1.95
ROUTED TO	CV771	29.	2.40	12.	12.	12.	.12		
HYDROGRAPH AT	SBC32	19.	1.20	2.	2.	2.	.09		
2 COMBINED AT	HC372	32.	2.02	14.	14.	14.	.21		
ROUTED TO	CV772	29.	2.48	12.	12.	12.	.21		
HYDROGRAPH AT	SBC33	24.	1.17	3.	3.	3.	.06		
2 COMBINED AT	HC373	32.	2.50	15.	15.	15.	.28		
ROUTED TO	CV773	29.	2.78	12.	12.	12.	.28		
2 COMBINED AT	HC374	126.	2.93	57.	57.	57.	3.65		
HYDROGRAPH AT	SBC8	38.	1.18	4.	4.	4.	.15		
ROUTED TO	CV774	9.	1.75	3.	3.	3.	.15		
HYDROGRAPH AT	SBC47	28.	1.28	4.	4.	4.	.10		
2 COMBINED AT	HC375	29.	1.28	7.	7.	7.	.24		
ROUTED TO	CV775	18.	1.60	7.	7.	7.	.24		
HYDROGRAPH AT	SBC46	31.	1.27	4.	4.	4.	.13		
2 COMBINED AT	HC376	46.	1.28	11.	11.	11.	.38		
ROUTED TO	CV776	25.	1.73	10.	10.	10.	.38		
HYDROGRAPH AT	SB879	25.	1.27	3.	3.	3.	.10		
2 COMBINED AT	HC377	36.	1.30	14.	14.	14.	.47		
ROUTED TO	CV777	30.	2.08	12.	12.	12.	.47		
HYDROGRAPH AT	SB878	18.	1.23	2.	2.	2.	.09		
2 COMBINED AT	HC403	34.	2.05	14.	14.	14.	.56		
ROUTED TO	CV826	32.	2.12	14.	14.	14.	.56		
DIVERSION TO	DR42	32.	.00	14.	14.	14.	.56		
HYDROGRAPH AT	DH42	0.	.00	0.	0.	0.	.56		
ROUTED TO	CV827	0.	.00	0.	0.	0.	.56		
HYDROGRAPH AT	SBC1	33.	1.18	4.	4.	4.	.10		
2 COMBINED AT	HC378	33.	1.18	4.	4.	4.	.66		
ROUTED TO	CV778	9.	1.75	3.	3.	3.	.66		
HYDROGRAPH AT	SBC10	46.	1.18	5.	5.	5.	.12		
ROUTED TO	CV803	16.	1.18	4.	4.	4.	.12		
2 COMBINED AT	HC402	19.	1.58	7.	7.	7.	.78		
ROUTED TO	CV802	17.	2.05	7.	7.	7.	.78		

HYDROGRAPH AT	SBC2	29.	1.25	4.	4.	4.	.10
2 COMBINED AT	HC379	29.	1.25	10.	10.	10.	.89
ROUTED TO	CV830	18.	2.82	7.	7.	7.	.89
DIVERSION TO	DR11	18.	.00	7.	7.	7.	.89
HYDROGRAPH AT	DH11	0.	.00	0.	0.	0.	.89
ROUTED TO	CV831	0.	.00	0.	0.	0.	.89
HYDROGRAPH AT	SBC11	25.	1.25	4.	4.	4.	.09
2 COMBINED AT	HC380	25.	1.25	4.	4.	4.	.98
ROUTED TO	CV809	8.	1.95	3.	3.	3.	.98
HYDROGRAPH AT	SB882	32.	1.43	7.	7.	7.	.20
2 COMBINED AT	HC405	33.	1.47	10.	10.	10.	1.17
ROUTED TO	CV810	21.	2.08	8.	8.	8.	1.17
HYDROGRAPH AT	SB883	53.	1.23	7.	7.	7.	.17
2 COMBINED AT	HC381	53.	1.23	15.	15.	15.	1.35
ROUTED TO	CV781	31.	2.12	14.	14.	14.	1.35
HYDROGRAPH AT	SB885	31.	1.22	4.	4.	4.	.11
HYDROGRAPH AT	SB884	16.	1.25	2.	2.	2.	.09
3 COMBINED AT	HC382	47.	1.23	19.	19.	19.	1.54
ROUTED TO	CV782	39.	2.07	18.	18.	18.	1.54
HYDROGRAPH AT	SBC12	14.	1.33	2.	2.	2.	.10
2 COMBINED AT	HC383	44.	2.05	21.	21.	21.	1.65
ROUTED TO	CV783	41.	2.12	19.	19.	19.	1.65
HYDROGRAPH AT	SBC3	12.	1.37	2.	2.	2.	.14
2 COMBINED AT	HC384	44.	2.10	21.	21.	21.	1.79
ROUTED TO	CV784	38.	2.70	16.	16.	16.	1.79
HYDROGRAPH AT	SBC4	10.	1.28	1.	1.	1.	.12
2 COMBINED AT	HC385	39.	2.67	17.	17.	17.	1.91
ROUTED TO	CV834	37.	2.87	16.	16.	16.	1.91
DIVERSION TO	DR15	37.	.00	16.	16.	16.	1.91
HYDROGRAPH AT	DH15	0.	.00	0.	0.	0.	1.91
ROUTED TO	CV835	0.	.00	0.	0.	0.	1.91
HYDROGRAPH AT	SBC42	32.	1.25	4.	4.	4.	.15
HYDROGRAPH AT	SBC41	22.	1.27	3.	3.	3.	.14
3 COMBINED AT	HC386	52.	1.25	7.	7.	7.	2.20
ROUTED TO	CV836	16.	1.85	6.	6.	6.	2.20
HYDROGRAPH AT	SBC40	20.	1.25	3.	3.	3.	.09
2 COMBINED AT	HC387	21.	1.73	9.	9.	9.	2.29
ROUTED TO	CV787	19.	2.17	7.	7.	7.	2.29
HYDROGRAPH AT	SBC5	27.	1.20	3.	3.	3.	.08
2 COMBINED AT	HC388	27.	1.20	10.	10.	10.	2.37
ROUTED TO	CV838	20.	2.33	9.	9.	9.	2.37
HYDROGRAPH AT	SBC6	20.	1.25	3.	3.	3.	.10
2 COMBINED AT	HC389	24.	2.12	12.	12.	12.	2.47
ROUTED TO	CV789	21.	2.68	9.	9.	9.	2.47
HYDROGRAPH AT	SBC39	23.	1.22	3.	3.	3.	.09

HYDROGRAPH AT	SBC7	18.	1.17	2.	2.	2.	.09
3 COMBINED AT	HC390	39.	1.20	14.	14.	14.	2.65
ROUTED TO	CV840	22.	3.12	10.	10.	10.	2.65
ROUTED TO	CV841	22.	3.13	10.	10.	10.	2.65
HYDROGRAPH AT	SBC38	11.	1.17	1.	1.	1.	.06
2 COMBINED AT	HC391	23.	3.05	11.	11.	11.	2.71
ROUTED TO	CV842	22.	3.18	10.	10.	10.	2.71
DIVERSION TO	DR19	22.	.00	10.	10.	10.	2.71
HYDROGRAPH AT	DH19	0.	.00	0.	0.	0.	2.71
ROUTED TO	CV843	0.	.00	0.	0.	0.	2.71
HYDROGRAPH AT	SBC34	27.	1.23	4.	4.	4.	.14
2 COMBINED AT	HC392	27.	1.23	4.	4.	4.	2.85
ROUTED TO	CV844	23.	1.23	3.	3.	3.	2.85
ROUTED TO	CV845	12.	1.30	3.	3.	3.	2.85
HYDROGRAPH AT	SBC35	19.	1.27	3.	3.	3.	.08
2 COMBINED AT	HC393	31.	1.27	6.	6.	6.	2.93
ROUTED TO	CV846	14.	1.78	5.	5.	5.	2.93
DIVERSION TO	DR21	14.	.00	5.	5.	5.	2.93
HYDROGRAPH AT	DH21	0.	.00	0.	0.	0.	2.93
ROUTED TO	CV847	0.	.00	0.	0.	0.	2.93
HYDROGRAPH AT	SBC36	17.	1.17	2.	2.	2.	.04
2 COMBINED AT	HC394	17.	1.17	2.	2.	2.	2.97
ROUTED TO	CV794	3.	2.73	1.	1.	1.	2.97
HYDROGRAPH AT	SB892	15.	1.17	2.	2.	2.	.02
2 COMBINED AT	HC395	15.	1.17	3.	3.	3.	2.99
ROUTED TO	CV795	4.	3.30	2.	2.	2.	2.99
HYDROGRAPH AT	SB889	19.	1.17	2.	2.	2.	.04
2 COMBINED AT	HC396	19.	1.17	4.	4.	4.	3.03
ROUTED TO	CV811	13.	1.18	4.	4.	4.	3.03
HYDROGRAPH AT	SB891	22.	1.18	2.	2.	2.	.05
2 COMBINED AT	HC406	35.	1.18	6.	6.	6.	3.08
ROUTED TO	CV812	10.	2.03	5.	5.	5.	3.08
HYDROGRAPH AT	SBC37	30.	1.22	3.	3.	3.	.09
2 COMBINED AT	HC397	35.	1.22	9.	9.	9.	3.17
ROUTED TO	CV848	20.	1.23	8.	8.	8.	3.17
ROUTED TO	CV849	14.	2.27	6.	6.	6.	3.17
HYDROGRAPH AT	SBC25	58.	1.20	7.	7.	7.	.08
2 COMBINED AT	HC398	58.	1.20	13.	13.	13.	3.25
ROUTED TO	CV850	23.	2.08	12.	12.	12.	3.25
ROUTED TO	CV851	21.	2.47	11.	11.	11.	3.25
HYDROGRAPH AT	SBC26	13.	1.25	3.	3.	3.	.11
2 COMBINED AT	HC399	25.	2.55	13.	13.	13.	3.36
ROUTED TO	CV852	23.	2.75	11.	11.	11.	3.36
ROUTED TO	CV853	23.	2.77	11.	11.	11.	3.36
HYDROGRAPH AT	SBC27	28.	1.17	4.	4.	4.	.16

2 COMBINED AT	HC400	29.	2.62	15.	15.	15.	3.52
ROUTED TO	CV854	25.	3.35	10.	10.	10.	3.52
ROUTED TO	CV855	25.	3.42	9.	9.	9.	3.52
HYDROGRAPH AT	SBC28	17.	1.23	3.	3.	3.	.17
2 COMBINED AT	HC401	26.	3.33	12.	12.	12.	3.69
ROUTED TO	CV856	25.	3.63	10.	10.	10.	3.69
ROUTED TO	CV857	24.	3.75	9.	9.	9.	3.69

APPENDIX B

STORM DRAINAGE
MODEL DESCRIPTION

MODEL DESCRIPTION

Executive Summary

Hansen, Allen & Luce has developed the Hydrologic Model Interface (HALHMI) Version 0.9 for storm drainage master planning. HALHMI is part of a complete GIS-water modeling solution for engineers called Water Suite. Water Suite also includes wastewater collection models (HALWCMI), and water supply models (HALPNI). HALWCMI and HAL-PNI are currently under development.

HALHMI v. 0.9 is being used in the current Murray City storm drainage master plan to create a hydrologic model of the City. HALHMI allows graphical manipulation of the storm drainage model with an interface to the U.S. Army Corps of Engineers' HEC-1 analysis code. HALHMI v. 0.9 has the following features:

- Create and edit storm drain pipes, ditches, detention basins, confluences, diversions, and subbasins within the model.
- Interface to an industry standard hydrologic model, HEC-1. HEC-1 is produced by the U.S. Army Corps of Engineers – Hydrologic Engineering Center and has long been an industry standard in hydrologic models.
- Graphically display pipes and ditches where the estimated flow exceeds capacity.
- Allow multiple What If? Analysis. The number of different scenarios is limited only by available system memory.
- All of these features are tied together in a graphical user interface (GUI) which runs seamlessly inside of ArcView 3.0.
- Graphical data are in ArcView shapefile format. Attribute data are in dBASE IV format. These open data standards insure that the model data is accessible now and will be accessible in the future.

The following sections describe HALHMI v. 0.9 in more detail:

I. ArcView Application Framework
II. The Scene View
    A. Menus, Tools and Buttons
        1. The *Scene* Menu
            a. Hydrologic Modeling Tools
                - Edit Connectivity
                - Edit Attributes
            b. Hydrologic Modeling Buttons
                - Compute Area and Length
                - Inspect Subbasins
                - Compute Capacity
                - Display Connectivity
                - HEC-1 Write
            c. Utilities Menu

I. ArcView Application Framework

HALHMI v. 0.9 is built on the ArcView desktop GIS by ESRI. All of the native ArcView functionality is available in HALHMI. HALHMI is simply an extension of ArcView to support hydrologic modeling in an urban environment. To use HALHMI from scratch, first load the HALHMI extension from an ArcView project. Figure 1 shows a project window with one scenario loaded. The project window is the default ArcView project window with the addition of the Storm Drain document type. On the right side of the project window is the list of storm drain scenario documents. In Figure 1, CN409-9 is the only scenario in the storm drain scenario list.

There are three buttons in the project window that allow an entry point to the model functionality. The *New* button creates a new scenario without any data in it. The *Open* button opens the selected scenarios. The *Copy* button copies the selected scenario to a new scenario for What-If? analysis.

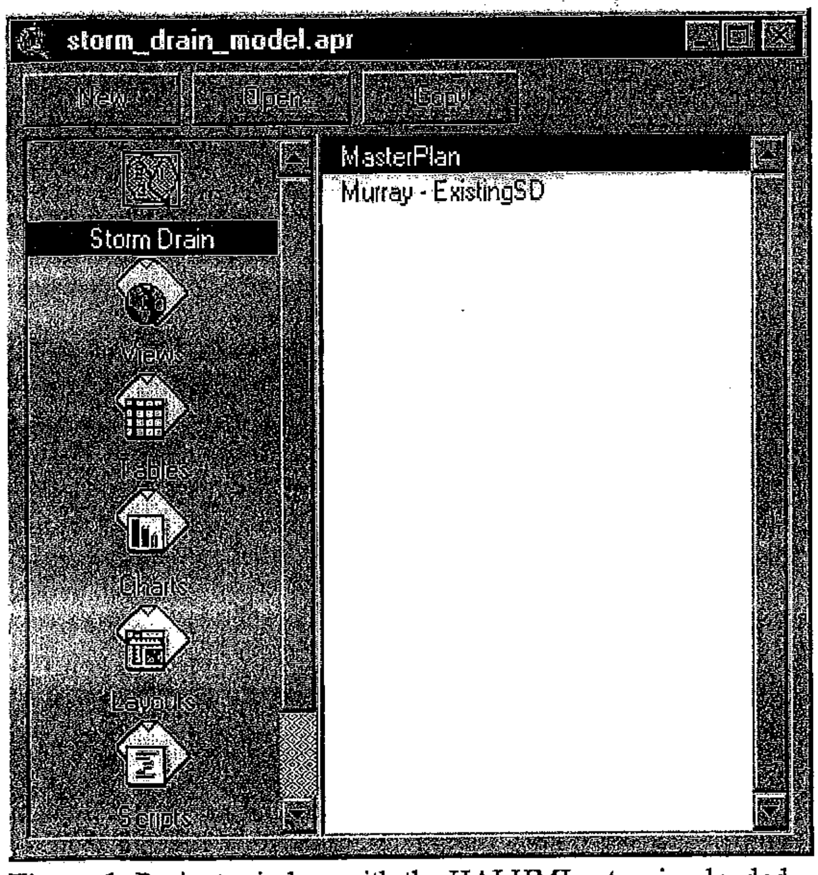


Figure 1 Project window with the HALHMI extension loaded.

II. The Scene View

A view of a typical scenario is shown in Figure 2. Any number of themes may be added to the scenario, but the following themes must exist in the scene:

- Subbasin – Polygon theme representing the discrete runoff areas in the City.
- Conveyance – PolyLine theme representing the pipes, ditches, culverts, and gutters that carry the water from the subbasins to the discharge point.
- Detention – Polygon theme representing the detention basins withing the City.
- Confluence – Point theme representing the place where two or more flows come together.
- Diversion – Point theme representing the place where a single flow is divided into two flows.
- Major Basin – Polygon theme representing the boundaries of major drainage basins. The modeling software uses major basins to organize the various HEC-1 and data files within the model. Each model must have at least one major basin, and can have an unlimited number.

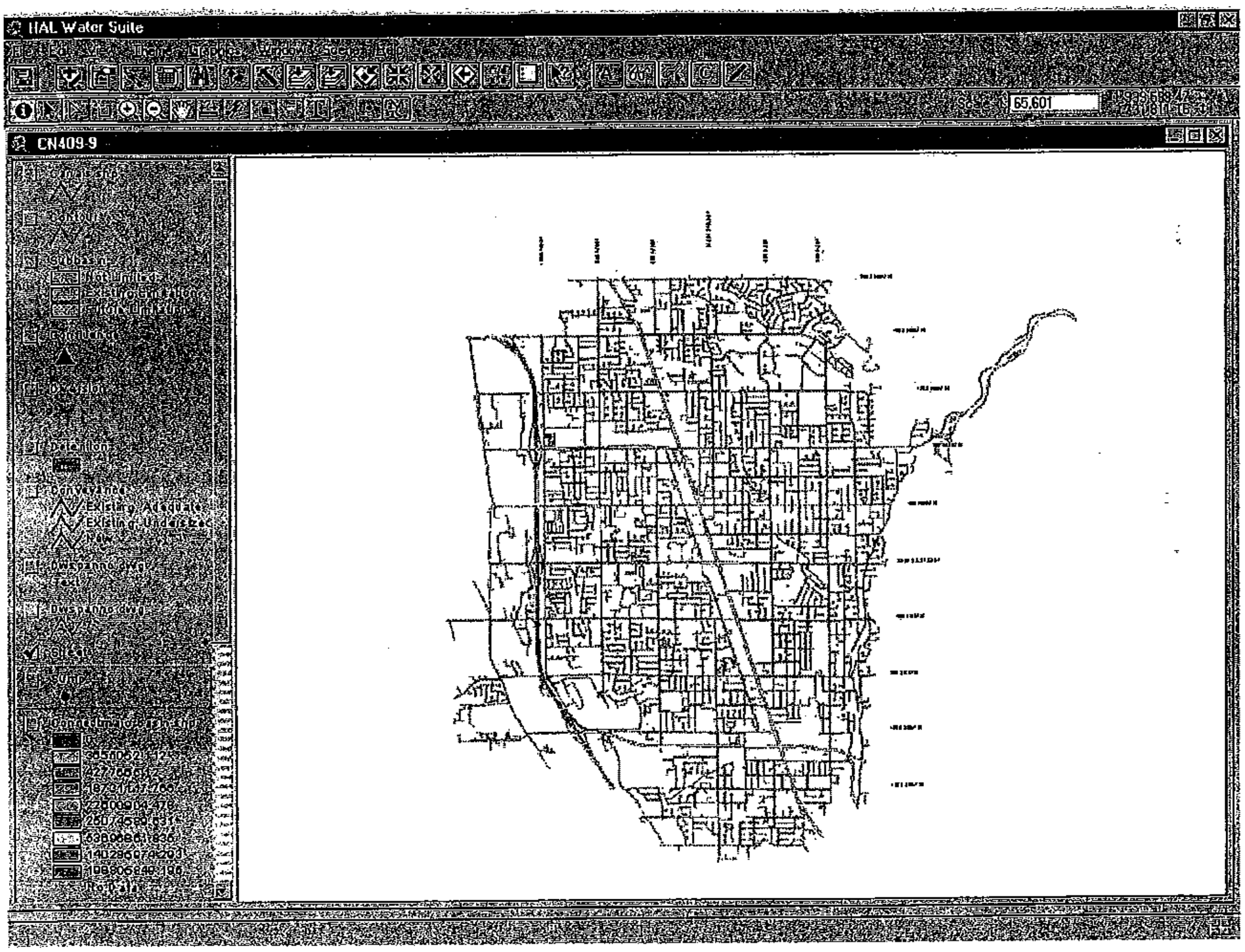


Figure 2 The Scene View

Menus, Tools and Buttons

There are several Hydrologic tools and buttons available from the Scene view.

The *Scene* Menu

The *Scene* menu, shown in Figure 3, contains the core functionality of HMI v. 0.9.

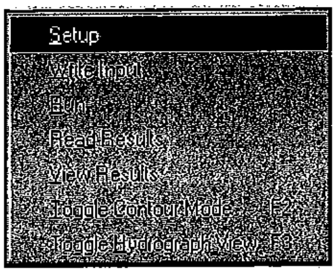


Figure 3 The *Scene* Menu

- The *Setup* option allows the user to specify the directory where the model looks for scenario data.
- *Write Input* copies and converts the GIS data to an analysis engine input data file.
- *Run* tells the analysis engine to run the model using the current input file.
- *Read Results* converts the hydrographs generated by the analysis engine to a data table compatible with ArcView and generates a summary table containing the peaks for each model entity.
- *View Results* compares the peaks for each conveyance with its capacity, marks the potential capacity problems in red, and labels each conveyance with its peak flow and capacity (Figure 4).
- *Toggle Contour Mode* looks for a theme named "Contour" and allows the user to click anywhere on the scene. The nearest contour elevation will be shown in the message bar on the lower left corner of the ArcView screen.
- *Toggle Hydrograph View* allows the user to select model entities and display the corresponding hydrographs in real time. *Shift-click* selects multiple entities to compare several hydrographs. The hydrograph view is shown in Figure 5 and Figure 6.

Hydrologic Modeling Tools

The two additional tools used for hydrologic modeling are: *Edit Connectivity* and *Edit Attributes*. The *Edit Connectivity*, [icon], tool allows the user to select a model entity and change its order in relation to the other entities in the model. This connectivity number indicates the order in which HEC-1 will process the entity.

The *Edit Attributes*, [icon], tool allows the user to select an entity and change its attributes. These attribute dialog boxes are illustrated in Figures 7 to 10.

Hydrologic Modeling Buttons 

There are several customized buttons in the Scene view. These buttons operate on the selected features of the target themes. Compute Area and Length, , computes the area, perimeter, and length of the selected features of the active themes. If the theme is a line or polyline theme, invoking the button computes the length of each selected feature. If the theme is a polygon theme, then the button computes the area and perimeter.

Inspect Subbasins, , allows the user to inspect each selected subbasin to modify the values that went into computing the subbasin attributes. This button presents the user with a series of dialog boxes where the user can enter area and length information about individual subbasins.

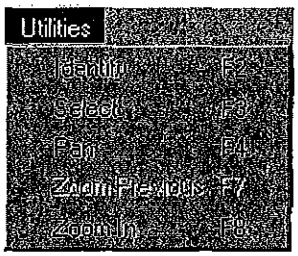
Compute Capacity, , computes the capacity of the selected conveyances based on the Mannings equation at full flow.

Resize pipes, , resizes the pipes to have sufficient capacity for the peak. The user is prompted for a Mannings N value for the new pipes and to select the summary files from disk that contain the peak flows. If desired, the program will select the appropriate standard pipe sizes and generate a cost estimate from a standard pipe size and cost table. The resulting pipe diameter is stored in the NewDim1 attribute of the Conveyance table.

Display Connectivity, , labels each model entity with its connectivity number.

HEC-1 Write, , is a shortcut to the menu item, *Write Input*.

Inspect feature, , zooms into each selected feature of the active theme. This is useful when several features of a theme require close inspection.

Utilities Menu, 

The Utilities menu contains several keyboard shortcuts for doing common tool tasks such as:

- Identify - F2
- Select - F3
- Pan - F4
- Zoom Previous - F7
- Zoom In - F8

Each of these menu items selects the requested tool, and keeps track of the previously selected tool. For example, if the label tool were selected, and the user pressed F2, the identify tool would be selected. If the user pressed F2 again, the label tool would be selected.

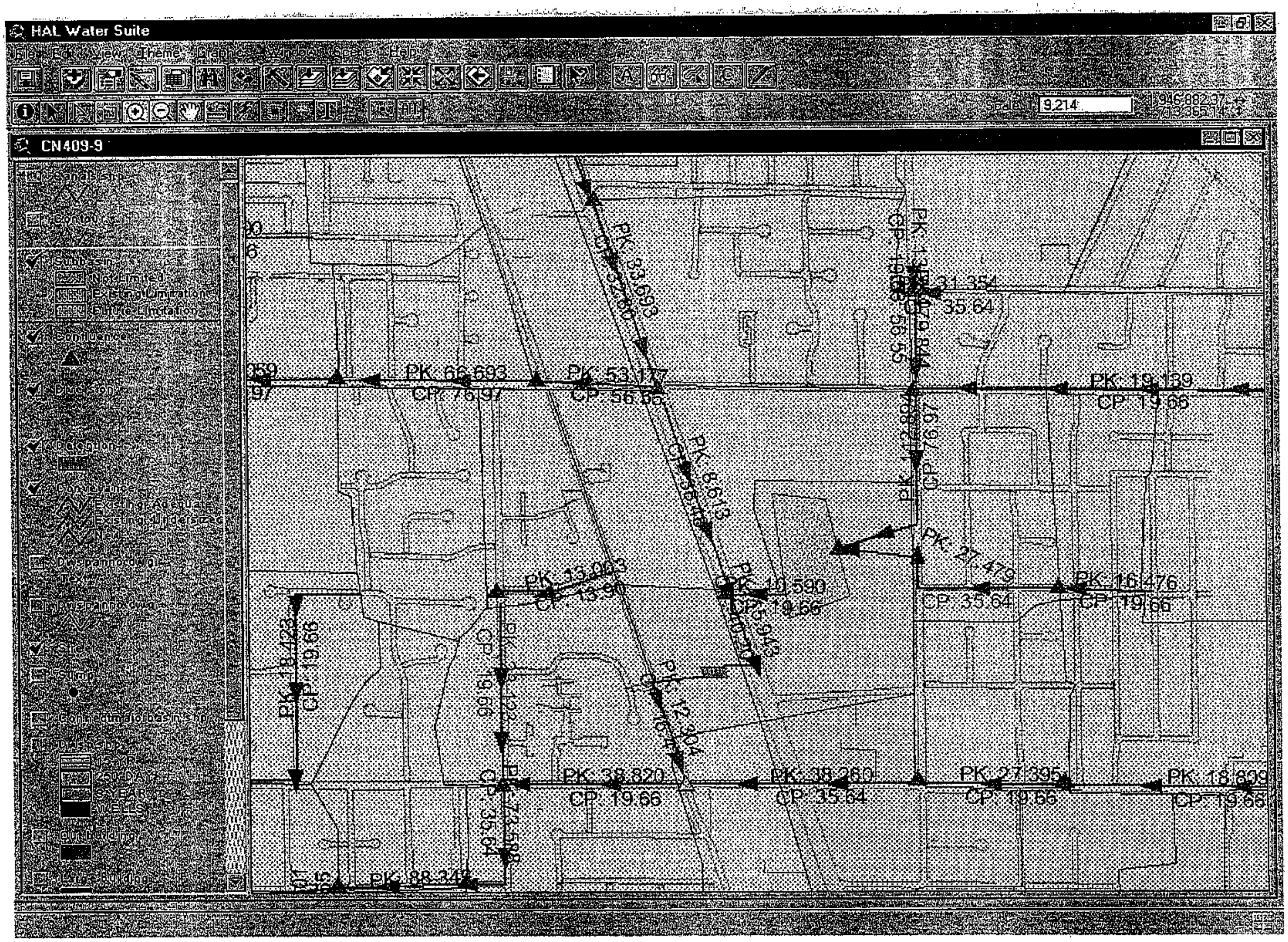


Figure 13 Visual model output from the *View Results* menu item.

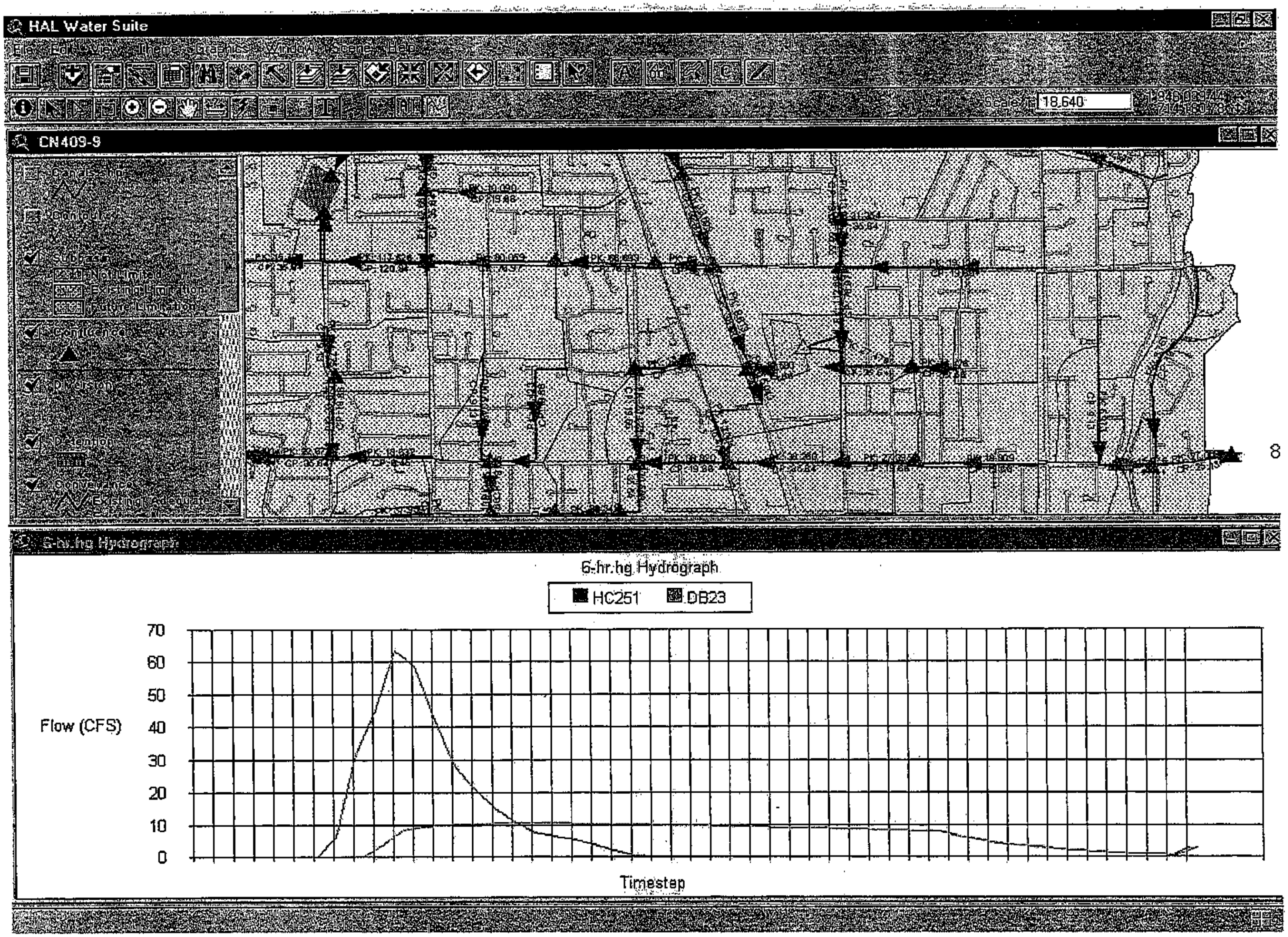


Figure 14 Hydrograph view showing inflow to a detention basin (HC251) and outflow from the same detention basin (DB23).

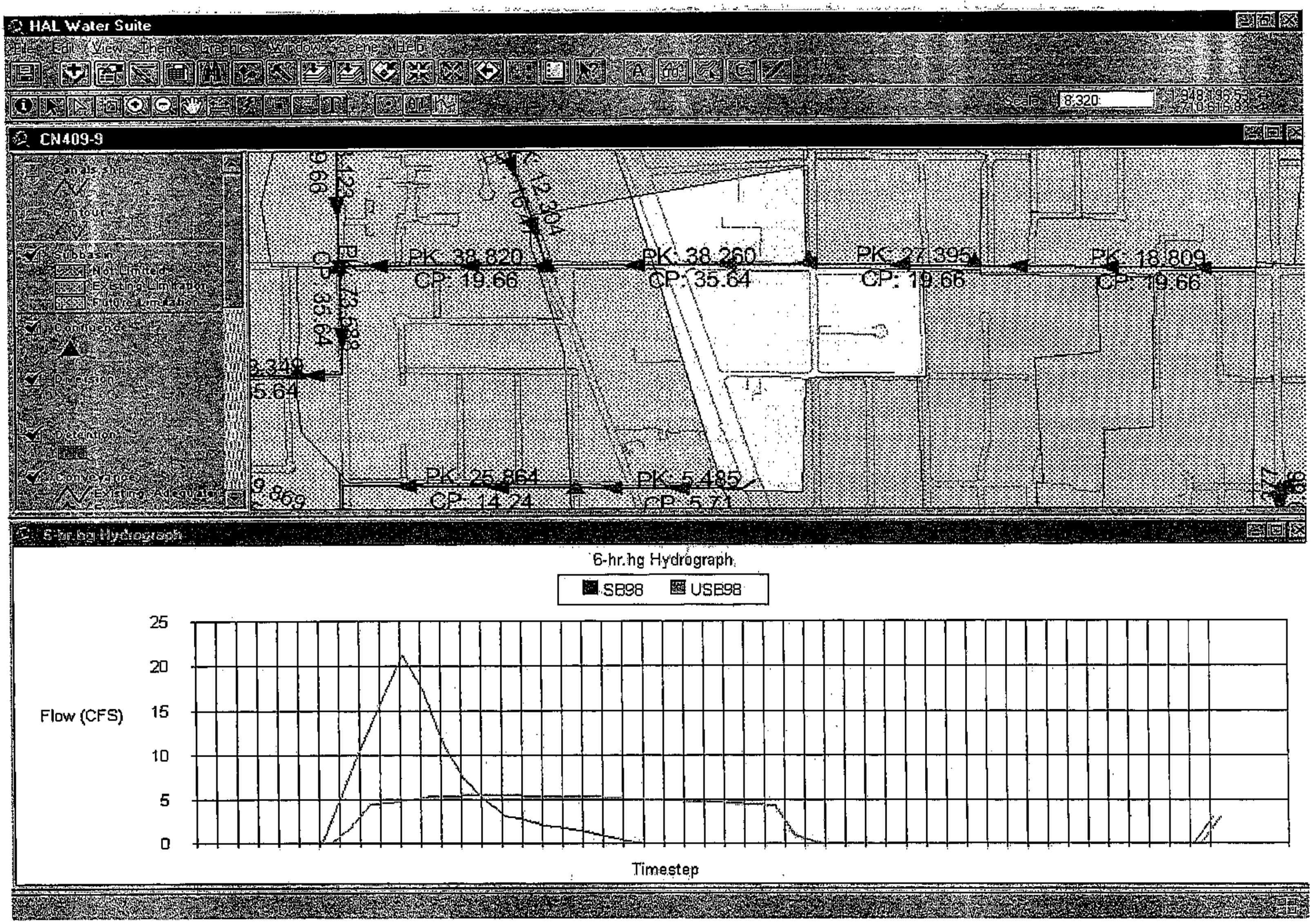


Figure 15 Hydrograph view showing the effect of on-site detention on the runoff from a controlled subbasin. SB98 is the uncontrolled runoff and USG98 is the runoff with on-site detention.

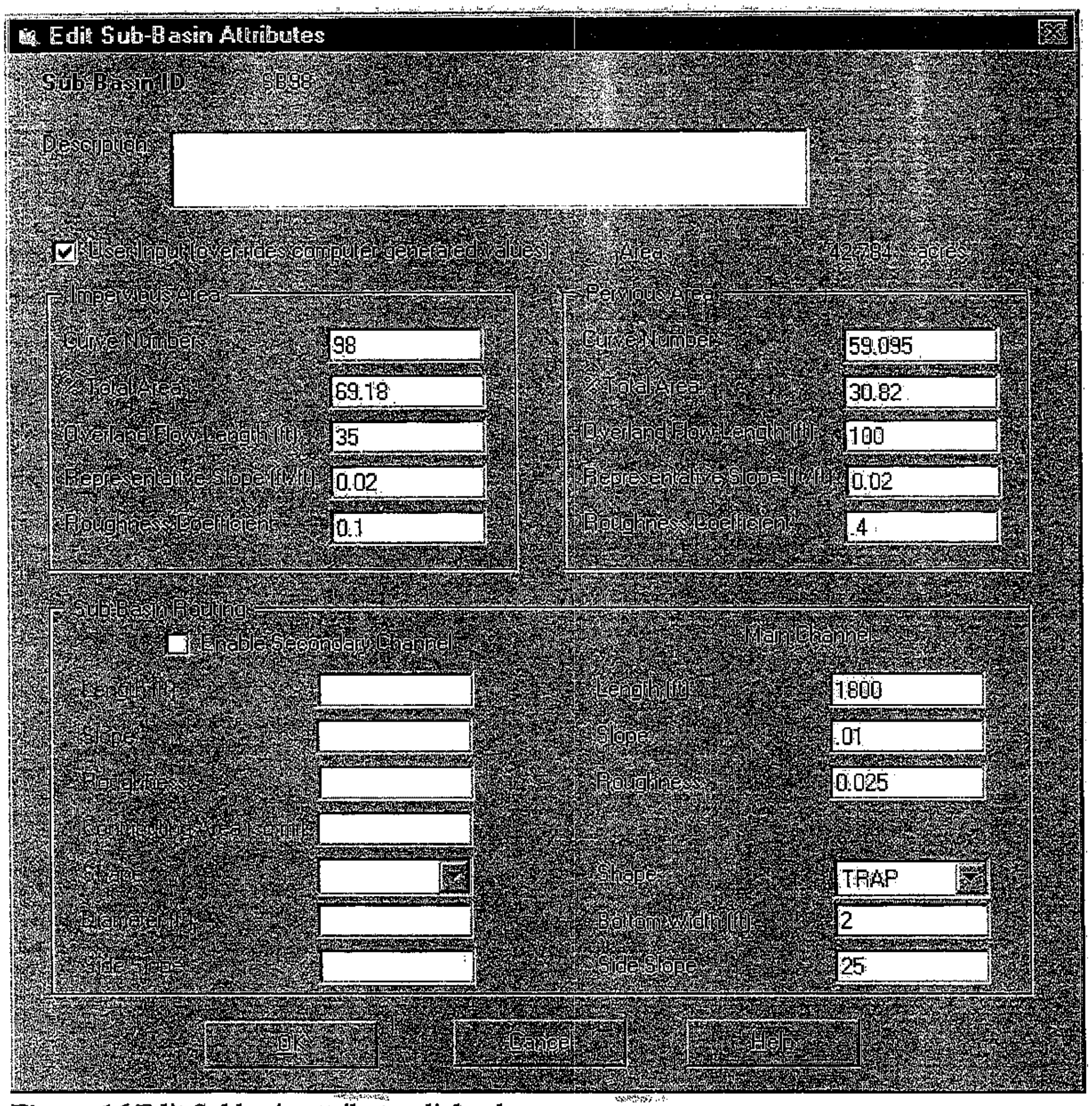


Figure 16 Edit Subbasin attributes dialog box.

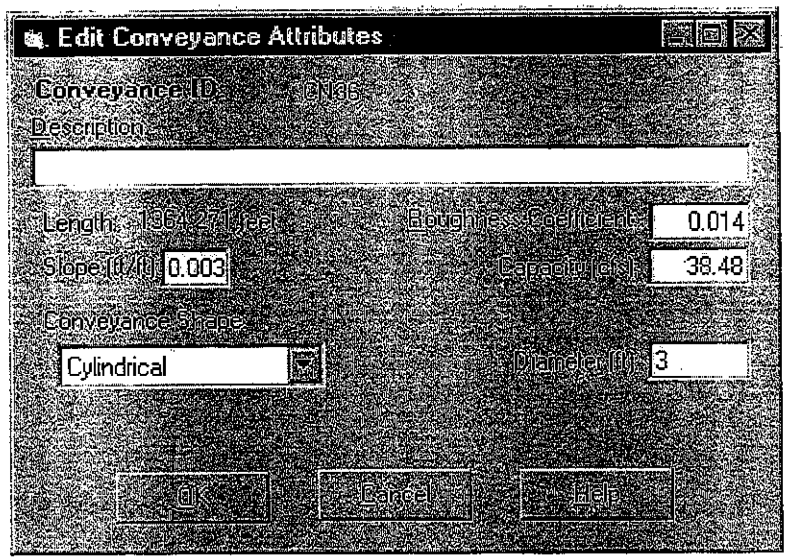


Figure 17 Edit Conveyance attributes dialog box.

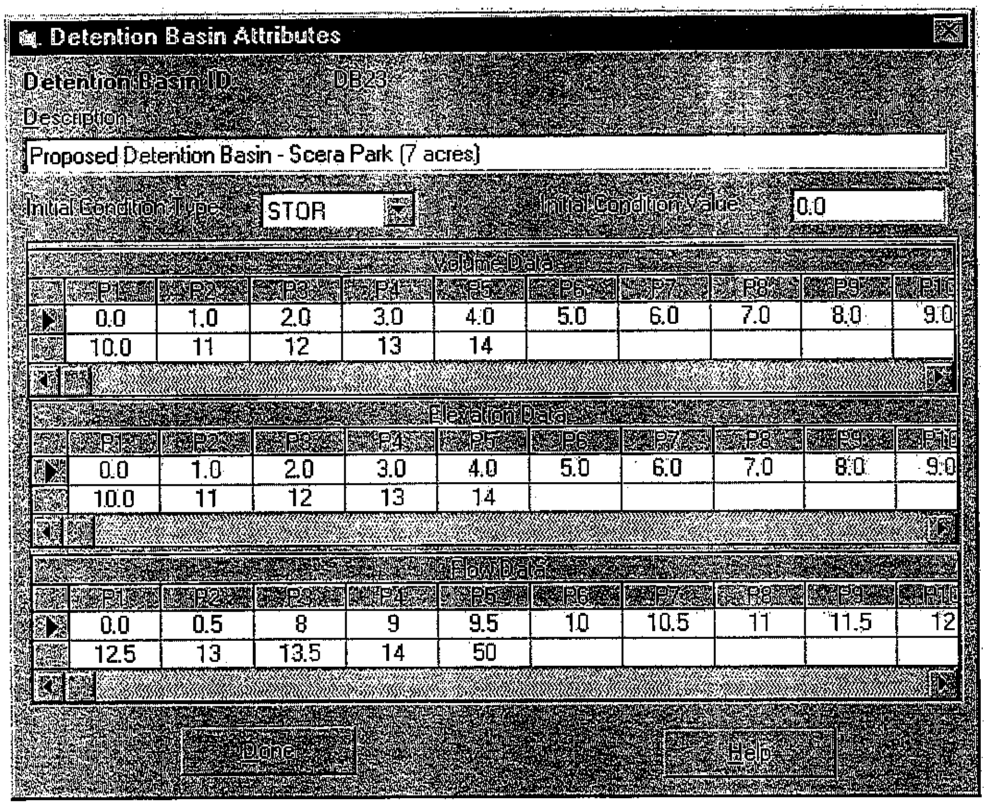


Figure 18 Edit Detention Basin attributes dialog box.

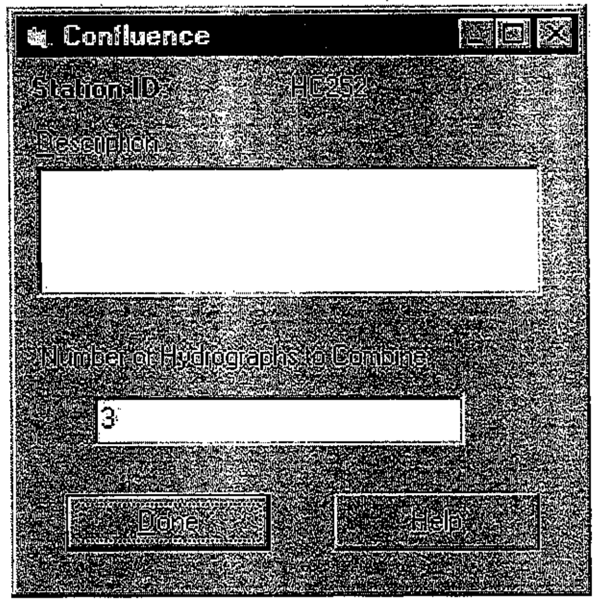


Figure 19 Edit Confluence attributes dialog box.

APPENDIX C

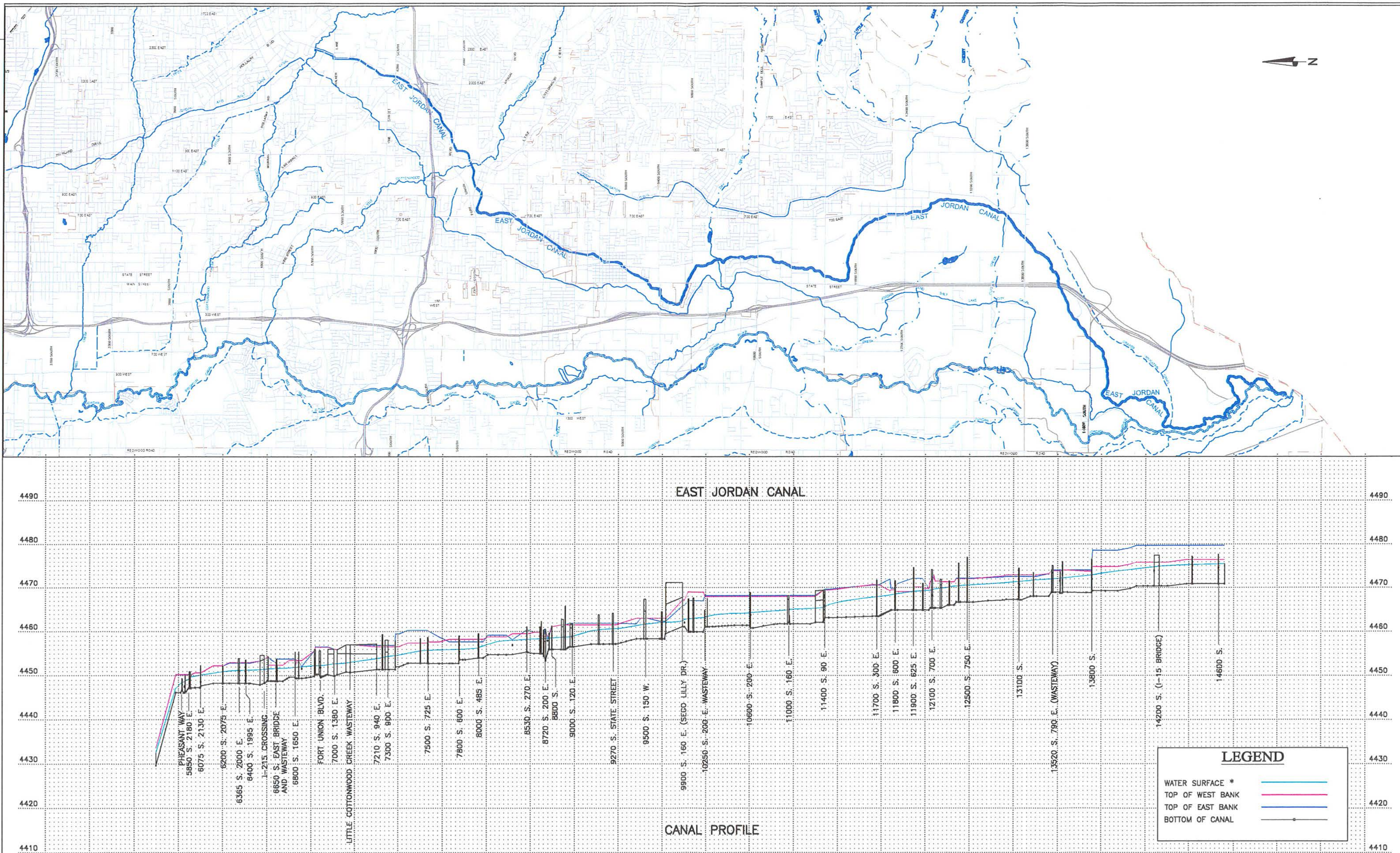
WATER SURFACE PROFILES

APPENDIX C

WATER SURFACE PROFILES

TABLE OF CONTENTS

TITLE	NUMBER OF SHEETS
East Jordan Canal Plan & Profile	1
East Jordan Canal Flow Profiles	3
Jordan & Salt Lake Canal Plan & Profile	1
Jordan & Salt Lake Canal Flow Profiles	4
Upper Canal Plan & Profile	1
Upper Canal Flow Profiles	2



* THE WATER SURFACE PROFILE ASSUMES OVERFLOW MODIFICATIONS AND SANDY CITY STORM DRAIN MASTER PLAN PROJECTS ARE COMPLETE. FLOW IS THE COMBINATION OF NORMAL IRRIGATION BASE FLOW AND A 10-YEAR, 3-HOUR STORM EVENT FLOW.

FILE NAME: 014_SLCO_RICK\DWGS\EJ CANAL PROFILE PLOT MOD.DWG
FILE DATE: 2.3.2003 13:25:06 (CAH)

HANSEN ALLEN & LUCE INC ENGINEERS

DESIGNED SCJ	3		
DRAFTED	2		
CHECKED GJP	1		
DATE DECEMBER 2002	NO.	DATE	REVISIONS	BY	APVD.

SCALE
HORIZONTAL 1" = 3500'
VERTICAL 1" = 10'

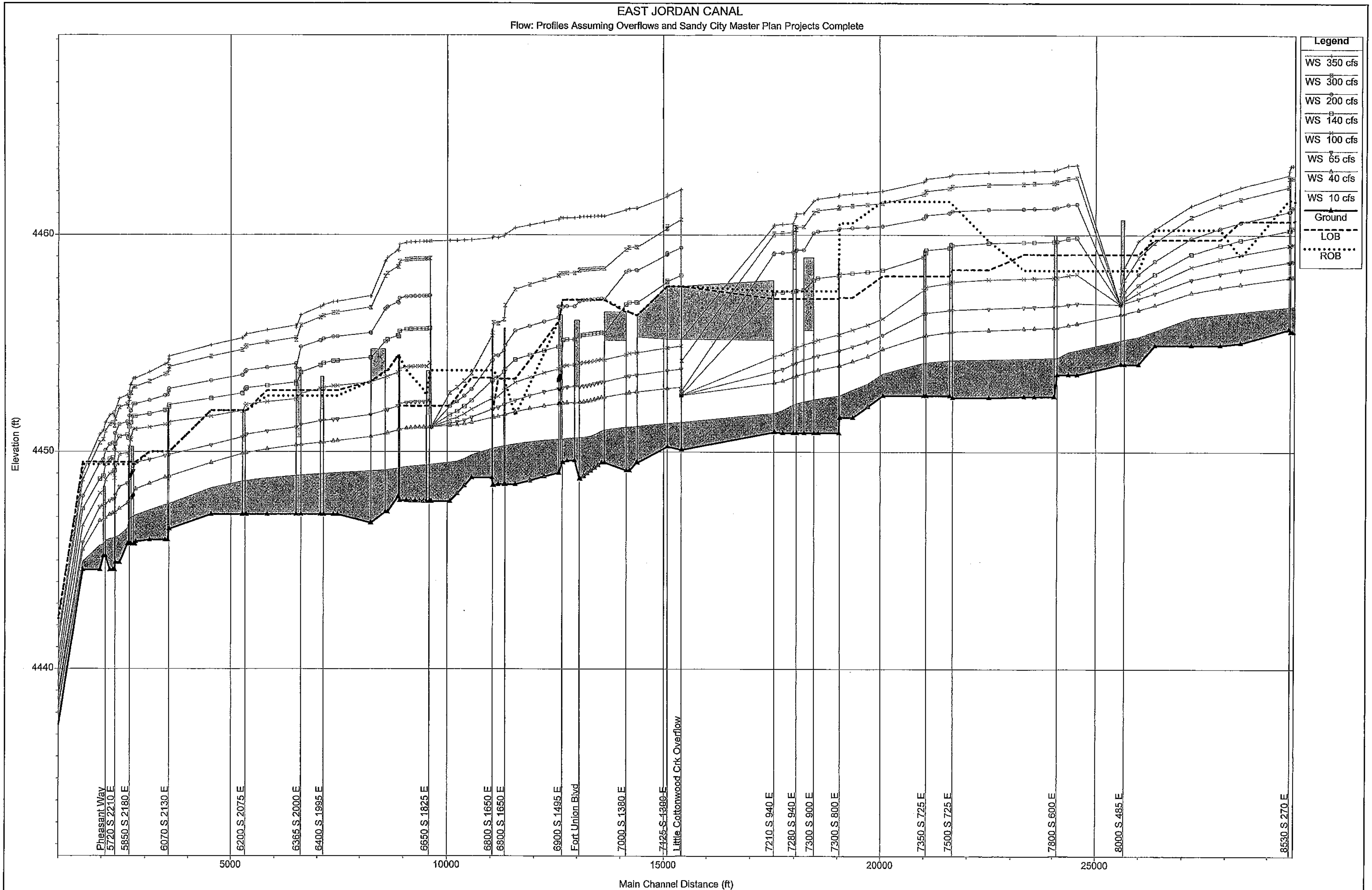
VERIFY SCALE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY.

SALT LAKE COUNTY

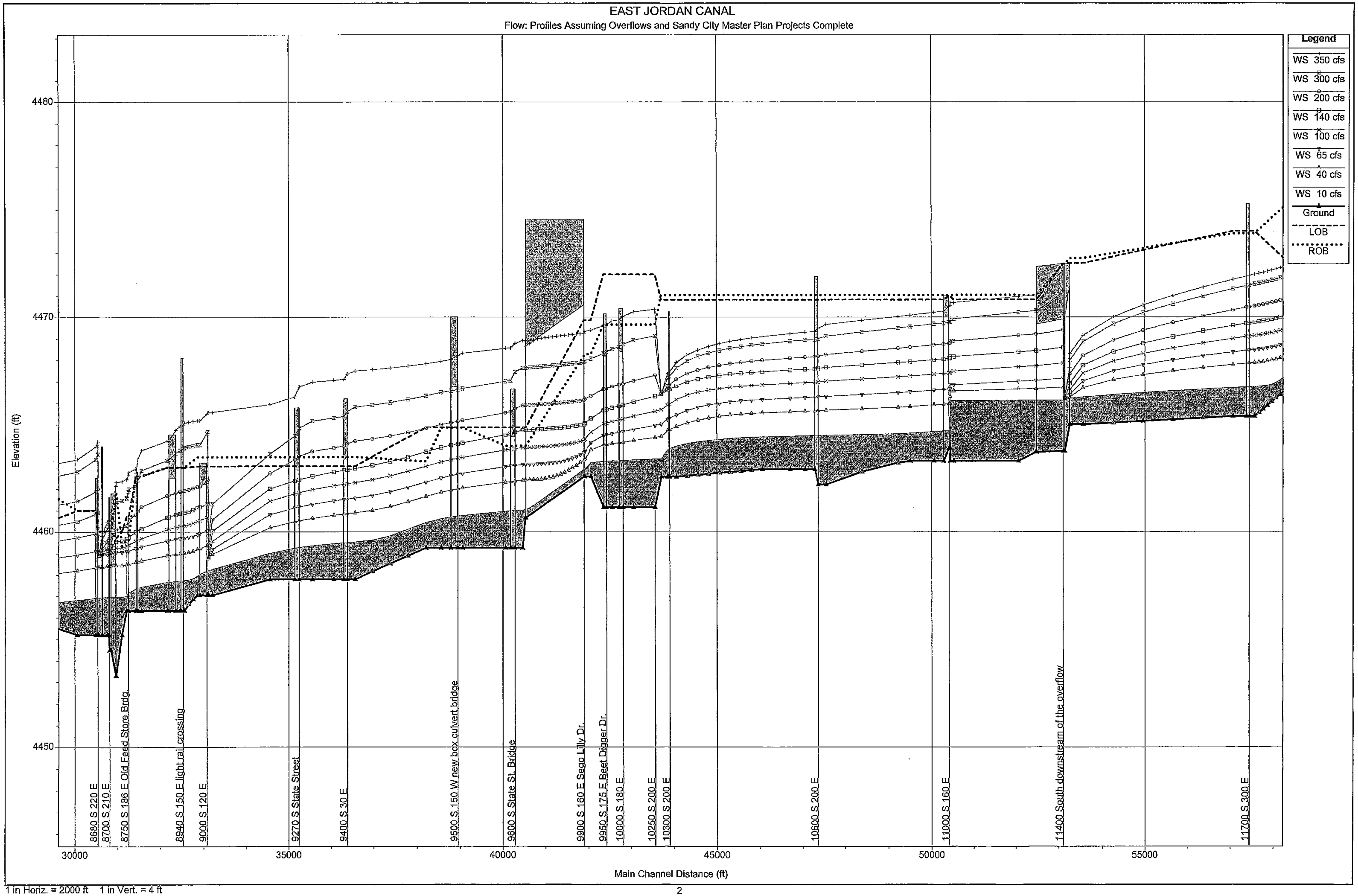
EASTSIDE CANAL STUDY
EAST JORDAN CANAL
PLAN & PROFILE

FIGURE C-1
14-09-100

8/01



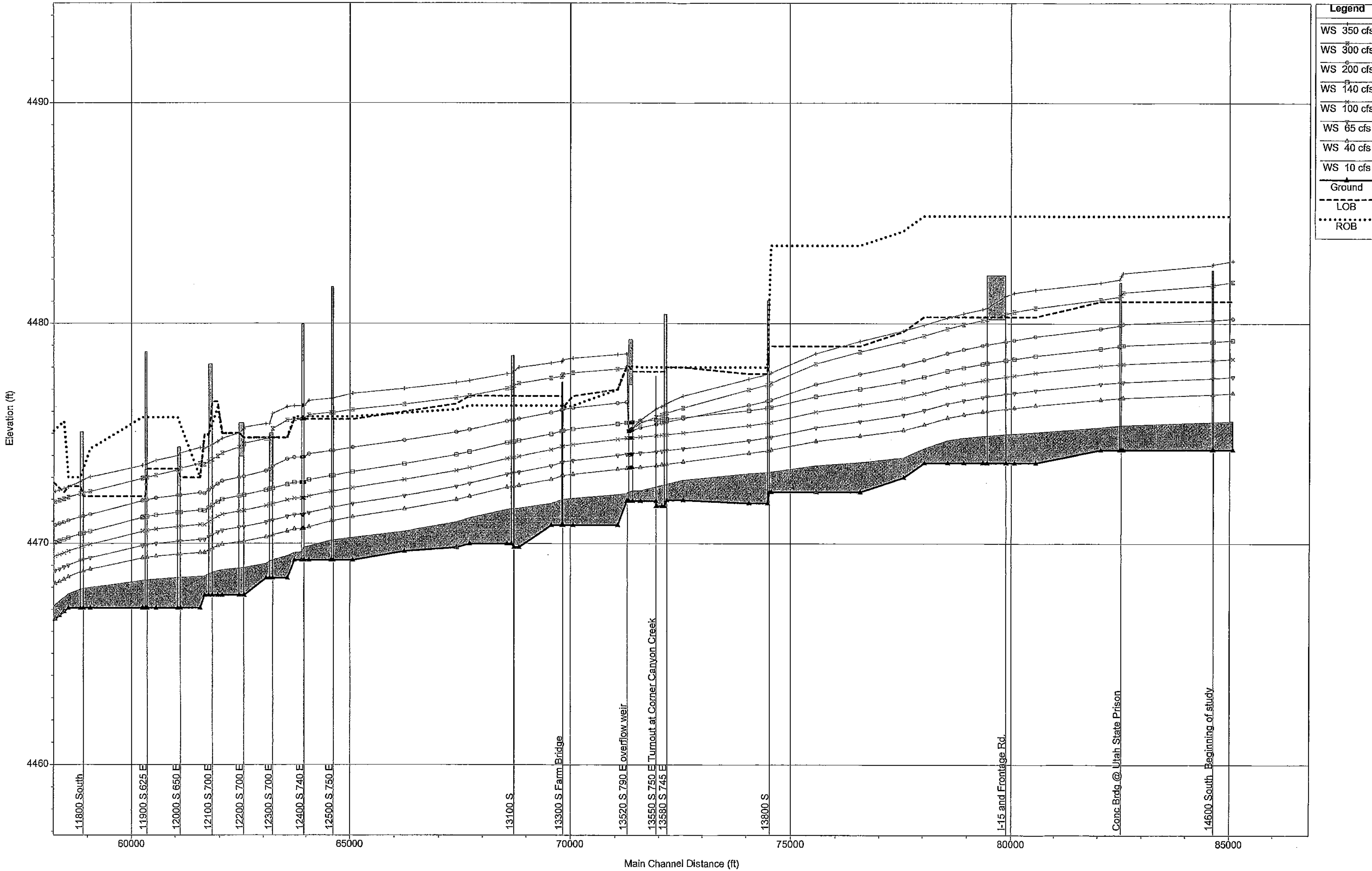
1 in Horiz. = 2000 ft 1 in Vert. = 4 ft



EAST JORDAN CANAL
Flow: Profiles Assuming Overflows and Sandy City Master Plan Projects Complete
Legend
WS 350 cfs
WS 300 cfs
WS 200 cfs
WS 140 cfs
WS 100 cfs
WS 65 cfs
WS 40 cfs
WS 10 cfs
Ground
LOB
ROB
Elevation (ft)
4480
4470
4460
4450
8680 S 220 E
8700 S 210 E
8750 S 186 E Old Feed Store Brdg.
8940 S 150 E light rail crossing
9000 S 120 E
9270 S State Street
9400 S 30 E
9500 S 150 W new box culvert bridge
9600 S State St. Bridge
9900 S 160 E Sego Lilly Dr.
9950 S 175 E Beet Digger Dr.
10000 S 180 E
10250 S 200 E
10300 S 200 E
10600 S 200 E
11000 S 160 E
11400 South downstream of the overflow
11700 S 300 E
30000
35000
40000
45000
50000
55000
Main Channel Distance (ft)
1 in Horiz. = 2000 ft 1 in Vert. = 4 ft

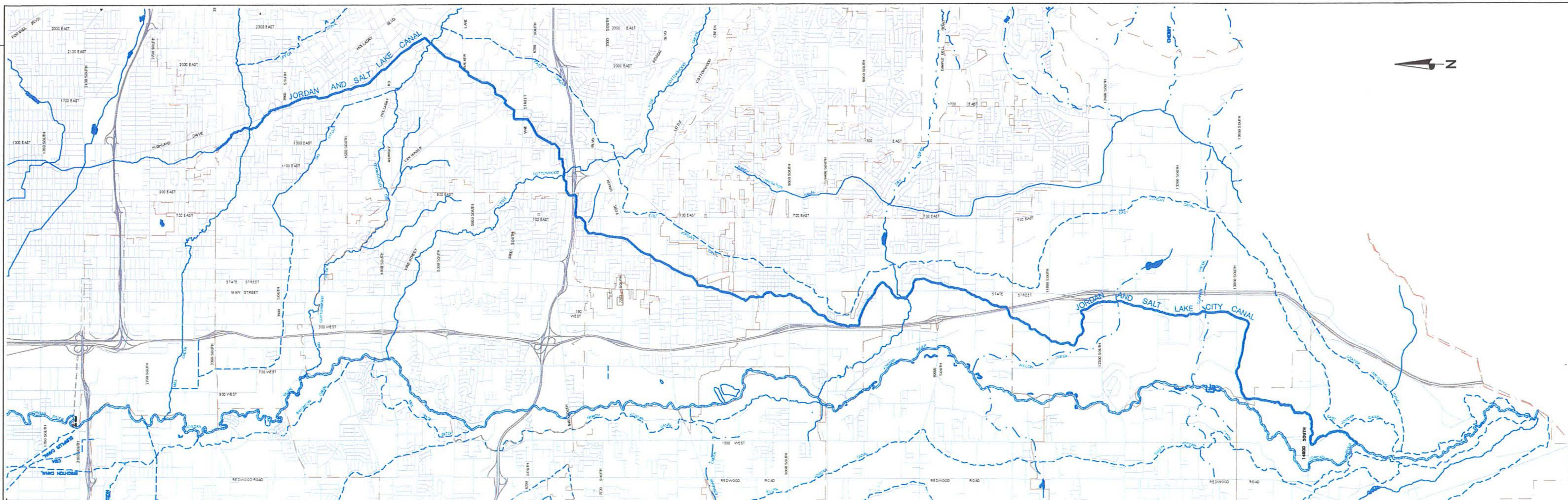
EAST JORDAN CANAL

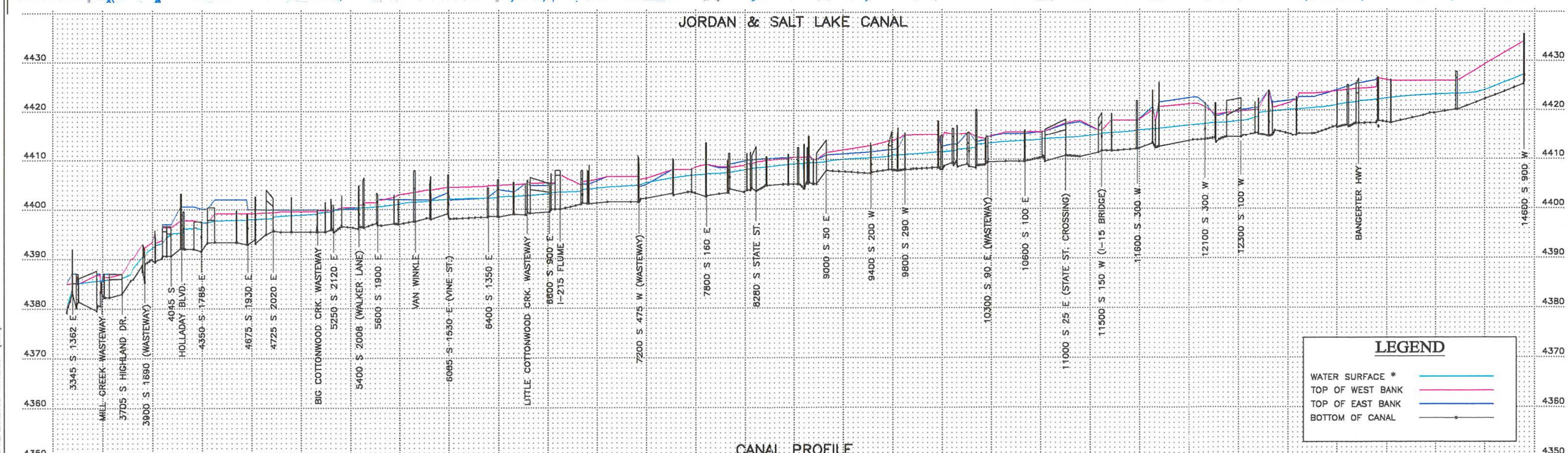
Flow: Profiles Assuming Overflows and Sandy City Master Plan Projects Complete



1 in Horiz. = 2000 ft 1 in Vert. = 4 ft

FILE NAME: 014_SLCO_RICK\DWGS\JSL CANAL PROFILE PLOT MOD.DWG
FILE DATE: 2.3.2002 14:12:58 (CAH)





* THE WATER SURFACE PROFILE ASSUMES OVERFLOW MODIFICATIONS AND SANDY CITY STORM DRAIN MASTER PLAN PROJECTS ARE COMPLETE. FLOW IS THE COMBINATION OF NORMAL IRRIGATION BASE FLOW AND A 10-YEAR, 3-HOUR STORM EVENT FLOW.

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DESIGNED SCJ	3				
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SALT LAKE COUNTY

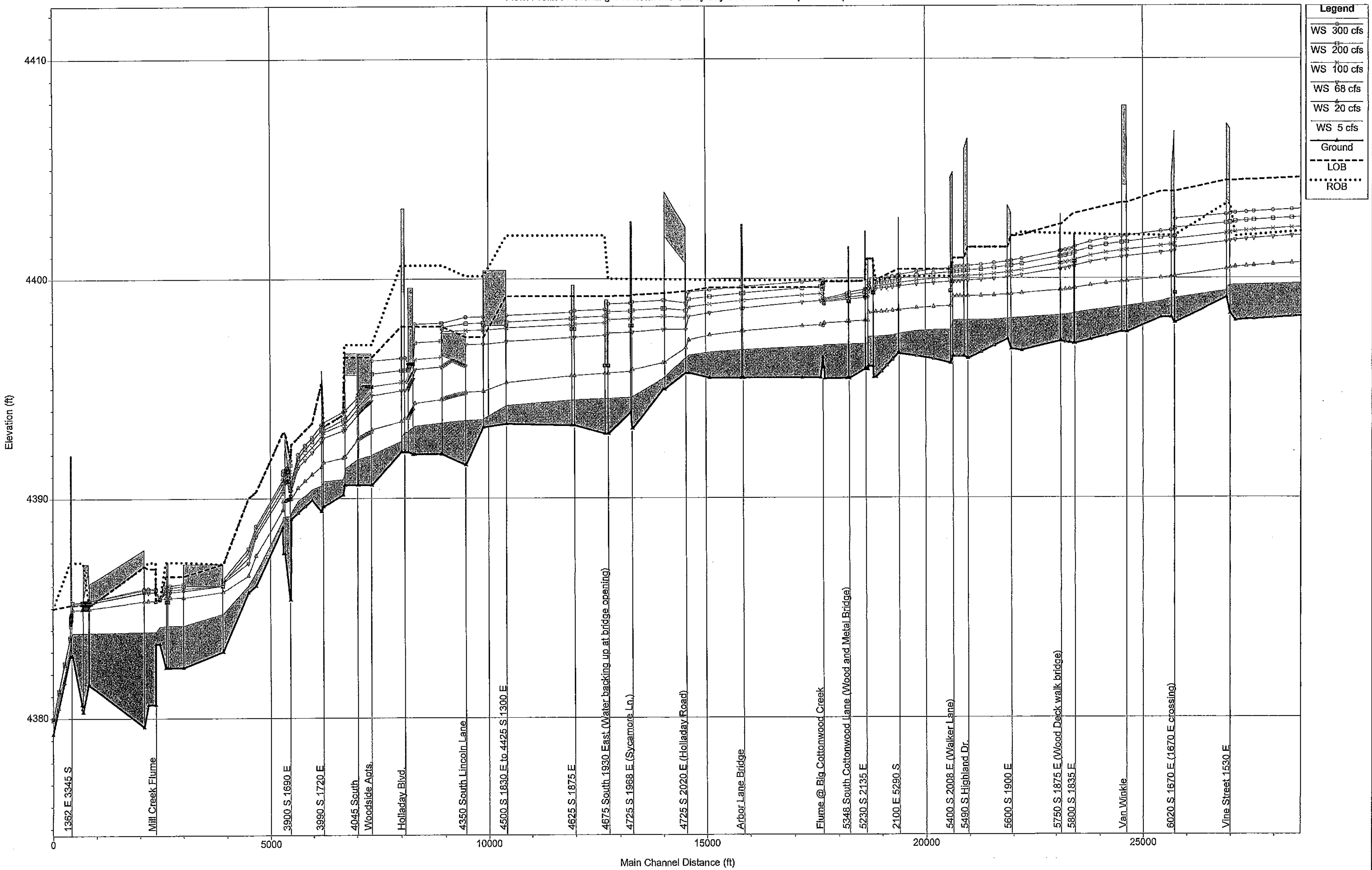
EASTSIDE CANAL STUDY
JORDAN & SALT LAKE CANAL
PLAN & PROFILE

FIGURE
C-2
14-09-100

8/01

JORDAN AND SALT LAKE CANAL

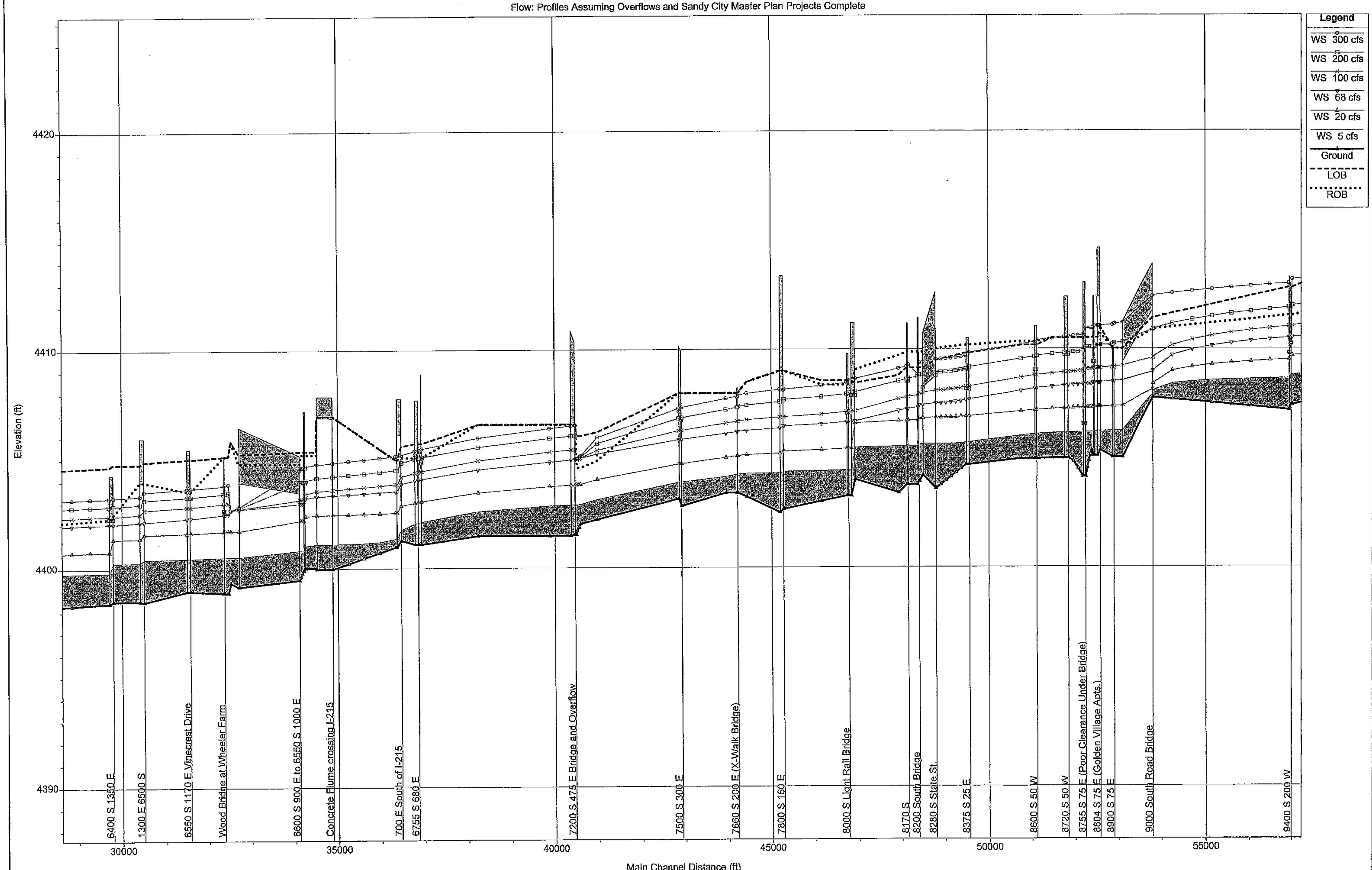
Flow: Profiles Assuming Overflows and Sandy City Master Plan Projects Complete



1 in Horiz. = 2000 ft   1 in Vert. = 4 ft

JORDAN AND SALT LAKE CANAL

Flow: Profiles Assuming Overflows and Sandy City Master Plan Projects Complete



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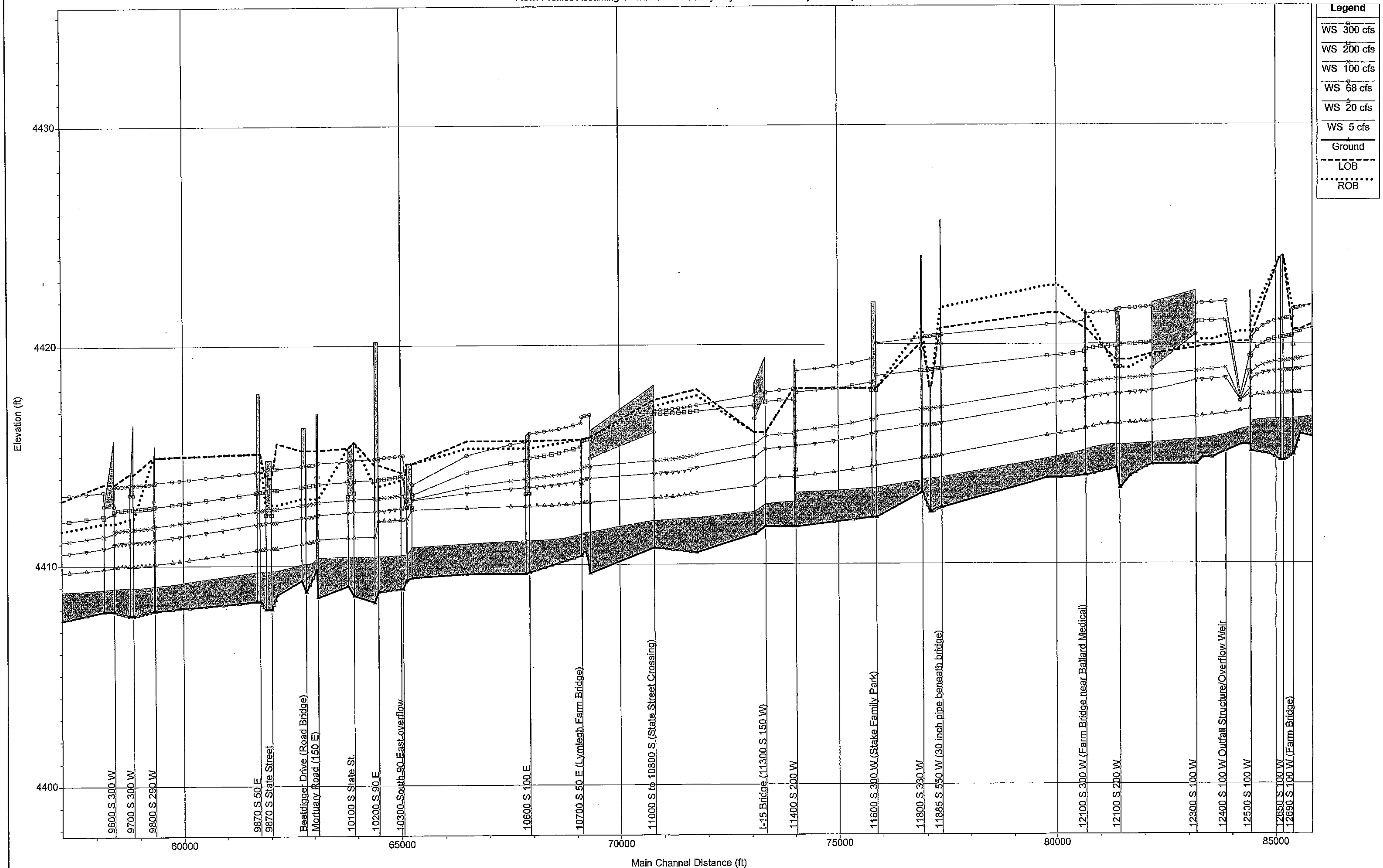
JORDAN AND SALT LAKE CANAL

Flow: Profiles Assuming Overflows and Sandy City Master Plan Projects Complete



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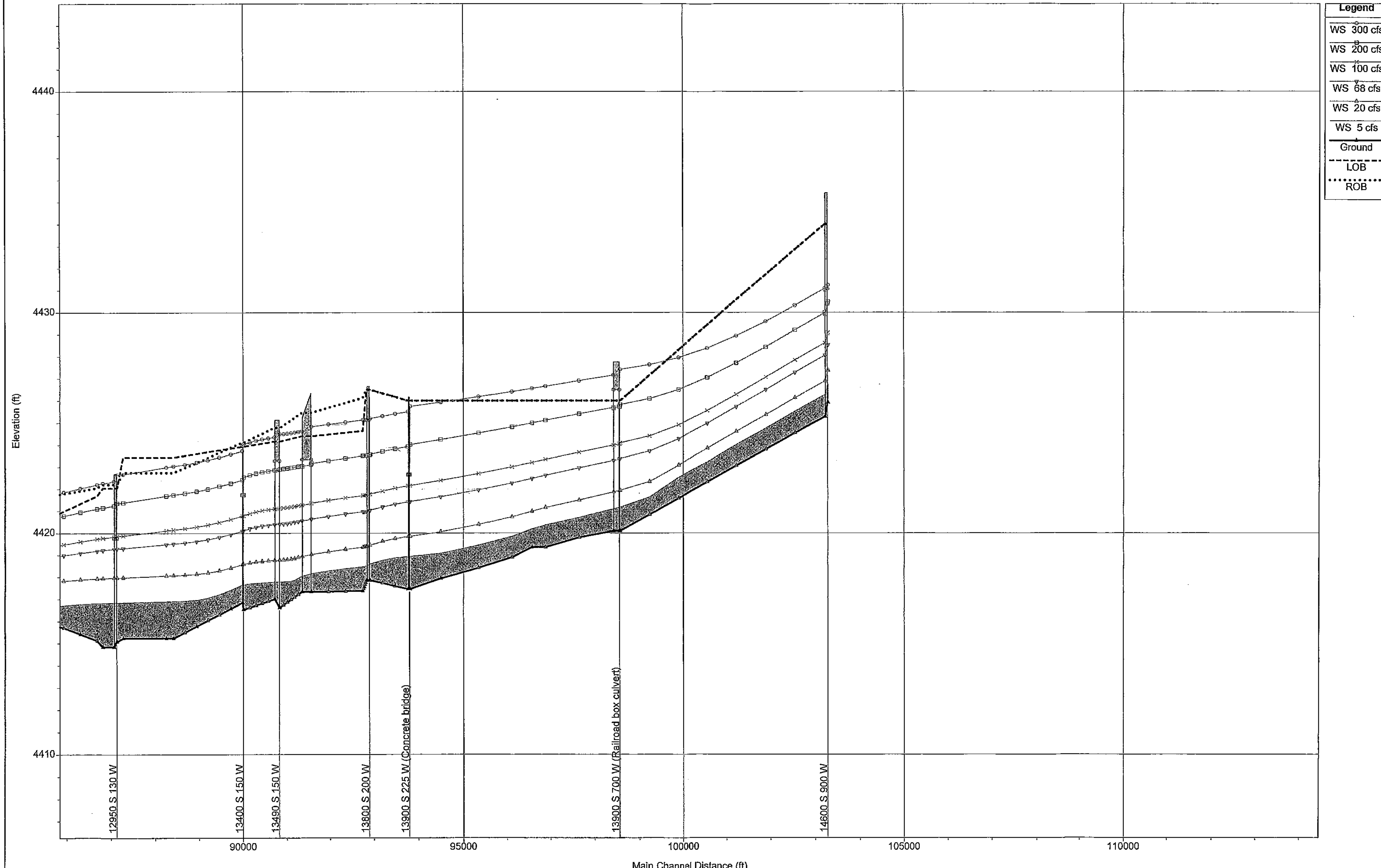
JORDAN AND SALT LAKE CANAL

Flow: Profiles Assuming Overflows and Sandy City Master Plan Projects Complete



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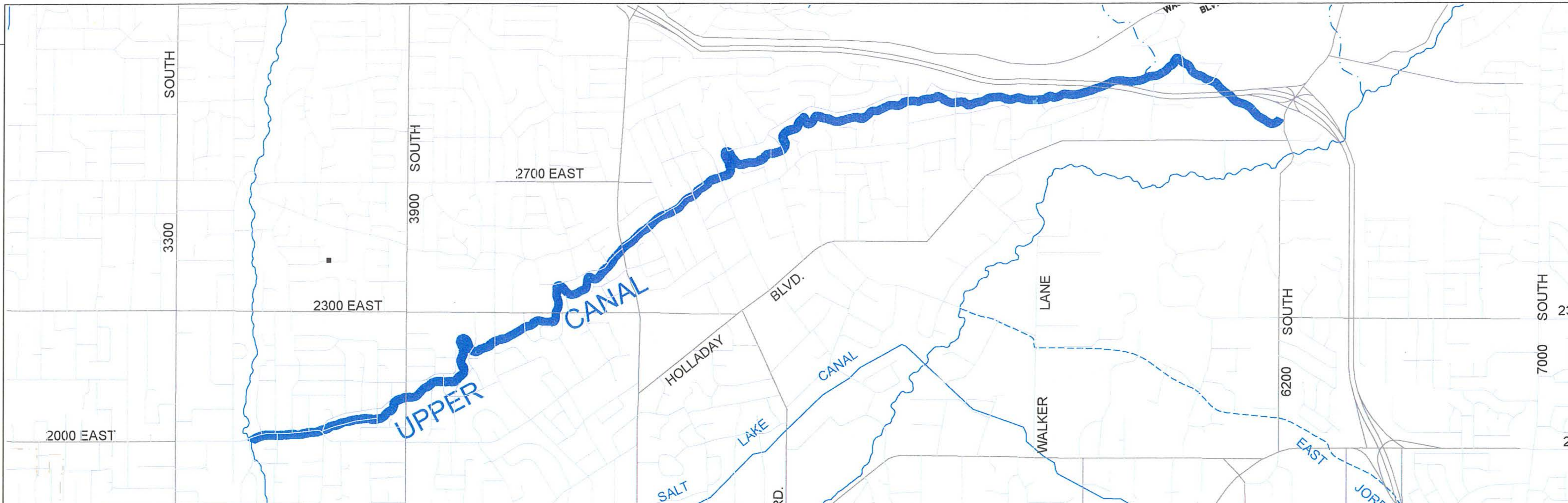
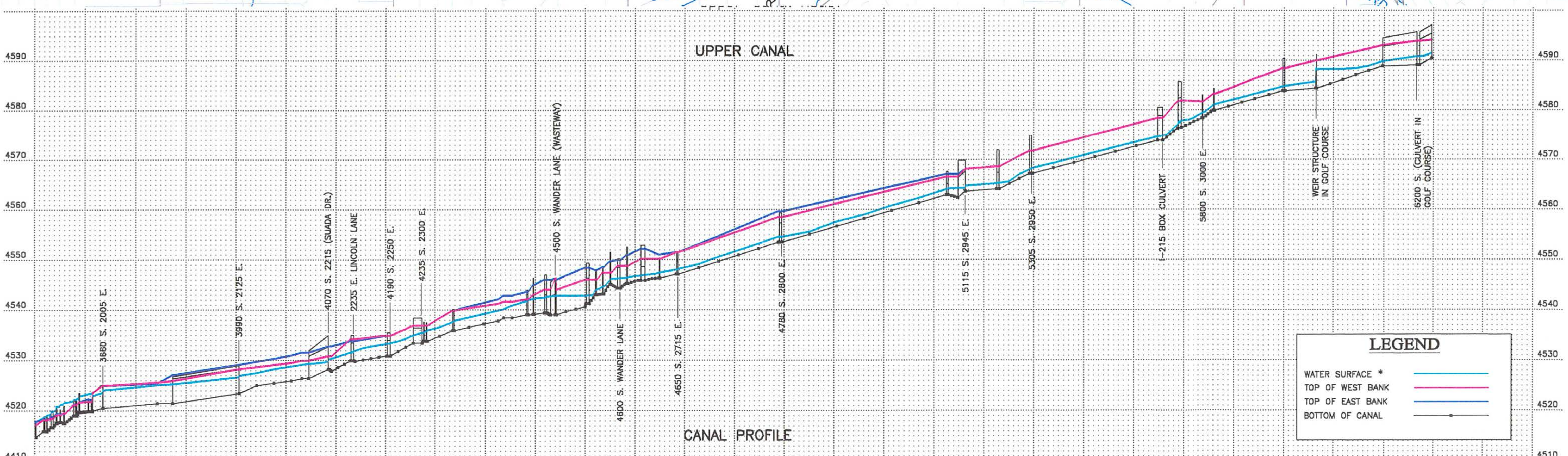




* THE WATER SURFACE PROFILE ASSUMES OVERFLOW MODIFICATIONS AND SANDY CITY STORM DRAIN MASTER PLAN PROJECTS ARE COMPLETE. FLOW IS THE COMBINATION OF NORMAL IRRIGATION BASE FLOW AND A 10-YEAR, 3-HOUR STORM EVENT FLOW.

FILE NAME: 014_SLCO_RICK\DWGS\UPPER CANAL PROFILE PLOT MOD.DWG
FILE DATE: 2.3.2002 14:10:53 (CAH)

HANSEN ALLEN & LUCE INC ENGINEERS

DESIGNED SCJ	3				
DRAFTED JDB	2				
CHECKED GJP	1				
DATE DECEMBER 2002	NO.	DATE	REVISIONS	BY	APVD.

SCALE
HORIZONTAL 1"=1000'
VERTICAL 1" = 10'

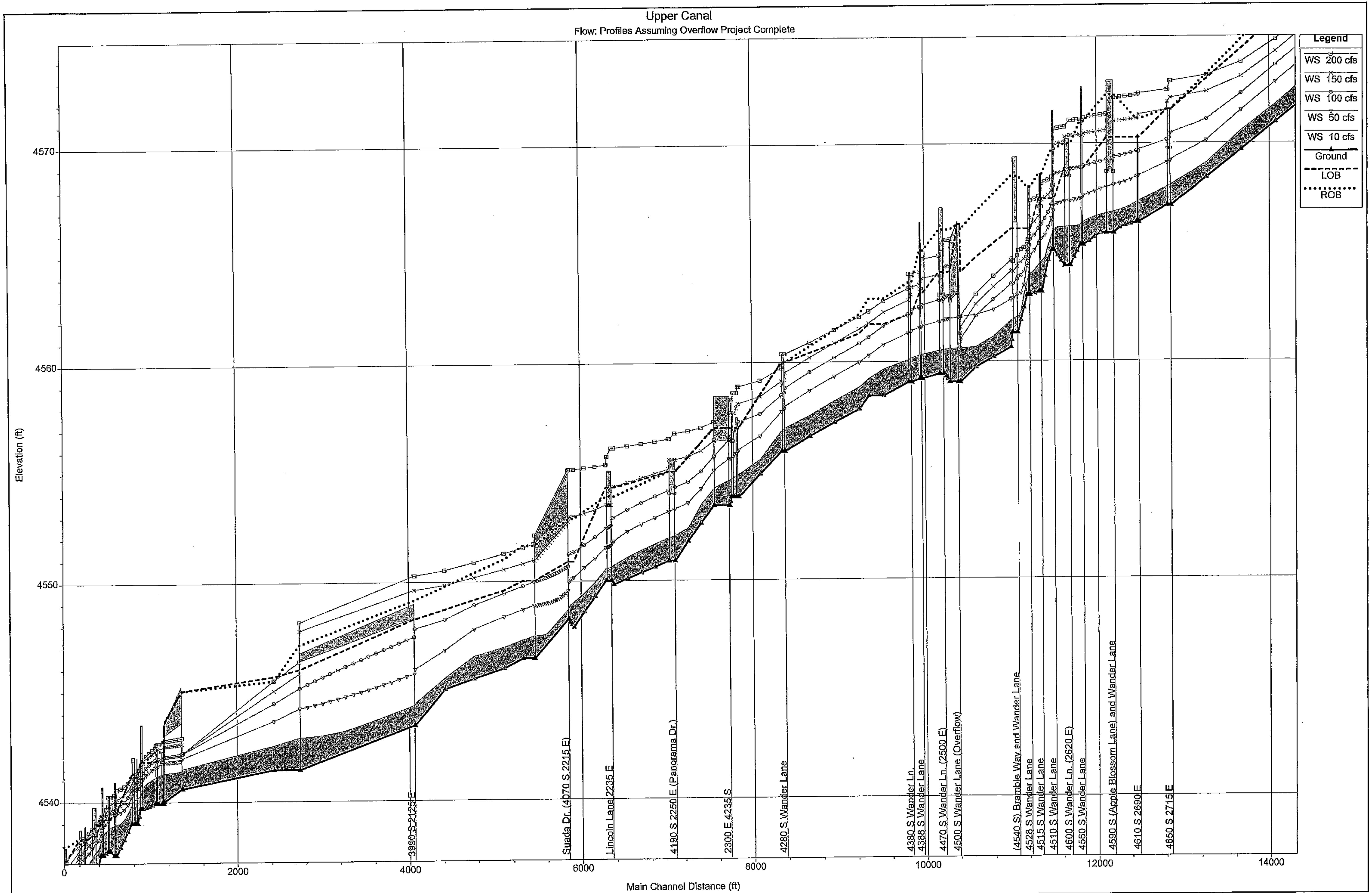
VERIFY SCALE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SALT LAKE COUNTY

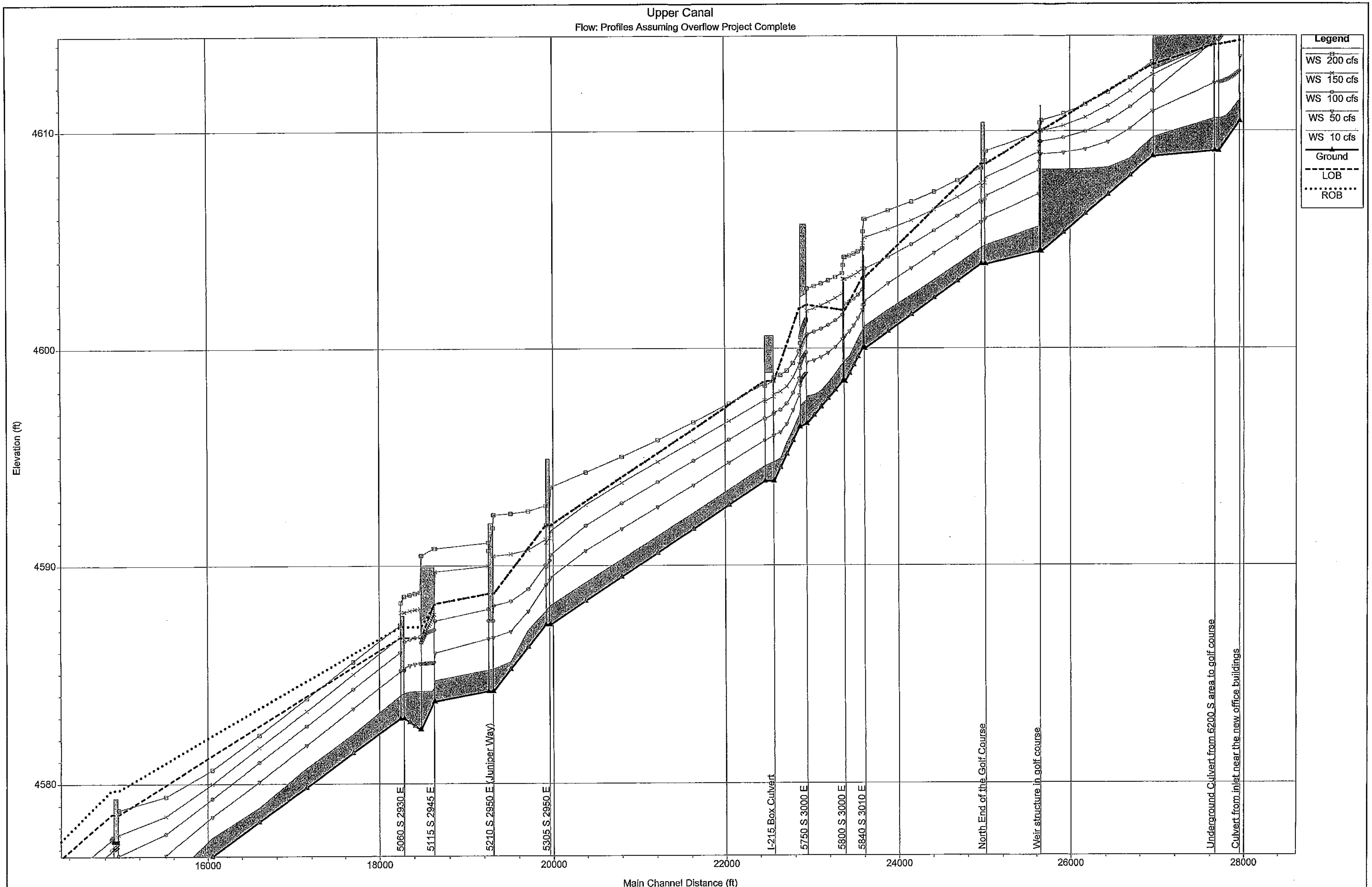
EASTSIDE CANAL STUDY
UPPER CANAL PLAN & PROFILE

FIGURE C-3

14-09-100



1 in Horiz. = 1000 ft 1 in Vert. = 4 ft



1 in Horiz. = 1000 ft   1 in Vert. = 4 ft

APPENDIX D

FIELD NOTES

Salt Lake County - Eastside Canal Study
Summary of stage measurements taken in the field on the East Jordan, Jordan and Salt Lake, and Upper canal on August 16 and 17, 2001.
Project Number: 014.09.100

East Jordan Canal 08/16/01

Identifier	Location	Time	Datum	Distance W.S to datum (ft)	Flow Depth (ft)	Comments
1	900 E	9:12 a.m.	depth indicator	NA	2.78	Flow measuring device located east of 900 E.
2	7800 S		top of concrete on bridge edge	4.3	2.3	
3	8600 S	9:40 a.m.	top of concrete on bridge edge	3.9	3	
4	9000 S		top of concrete on bridge edge	3.39	2.6	Wasteway at this location; Photo 45,44
5			Canal reach			Canal Photo 43; dense veg. above W.S.; about 1.5 ft of freeboard
6	Sego Lilly		top of concrete on bridge edge	10.9		Fast approach velocity and some debris in channel; Photo 42,41
7	Dry Creek Wasteway		Downstream concrete overflow	0.8		Photo 40,39,38
8	10600 S		top of concrete on bridge edge	6.07	3.4	Trash accumulation on center pier, old check with slots for boards, manually controlled wasteway, Photo 37,36
9	11400 S		top of concrete on bridge edge	4.28		Blow off above bridge; wide channel with slow flow; turnout both sides of bridge w/ wasteway on downstream end; Photo 35
10	700 E 12100 S		Top of rail	10.05		Pipeline crossing canal; 7.05' W.S. to top of cap; 3.62' bridge to top of rail; Photo 34
11	Slightly north of 13200 S		top of concrete on bridge edge	4.46	3.6	Flow depth near west side of the bridge; Photo 33
12	13540 S Fort St.	11:00 a.m.	top of wasteway	2.7	3.5	Wasteway to corner canyon creek; old corner canyon creek crossing; Photo 29,28
13	Stokes Ave. Bridge		top of concrete on bridge edge	3.15		1 - 1.5 ft of freeboard to bridge bottom; Photo 31,30
14	13800 S		top of concrete on bridge edge	5.51	3.5	Trees overgrowing canal upstream of bridge; Photo 25,24
15	East side of I-15		top of concrete on bridge edge	4.2		Dangerous slope into canal; downstream side of crossing; culvert into canal; Photo 23,22
16	14600 S	11:45 a.m.	top of concrete on bridge edge	7.56	3.8	Photo 21,20
17	13540 S Fort St.	1:30 p.m.	top of wasteway	2.7		Took Flow measurement at this location.

Jordan & Salt Lake Canal 08/16/01

1	14600 S	3:42 p.m.	Top of bridge headwall	8.36	0.8	
2	13800 S	3:58 p.m.	Top of bridge headwall	10	1.3	
3	12650 S		Top of bridge surface	6.4	1.85	
4	Near Ballard Medical	4:30 p.m.	Small bridge, top at wood	3.7	2.8	Possible beaver dam downstream
5	11400 S		Top of rail	4.65	2.35	Bridge is flowing full. Couldn't see top of bridge
6	I-15 Crossing	4:45 p.m.	Top of cement	4.8	2.85	North barrel had needs to be cleaned out, had a flow of .8 - 1.8
7	10600 S	9:10 a.m.	Top of bridge in the middle	3.6	2.76	Very slow flow at edges because of weeds,bridge is 3.4' at west end
8	State St. (by Target)	9:30 a.m.	Top of concrete on bridge	3.91	3	Flow depth is 3' in the middle and 3.25' on north end. Upstream of bridge has thick tress along bank. Weeds and trees below flowline. Downstream of bridge is open on both sides with grassy park. A lot of pondweed in canal.
9	9400 S	9:50 a.m.	Top of concrete on bridge	3.68	1.6	Flow depth taken at deepest section toward west bank. Weeds generally above the flowline with some weeds in the flow. A few pondweeds.
10	8000 S	10:20 a.m.	Top of cement on bridge	4.78	2.6	Flow depth taken in the middle. Some seeds on band overlapping into the flow
11	7200 S	10:34 a.m.	Top of concrete on west side	5.84	2	Flow depth is 2' on westside and 2.5' in the middle. Channel is fairly wide, flow line mostly below weeds. Wasteway just before bridge.
12	700 E	10:50 a.m.	Top of concrete ledge	4.82	1.8	Flow depth taken in the middle.
13	Vine Street	11:05 a.m.	Top of concrete at west end	5.78	1.78	Flow depth was taken at the west end. Wide and slow through this section.
14	Walker Lane	11:20 a.m.	Top of concrete at west end	5.7	2.8	Flow depth was taken in the middle. Trees all around canal especially downstream.
15	4675 S	11:40 a.m.	Top of concrete	2.8	3.1	Flow depth taken in the middle. Bridge is flowing full with 1" above bottom of concrete submerged on both ends.
16	4350 S	11:54 a.m.	Top of steel grate and concrete	3	2.88	Flow depth taken in the center.
17	1300 E 3345 S	12:10 p.m.	Top of concrete	2.14	3	Water almost to top of bridge bottom. 3' in middle of flow depth. Wide channel on approach with thick vegetation on sides.

Upper Canal 08/17/01

1	2000 E 3660 S	1:00 p.m.	Top of concrete on main culvert	3.94	1.35	Flow depth taken at center of main culvert. Canal is very low. Canal bottom is free of weeds, wasteway at this location also. After this point, the canal parallels 2000 E is trapezoidal, lined, and crosses under all driveways.
2	Lincoln Lane	1:30 p.m.	East Side Wall, top of concrete	2.7	1.08	Flow depth taken in the middle. Slow flow clean lower banker above flowline higher banks have vegetation
3	2620 E 4600 S	1:45 p.m.	Top of concrete	5.06	0.74	Flow depth taken in the middle, very dense vegetation on banks
4	Casto Ln. 5060 S	2:00 p.m.	Top of concrete	3.44	1.12	Flow depth taken in the middle, flow is generally below vegetation on banks.
5	East of I-215		Top of concrete	3.46	0.9	Depth taken in middle, steep slop through this area with fast flow. A lot of rocks along channel bottom

East Jordan Canal Extension 08/17/01

1	Fardown Ave. & Shangri	2:50 p.m.	Top of wood bridge	2.76	0.9	Depth taken in the middle, 1.98' top of wood bridge to topof cement rail/side.
2	South Side of I-215 W	3:10 p.m.	Top of concrete on bridge	2.98	2.9	Wasteway/turnout with check slots in main channel
3	Fort Union & Park Center		Top of wall on west side	3.76	2.6	Flow depth on west side, main flow comes in along west side, dense willows along banks generally above flow.

APPENDIX E

ESTIMATED CONSTRUCTION COSTS

Salt Lake County Eastside Canal Study
Eastside Canal Improvement Projects
Conceptual Cost Estimate and Comparison

1. East Jordan Canal 11900 South 625 East
Build Up Canal Bank

Item	Description	Quantity	Unit	Engineers Cost Estimate: Unit Cost	Engineers Cost Estimate: Amount
1	Clear and grub brush from banks.	0.3	Acre	$5,000	$1,286
2	Strip, stockpile, and spread soil from existing bank.	519	C.Y.	$8.00	$4,148
2	Raise west bank 1 foot.	1037	C.Y.	$8.85	$9,178
3	Revegetate bank.	28	M.S.F.	$21.50	$602
	Estimated Construction Cost				**$15,214**
	Contingency (20%)				$4,564
	Subtotal				$19,778
	Design, Engineering, and Construction Management (15%)				$2,967
	Total Cost Estimate				**$22,744**

2. East Jordan Canal 8750 South - 8720 South
Build Up Canal Bank

Item	Description	Quantity	Unit	Engineers Cost Estimate: Unit Cost	Engineers Cost Estimate: Amount
1	Strip, stockpile, and spread soil from existing bank.	93	C.Y.	$8.00	$741
2	Raise east bank to west bank elevation.	185	C.Y.	$8.85	$1,639
3	Revegetate bank.	5	M.S.F.	$21.50	$108
	Estimated Construction Cost				**$2,487**
	Contingency (20%)				$746
	Subtotal				$3,233
	Design, Engineering, and Construction Management (15%)				$485
	Total Cost Estimate				**$3,718**

3. East Jordan Canal 6800 South
Build Up Canal Bank

Item	Description	Quantity	Unit	Engineers Cost Estimate: Unit Cost	Engineers Cost Estimate: Amount
1	Strip, stockpile, and spread soil from existing bank.	333	C.Y.	$8.00	$2,667
2	Raise east bank to west bank elevation.	1,133	C.Y.	$8.85	$10,030
3	Revegetate bank.	18	M.S.F.	$21.50	$387
4	Remove and reset chain link fence.	575	L.F.	$16.00	$9,200
	Estimated Construction Cost				**$22,284**
	Contingency (20%)				$6,685
	Subtotal				$28,969
	Design, Engineering, and Construction Management (15%)				$4,345
	Total Cost Estimate				**$33,314**

4. East Jordan Canal 6070 South - 5850 South

Alternative 1 (Build Up Canal Bank)

Item	Description	Quantity	Unit	Engineers Cost Estimate	
				Unit Cost	Amount
1	Clear and grub brush from banks.	1	Acre	$2,975	$2,185
2	Construct a temporary access road.	1280	L.F.	$3.90	$4,992
3	Strip, stockpile, and spread soil from existing bank.	1481	C.Y.	$8.00	$11,852
4	Raise east and west banks 1 ft.	2963	C.Y.	$8.85	$26,222
5	Revegetate bank.	80	M.S.F.	$21.50	$1,720
	Estimated Construction Cost				**$44,786**
	Contingency (20%)				$13,436
	Subtotal				$58,222
	Design, Engineering, and Construction Management (15%)				$8,733
	Total Cost Estimate				**$66,955**

Alternative 2 (Replace Culvert at 5850 South)

Item	Description	Quantity	Unit	Engineers Cost Estimate	
				Unit Cost	Amount
1	Demolition and removal of existing bridge,culvert, and roadway	1	L.S.	NA	$5,000
2	8x5 box culvert.	52	L.F.	$300.00	$15,600
3	Headwall to culvert.	2	Ea.	$5,750.00	$11,500
4	Repair roadway.	9	S.Y.	$15.00	$133
	Estimated Construction Cost				**$32,233**
	Contingency (20%)				$6,447
	Subtotal				$38,680
	Design, Engineering, and Construction Management (15%)				$5,802
	Total Cost Estimate				**$44,482**

Jordan and Salt Lake Canal 5250 South
Alternative 1 (Build Up East Canal Bank and Add Curb Along Road on West)

Item	Description	Quantity	Unit	Engineers Cost Estimate	
				Unit Cost	Amount
1	Strip, stockpile, and spread soil from existing bank.	204	C.Y.	$8.00	$1,630
2	Raise east bank 1 foot.	204	C.Y.	$8.85	$1,803
3	Revegetate bank.	11	M.S.F.	$21.50	$237
4	Install a roadside curb along west bank.	550	L.F.	$2.20	$1,210
	Estimated Construction Cost				**$4,879**
	Contingency (20%)				$976
	Subtotal				$5,855
	Design, Engineering, and Construction Management (15%)				$878
	Total Cost Estimate				**$6,733**

Note: M.S.F. = thousand square feet.