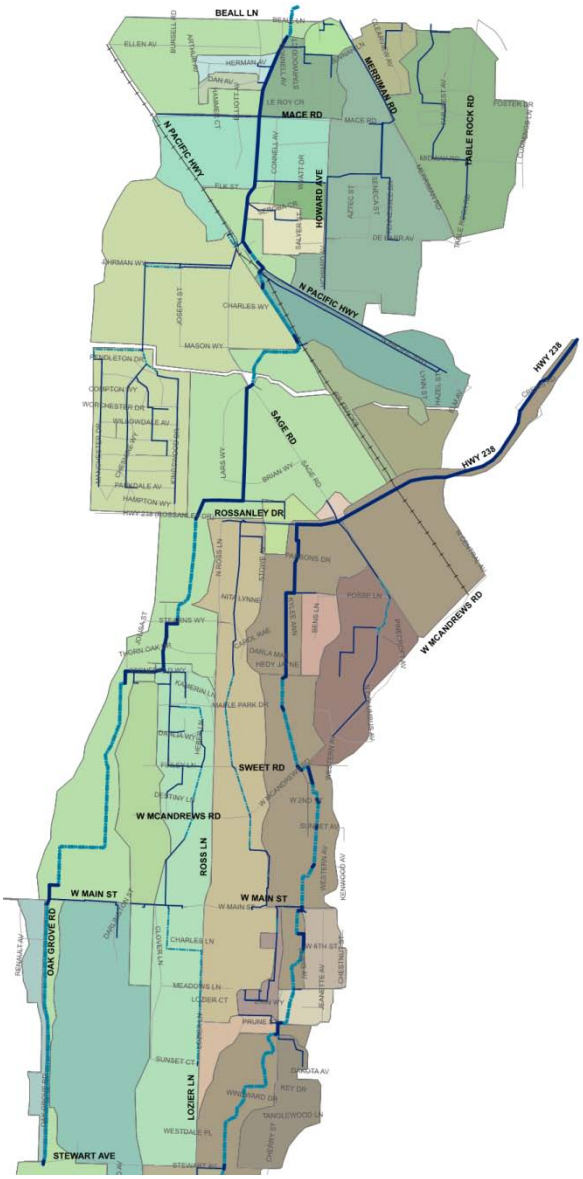
Elk Creek Basin Plan

City of Medford

Oregon

June 4, 2012



Brown AND Caldwell

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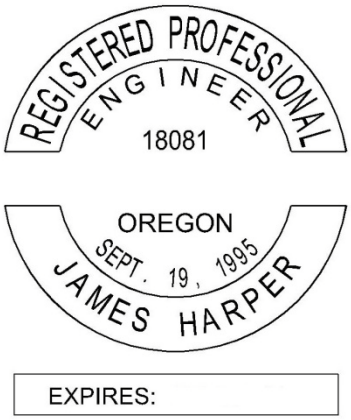

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This document was prepared solely for the City of Medford in accordance with professional standards at the time the services were performed and in accordance with the contract between the City of Medford and Brown and Caldwell dated November 10, 2008. This document is governed by the specific scope of work authorized by the City of Medford; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by the City of Medford and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

Section 1
Introduction

The Elk Creek Basin Plan was identified as the first basin plan in the City of Medford's (City) 2005 Stormwater Management Plan (SWMP) to address National Pollutant Discharge Elimination System (NPDES) and total maximum daily load (TMDL) programs. The Elk Creek basin was recommended to be the subject of the initial basin plan due to development pressure within the upstream reaches of the basin and complexity and uncertainty of the drainage system. This uncertainty was due to a lack of mapping in areas, a confusing parallel system with interconnection, and a lack of slope in the overall basin.

The objectives of this basin plan are to develop a better understanding of the basin, evaluate the basin using hydrologic and hydraulic modeling to determine capacities and deficiencies within the system, and revisit and update the Capital Improvements Program (CIP) for the basin to address water quantity and quality.

In addition to the 2005 SWMP, previous plans include the 1996 Comprehensive Medford Area Drainage Master Plan, 1981 Medford Area Drainage Master Plan, and 2009 West Main Street Drainage Summary. These plans were referred to in the development of the Elk Creek Basin Plan.

This basin plan does not address citywide requirements to meet NPDES or TMDL programs, but the overall basin CIP is influenced and will help to meet these program goals. This basin plan also does not attempt to incorporate the basin CIP into the overall citywide stormwater CIP. City staff will integrate the recommendations contained within this basin plan into the citywide program following the completion of this basin plan.

The management plan is based on a review of City regulatory, maintenance, and planning activities. It will integrate issues identified both by this study and from input by City engineering and maintenance staff.

1.1 Authorization

In November 2008, the City contracted with Brown and Caldwell, Inc. to develop this Elk Creek Basin Plan. The basin plan uses information from existing geographic information system (GIS) stormwater maps, the 1981 and 1996 Drainage Master Plans, the 2009 West Main Street Drainage Summary, the 2005 SWMP, field reconnaissance, a review of City ordinances, and activities and City staff input.

1.2 Purpose and Scope

This basin plan addresses water quality and water quantity elements of stormwater management and is intended to lead the City in the development of a 10-year stormwater CIP for the Elk Creek basin. The project scope includes the following:

- collect and review existing information, including GIS information, previous master plans, and management plan and conduct limited field reconnaissance to verify mapping
- provide a limited GIS mapping update and modeling using PC SWMM hydrologic and hydraulic software
- develop alternatives and prioritize a basin-specific CIP
- provide a basin plan to document the study along with updated GIS files

Section 2

Basin Characteristics

The Elk Creek basin, located in the southwest corner of Medford, drains in a northerly direction to Bear Creek. The headwaters of Elk Creek above S. Stage Road are outside the city limits and urban growth boundary (UGB). The lower reaches of Elk Creek, north of Beall Lane, are in the city of Central Point. For the purposes of this study the term *basin* refers to the study area for the Elk Creek basin, within the Medford UGB and unincorporated Jackson County. 182 sub-basins within the Elk Creek basin were delineated for the purposes of this study based on topography and the existing storm drainage system.

Defining basin characteristics such as drainage area, climate, riparian conditions, wetlands, geology, soils, and land use are presented in the following sections.

2.1 Drainage Area

The study area for the Elk Creek basin is approximately 2,460 acres, which does not include areas north of Beall Lane, downstream of Medford in the city of Central Point.

A defining feature of this basin is its relatively flat slope; the basin has an average slope of 0.9 percent. The elevation ranges between 1,510 feet at its highest point and 1,290 where it exits the city of Medford at Beall Lane. Flat slopes along the drainage system and the presence of stormwater and irrigation water conveyance made delineation of this basin challenging.

The historical Elk Creek basin drainage area was modified following a recommended project in the 1996 Drainage Master Plan to alleviate flooding in the downstream reaches of Elk Creek. Completed in conjunction with the extension of Highway 238 into southwest Medford, and sometimes referred to as the MedCo project, the diversion separated the Elk Creek basin into west and east sections.

Elk Creek West comprises 1,550 acres and drains to Bear Creek north of Beall Lane in Central Point. Because the basin line for this study runs along Beall Lane, all storm systems that cross Beall Lane were terminated with an outfall. The system north of Beall Lane was not evaluated and information on tailwater conditions at these locations was not available. Elk Creek West follows Elk Creek's historical drainage path downstream of the MedCo project diversion near Rossanley Drive.

Elk Creek East comprises 910 acres and drains to Bear Creek upstream of the western section, north of the Highway 238 crossing of Bear Creek. Elk Creek East follows Elk Creek's historical drainage path from the upstream-most reach near S. Stage Road to Rossanley Drive (Highway 238).

Figure 2-1 illustrates the basin within the city and unincorporated Jackson County and shows the sub-basins that drain to Elk Creek West in green tones and those that drain to Elk Creek East in brown tones. The entire basin is also shown in Appendix A. The first map of Appendix A serves as a key map to 13 larger-scale maps showing the modeled drainage system (Maps 1 through 13).

The existing drainage system conveys flow with a combination of piped and channelized systems. Channels provide most of the conveyance in the upstream reaches, which are mostly undeveloped or in low-density development. Channels purposed for irrigation were not included in the hydraulic model.

Main irrigation canals within the basin include the Hopkins Canal and Phoenix Canal. The Hopkins Canal flows through the basin north of Rossanley Drive. A diversion structure at the intersection of the Hopkins Canal and Elk Creek siphons summer flow from Elk Creek underneath the canal. During the winter when the canal is not in use stop logs are placed in the downstream canal and Elk Creek is allowed to flow freely. The Phoenix Canal flows through the upper basin north of S. Stage Road. Elk Creek is conveyed through a storm drain under the Phoenix Canal. There is evidence of irrigation return flow into Elk Creek during the summer months, but because the system was evaluated to be capacity-limited during wintertime storms, the hydraulic system was modeled independently from the irrigation systems.

2.2 Climate

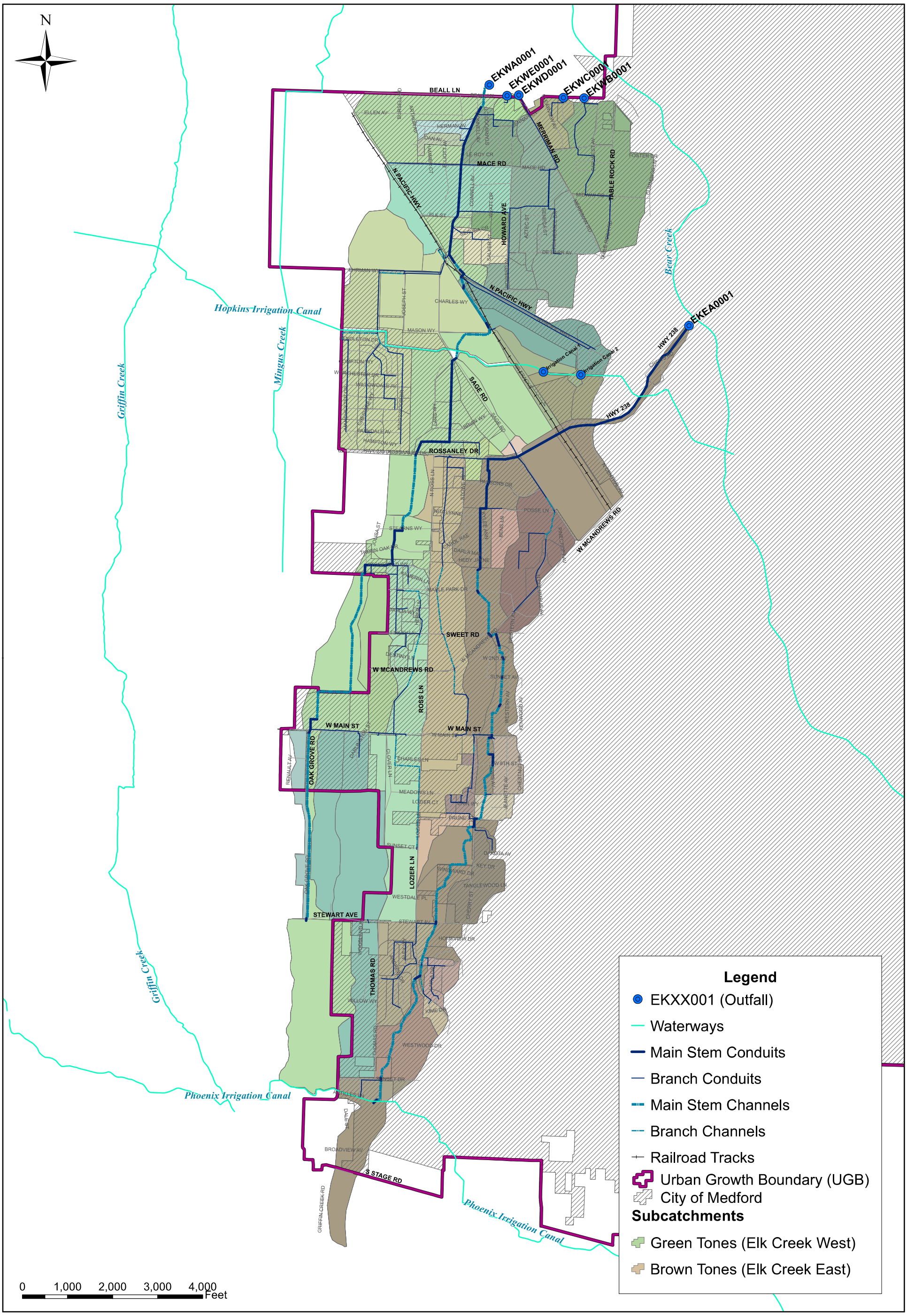
The annual rainfall for Medford is approximately 20 inches, with most falling between October and May. However, short-duration intense summertime storms contribute to the annual rainfall as well. The actual rainfall depths used for modeling are discussed in Section 3, along with how the depths were distributed for modeling purposes. Although “rain on snow” events do occur within the Medford area these events are infrequent and the accumulation of snow is generally low enough to not cause a great increase in the total volume of runoff during an event. Therefore, snow was not considered in the modeling of this basin.

2.3 Riparian Conditions and Wetlands

The riparian condition and wetlands along Elk Creek were assessed by Wetlands Consulting in 2002 and summarized in the 2005 SWMP:

> Elk Creek and a remnant of an unnamed tributary are located within this basin. All reaches are perennial due to irrigation return flow. All of the streams and riparian areas in the basin have been extensively modified by human activity, including placement of long stream segments in underground pipes, stream channelization, removal of woody vegetation, residential development, commercial and industrial development, haying, grazing and mowing for fire control (Wetlands Consulting, 2002a).

Table 2-1 summarizes inventoried riparian conditions in the basin as reported on Table 2-11 and shown in Figure 2-7 of the 2005 SWMP. Locations referenced in the 2005 SWMP have been modified to reference conveyance system nomenclature adopted for this basin plan in Table 2-1. Figure 2-2 supplements the 2005 SWMP by illustrating the City’s most recent wetlands GIS data, the National Wetlands Inventory, and publicly owned lands.



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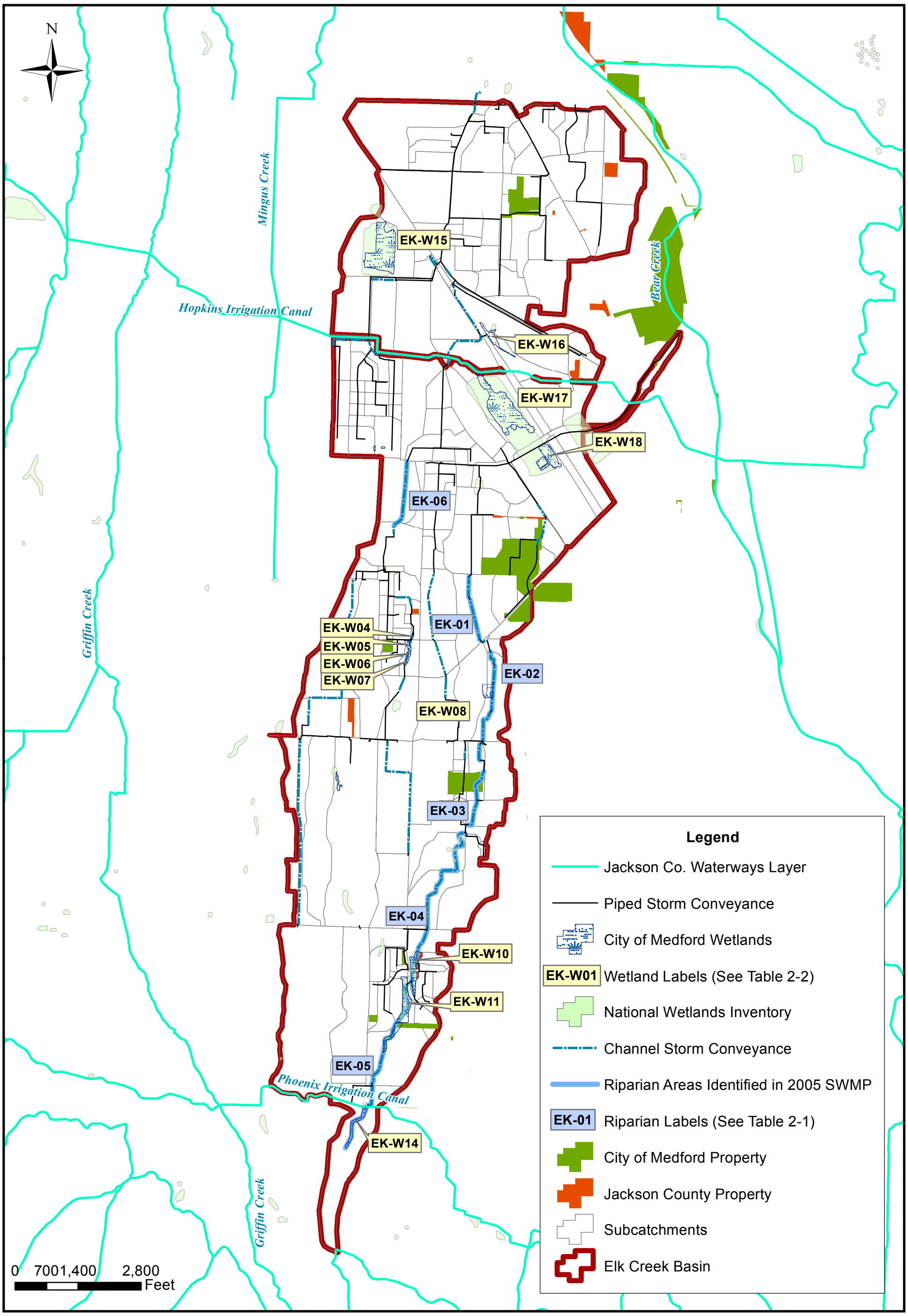
CITY OF MEDFORD
ELK CREEK BASIN PLAN

ELK CREEK BASIN
FIGURE 2-1



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CITY OF MEDFORD
ELK CREEK BASIN PLAN

WETLANDS AND PUBLIC LANDS

FIGURE 2-2

Table 2-1. Elk Creek Riparian Conditions Summary			
Location	Location (2005 SWMP)	Condition	Restoration needs/recommendations
At Phoenix Canal, south of Sunset Dr. EKEA13002 to EKEA12001	EK-05 at Hopkins Canal	The creek flows through a culvert under the canal.	
EKEA12001_EKEA12000	EK-05 at Arlington	DSL wetlands, dry (EK-W10, EK-W11).	
EKEA9001_EKEA9000	EK-05 at Stewart	It appears that there is a berm causing standing water upstream of the culvert.	
EKEA8005_EKEA8004	EK-04 at Stewart	Cars are parked at stream bank with no water quality treatment. Slow moving to stagnant flow. Little vegetation; some wetlands plants are in the creek.	Work with property owners to provide a buffer between parking lot and the creek
EKEA8003 to EKEA8001	EK-03 at Cherry St.	The stream consists of a grass channel. Stream is impacted by horses entering creek.	Work with property owners to limit horses from entering creek
Lewis Park EKEA5010 to EKEA5006 Restoration completed	EK-03 at Meadows	The creek is in poor condition with considerable erosion and no vegetation.	Restore this portion of the creek to stabilize the banks and create habitat
EKEA4000_EKEA3014	EK-02 at Jacksonville-Highway	No vegetation exists upstream, downstream a few trees provide limited tree canopy.	Plant more vegetation along creek
EKEA3013_EKEA3012	EK-02 at Locust	Little tree canopy or understory.	Plant more trees and shrubs to provide riparian canopy for habitat
EKEA3012 to EKEA3008	EK-02 at 2nd	DSL wetland (WK-W08) has been enclosed in a concrete retaining wall (assumed that wall is along the delineation boundary).	
EKEA3005 to EKEA3003	EK-01 N. of McAndrews at Western	New bridge associated with new development. No maintenance access road exists along the creek.	
Description does not match Figure 2-7.	EK-01 mobile home park	The creek splits into two systems. One is piped across Sage Rd. to Bear Creek. The other system is piped north and outlets into a ditch along the railroad tracks.	

Table 2-2 summarizes the 2002 inventory of wetlands, reported in Tables 2-12 and 2-13 of the 2005 SWMP. In 2005, 12 wetlands were identified in the Elk Creek basin, totaling 41 acres. Three of the wetlands meet at least one Oregon Department of State Lands (DSL) criterion for locally significant wetlands. Two of the wetlands are excavated ponds (Wetlands Consulting, 2002b). Locations referenced in the 2005 SWMP have been modified to reference conveyance system nomenclature adopted for this basin plan. Figure 2-2 illustrates riparian conditions and wetlands within the basin.

Table 2-2. Elk Creek Wetlands Summary

Location	Location (2005 SWMP)	Area (acres)	Category	Ecological functions as defined by OFWAM	Comments
EKWP11601_EKWP11600	EK-W04–W07	0.9	-	Not applicable	EK-W04 no longer exists; this area is now a residential development.
EKEA3013_EKEA3012	EK-W08	1.6	Locally significant	• Habitat for some species • Intact water quality function	On private property SW of Sunset Ave. and Western Ave.
EKEA12001 to EKEA9001	EK-W10–W11	7.7	Locally significant	• Habitat for some species • Intact water quality function	EK-W10 and W11 are adjacent to Lozier Lane and surrounded by residential development.
EKEA13001_EKEA13000	EK-W14	1.3	Locally significant	• Habitat for some species • Intact water quality function	On private property south of Sunset Ave.
North of EKWL7012_EKWL7011	EK-W15	11.3	Excavated pond	Not applicable	Boise Building Solutions pond, currently in use for industrial activity. North of Ehrman Way.
Upstream of railroad culvert EKWN9002_EKWN9001	EK-W16	1.5	-	Not applicable	On private property.
North of EKEA0018_EKEA0017	EK-W17	12.9	-	Not applicable	On private property, north of Hwy 238 bypass. Currently drains to Hopkins Canal.
South of EKEA0018_EKEA0017	EK-W18	3.8	Excavated pond	Not applicable	On private property. Currently drains to Hwy 238 bypass.

Note: EK-W01–EK-W03 and EK-W12–EK-W13 are not used.

The Lewis Park Civil Improvements is a recent stream and wetland enhancement project on the main stem of Elk Creek East from model junctions EKEA5010 to EKEA5006. The project was completed as a part of the Lewis Park Civil Improvements project. The park is immediately southwest from the intersection of Lewis Avenue and 8th Street. This project area does not yet appear on the national wetlands inventory.

The Hampton Place detention pond is another project that has been completed since the 2002 wetlands delineation. The area around the pond was filled with lush vegetation during an August 2011 site visit, but has not been evaluated by a wetlands specialist for delineation or included in the national wetlands inventory. This pond is just at the north end of the Hampton Place development and discharges under the Hopkins Canal with a storm drain prior to flowing north to the system along Ehrman Way.

2.4 Geology and Soils

Elk Creek soils were formed by deep alluvial deposits and include some of the deepest and well-drained soils in the Medford drainage basins. Coleman loam and Gregory silty clay loam are the predominant soils, with large areas of Agate-Winlo complex and Medford silty clay loam. Well-drained soils with a deep water table constitute approximately 27 percent of the basin. These areas are some of the only well-draining deep soils within the city of Medford, which provide opportunity for infiltration-based water quality facilities.

Table 2-3 shows the Elk Creek basin soil types, their associated characteristics, and distribution within the basin according to the Natural Resource Conservation Service (NRCS) soil survey data.

Table 2-3. Elk Creek Basin Soil Characteristics			
NRCS map unit name	NRCS map unit symbol	Hydrologic soil group	Percent coverage in Elk Creek basin
Coleman loam, 0%–7% slope	34B	C	28
Gregory silty clay loam, 0%–3% slope	76A	D	27
Agate-Winlo complex, 0%–5% slope	6B	D	18
Medford silty clay loam, 0%–3% slopes	127A	B	18
Ruch gravelly silt loam, 2%–7% slopes	158B	B	4
Central Point sandy loam, 0%–3% slopes	31A	B	3
Foehlin gravelly loam, 0%–3% slopes	61A	B	2

NRCS Survey Area Date: February 9, 2010.

Soils listed in Table 2-3 are illustrated within the Elk Creek basin in Figure 2-3.

2.5 Zoning and Land Use Planning

Medford's 2010 population was reported by the U.S. Census Bureau to be 74,980. The population within the basin is unknown; however, the basin is largely undeveloped in the upstream reaches and is expected to increase as buildout of the UGB occurs. The basin is bordered by unincorporated Jackson County to the west and south, the city of Central Point to the north, and Medford to the east. Approximately 88 percent of the basin is within the Medford UGB and the remaining 12 percent is in unincorporated Jackson County. Existing land use within the basin varies greatly from north to south, with the northern portion of the basin containing mostly medium-density residential housing and the southern portion in low-density residential and agricultural land. The main industrial corridor follows Pacific Highway. The main commercial corridors are to the north of the industrial corridor along N. Pacific Highway (Highway 99E) and along W. Main Street.

To reflect the existing system land use condition, imperviousness was estimated from 2010 6-inch resolution aerial imagery.

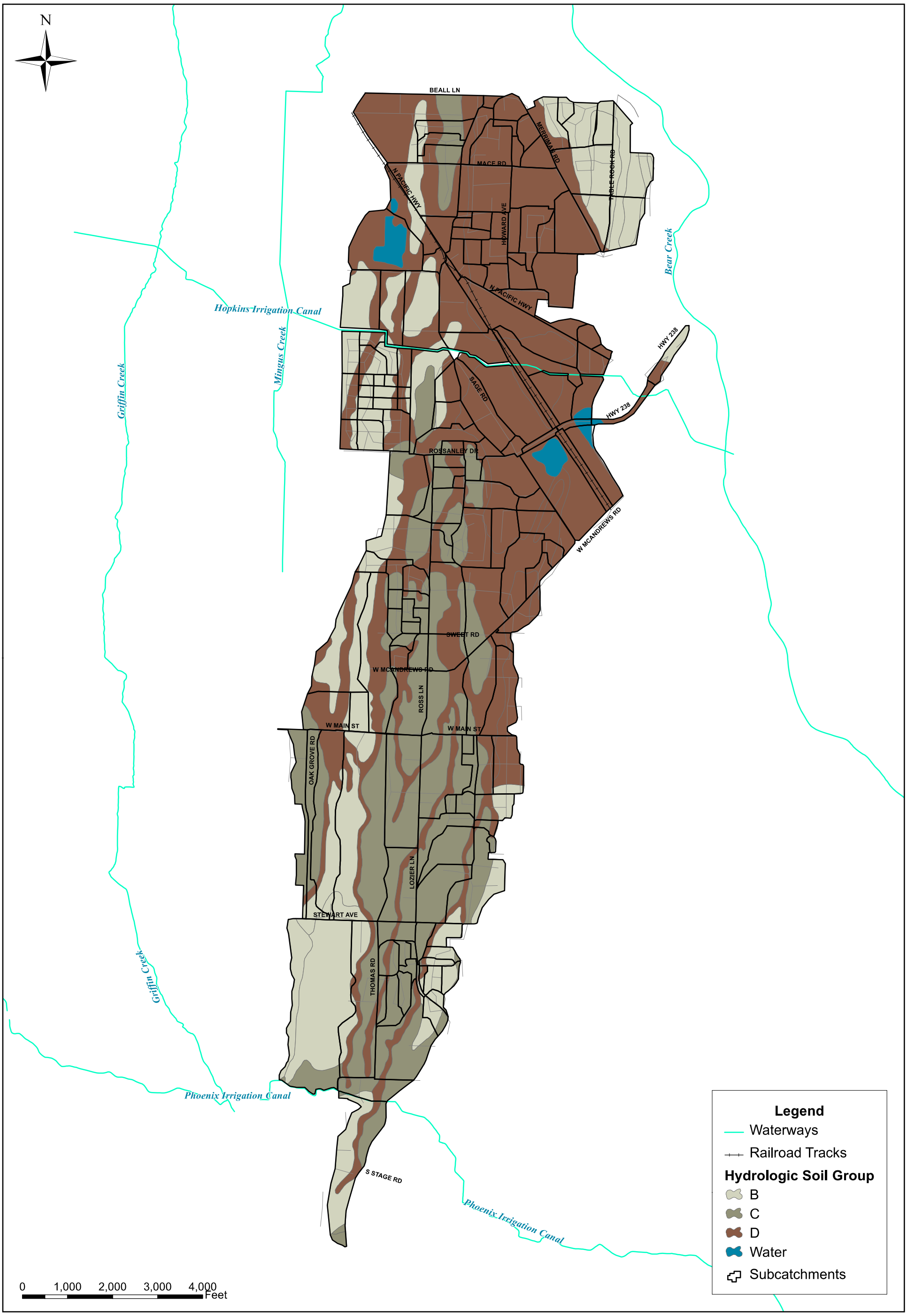
The future land use condition is based upon the City's General Land Use Plan (GLUP) map, which was adopted in 2009. The GLUP provides planned land use categories for areas within the City's UGB. The 12 percent of the basin in unincorporated Jackson County was assumed to be unchanged in the future condition. Table 2-4 provides impervious percentages assigned to each of the GLUP categories.

According to the GLUP, the majority of development will occur in the upper reaches of the basin. However, significant industrial development is also expected in the area south of N. Pacific Highway. This area was previously used for wood mills and currently exists as open fields. Development of these fields into industrial areas, which can have potential for high pollutant loading, presents a good opportunity for water quality measures as development occurs.

Percent changes of impervious cover along with other existing and future land use parameters for each sub-basin are provided in Section 3.1.

Table 2-4. Elk Creek Basin Soil Characteristics		
GLUP classification	Estimated impervious Percentage Per GLUP classification	Percentage of Elk Creek basin per GLUP classificaiton
Urban High Density (UH)	70	6
Urban Medium Density (UM)	55	1
Urban Residential (UR)	50	49
Commercial (CM)	80	12
Service Commercial (SC)	80	1
General Industrial (GI)	60	1
Heavy Industrial (HI)	80	22
Parks and Schools (PS)	40	1
Outside of GLUP (unincorporated Jackson Co.)	Existing	7

Figure 2-4 shows the GLUP land use category distribution within the Elk Creek basin.



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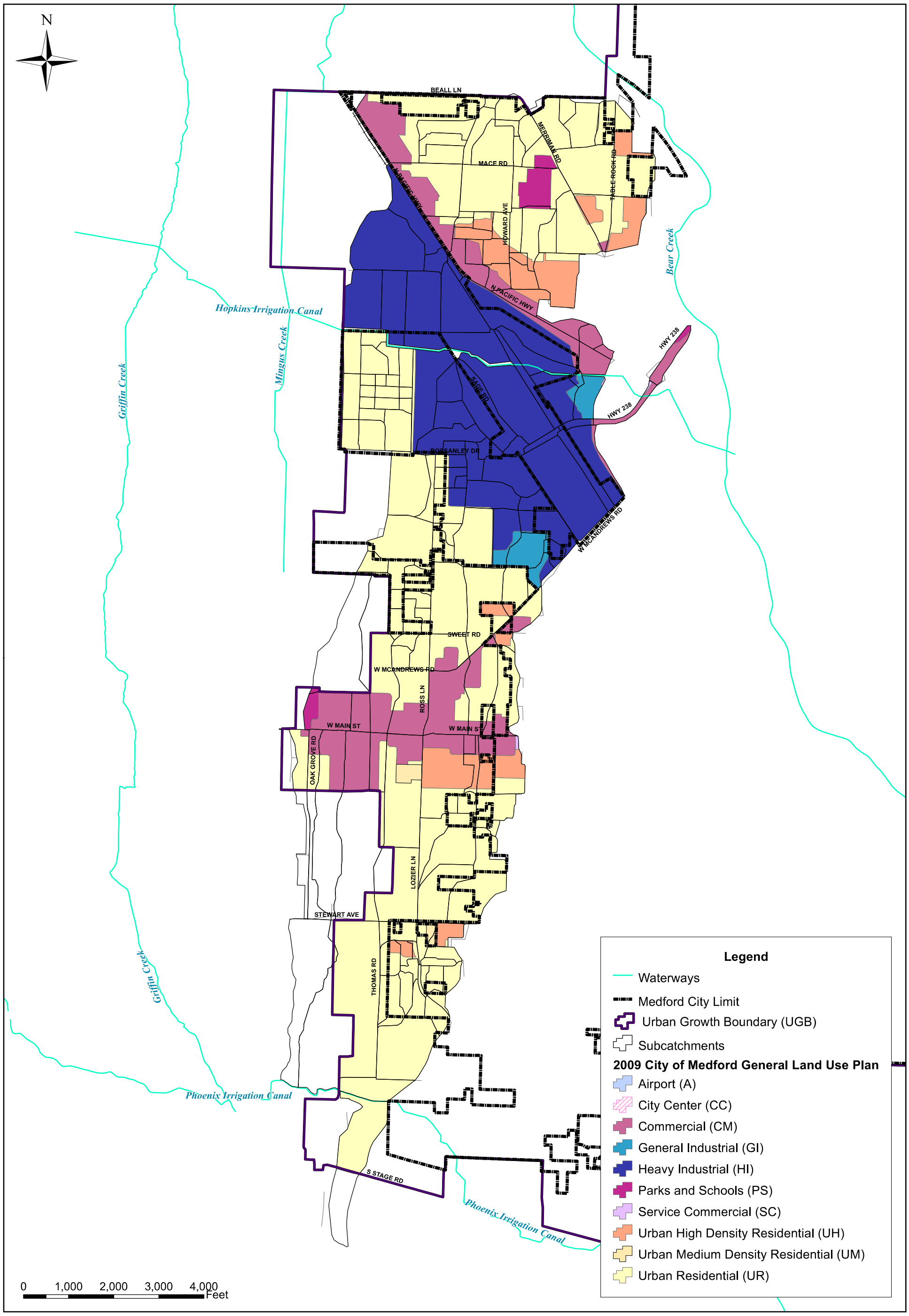
ELK CREEK BASIN PLAN

ELK CREEK SOILS
FIGURE 2-3



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CITY OF MEDFORD
ELK CREEK BASIN PLAN

GENERAL LAND USE PLAN
FIGURE 2-4

Section 3
Basin Evaluation

To identify conveyance limitations and opportunities for capital improvements in the public surface water system, Elk Creek basin hydrology and hydraulic capacity was evaluated for both existing and future land use scenarios. This section provides a description of evaluation methods and results.

3.1 Modeling

The model of the City's surface water system was created using Computational Hydraulics International (CHI)'s PC SWMM 2011 v5.0.21. PC SWMM 2011 provides a graphical interface for the U.S. Environmental Protection Agency (EPA) SWMM5 engine. The PC SWMM interface is integrated with Esri ArcGIS. Files transferred to the City will be in EPA SWMM5 format, which will be used at the City for internal modeling following completion of the basin plan.

The model required precipitation, sub-basin hydrology, and surface water system hydraulics input parameters. Precipitation data were input as rainfall to validate model results and as design storms to evaluate conveyance. Input parameters associated with sub-basin hydrology and surface water system hydraulics were developed through use of the City's GIS data.

3.1.1 Rainfall Data and Design Storms

Rainfall can be simulated in the model by using historical rainfall data or statistical design storms. One storm from rainfall data was used to compare stormwater monitoring data to model results. This storm, which occurred on January 4–5, 2008, is estimated to be near a 2-year recurrence interval storm. A full model calibration was not scoped due to a lack of monitoring data. Peak flow results from the existing system model were graphically compared with monitoring results at three of the City's seven monitoring stations. Four of the stations did not have data available for this storm event. Model results typically had higher and sharper peaks than monitoring results, which was expected because the model does not account for groundwater influence.

Four statistical design storms were used to evaluate surface water system conveyance. Design storms included the 1-hour 10-year and 1-hour 25-year recurrence interval and the 24-hour 10- year and 25-year recurrence intervals. The 24-hour 100-year recurrence interval storm was also evaluated to obtain flows from each sub-basin. The 1-hour storm was developed to simulate a high-intensity, short-duration summertime storm; such storms typically occur in Medford as thunderstorms. The 24-hour storm was developed to simulate lower-intensity, longer-duration winter storms.

The 1-hour storm was developed using values from an intensity-duration-frequency (IDF) curve to determine rainfall depth. This curve, which was utilized in the 1981 and 1996 Medford Drainage Master Plans, is included as Appendix B. The 24-hour storm was developed given rainfall depths distributed over a Soil Conservation Service (SCS) Type IA rainfall distribution in 6-minute increments. Table 3-1 provides rainfall depths used for each modeled storm event.

Table 3-1. Rainfall Depths of Modeled Storms		
Recurrence interval	Season/storm duration	Rainfall depth (inches)
10-year	Summer (1-hour)	0.82
	Winter (24-hour)	3.12
25-year	Summer (1-hour)	1.06
	Winter (24-hour)	3.60
100-year	Winter (24-hour)	4.10

Figures 3-1 and 3-2 illustrate the distribution of rainfall depths for each modeled storm event listed in Table 3-1. Rainfall model files are stored as text files and can be exported to a table for future use.

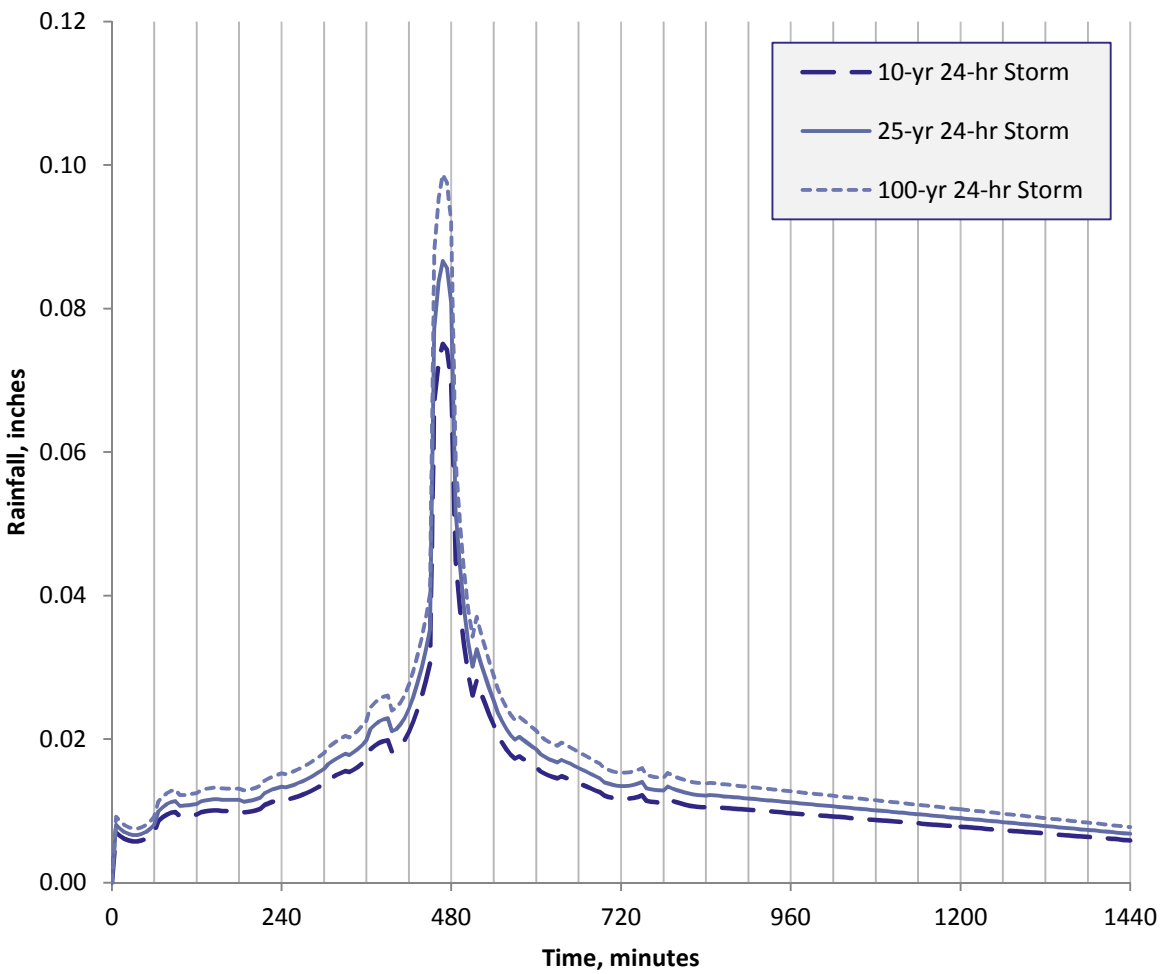


Figure 3-1. 24-hour design storm rainfall distribution

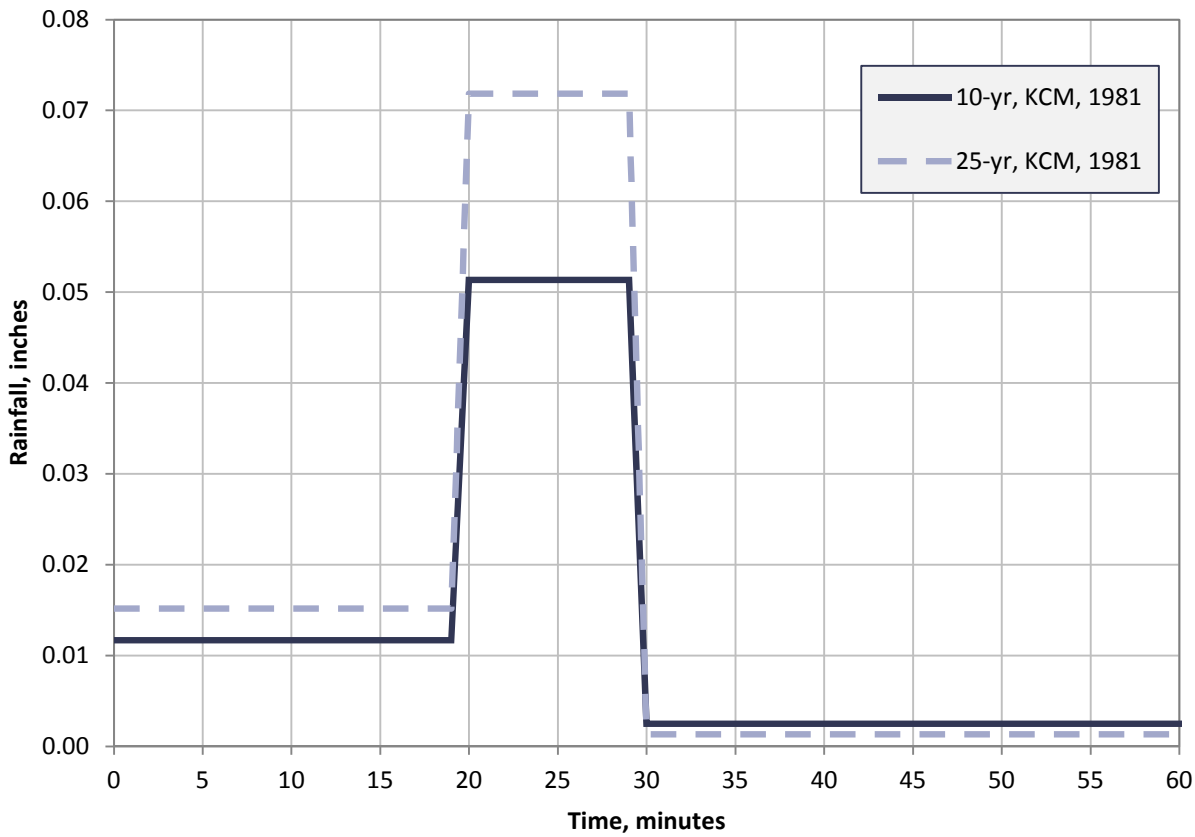


Figure 3-2. 1-hour design storm rainfall distribution

3.1.2 Hydrology

Modeled sub-basins are bounded by the Medford city limits to the north and are divided between the west and east Elk Creek sub-basins as shown on Maps 1 through 13 in Appendix A. Model sub-basins have the model attributes shown in Table 3-2.

Table 3-2. Sub-basin Model Attributes

Attribute	Value
ID	"C" followed by ID of outlet junction.
Rain gauge	Name of rain gauge associated with the sub-basin. Actual rain gauge used is KMFR. Other statistical storms are labeled as gauges: RG10S: 10-year summer storm RG10W: 10-year winter storm RG25S: 25-year summer storm RG25W: 25-year winter storm RG100W: 100-year winter storm
Outlet	Name of node or sub-basin that receives the sub-basin's runoff.
Area	Area of the sub-basin in acres.
Width	Characteristic width of the overland flow path for sheet flow in feet.

Table 3-2. Sub-basin Model Attributes	
Attribute	Value
Length	Average maximum length of overland sheet flow in feet.
Slope	Average percent slope of the sub-basin.
Imperv	Average percent of land area that is directly connected impervious area.
Nimperv	Manning's n for overland flow over the impervious portion of the sub-basin. Default value = 0.015
Nperv	Manning's n for overland flow over the pervious portion of the sub-basin. Default value = 0.030
Dstore-Imperv	Depth of depression storage on the impervious portion of the sub-basin. Default value = 0.07
Dstore-Perv	Depth of depression storage on the pervious portion of the sub-basin. Default value = 0.15
ZeroImperv	Percent of the impervious area with no depression storage. Default value = 25
Routing	Internal routing between pervious and impervious areas. Options include: IMPERV: runoff from pervious area routes to impervious area PERV: runoff from impervious area routes to pervious area OUTLET: runoff from pervious and impervious areas routes to outlet node
PctRouted	Percent runoff routed between sub-basins. Default = 100
Groundwater	NO: groundwater routing is not included YES: implements groundwater routing
CurveNo	SCS curve number calculated as an area weighted average based on imperviousness and soil type within each sub-basin.
DryTime	Time in days for a fully saturated soil to dry completely. Default values are dependent on hydrologic soil group: B: 10 C: 12 D: 14

The curve number method was used to model runoff characteristics. Because each sub-basin contained multiple land uses and soil types, an area weighted curve number was calculated for each sub-basin in the existing and future system scenarios. This method is documented in the EPA Technical Release 55 (TR-55).

Appendix C, Table C-1 provides model parameters and peak flows for each sub-basin and modeled design storm.

3.1.3 Model Hydraulics

System hydraulics are based on GIS data provided by the City on May 19, 2010. Where needed, GIS data were supplemented by site visits, field surveys, contours, as-builts, and aerial imagery. Hydraulic components developed from these data and imported to the model include conduits and junctions. The model was developed with the intent of including all conduits larger than 12 inches as well as many of the 12-inch-diameter conduits that were identified as an important part of the conveyance system. Most modeled 12-inch-diameter pipes are upstream of W. Main Street. A description of hydraulics components is provided in the following sections.

3.1.3.1 Junctions

Model junctions include manholes and other relevant connection points or locations where a conduit change occurs. Model junctions have the attributes as shown in Table 3-3.

Table 3-3. Junction Model Attributes

Attribute	Value			
ID	Basin	Stem	Unique identifier	Sample ID
	EKW (Elk Creek West) EKE (Elk Creek East)	A (main stem) B–Z (tributary)	4-digit number	EKWA1000
Invert elevation	Invert of the junction in feet			
Depth	Depth (ft) = Rim elev - Invert elevation			
Ponded area	Area occupied by ponded water atop the junction after flooding occurs in square feet. Allows ponded water to be stored and subsequently returned to the drainage system when capacity exists.			

Appendix C, Table C-2 provides model parameters and peak flows for each modeled junction and the 10-year, 24-hour design storms. The 1-hour duration design storms were evaluated in the model to determine if the summertime-type storm event would produce higher flows than the 24-hour event with the same recurrence interval. It was found that the 24-hour duration events produced higher flows in all locations within the basin, so these are the values that are reported and used for future system sizing.

3.1.3.2 Conduits

Model conduits include pipes, culverts, and channels. Model conduits have the model attributes as shown in Table 3-4.

Table 3-4. Conduit Model Attributes

Attribute	Value
ID	Upstream Junction ID_Downstream Junction ID
Length	Length between upstream and downstream junctions in feet
Roughness	Manning's roughness coefficient Concrete pipe: 0.013 Corrugated metal pipe: 0.024 HDPE: 0.0125 PVC: 0.0125 Grassy open channel: 0.05
Cross-section	Circular, trapezoidal, or irregular; cross-sections are available for irregular channels
Inlet offset	Height of conduit invert above the junction invert at the inlet in feet
Outlet offset	Height of conduit invert above the junction invert at the outlet in feet
Geom1	Circular: diameter in feet Trapezoidal: max depth in feet Irregular: used for channels with specific transects
Geom2	Trapezoidal: bottom width in feet
Geom3	Trapezoidal: left slope (horizontal/vertical)
Geom4	Trapezoidal: right slope (horizontal/vertical)
Barrels	1 for single pipe, 2 or more for parallel pipes

Appendix C, Table C-2 provides model parameters, peak flows, and calculated hydraulic capacity for each modeled conduit and design storm. Custom transects were developed for irregular channels, which have a non-uniform shape. Transects for irregular channels can be found in the model files.

3.1.3.3 Storage

Storages are point features in the model that represent detention facilities or are provided at the location of a flow split or storage upstream of a culvert. Detention ponds modeled include the Hampton Place detention pond (EKWL7200), Stonefield Way detention pond (EKWP11002), Colinwood Court detention pond (EKEJ8005), and the Shamila Court detention pond (EKEK9300). Storage area curves for each of these facilities are available as model files.

3.1.3.4 Outfalls

The basin includes eight outfalls in the existing system scenario and six outfalls in the future system scenario. All outfalls were modeled as freely discharging. Data on tailwater conditions at each location were not available. Table 3-6 provides a description of each modeled outfall.

Table 3-6. Outfalls

Name	Description
EKWA0001	Discharges to Bear Creek at Beall Lane at the border between the city of Medford and city of Central Point.
EKWB0001	Contributes to the Elk Creek basin north of Beall Lane in Central Point. This is not an actual outfall, but a location indicating the limit of modeling within Medford's system.
EKWC0001	Contributes to the Elk Creek basin north of Beall Lane in Central Point. This is not an actual outfall, but a location indicating the limit of modeling within Medford's system.
EKWD0001	Contributes to the Elk Creek basin north of Beall Lane in Central Point. This is not an actual outfall, but a location indicating the limit of modeling within Medford's system.
EKWE0001	Contributes to the Elk Creek basin north of Beall Lane in Central Point. This is not an actual outfall, but a location indicating the limit of modeling within Medford's system.
EKEA0001	Discharges to Bear Creek near the bridge over Bear Creek on Hwy 238. This node drains Elk Creek East.
Irrigation Canal 1	Used only in the existing system scenario for undeveloped land currently draining to the Hopkins Irrigation Canal.
Irrigation Canal 2	Used only in the existing system scenario for undeveloped land currently draining to the Hopkins Irrigation Canal.

As noted in Table 3-6, outfalls EKEA0001 and EKWA0001 are the primary discharges from Elk Creek East and Elk Creek West, respectively. EKWB0001, EKWC0001, EKWD0001, and EKWE0001 are outfalls in the model due to the scope of the modeling ending at Medford's city limits at Beall Lane. Each of these outfalls drains to Bear Creek within the city of Central Point.

The irrigation canal outfalls were developed in the existing system scenario because the undeveloped area south of the Hopkins Canal currently drains into the canal. When sub-basins CEKWN9002b and CEKWN9002c are developed in the future it is recommended that the basins that can drain by gravity to the Highway 238 bypass take advantage of that system's available capacity and that the remainder of the drainage enter Elk Creek West near junction EKWA9002. Elk Creek West is capacity-limited downstream of EKWA9000 in the future system scenario during a 25-year event and exhibits some flooding.

3.2 Flooding

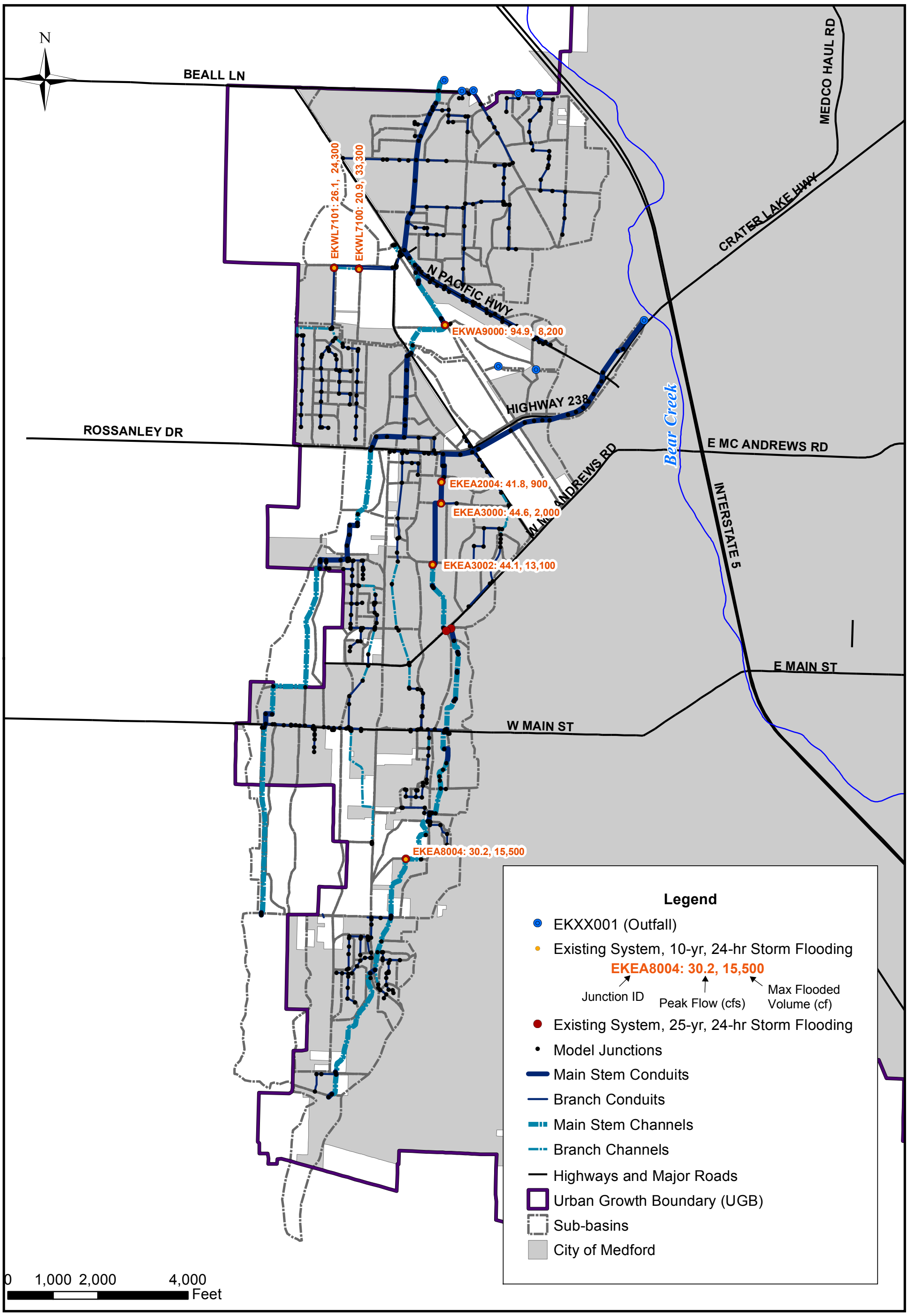
For the modeling effort in this study flooding was defined as flow higher than the banks of a channel for a creek section, runoff flowing over a roadway for a culvert, and for a closed pipe system when the predicted water level exceeds the elevation of the rim of a manhole or catch basin. The 25-year, 24-hour design storm was used to identify areas of flooding where the peak flow rate for this storm is 200-cfs or greater. For other areas the runoff from the 10-year, 24-hour storm was used to determine flooding and design future projects.

The existing conditions hydrologic model indicated that predicted flooding was occurring within the system. Areas where flooding was predicted for the existing system scenario (or existing land use) are shown in Figure 3-3. Figure 3-4 represents the flooding that would occur in the future built out land use condition with the existing storm sewer system. Therefore no storm system improvements are included in Figures 3-3 and 3-4.

Following the modeling of the existing hydrologic conditions, the future land use condition was modeled to determine how future development will impact the storm system. Figure 3-4 identifies areas of flooding during the future scenario 10-year, and 25-year 24-hour design storms. Figure 3-4 shows area of flooding and provides the peak flow rate and maximum volume of ponding outside of the system for the design storm. For most systems the flow would not exit the manhole but would find the lowest point in the system which is usually a catch basin and the flooding would be observed at that location. This model did not include catch basin or lateral pipes.

3.3 Water Quality

A water quality model was not in the scope of this study and no quantitative evaluation of the stormwater runoff was included. Stormwater quality is being incorporated into this study and the recommended capital improvement projects in two ways. First, attempts will be made to incorporate water quality features in all recommended projects in this basin plan. Second, locations already owned by the City where water quality facilities would be of higher benefit were investigated. These are locations where the City owns property or wide right-of-way downstream of high pollutant load drainage basins such as high-use roadways, industrial areas, or heavy commercial or high-density residential. These areas have the higher loads of pollutants from runoff.



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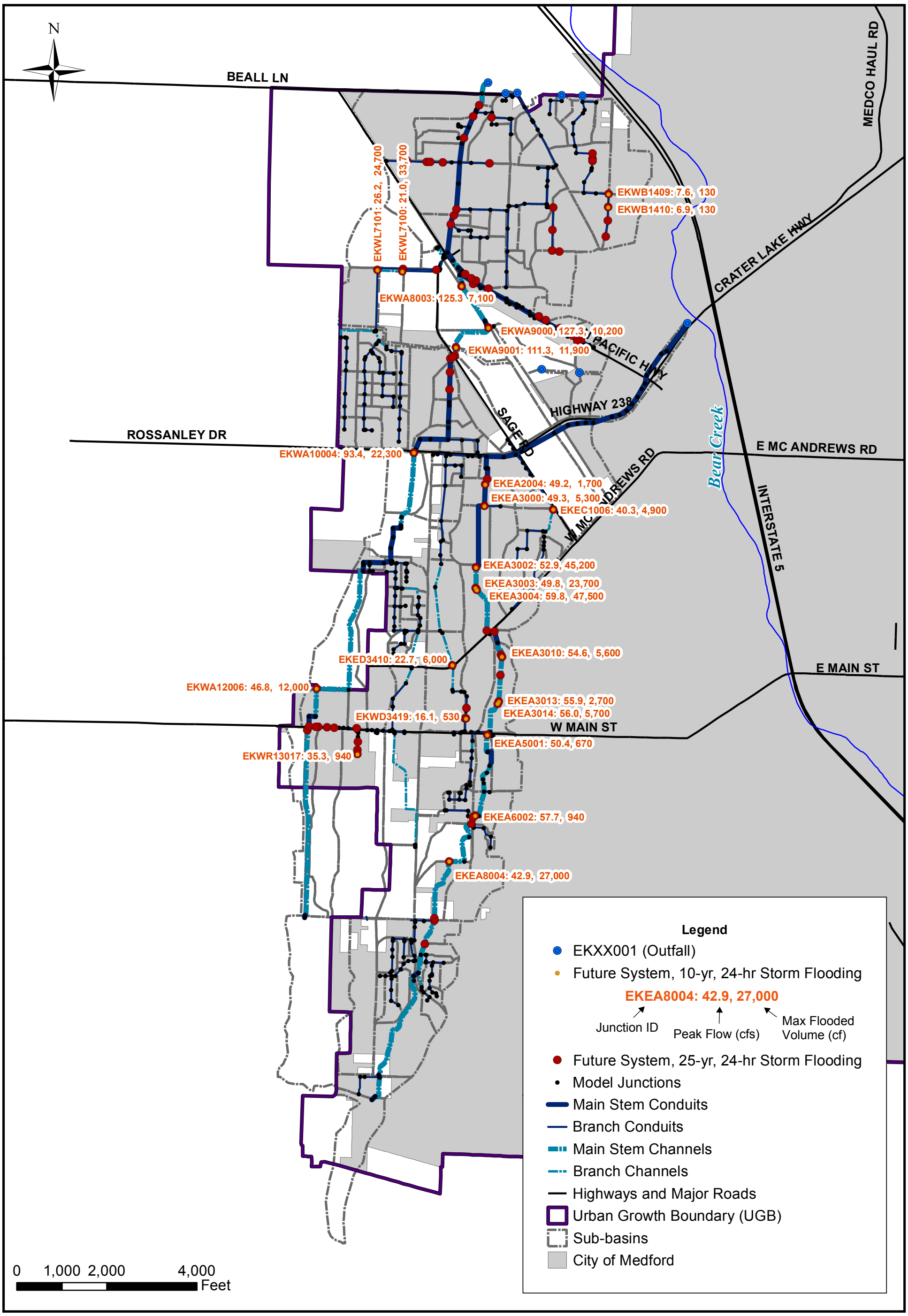
ELK CREEK BASIN PLAN

EXISTING SCENARIO FLOODING
FIGURE 3-3



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CITY OF MEDFORD
ELK CREEK BASIN PLAN
FUTURE DEVELOPMENT
SCENARIO FLOODING
WITHOUT CIPS
FIGURE 3-4

Section 4
Alternatives Evaluation

The following section provides a description of the alternatives evaluation and method for selection of recommended alternatives. The evaluation process utilized modeling information and techniques described in Section 3 of this basin plan along with other evaluation parameters and information developed within Section 4. Initial cost along with long-term operation and maintenance (O&M) cost were the primary methods used to evaluate alternatives.

As a first step in alternatives evaluation, the CIPs from the 1996 Drainage Master Plan and 2005 SWMP were reviewed. Projects recommended in these plans were reevaluated using current model results for both the 24-hour 25-year and 10-year design storms during the future land-use scenario. Additional improvements were also added where the current model shows flooding during the selected design storm. Potential for water quality improvements at each CIP location to address flooding were also considered.

Following identification of areas within the basin needing capital improvement, Brown and Caldwell met with the City to develop a list of projects to meet hydraulic and water quality needs of the system. The alternatives developed in this meeting are presented in Sections 4.1 and 4.2.

Selection of alternatives was based on cost and the hydraulic and water quality effectiveness of the alternative. In many cases flooding occurs within a piped system in a developed area and it was apparent that the preferred alternative should be to address flooding. Preliminary cost estimates of the preferred alternatives were developed and presented in Chapter 5. The cost estimates are based on planning-level unit cost for capital improvement projects and include a 15 percent markup for construction contingencies and site-specific adjustments of alternatives. Also included in the cost estimates is a 35 percent markup for engineering, administration, and construction administration. The markups for contingencies and engineering/administration are line items included in the project cost estimates.

Costs for land purchases are not included unless itemized in the alternative cost estimate.

4.1 Alternatives to Address Hydraulic Capacity

The following briefly describes areas of flooding within the basin and the alternatives evaluated to alleviate flooding. For many of the problem areas, a preferred alternative was easily identified without the evaluation of many alternatives.

4.1.1 Ehrman Way

Ehrman Way is identified by the modeling effort, the 2005 SWMP, and City staff as an area with repeated flooding. In the evaluation of the area it was recognized that the flooding is caused by two issues. First, the parallel piped systems along each side of Ehrman Way are undersized and require additional capacity. The second issue is the 24-inch-diameter culvert below the railroad tracks north of the intersection of Sage Road and N. Pacific Highway is undersized. There is currently detention at Hampton Place prior to discharging to the Ehrman Way system and there was no additional area upstream of Ehrman Way to provide meaningful detention. Creating a bypass of the existing 24-inch-diameter culvert directly to EKWL7001 and upsizing one of the parallel pipes along Ehrman Way was identified as the preferred alternative.

4.1.2 Rossanley Bypass

Several small areas along the main stem of Elk Creek downstream of Rossanley Drive were identified as under-capacity in both the current modeling effort and the 2005 SWMP. Not all the areas were confirmed from reported observations from City staff. These were identified as Elk Misc. Drainage Improvements project in the 2005 SWMP. It was shown in the 2011 modeling for this study that much of the flooding along the main stem of Elk Creek West, downstream of Rossanley (Highway 238) is reduced or eliminated if a high flow diversion is created to divert flows to the 72-inch Highway 238 diversion. The 2011 modeling indicates that additional capacity is availed in this system. This project is identified as the Rossanley Bypass project.

4.1.3 Disk Drive

The existing system from EKEA3014 to EKEA2004 floods in the 24-hour, 10-year storm event. A 48-inch diameter pipe at a constant slope of 0.74 percent is recommended to replace the existing 30-inch pipe. The 48-inch is sized to convey the 24-hour 25-year peak flow event.

4.1.4 Table Rock Road

The storm system from EKWB1412 to EKWB1401 is currently undersized and shows floods along Table Rock Road, Midway Road, and to just north of the intersection of Farwest and Mace Roads. Table Rock Road is slated for future improvements and storm drain improvements are planned in association with this project. When installed, the storm system is planned to flow north along Table Rock Road prior to discharging to a channel along Interstate 5 (I-5), which drains to Bear Creek. Currently sub-basin CEKWB1412 drains to the system along Table Rock Road from EKWB1214 to EKWB1409. CEKWB1412 has a peak runoff of 6.2 cubic feet per second (cfs) in the 10-year 24-hour storm and a peak flow of 7.5 cfs in the 24-year 24-hour storm. The system along Table Rock Road should be sized to accommodate this flow in addition to any area added to this drainage. The area east of Table Rock Road from EKWB1409 to I-5 is delineated by sub-basin CEKWB1310, which has a peak runoff of 7.4 cfs in the 10-year 24-hour storm and a peak flow of 9.6 cfs in the 24-year 24-hour storm.

4.1.5 Posse Lane

The existing 24-inch culvert under Posse Lane between junctions EKEC1006 and EKEC1005 is undersized, causing flooding over Posse Lane near the intersection of Posse Lane and Sage Road. Replacing the existing culvert with a larger size was considered, but deemed infeasible due to the low depth of cover at this location. A parallel 24-inch culvert was sized to meet the peak 24-hour 10-year flow.

4.1.6 N. Property Line of Westwind Estates

Flooding was identified along the channel from nodes EKEA8004 to EKEA8003. This channel is currently bordered by an open field and is not included in the CIP for this basin plan. However, when this area develops into residential housing as slated in the GLUP, it should be modified to accommodate

additional flows. Junction EKEA8004 has a future peak flow during the 10-year event of 43 cfs and during the 25-year event of 46 cfs. This is also a site where water quality enhancement could be incorporated into the project.

4.1.7 Other Potential Areas of Flooding

The model developed for Elk Creek has identified three other areas of flooding however no recommendations are being made at this time.

The Elk Creek West Basin F (EKWF) on sheet A-2 shows minor flooding in the model however because the flooding is minor and occurs for less than 30 minutes we are recommending this area being monitored and if flooding is observed that a project be developed in the future.

The model indicates the Highway 99 storm system has flooding however no capital improvements were developed since this is an Oregon Department of Transportation (ODOT) maintained road.

The model also indicates flooding along Main Street in the area just east of Oak Grove Road. No flooding has been observed. We recommend this area be monitored since the sub-basin upstream of Main Street was modeled as one large sub-basin and this can cause larger modeled flows over what would be observed.

4.2 Capital Improvements Program from the 2005 SWMP

Alternatives presented in Section 4.1 reflect the current CIP for the Elk Creek basin and consider the CIP outlined in the 2005 SWMP. The 2005 CIP for Elk Creek Basin along with the cost estimates is presented in Table 4-1.

Table 4-1. CIP from 2005 Stormwater Management Plan

	Phase 1 (Year 1-5)	Phase 2 (Year 6-10)	Phase 3 (Year 11-15)	Phase 4 (Year 16-20)
Elk Creek				
Drainage Projects				
Berrydale Drainage Project	$186,000			
Elk Misc. Drainage Project		$1,231,000		
Howard Drainage Project		$757,400		
Highway 99 Drainage Project				$799,300
Stowe Ave Drainage Project				$3,824,000
Erhman Drainage Project				$626,400
Basin Plan	$75,000			
Water Quality Projects				
Columbus Ave. Extension WQ Facility	$30,000			
Lozier Lane Extension WQ Facility	$15,000			
WQ Facilities with Howard Ave Drainage Project		$300,000		
WQ Facilities with Stowe Ave Drainage Project				$300,000

The following addresses each of the projects and how they are incorporated into any future CIP or why they are not being carried forward in the future CIP.

1. The Berrydale Drainage project is a drainage system that flows directly into Bear Creek and does not enter Elk Creek, and therefore is not part of the Elk Creek basin CIP. This project was not evaluated as part of the Elk Creek basin study and is therefore recommended to stay on the current CIP until evaluated in the future.
2. The Elk Misc. Drainage Improvement project was a large assortment of small projects throughout the basin and have been eliminated or are being replaced by the Disk Drive Improvements and in part by the Rossanley Bypass.
3. Upon closer evaluation, the Howard Avenue Drainage project is no longer required. The need for this project was eliminated as a better understanding of the basin was developed within this study.
4. The Highway 99 Drainage project will not be carried forward as part of the City's CIP. This system is considered part of the Oregon Department of Transportation (ODOT) systems and City funds are not being allocated to upgrade ODOT's system.

5. The Stowe Avenue Drainage project is addressed by the Disk Drive Improvements project and part of the need for this project was addressed within the earlier Highway 238 Drainage Improvement project, which is already constructed. Therefore, this project is being removed from the CIP.
6. The Ehrman Way Drainage project is being carried forward. The details and cost for this project will be updated as part of this study.
7. This basin plan is the first of identified CIPs in the 2005 SWMP. It is the first of a series of basin plans being conducted throughout the city.

4.3 Alternatives to Improve Water Quality

Alternatives for water quality improvements were not quantitatively evaluated as part of this basin plan. Many cities identify water quality projects as added features to existing city projects or projects associated with future development and have had success not identifying exact water quality projects. Funding for these projects can come from a source allocated for water quality improvement within a specific basin with the purpose of adding value to existing projects. The Lewis Park Improvements project is a good example of a city improvement within the basin that has a water quality benefit.

Potential projects for this funding could be water quality treatment vaults within any of the piped system improvements identified. Ongoing maintenance of vaults should be considered prior to implementation. Other potential projects are the protection and improvement of the existing open-channel systems. Some specific riparian improvements, recommended in the 2005 SWMP, are shown in Table 2-1. Protection and improvements could also be triggered with a development within the area. Locations for water quality improvement potential with future development include the industrial area to be developed between Highway 238 and N. Pacific Highway and areas upstream of W. Main Street within the UGB. The City has identified funding for water quality enhancement that is administered on a City wide basis and not per each basin. Therefore no separate water quality funding has been reserved specifically for Elk Creek Basin.

Section 5

Recommended Plan

This section is a summary of the capital improvement projects recommended for the Elk Creek basin. This plan has been developed to address both existing and future stormwater issues within the basin and to coordinate the stormwater program for the basin. This basin plan does not attempt to coordinate this basin plan into the overall citywide stormwater program. This basin plan also does not attempt to modify the citywide stormwater policies, regulations, or programs. These were addressed in the 2005 SWMP, which is reviewed annually as part of the NPDES program annual review and reporting.

5.1 Capital Improvements Program

The following is the recommended CIP for the Elk Creek basin. The projects listed below were identified and developed through reviewing old plans, 2011 basin modeling, and discussing basin conditions and flooding with City staff. From the modeling effort outlined in Section 3 and discussions with City staff, the Elk Creek basin has only limited flooding in discrete locations and does not have significant flooding problems throughout the basin.

The CIP is focused on flooding problems and conveyance. A continued annual budget will be provided to support water quality projects; however, this project was not scoped to provide a quantitative water quality evaluation. The annual budget for water quality will provide funding for added water quality treatment to other CIP projects within the basin, and protection and enhancement of stream projects either as individual projects or in association with development projects. The City budgets $30,000 annually for the water quality improvements within the City.

The recommended CIP project list is shown in Table 5-1. These projects are also shown on Figures 5-1 through 5-6.

Table 5-1. Recommended Capital Improvements Program

Projects	Project cost	Phase priority
Ehrman Way Drainage Improvements[1]	$777,000	High
Rossanley Bypass	$366,000	High
Disk Drive Drainage Improvements	$1,238,000	High
Table Rock Road Drainage Improvements	$702,000	High
Posse Lane Culvert Improvement	$75,000	Low

[1]Complete Rossanley Bypass prior to this project as it increases peak flows in downstream reaches of Elk Creek West.

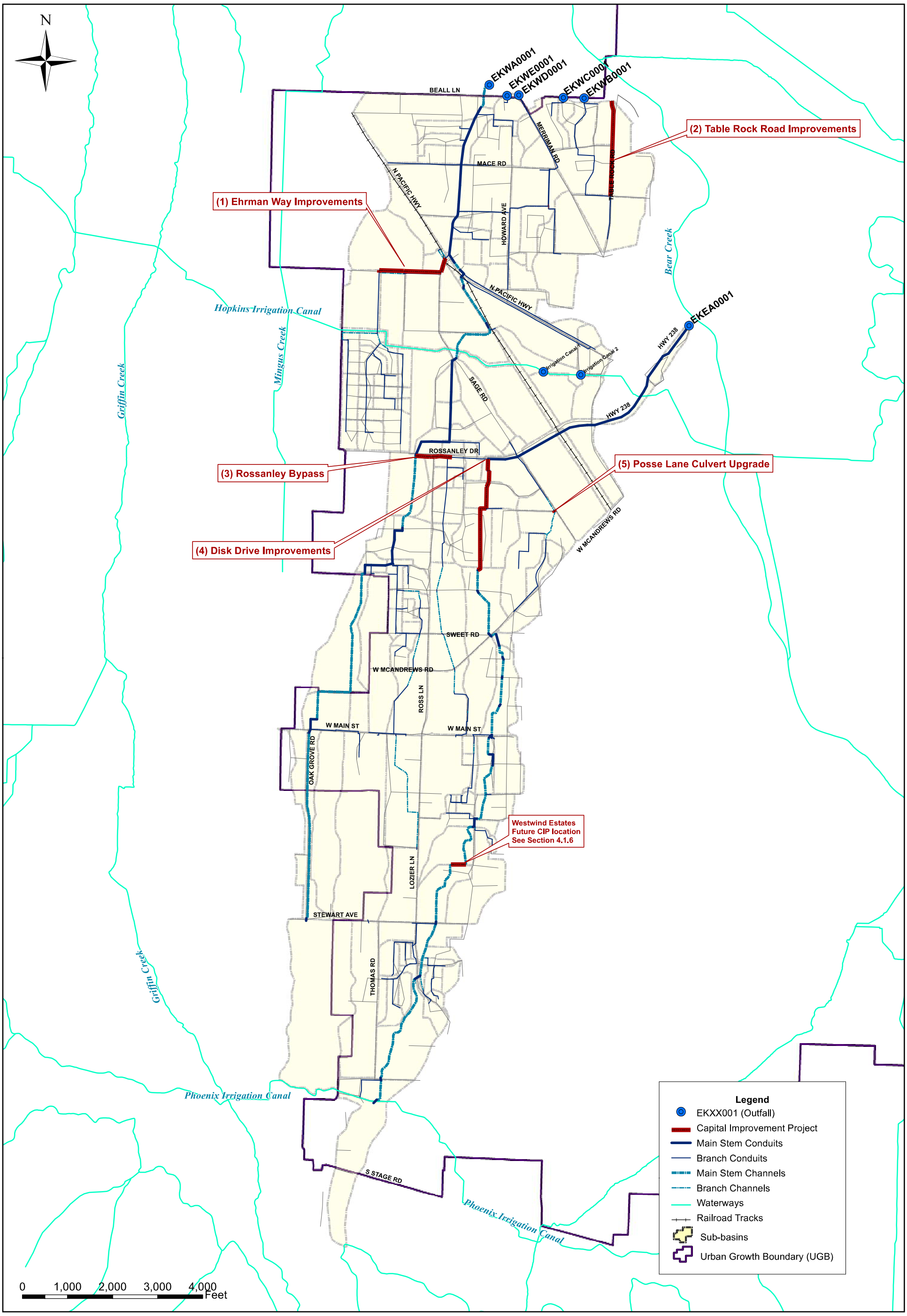
5.2 Phasing

For the purpose of phasing and scheduling of projects, priority rankings were placed on the projects reccommended in this basin plan and identified in Table 5-1. These priorities were either high or low.

High-priority projects include projects that address existing flooding problems or projects where a time-sensitive issue makes it apparent that the project should be completed as soon as funding can be identified for the project. These could include a project that is related in some way to another high priority rank project. An example of a high-priority project to reduce existing flooding is Ehrman Way Drainage Improvements or one that should be implemented prior to other projects, as is the case with the Rossanley Bypass.

Low-priority projects are projects that address future development and should be implemented when development in the basin or at the site is occurring or projects that do not meet the high priority ranking threshold but are identified projects that should be included in the CIP and tracked for when other high-priority projects are completed. Low-priority projects are not set to a schedule and can be implemented as funds become available.

Coordinated projects are projects that show great improvement for the system function but should be coordinated with other planned projects. For the recommended CIP this includes the improvement along Ehrman Way and Table Rock Road.



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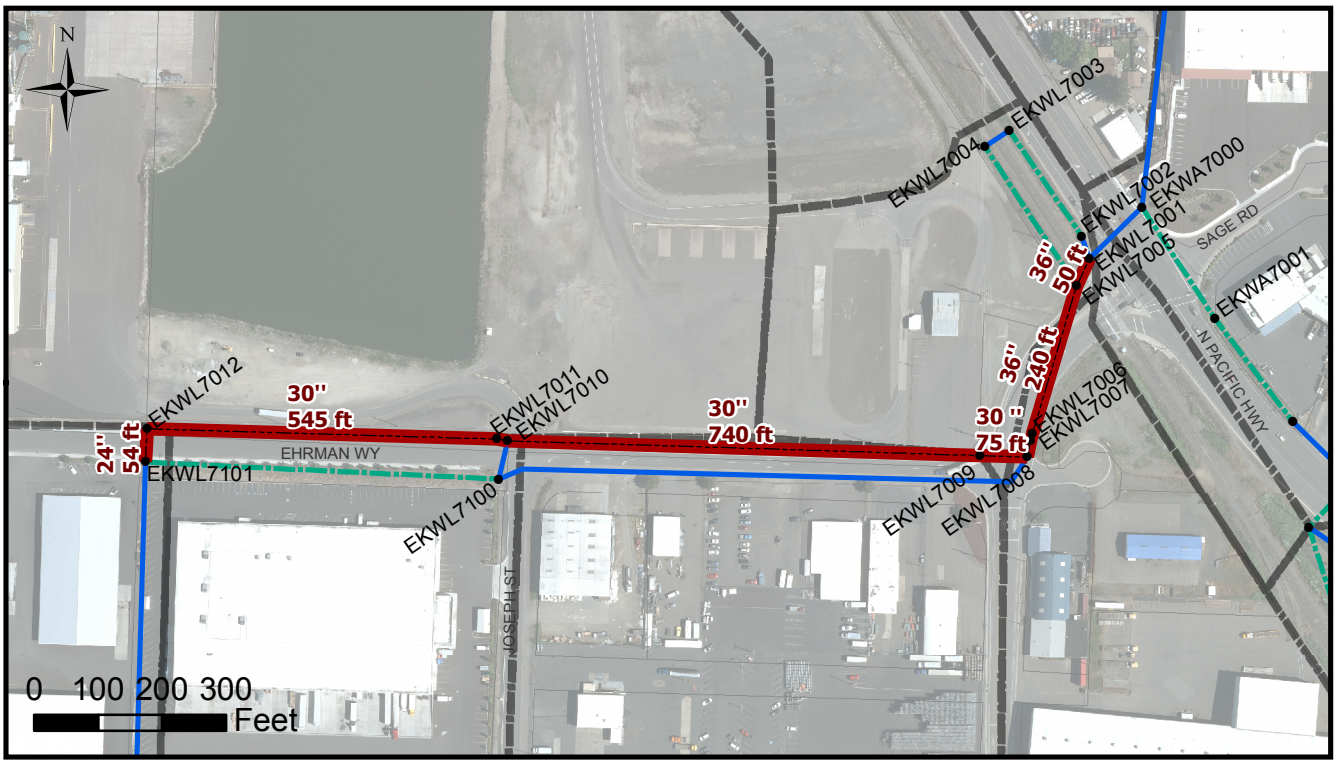
CITY OF MEDFORD
ELK CREEK BASIN PLAN

CAPITAL IMPROVEMENT PLAN
FIGURE 5-1



Project Name: Ehrman Way Improvements **Priority Ranking:** High

Project Description

Statement of Need: The parallel system along Ehrman Way at EKWL7101 to the intersection of Sage Road and N Pacific Highway is under capacity, causing flooding along Ehrman Way during the 10-year storm event.

Proposed Project: Replace existing 18" pipe from EKWL7101 to EKWL7008 and existing 24" pipe from from EKWL7008 to EKWL7005 with 36" pipe. Install 36" high flow bypass under the railroad tracks, from EKWL7005 to EKWL7001.

Project Cost Estimate

Implementation Cost Assumptions:

Item	Quantity	Unit	Unit Cost	Estimated Cost
Mobilization	1	LS	$ 50,000	$ 50,000
24-unch dia. pipe below roadway	54	LF	$ 170	$ 9,180
36-inch dia. pipe with 1 lane and sidewalk restoration	1600	LF	$ 200	$ 320,000
36-inch dia. Below Railroad	60	LF	$ 200	$ 12,000
Coordination and Special RR construction Techniques	1	LS	$ 50,000	$ 50,000
Catch Basins	5	EA	$ 1,500	$ 7,500
Manholes	6	EA	$ 3,000	$ 18,000
Misc. Construction Activity	1	LS	$ 20,000	$ 20,000
Construction Cost Sub Total				**$ 486,680**
Construction Contencies (15%)				$ 73,002
Construction Total				**$ 559,682**
Engineering, Administration, Contingency (35%)				$ 195,889
Total Estimated Project Costs (2011 dollars)				**$ 755,571**

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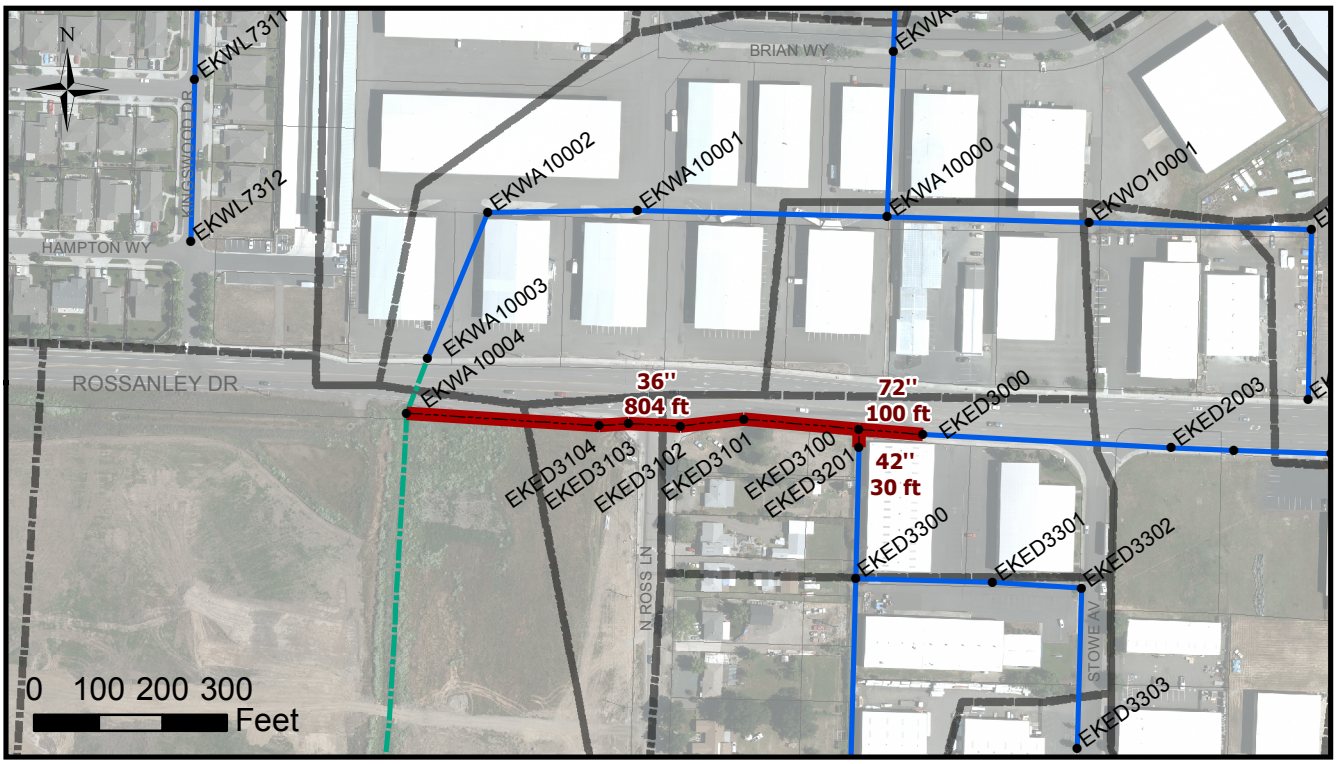
ELK CREEK BASIN PLAN

CAPITAL IMPROVEMENTS PLAN

FIGURE 5-2



Project Name: Rossanley Bypass **Priority Ranking:** High

Project Description

Statement of Need: Implementation of the Ehrman Way CIP and the introduction of flow from sub-basins to be developed south of the Hopkins Canal into Elk Creek West in the future increases downstream peak flows and creates flooding during the 24-hour, 25 year future scenario design storm. This project bypasses flow to the Hwy 238 diversion, which has available capacity.

Proposed Project: Install 704 feet of 36" pipe from EKWA10004 to EKED3000. The new 36" pipe west out of EKWA10004 should be 6" above the manhole invert to bypass high flows. Install 30 feet of 42" to connect into extended bypass. Install 100 feet of 72" to extend bypass and improve existing connection. Complete prior to Ehrman Way Improvements.

Flow Diverted from West Elk Creek to Bypass: 30 cfs

This project also alleviates flooding between EKWA10004 and EKWA10002

Project Cost Estimate

Item	Quantity	Unit	Unit Cost	Estimated Cost
Mobilization	1	LS	$ 23,000	$ 23,000
72-inch dia. pipe with 1 lane and sidewalk restoration	100	LF	$ 400	$ 40,000
36-inch dia. pipe with sidewalk restoration	364	LF	$ 200	$ 72,800
36-inch dia. pipe in grass surface restoration	340	LF	$ 160	$ 54,400
42-inch dia. pipe in grass surface restoration	30	LF	$ 210	$ 6,300
Manholes	4	EA	$ 6,000	$ 24,000
Misc. Construction Activity	1	LS	$ 15,000	$ 15,000
Construction Cost Sub Total				**$ 235,500**
Construction Contencies (15%)				$ 35,325
Construction Total				**$ 270,825**
Engineering, Administration, Contingency (35%)				$ 94,789
Total Estimated Project Costs (2011 dollars)				**$ 365,614**

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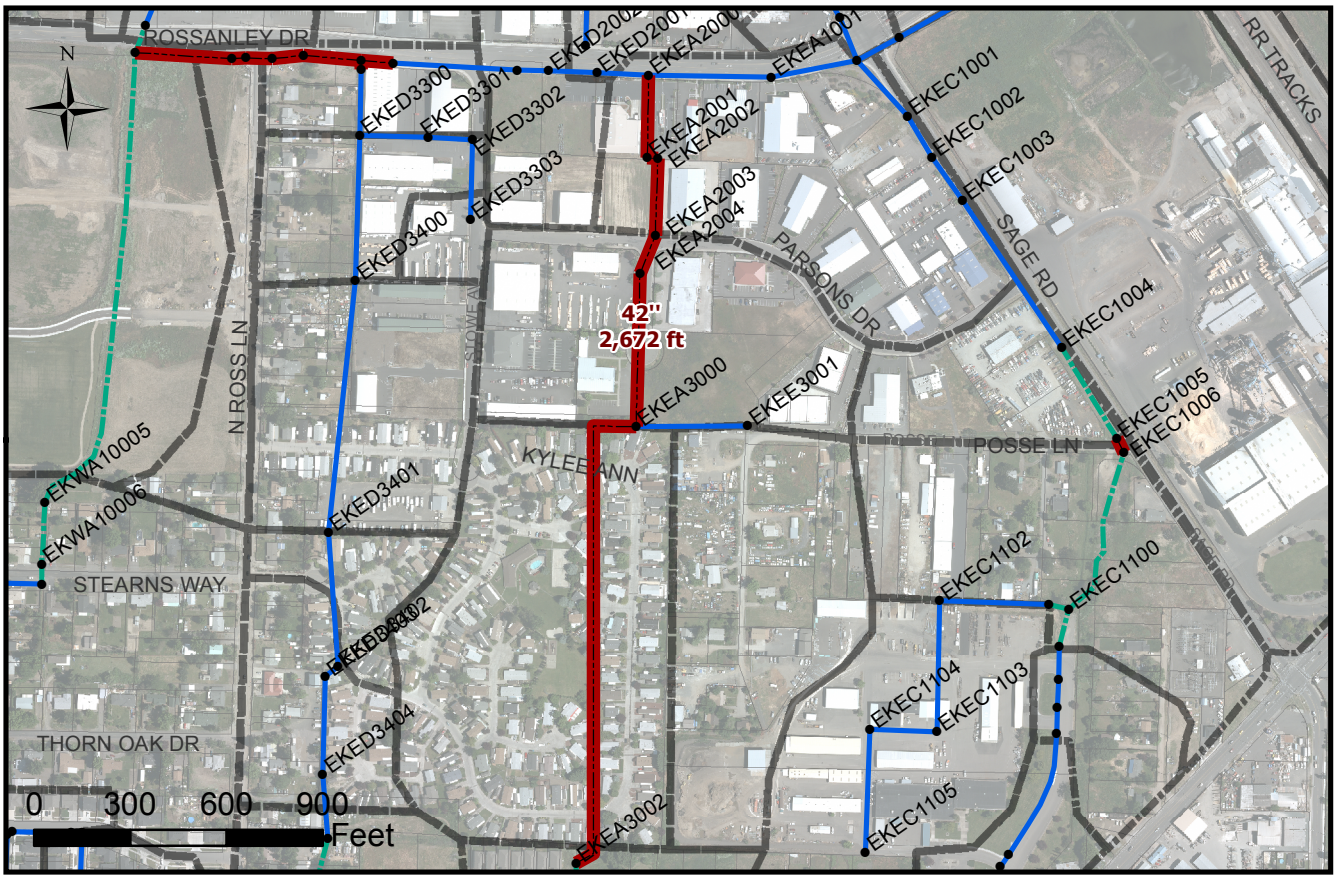
ELK CREEK BASIN PLAN

CAPITAL IMPROVEMENTS PLAN

FIGURE 5-3



Project Name: Disk Drive Improvements **Priority Ranking:** High

Project Description

Statement of Need: The system from EKEA3002 to EKEA2004 floods in the 24-hour 10 year storm event in the existing scenario.

Proposed Project: Replace existing 30 inch with 2,672 feet of 42 inch diameter pipe at a constant slope of 0.74% from EKEA3002 to the Hwy 238 bypass at EKEA2000. Create a constant slope from EKEA3002 to EKEA2000. 10 year future flow in EKEA3002_EKEA3000 is modeled to be 70 cfs with this CIP. Flows from EKEA3000_EKEA2000 range between 81 and 86 cfs.

Project Cost Estimate

Item	Quantity	Unit	Unit Cost	Estimated Cost
Mobilization	1	LS	$ 75,000	$ 75,000
42-inch dia. pipe with pavement restoration (Industrial Way)	420	LF	$ 230	$ 96,600
42-inch dia. pipe with pavement restoration (residential st.)	1532	LF	$ 220	$ 337,040
42-inch dia. pipe with grass surface restoration	720	LF	$ 200	$ 144,000
Manholes	10	EA	$ 6,000	$ 60,000
Catch Basins	20	EA	$ 2,500	$ 50,000
Misc. Construction Activity	1	LS	$ 15,000	$ 15,000
Construction Cost Sub Total				**$ 777,640**
Construction Contencies (15%)				$ 116,646
Construction Total				**$ 894,286**
Engineering, Administration, Contingency (35%)				$ 313,000
Total Estimated Project Costs (2011 dollars)				**$ 1,207,286**

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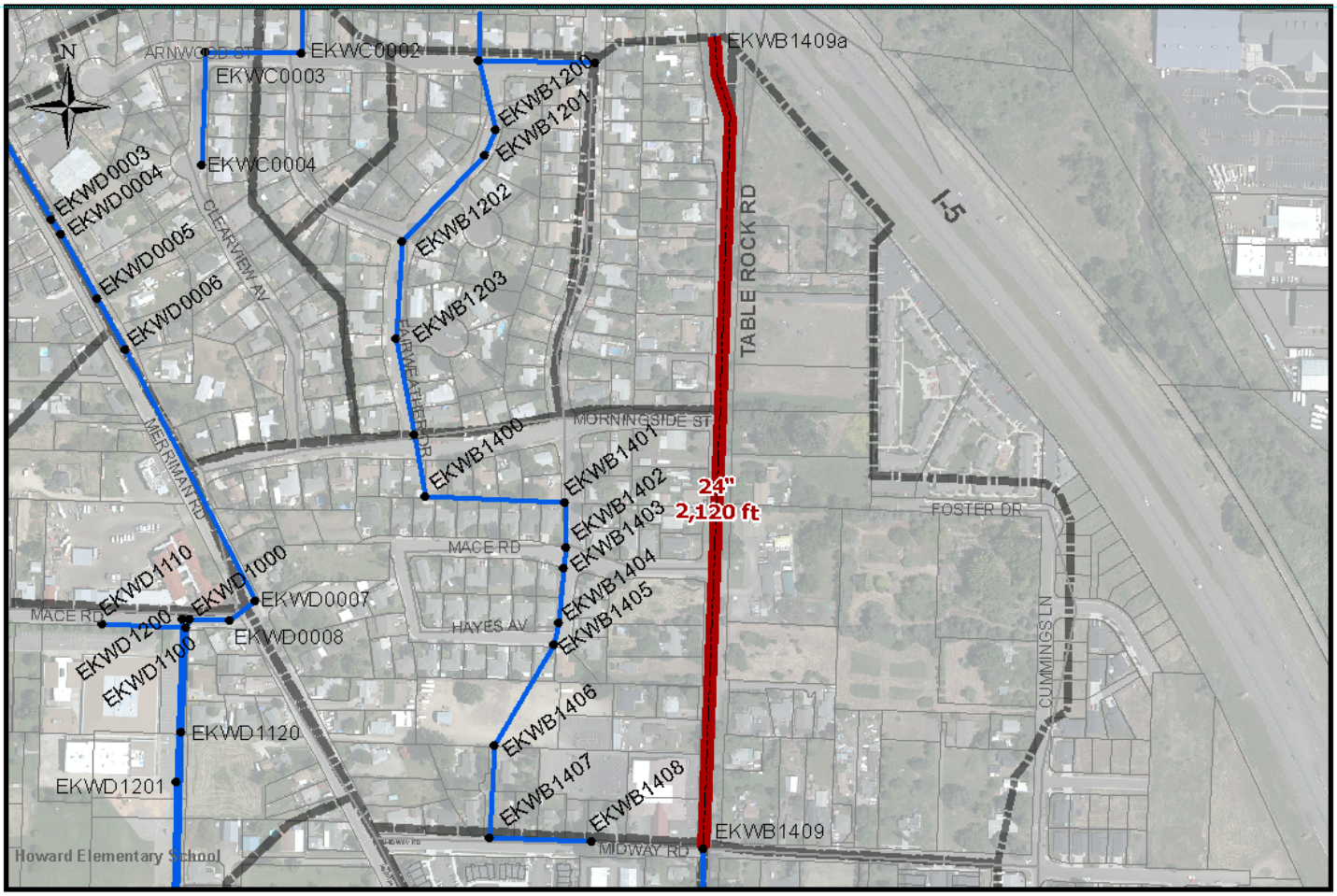
ELK CREEK BASIN PLAN

CAPITAL IMPROVEMENTS PLAN
FIGURE 5-4



Project Name: Table Rock Road Drainage Improvements **Priority Ranking:** High

Project Description

Statement of Need: The storm system from EKWB1412 to EKWB1401 is currently undersized and shows flooding for the 25 year storm along Table Rock Road, Midway Road, and to just north of the intersection of Farwest and Mace Roads. Table Rock Road is slated for future improvements and storm drain improvements are planned in association with this project.

Proposed Project: The system along Table Rock Road is sized to accommodate the 24-hour, 25-year flow. This would be a 24-inch pipe from Midway to I-5.

Project Cost Estimate

Implementation Cost Assumptions:

Item	Quantity	Unit	Unit Cost	Estimated Cost
Mobilization	1	LS	$ 60,000	$ 60,000
24-inch dia. pipe with asphalt	2120	LF	$ 160	$ 339,200
End Connections (or Manholes)	2	EA	$ 4,000	$ 8,000
48-inch Manholes	6	EA	$ 5,000	$ 30,000
Misc. Construction Activity	1	LS	$ 15,000	$ 15,000
Construction Cost Sub Total				**$ 452,200**
Construction Contencies (15%)				$ 67,830
Construction Total				**$ 520,030**
Engineering, Administration, Contingency (35%)				$ 182,011
Total Estimated Project Costs (2011 dollars)				**$ 702,041**

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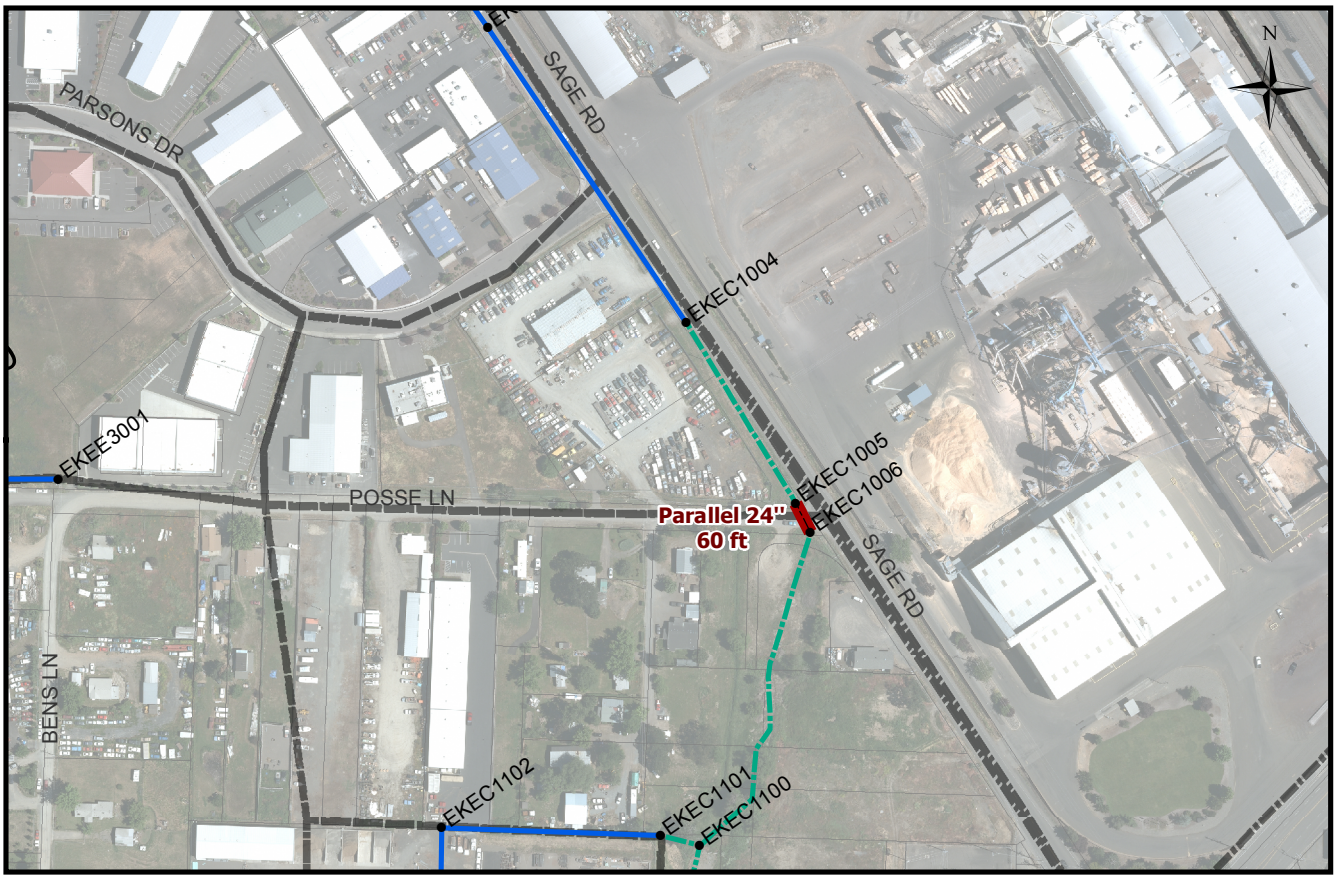
CITY OF MEDFORD

ELK CREEK BASIN PLAN

CAPITAL IMPROVEMENTS PLAN

FIGURE 5-5



Project Name: Posse Lane Culvert Improvement **Priority Ranking:** Low

Project Description

Statement of Need: The existing 24" culvert under Posse Lane between junctions EKEC1006 and EKEC1005 is undersized, causing flooding over the roadway.

Proposed Project: Install parallel 24 inch culvert under Posse Lane, west of Sage Road. Evaluate condition of existing 24 inch culvert and replace if needed. Cost includes installation of one culvert.

Project Cost Estimate

Implementation Cost Assumptions:

Item	Quantity	Unit	Unit Cost	Estimated Cost
Mobilization	1	LS	$ 8,000	$ 8,000
Install a second 24-inch Culvert below Posse Lane	60	LF	$ 250	$ 15,000
End structures	2	EA	$ 5,000	$ 10,000
Misc. Construction Activity	1	LS	$ 15,000	$ 15,000
Construction Cost Sub Total				**$ 48,000**
Construction Contencies (15%)				$ 7,200
Construction Total				**$ 55,200**
Engineering, Administration, Contingency (35%)				$ 19,320
Total Estimated Project Costs (2011 dollars)				**$ 74,520**

Brown AND Caldwell

CITY OF MEDFORD

ELK CREEK BASIN PLAN

CAPITAL IMPROVEMENTS PLAN

FIGURE 5-6

References

Brown and Caldwell, *Comprehensive Medford Area Drainage Master Plan*, Prepared for the City of Medford, Oregon, 1996.

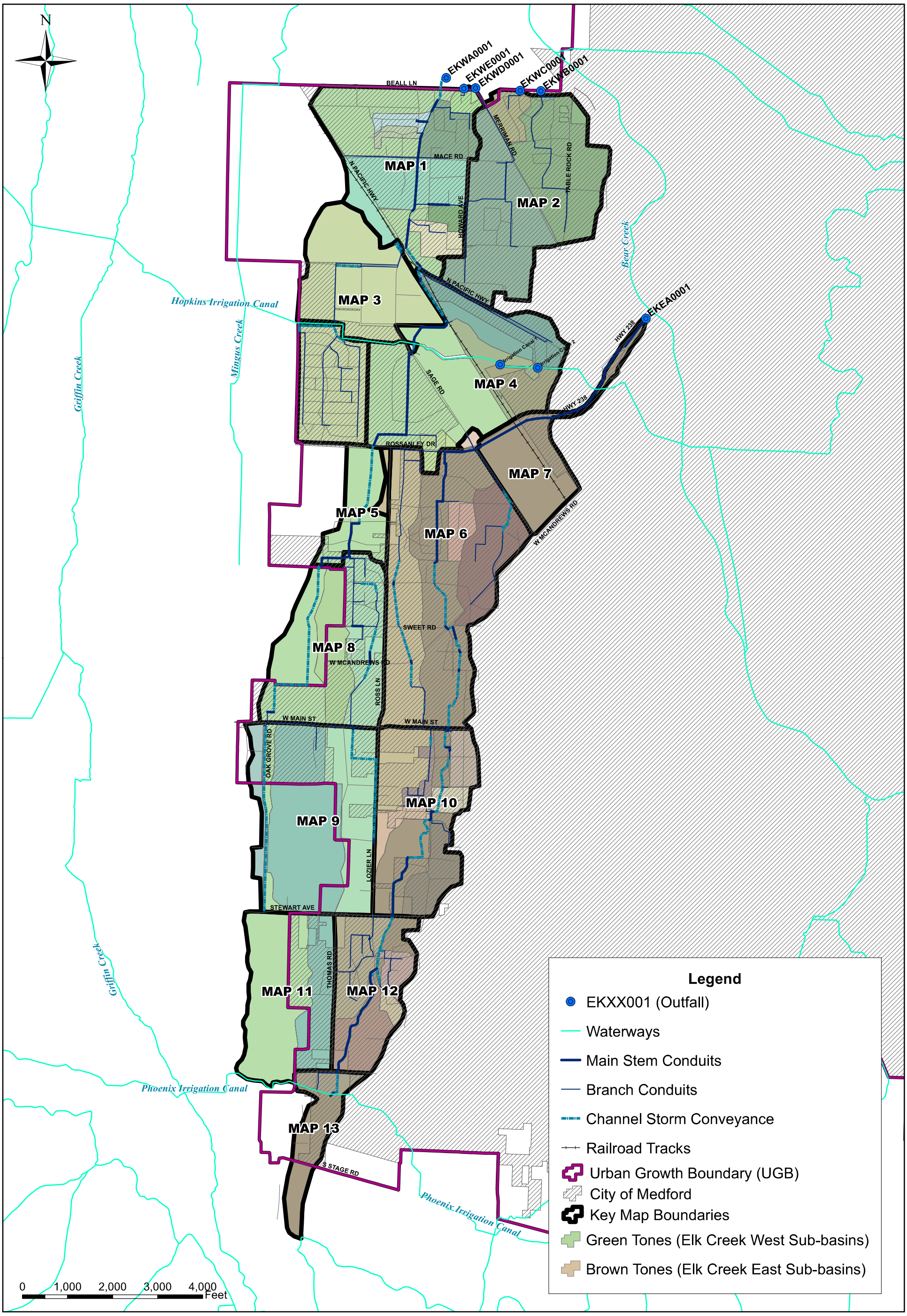
Brown and Caldwell, *Comprehensive Medford Area Drainage Master Plan*, Prepared for the City of Medford, Oregon, 1996.

KCM, *Medford Area Drainage Master Plan*, Prepared for the City of Medford, Oregon, 1981.

Tetra Tech/KCM, *Stormwater Management Plan*, Prepared for the City of Medford, Oregon, 2005.

U.S. Soil Conservation Service, *Jackson County Area, Oregon, Parts of Jackson and Klamath Counties*. February 2010.

Appendix A: Basin Maps



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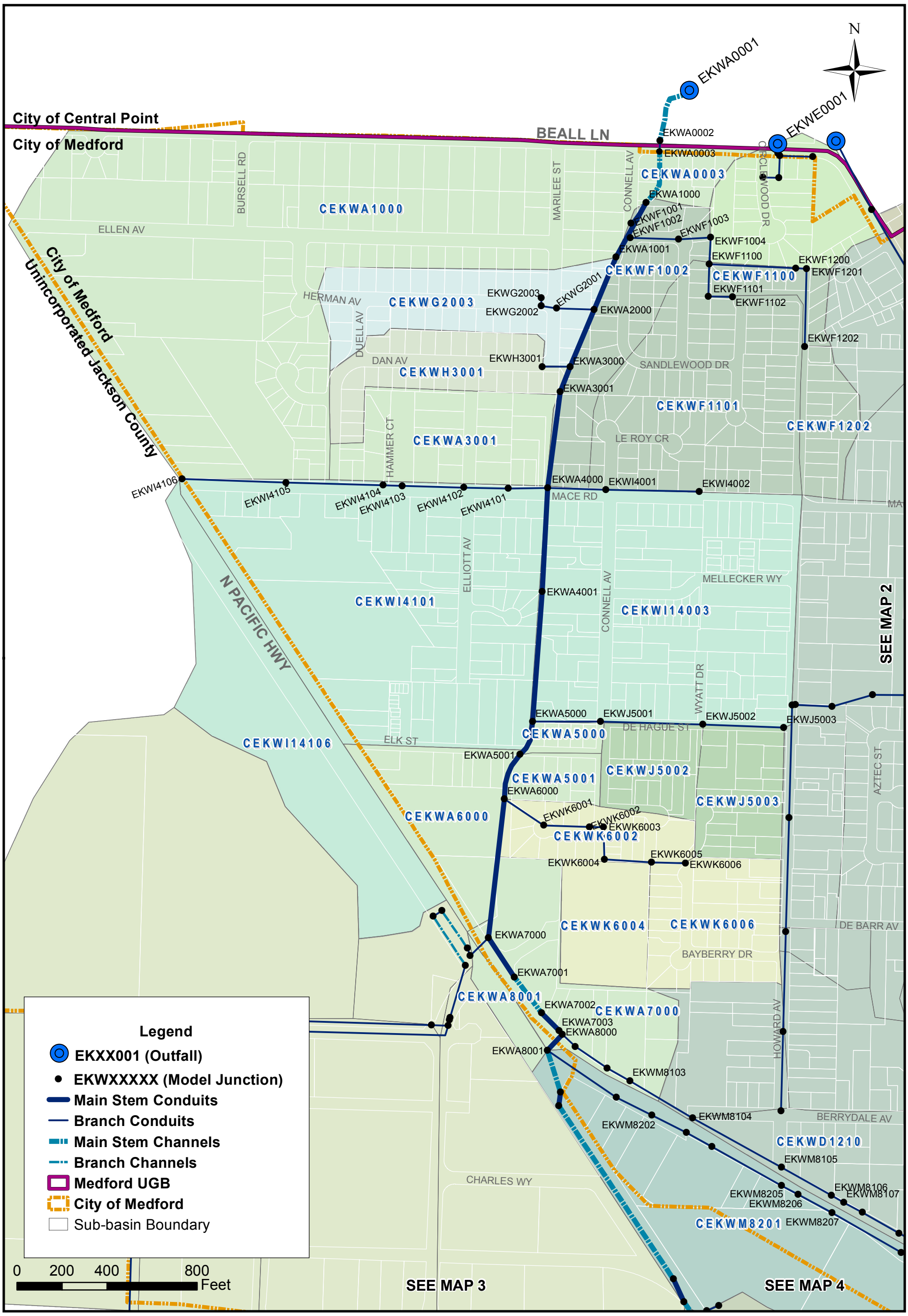
CITY OF MEDFORD
ELK CREEK BASIN PLAN

APPENDIX A
SYSTEM KEY MAP



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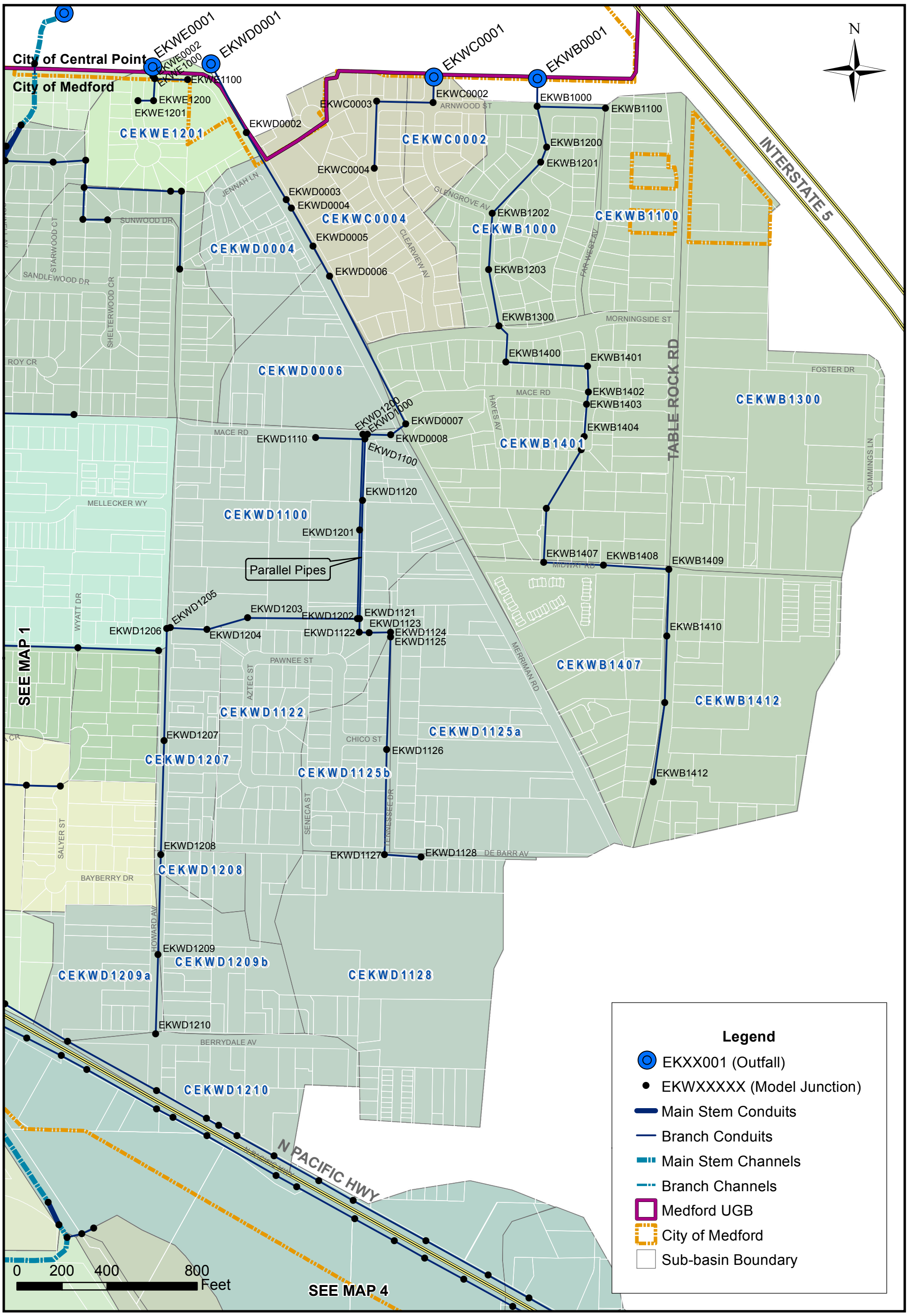
ELK CREEK BASIN PLAN

APPENDIX A
EXISTING SYSTEM MAP 1



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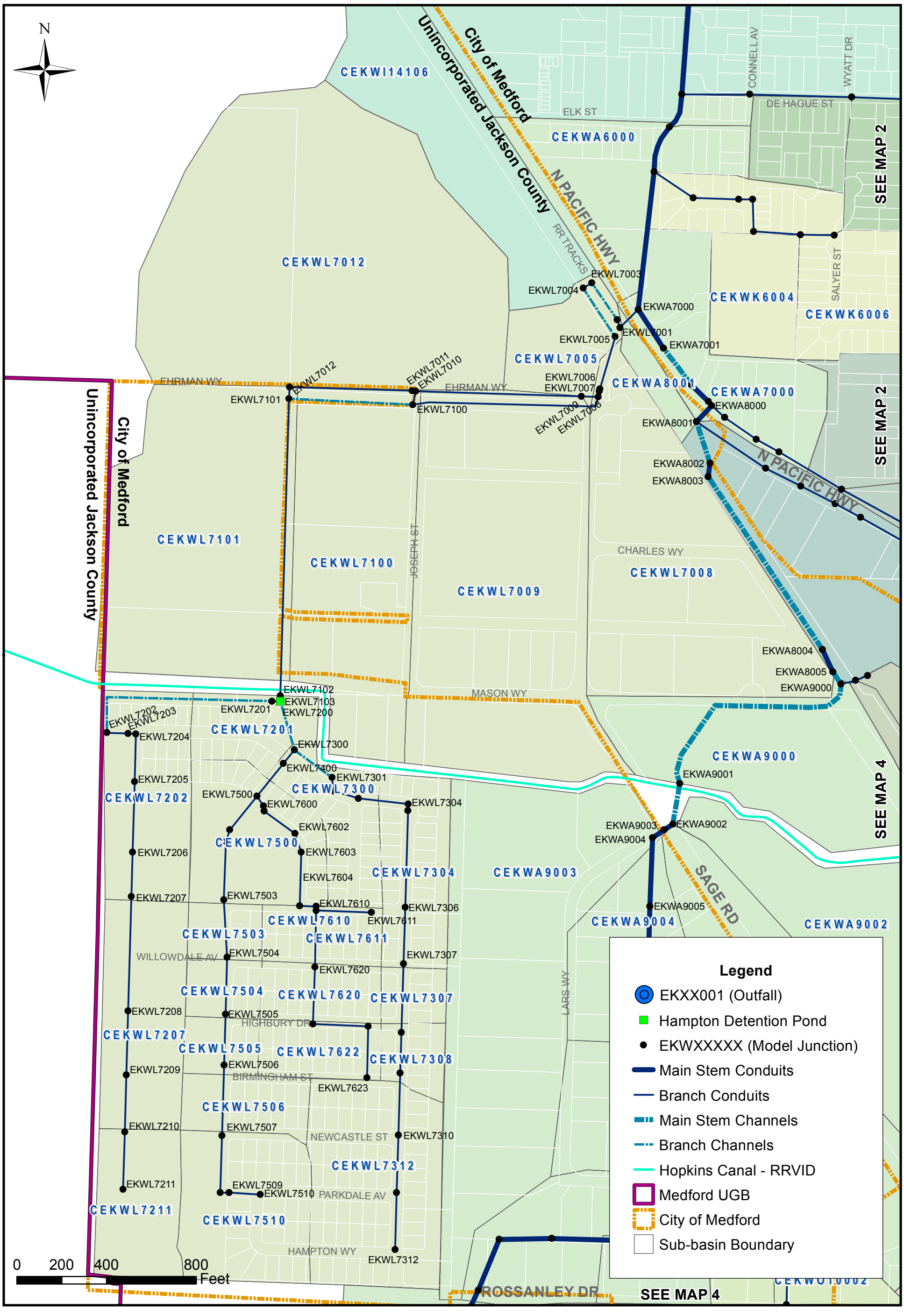
ELK CREEK BASIN PLAN

APPENDIX A
EXISTING SYSTEM MAP 2



CITY OF MEDFORD
ELK CREEK BASIN PLAN

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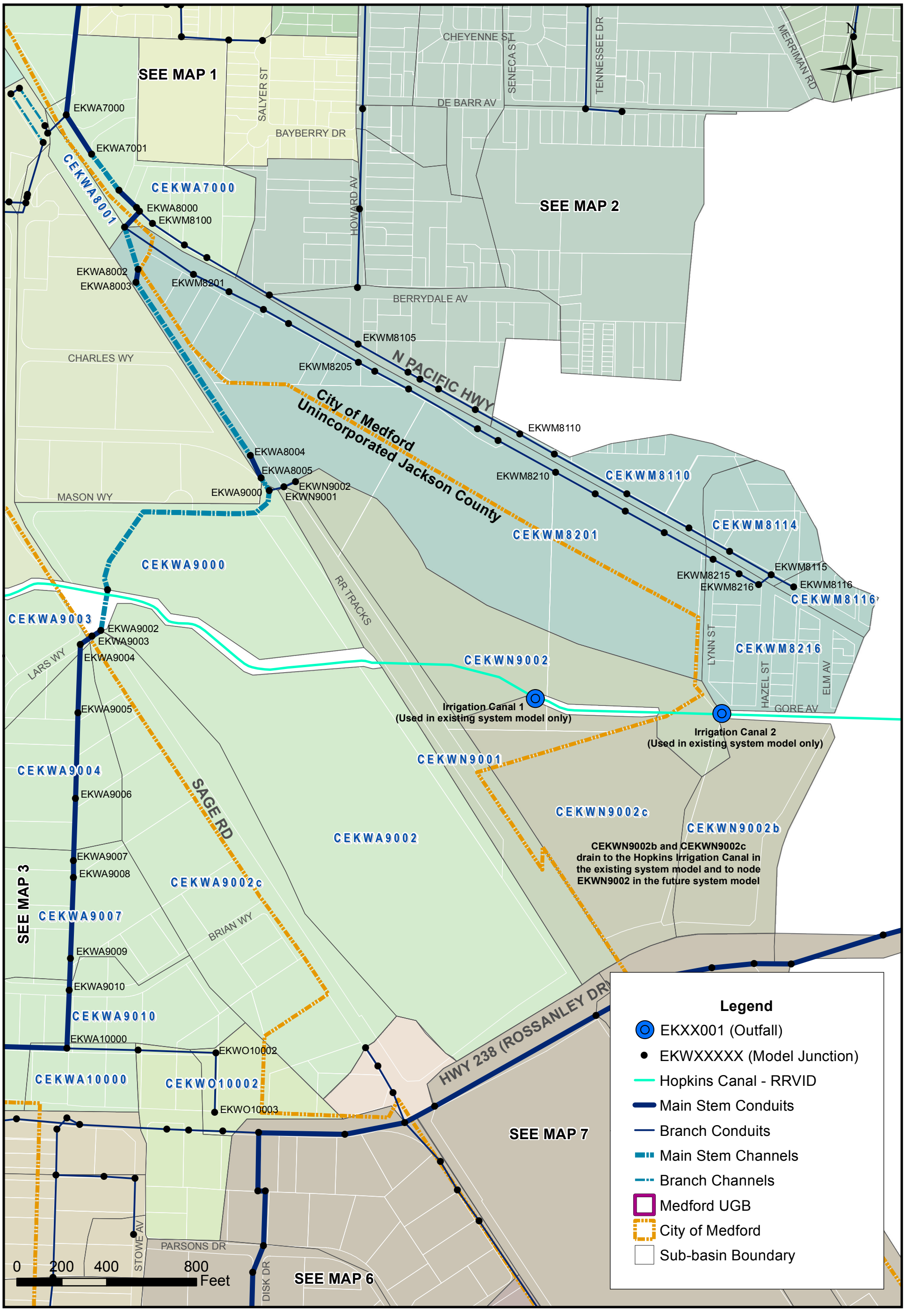
APPENDIX A
EXISTING SYSTEM MAP 3



CITY OF MEDFORD
ELK CREEK BASIN PLAN

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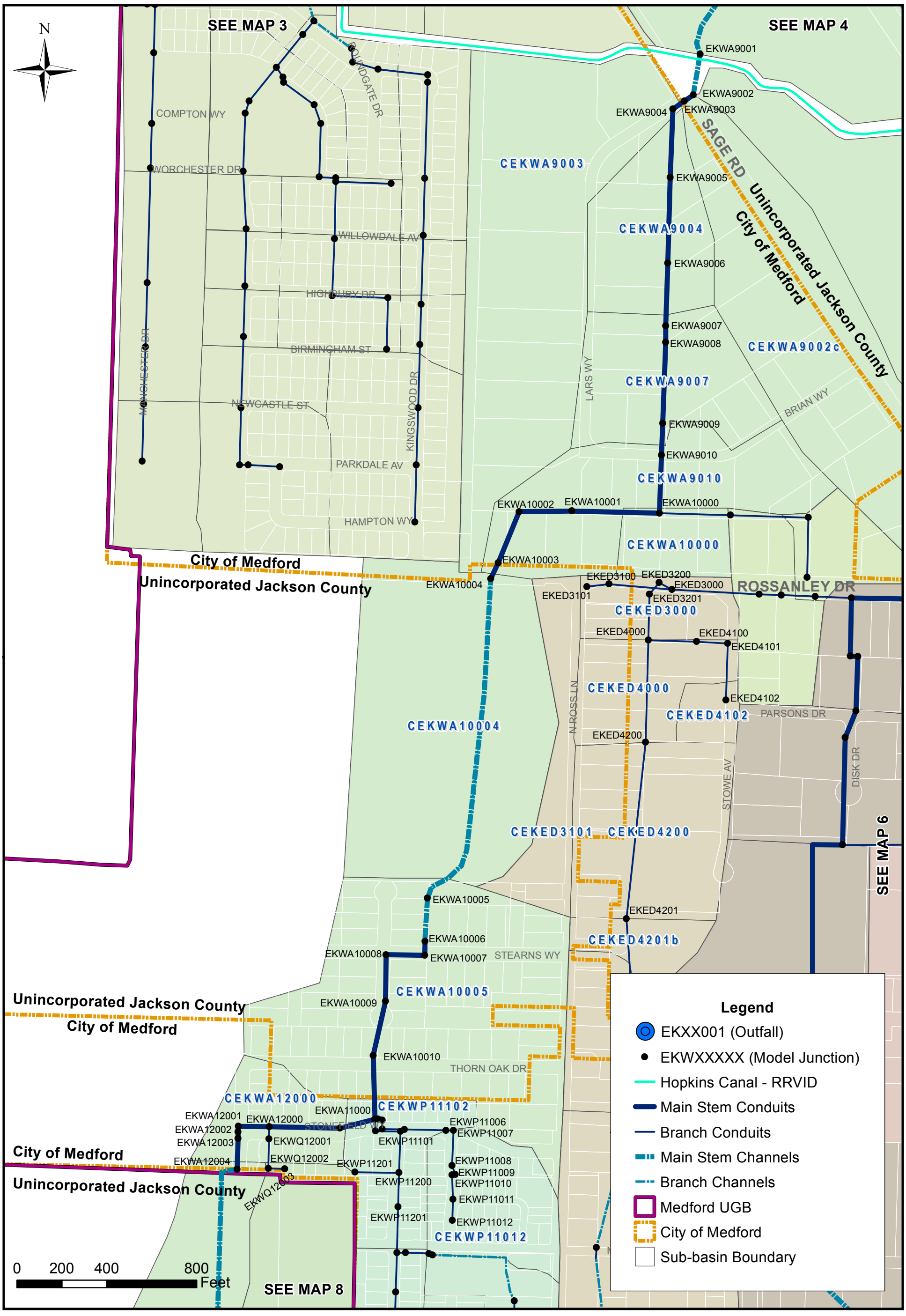
APPENDIX A
EXISTING SYSTEM MAP 4



CITY OF MEDFORD
ELK CREEK BASIN PLAN

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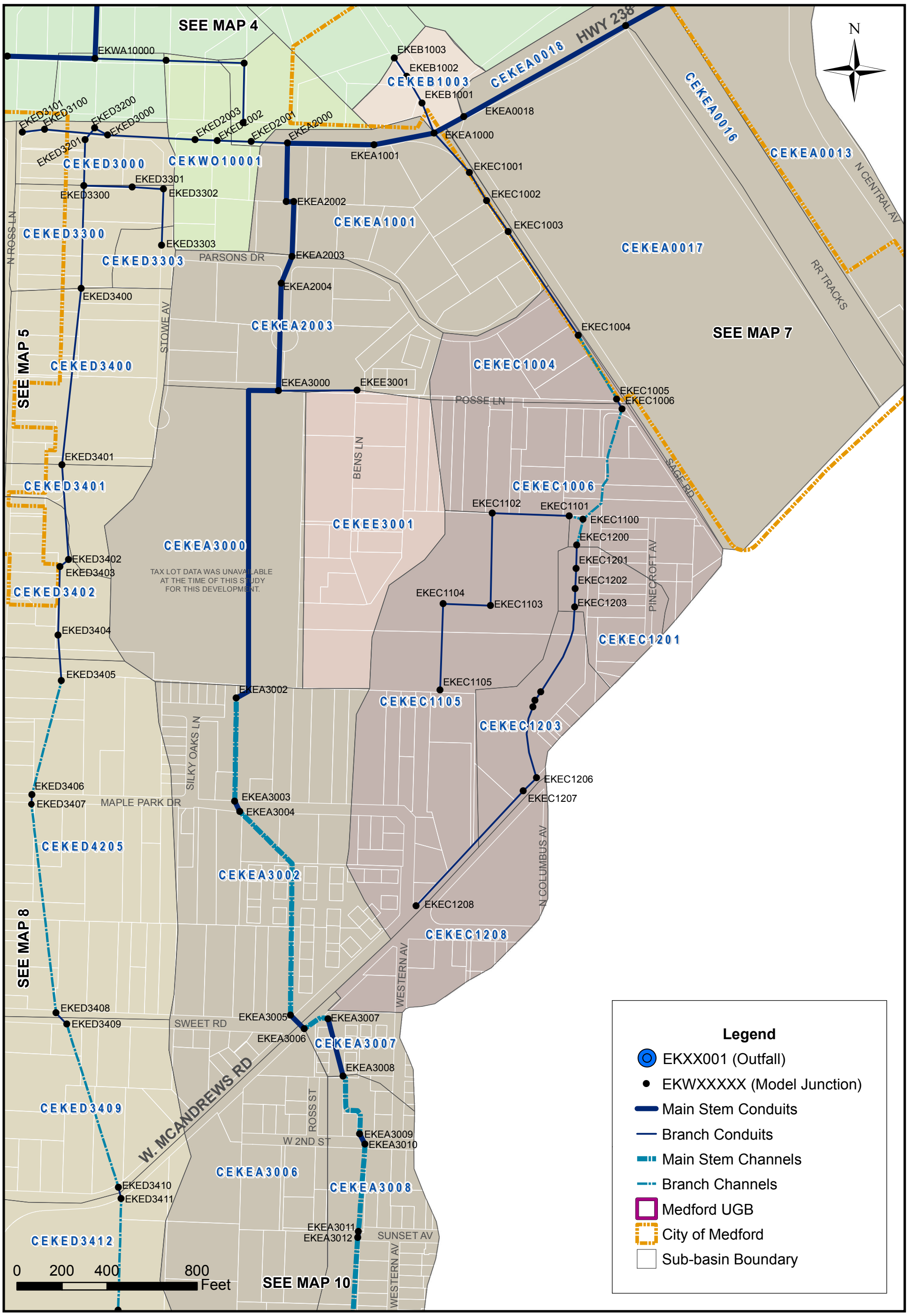
APPENDIX A
EXISTING SYSTEM MAP 5



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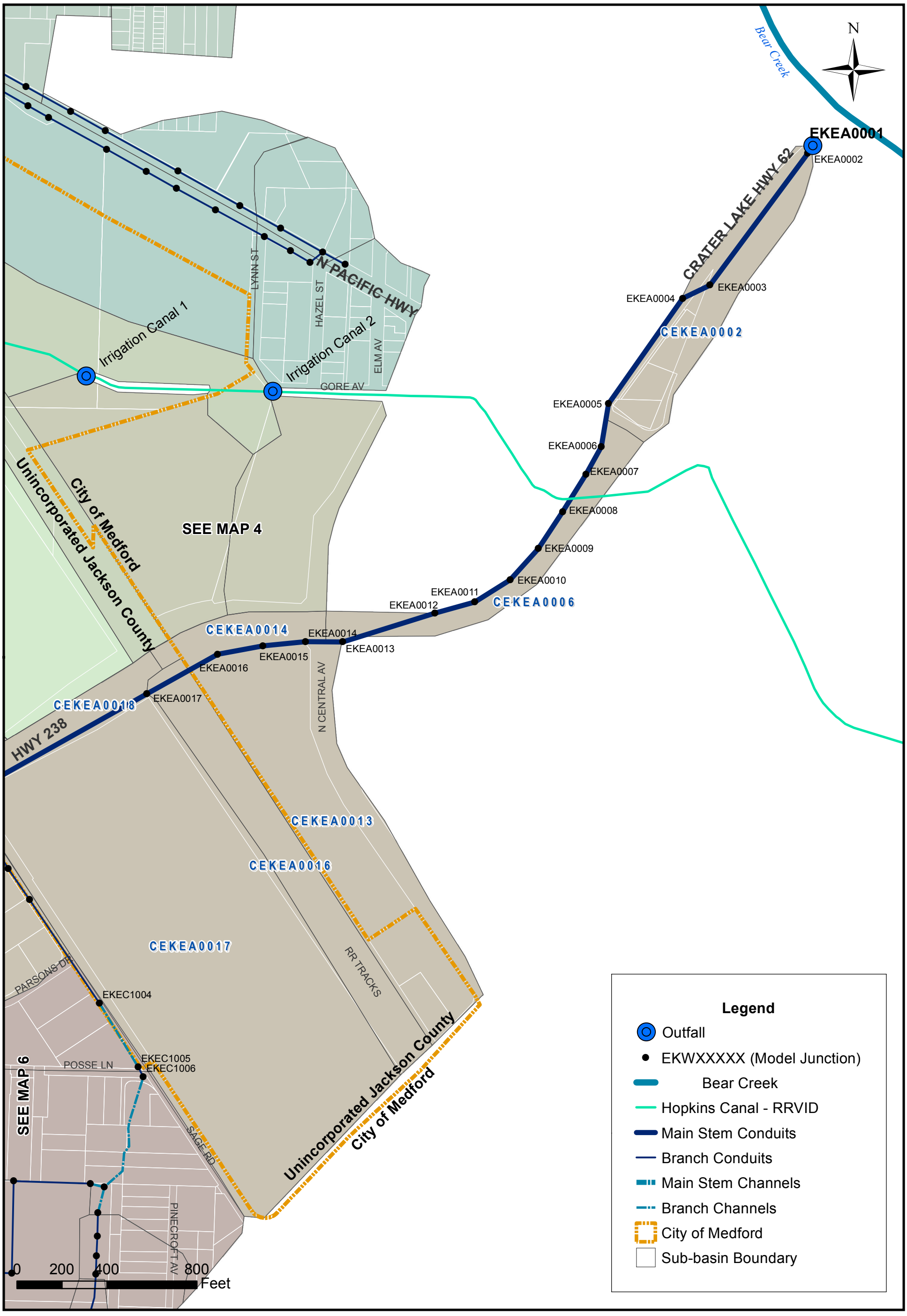
CITY OF MEDFORD
ELK CREEK BASIN PLAN

APPENDIX A
EXISTING SYSTEM MAP 6



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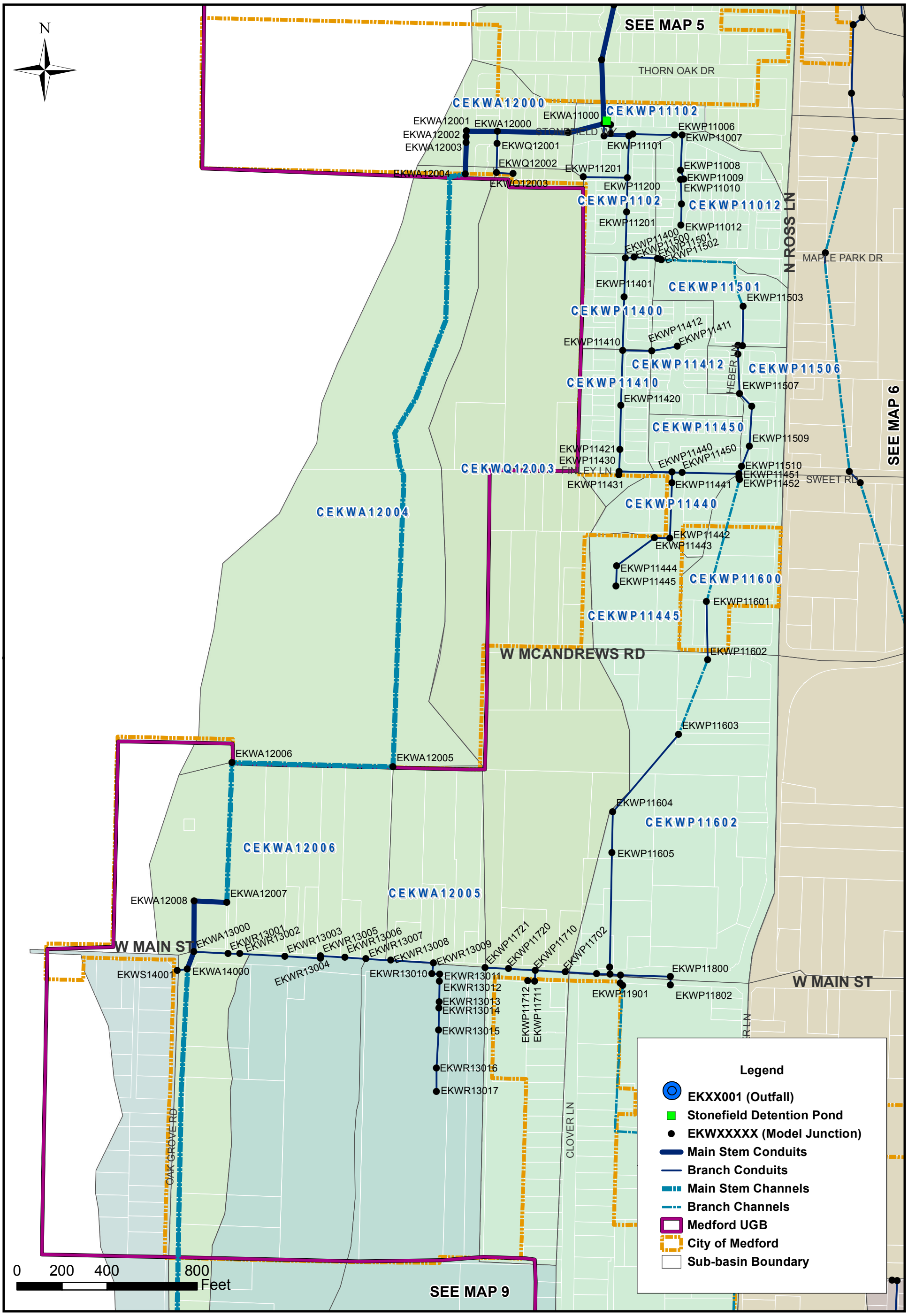
ELK CREEK BASIN PLAN

APPENDIX A
EXISTING SYSTEM MAP 7



CITY OF MEDFORD
ELK CREEK BASIN PLAN

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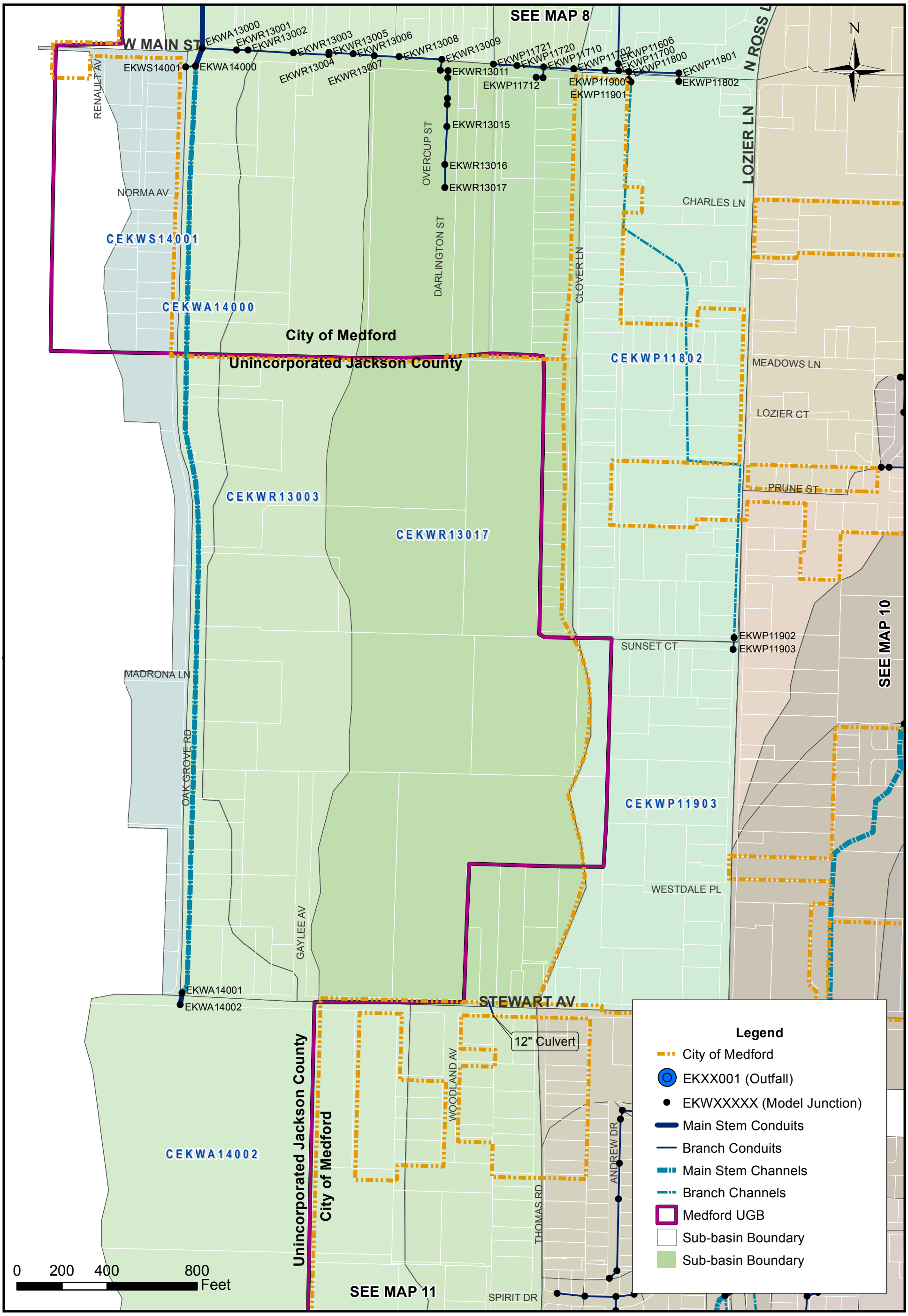
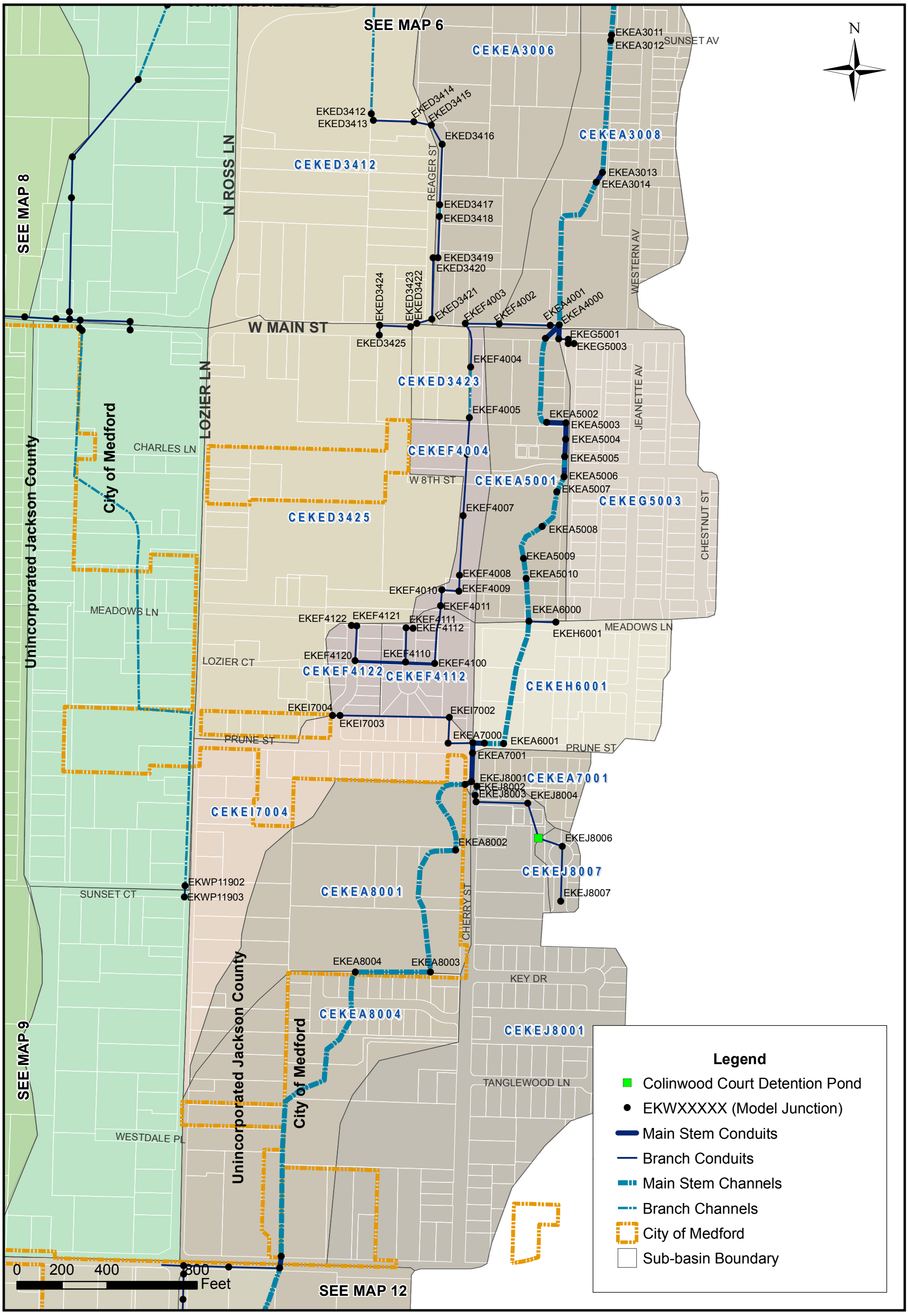
APPENDIX A
EXISTING SYSTEM MAP 8



CITY OF MEDFORD
ELK CREEK BASIN PLAN

Brown AND Caldwell

APPENDIX A
EXISTING SYSTEM MAP 9



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ELK CREEK BASIN PLAN

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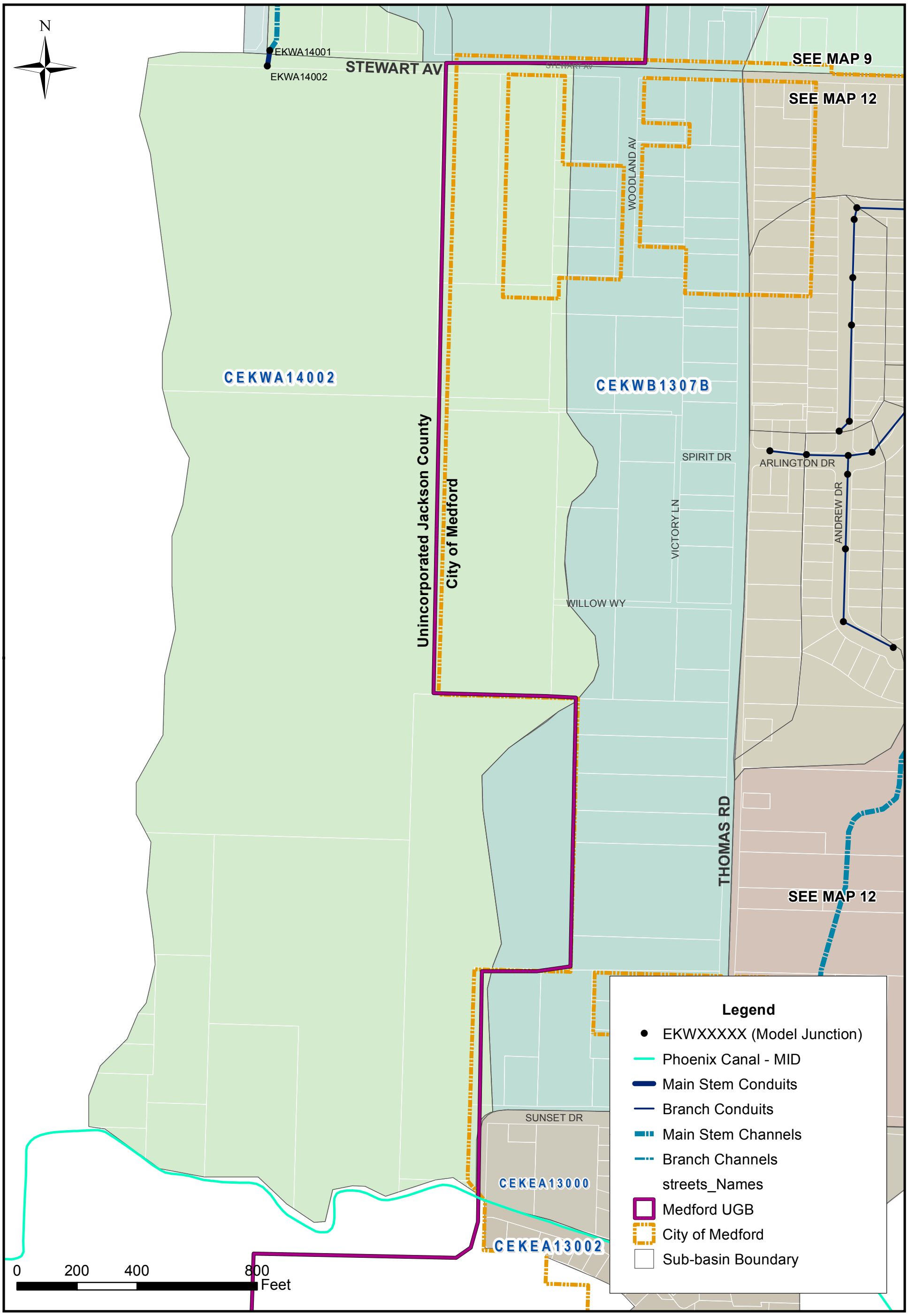
APPENDIX A
EXISTING SYSTEM MAP 10



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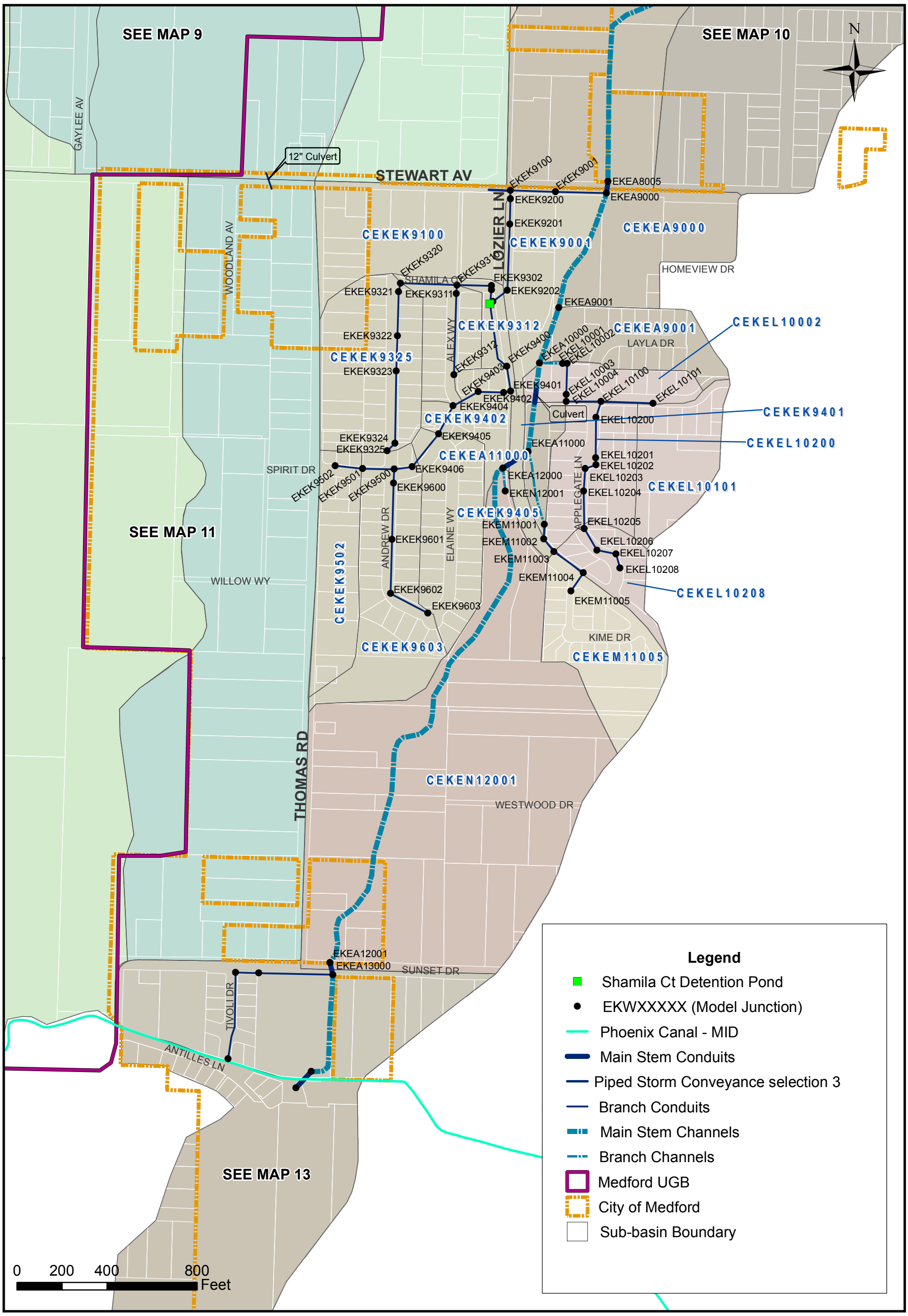
ELK CREEK BASIN PLAN

APPENDIX A
EXISTING SYSTEM MAP 11



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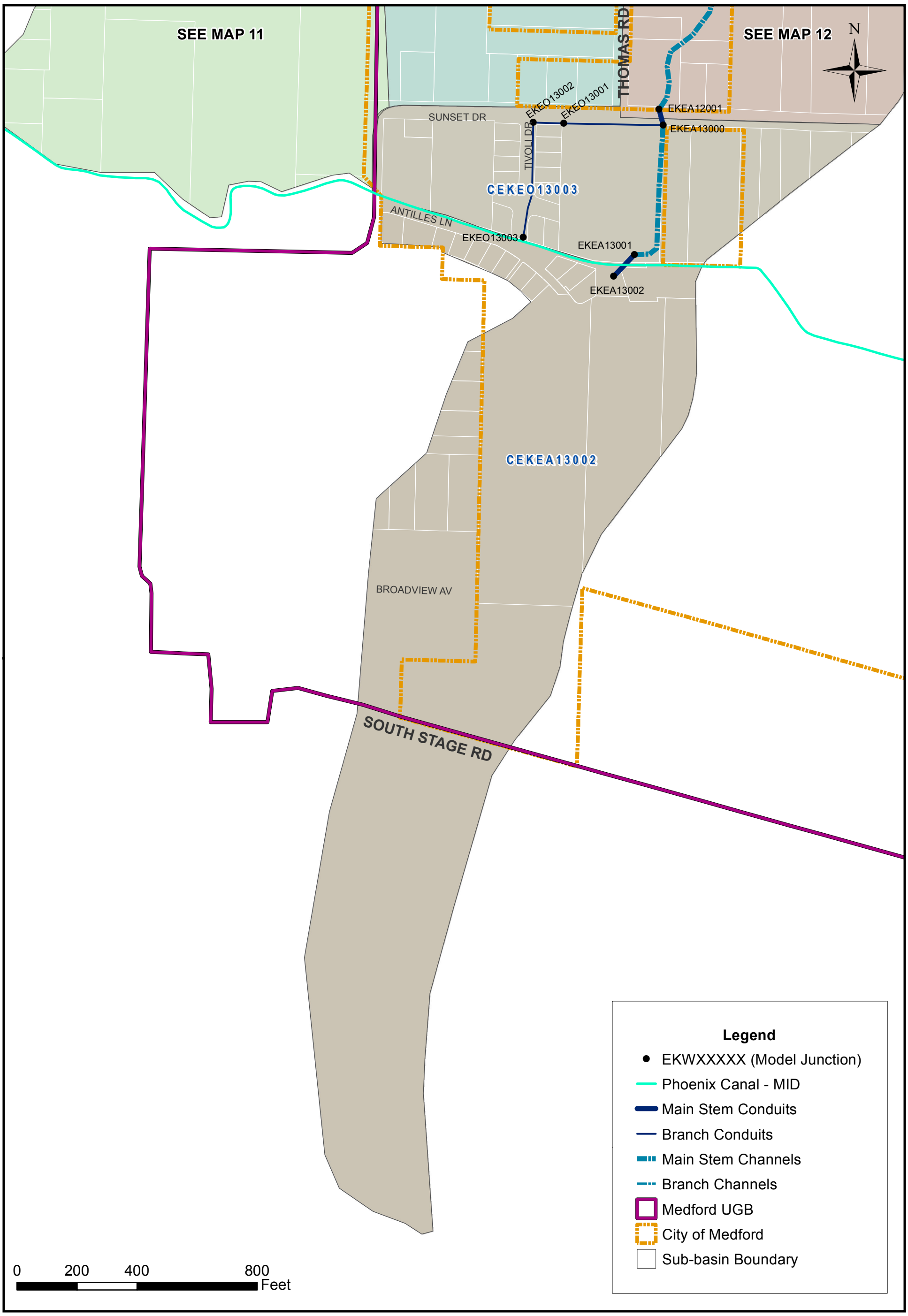
CITY OF MEDFORD
ELK CREEK BASIN PLAN

APPENDIX A
EXISTING SYSTEM MAP 12



CITY OF MEDFORD
ELK CREEK BASIN PLAN

APPENDIX A
EXISTING SYSTEM MAP 13

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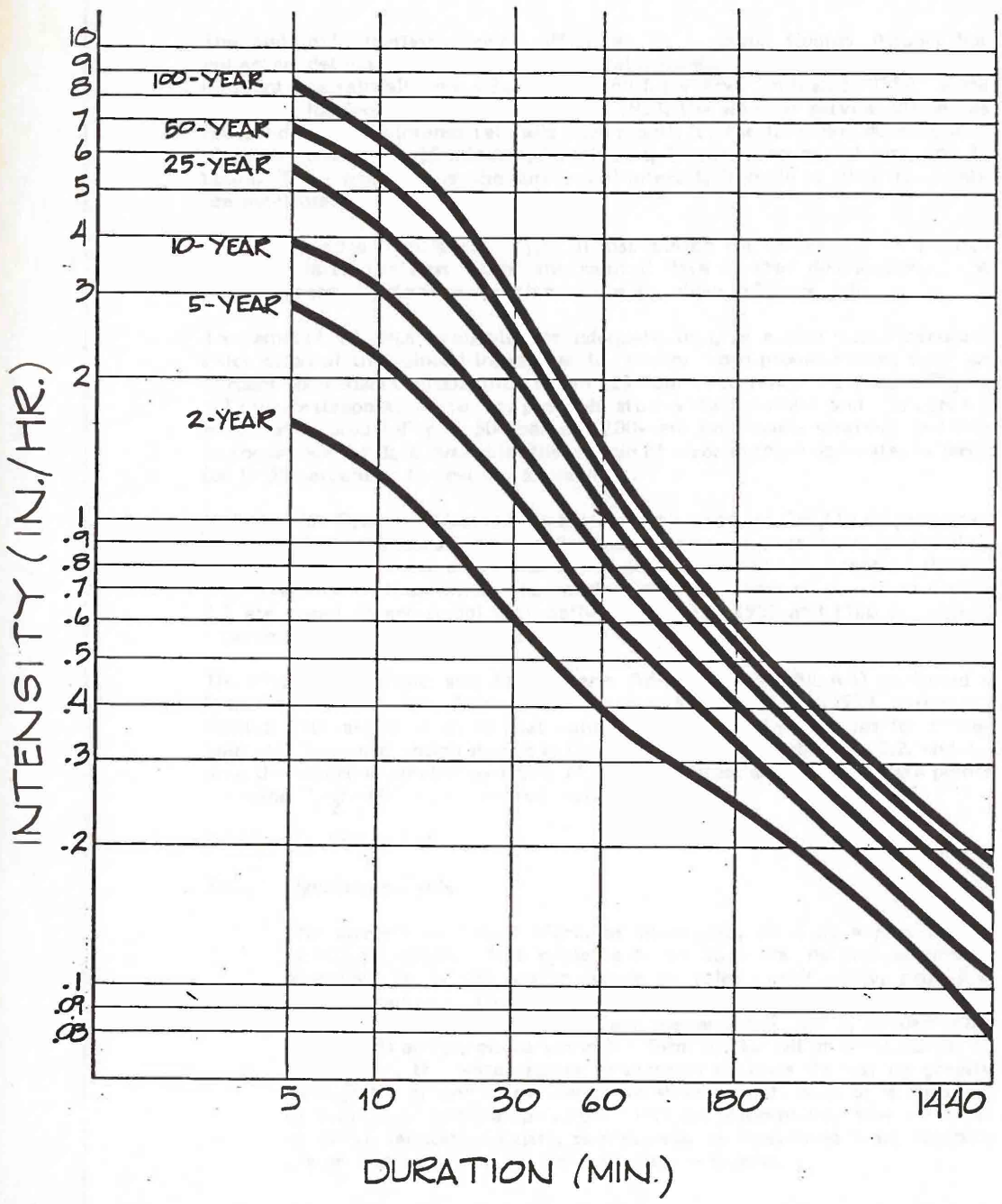
Appendix B: IDF Curve



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MEDFORD: RAINFALL INTENSITY DURATION CURVES

FIG NO. 3.3

Appendix C: Modeling Results

Table C-1: Sub-basin Model Parameters and Results

Sub-basin Name	Outlet Node	Sub-basin Area (acres)	Impervious Area (%)			Curve Number		Average Sub-basin Slope (%)	Existing Sub-basin Peak Flows (cfs)		Future Sub-basin Peak Flows (cfs)	
			Existing Land Use	Future Land Use	Percent Increase	Existing Land Use	Future Land Use		10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)	10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)
WEST ELK CREEK												
CEKWB TO OUTFALL EKWB0001 APPENDIX A, MAP 2												
CEKWB1000	EKWB1000	13.4	60	60	0	83	83	0.60	4.2	5.2	4.2	5.2
CEKWB1100	EKWB1100	8.6	70	70	0	86	86	0.71	3.2	3.8	3.2	3.8
CEKWB1300	EKWB1300	28.0	20	54	2	68	81	0.30	2.5	2.9	7.5	9.7
CEKWB1401	EKWB1401	28.2	40	50	0	74	83	1.34	5.1	6.9	8.2	10.3
CEKWB1407	EKWB1407	13.6	70	70	0	91	92	0.97	5.3	6.3	5.4	6.3
CEKWB1412	EKWB1412	18.6	45	64	0	78	84	0.52	3.9	5.4	6.2	7.5
CEKWC TO OUTFALL EKWC0001 APPENDIX A, MAP 2												
CEKWC0002	EKWC0002	3.9	65	65	0	85	85	0.84	1.4	1.7	1.4	1.7
CEKWC0004	EKWC0004	15.0	65	65	0	90	90	1.14	5.7	6.7	5.7	6.7
CEKWD TO OUTFALL EKWD0001 APPENDIX A, MAP 2												
CEKWD0004	EKWD0004	6.1	65	65	0	92	92	0.70	2.4	2.8	2.4	2.8
CEKWD0006	EKWD0006	8.3	40	47	0	89	90	1.04	2.7	3.3	2.9	3.4
CEKWD1100	EKWD1110	22.3	38	44	0	89	89	0.46	6.7	8.2	7.2	8.7
CEKWD1122	EKWD1122	13.3	65	65	0	92	92	0.63	5.1	6.0	5.1	6.1
CEKWD1125a	EKWD1125	22.0	50	50	0	90	90	0.57	7.5	9.0	7.5	9.0
CEKWD1125b	EKWD1125	6.3	65	65	0	94	94	0.79	2.6	3.0	2.6	3.0
CEKWD1128	EKWD1128	22.3	65	69	0	93	93	0.66	8.8	10.3	8.9	10.5
CEKWD1207	EKWD1207	6.0	40	50	0	89	90	0.75	1.9	2.3	2.1	2.5
CEKWD1208	EKWD1208	1.9	38	70	1	87	93	0.67	0.6	0.7	0.8	0.9
CEKWD1209a	EKWD1209	6.8	67	75	0	97	97	0.43	2.8	3.3	2.8	3.3
CEKWD1209b	EKWD1209	7.3	40	70	1	89	93	0.54	2.3	2.8	3.0	3.5
CEKWD1210	EKWD1210	9.4	40	77	1	87	96	0.44	2.8	3.4	4.0	4.6

Sub-basin Name	Outlet Node	Sub-basin Area (acres)	Impervious Area (%)			Curve Number		Average Sub-basin Slope (%)	Existing Sub-basin Peak Flows (cfs)		Future Sub-basin Peak Flows (cfs)	
			Existing Land Use	Future Land Use	Percent Increase	Existing Land Use	Future Land Use		10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)	10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)
CEKWE TO OUTFALL EKWE0001 APPENDIX A, MAP 2												
CEKWE1201	EKWE1201	7.7	35	50	0	86	90	1.19	2.1	2.7	2.7	3.3
CEKWA TO OUTFALL EKWA0001 APPENDIX A, MAPS 1, 3, 4, 5, 8, 9, 11												
CEKWA0003	EKWA0003	1.8	50	50	0	90	90	1.00	0.7	0.8	0.7	0.8
CEKWA1000	EKWA1000	57.4	65	72	0	92	94	0.43	21.8	25.8	23.0	27.0
CEKWA3001	EKWA3001	8.4	45	50	0	85	87	0.23	2.4	3.0	2.7	3.3
CEKWA5000	EKWA5000	1.0	50	50	0	90	90	2.67	0.4	0.5	0.4	0.5
CEKWA5001	EKWA5001	2.0	50	58	0	90	91	0.49	0.7	0.8	0.7	0.9
CEKWA6000	EKWA6000	7.8	60	76	0	90	96	0.65	2.8	3.4	3.3	3.8
CEKWA7000	EKWA7000	9.7	85	85	0	95	97	0.54	4.0	4.7	4.1	4.8
CEKWA8001	EKWA8001	1.4	50	70	0	93	93	0.37	0.6	0.7	0.6	0.7
CEKWA9000	EKWA9000	15.3	5	70	13	75	92	0.33	0.7	1.2	5.9	6.9
CEKWA9002	EKWA9002	37.4	0	70	NA	80	93	1.12	2.9	5.3	15.2	17.8
CEKWA9002c	EKWA9002	24.0	85	85	0	97	97	0.82	10.3	12.0	10.3	12.0
CEKWA9003	EKWA9003	27.6	98	98	0	98	98	0.67	11.7	13.6	11.7	13.6
CEKWA9004	EKWA9004	8.6	100	100	0	98	98	0.31	3.6	4.2	3.6	4.2
CEKWA9007	EKWA9007	9.9	93	93	0	97	97	0.48	4.2	4.9	4.2	4.9
CEKWA9010	EKWA9010	13.4	87	87	0	95	95	0.88	5.8	6.8	5.8	6.8
CEKWA10000	EKWA10000	3.4	100	100	0	98	98	1.21	1.5	1.8	1.5	1.8
CEKWA10004	EKWA10004	26.8	4	50	12	74	86	0.85	1.3	2.1	8.5	10.4
CEKWA10005	EKWA10005	27.9	32	50	1	81	86	0.76	5.3	7.7	8.6	10.6
CEKWA12000	EKWA12000	5.2	40	50	0	77	82	0.37	1.0	1.4	1.5	1.9
CEKWA12004	EKWA12004	43.4	1	1	0	82	82	0.92	4.2	7.4	4.2	7.5
CEKWA12005	EKWA12005	8.5	12	80	6	65	90	1.41	0.5	0.5	3.5	4.0
CEKWA12006	EKWA12006	19.7	50	73	0	87	93	1.25	6.4	7.8	8.1	9.5
CEKWA14000	EKWA14000	19.5	40	49	0	82	85	1.12	5.0	6.5	6.1	7.5
CEKWA14002	EKWA14002	110.1	2	12	5	61	65	1.35	2.4	3.5	5.7	6.6

Sub-basin Name	Outlet Node	Sub-basin Area (acres)	Impervious Area (%)			Curve Number		Average Sub-basin Slope (%)	Existing Sub-basin Peak Flows (cfs)		Future Sub-basin Peak Flows (cfs)	
			Existing Land Use	Future Land Use	Percent Increase	Existing Land Use	Future Land Use		10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)	10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)
EKWF APPENDIX A, MAP 1												
CEKWF1002	EKWF1002	7.6	50	50	0	90	90	0.62	2.6	3.2	2.6	3.2
CEKWF1100	EKWF1100	2.2	65	65	0	92	92	0.80	0.9	1.0	0.9	1.0
CEKWF1101	EKWF1101	17.1	50	50	0	90	90	0.65	5.9	7.1	5.9	7.1
CEKWF1202	EKWF1202	3.3	65	65	0	92	92	0.78	1.3	1.5	1.3	1.5
EKWG APPENDIX A, MAP 1												
CEKWG2003	EKWG2003	8.9	70	70	0	91	91	0.41	3.4	4.0	3.4	4.0
EKWH APPENDIX A, MAP 1												
CEKWH3001	EKWH3001	6.3	65	65	0	90	90	0.48	2.3	2.8	2.3	2.8
EKWI APPENDIX A, MAP 1												
CEKWI4002	EKWI4002	27.2	60	60	0	90	90	0.40	9.8	11.6	9.8	11.6
CEKWI4106	EKWI4106	15.9	10	70	6	85	91	0.46	2.3	3.6	6.1	7.2
CEKWI4101	EKWI4101	33.6	71	75	0	93	94	0.64	13.4	15.8	13.7	16.1
EKWJ APPENDIX A, MAP 1												
CEKWJ5002	EKWJ5002	4.0	50	62	0	90	92	0.73	1.4	1.6	1.5	1.8
CEKWJ5003	EKWJ5003	5.1	38	52	0	87	90	0.62	1.4	1.8	1.8	2.1
EKWK APPENDIX A, MAP 1												
CEKWK6002	EKWK6002	4.7	70	70	0	93	93	0.51	1.9	2.2	1.9	2.2
CEKWK6004	EKWK6004	4.9	95	95	0	97	97	0.77	2.1	2.4	2.1	2.4
CEKWK6006	EKWK6006	7.4	20	70	3	84	93	0.30	1.2	1.8	2.9	3.4
EKWL APPENDIX A, MAP 3												
CEKWL7005	EKWL7005	4.6	95	95	0	98	98	1.51	2.0	2.3	2.0	2.3

Sub-basin Name	Outlet Node	Sub-basin Area (acres)	Impervious Area (%)			Curve Number		Average Sub-basin Slope (%)	Existing Sub-basin Peak Flows (cfs)		Future Sub-basin Peak Flows (cfs)	
			Existing Land Use	Future Land Use	Percent Increase	Existing Land Use	Future Land Use		10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)	10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)
CEKWL7008	EKWL7008	22.7	85	85	0	95	95	0.47	9.4	11.0	9.4	11.0
CEKWL7009	EKWL7009	31.2	85	85	0	92	92	0.53	12.7	14.9	12.7	14.9
CEKWL7012	EKWL7012	40.6	80	80	0	95	96	0.51	16.7	19.6	16.9	19.7
CEKWL7100	EKWL7100	19.0	85	85	0	92	93	0.57	7.8	9.1	7.8	9.1
CEKWL7101	EKWL7101	23.8	98	98	0	98	98	0.77	10.1	11.8	10.1	11.8
CEKWL7201	EKWL7201	3.7	30	50	1	83	86	1.00	0.8	1.1	1.2	1.4
CEKWL7202	EKWL7202	8.3	50	50	0	86	86	1.00	2.6	3.2	2.6	3.2
CEKWL7207	EKWL7207	8.6	70	70	0	90	90	1.00	3.4	4.0	3.4	4.0
CEKWL7211	EKWL7211	5.7	70	70	0	90	90	1.00	2.2	2.6	2.2	2.6
CEKWL7300	EKWL7300	4.6	30	50	1	81	81	1.00	0.9	1.3	1.2	1.6
CEKWL7304	EKWL7304	6.0	70	70	0	92	92	1.00	2.4	2.8	2.4	2.8
CEKWL7307	EKWL7307	1.6	70	70	0	90	90	1.00	0.6	0.8	0.6	0.8
CEKWL7308	EKWL7308	1.9	70	70	0	90	90	1.00	0.8	0.9	0.8	0.9
CEKWL7312	EKWL7312	12.2	70	70	0	91	91	1.00	4.8	5.6	4.8	5.6
CEKWL7500	EKWL7500	7.8	30	50	1	83	86	1.00	1.7	2.3	2.5	3.0
CEKWL7503	EKWL7503	1.9	70	70	0	88	89	1.00	0.7	0.9	0.7	0.9
CEKWL7504	EKWL7504	2.0	70	70	0	86	86	1.00	0.7	0.9	0.7	0.9
CEKWL7505	EKWL7505	1.9	70	70	0	86	86	1.00	0.7	0.9	0.7	0.9
CEKWL7506	EKWL7506	3.3	70	70	0	86	86	1.00	1.2	1.5	1.2	1.5
CEKWL7510	EKWL7510	8.8	70	70	0	86	86	1.00	3.3	3.9	3.3	3.9
CEKWL7610	EKWL7610	1.4	70	70	0	86	86	1.54	0.5	0.6	0.5	0.6
CEKWL7611	EKWL7611	1.8	65	65	0	87	88	0.77	0.6	0.8	0.6	0.8
CEKWL7620	EKWL7620	3.2	70	70	0	88	88	1.00	1.2	1.4	1.2	1.4
CEKWL7622	EKWL7622	3.2	70	70	0	88	89	1.00	1.2	1.4	1.2	1.4
EKWM APPENDIX A, MAP 4												
CEKWM8110	EKWM8110	4.9	90	90	0	96	97	0.18	2.0	2.4	2.0	2.4
CEKWM8114	EKWM8114	4.8	95	95	0	98	98	0.50	2.0	2.3	2.0	2.3
CEKWM8116	EKWM8116	1.6	90	90	0	97	97	0.48	0.7	0.8	0.7	0.8

Sub-basin Name	Outlet Node	Sub-basin Area (acres)	Impervious Area (%)			Curve Number		Average Sub-basin Slope (%)	Existing Sub-basin Peak Flows (cfs)		Future Sub-basin Peak Flows (cfs)	
			Existing Land Use	Future Land Use	Percent Increase	Existing Land Use	Future Land Use		10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)	10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)
CEKWM8201	EKWM8201	40.2	70	72	0	93	94	0.50	15.9	18.7	16.1	18.9
CEKWM8216	EKWM8216	8.1	90	90	0	96	97	0.86	3.5	4.0	3.5	4.1
EKWN APPENDIX A, MAP 4												
CEKWN9001	EKWN9001	9.0	50	70	0	91	93	0.56	3.3	3.9	3.7	4.3
CEKWN9002	EKWN9002	15.4	50	70	0	90	93	0.32	5.2	6.2	5.3	6.4
CEKWN9002b	EKWN9002	10.2	10	61	5	81	92	1.78	1.4	2.2	3.9	4.6
CEKWN9002c	EKWN9002	15.9	2	69	34	80	93	4.00	1.6	3.1	6.5	7.7
EKWO APPENDIX A, MAP 4												
CEKWO10001	EKWO10001	6.4	50	70	0	87	91	0.50	2.0	2.4	2.5	2.9
CEKWO10002	EKWO10002	4.0	95	95	0	97	97	0.37	1.8	2.0	1.8	2.0
EKWP APPENDIX A, MAP 5, 8												
CEKWP11002	EKWP11002	5.9	65	65	0	91	91	0.67	2.3	2.7	2.3	2.7
CEKWP11012	EKWP11012	7.1	98	98	0	98	98	0.86	3.0	3.5	3.0	3.5
CEKWP11400	EKWP11400	3.1	65	65	0	90	90	0.95	1.2	1.4	1.2	1.4
CEKWP11410	EKWP11410	4.5	65	65	0	90	90	1.19	1.7	2.0	1.7	2.0
CEKWP11412	EKWP11412	3.4	12	50	3	77	86	0.80	0.2	0.5	1.1	1.3
CEKWP11440	EKWP11440	3.2	25	50	1	81	87	2.00	0.6	0.9	1.0	1.3
CEKWP11445	EKWP11445	4.7	25	50	1	84	90	1.89	1.1	1.4	1.7	2.0
CEKWP11450	EKWP11450	2.4	65	65	0	90	90	1.00	0.9	1.1	0.9	1.1
CEKWP11501	EKWP11501	3.6	18	50	2	80	87	1.00	0.5	0.8	1.2	1.4
CEKWP11506	EKWP11506	3.2	38	50	0	83	86	1.60	0.8	1.1	1.0	1.3
CEKWP11600	EKWP11600	6.8	20	50	2	80	87	0.79	0.9	1.5	2.2	2.6
CEKWP11602	EKWP11602	24.8	63	71	0	90	91	1.33	9.4	11.1	9.9	11.6
CEKWP11802	EKWP11802	46.0	40	57	0	85	88	1.08	12.7	16.1	16.1	19.3
CEKWP11903	EKWP11903	35.7	25	44	1	81	85	1.50	6.2	9.4	10.5	13.1

Sub-basin Name	Outlet Node	Sub-basin Area (acres)	Impervious Area (%)			Curve Number		Average Sub-basin Slope (%)	Existing Sub-basin Peak Flows (cfs)		Future Sub-basin Peak Flows (cfs)	
			Existing Land Use	Future Land Use	Percent Increase	Existing Land Use	Future Land Use		10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)	10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)
EKWQ APPENDIX A, MAP 5												
CEKWQ12003	EKWQ12003	47.7	9	38	3	80	86	1.20	4.4	8.6	13.4	16.8
EKWR APPENDIX A, MAP 8												
CEKWR13003	EKWR13003	50.3	15	35	1	74	81	0.92	3.4	5.8	10.2	14.5
CEKWR13017	EKWR13017	77.0	21	36	1	80	83	1.10	10.6	17.5	18.8	24.9
EKWS APPENDIX A, MAP 8												
CEKWS14001	EKWS14001	18.7	38	45	0	83	85	0.59	4.6	6.1	5.5	6.9
EAST ELK CREEK												
CEKEA0002	EKEA0002	7.0	90	90	0	96	96	1.07	3.1	3.5	3.1	3.5
CEKEA0006	EKEA0006	4.4	90	90	0	96	97	0.94	1.9	2.2	1.9	2.3
CEKEA0013	EKEA0013	16.0	20	70	3	84	94	0.50	2.8	4.1	6.4	7.5
CEKEA0014	EKEA0014	2.6	51	70	0	90	95	2.75	1.0	1.1	1.1	1.3
CEKEA0016	EKEA0016	8.5	50	70	0	91	93	0.70	3.1	3.7	3.5	4.1
CEKEA0017	EKEA0017	47.1	72	72	0	93	94	0.70	18.9	22.2	19.2	22.5
CEKEA0018	EKEA0018	2.7	90	90	0	96	96	2.75	1.2	1.4	1.2	1.4
CEKEA1001	EKEA1001	18.0	70	70	0	92	93	0.41	6.9	8.2	7.0	8.3
CEKEA11000	EKEA11000	1.5	0	50	NA	69	86	1.43	0.1	0.1	0.5	0.6
CEKEO13003	EKEO13003	14.2	50	50	0	86	86	0.67	4.4	5.4	4.4	5.4
CEKEA13002	EKEA13002	43.0	29	42	0	77	81	1.41	6.0	9.8	10.6	14.1
CEKEA2003	EKEA2003	15.2	54	70	0	90	92	0.85	5.4	6.5	6.1	7.1
CEKEA3000	EKEA3000	23.4	65	65	0	91	91	0.72	8.9	10.6	8.9	10.6
CEKEA3002	EKEA3002	31.4	20	52	2	82	89	1.06	5.1	7.8	10.9	13.0
CEKEA3006	EKEA3006	25.9	29	61	1	84	90	0.86	5.7	7.8	9.7	11.4
CEKEA3007	EKEA3007	3.1	75	75	0	92	93	1.64	1.3	1.5	1.3	1.5
CEKEA3008	EKEA3008	23.2	42	57	0	88	92	0.94	7.2	8.8	8.7	10.3
CEKEA5001	EKEA5001	11.0	12	71	5	80	93	1.08	1.1	2.1	4.4	5.2

Sub-basin Name	Outlet Node	Sub-basin Area (acres)	Impervious Area (%)			Curve Number		Average Sub-basin Slope (%)	Existing Sub-basin Peak Flows (cfs)		Future Sub-basin Peak Flows (cfs)	
			Existing Land Use	Future Land Use	Percent Increase	Existing Land Use	Future Land Use		10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)	10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)
CEKEA7001	EKEA7001	2.7	65	65	0	88	89	1.67	1.0	1.2	1.0	1.2
CEKEA8001	EKEA8001	18.9	18	50	2	79	86	1.47	2.2	4.0	6.1	7.5
CEKEA8004	EKEA8004	22.7	38	50	0	83	86	1.39	5.7	7.5	7.3	8.9
CEKEA9000	EKEA9000	6.6	33	68	1	86	87	1.67	1.8	2.3	2.5	2.9
CEKEA9001	EKEA9001	4.5	51	51	0	83	84	0.98	1.3	1.7	1.4	1.7
CEKEA13002	EKEA13002	43.0	29	42	0	77	81	1.41	6.0	9.8	10.6	14.1
EKEB APPENDIX A, MAP 6												
CEKEB1003	EKEB1003	3.4	60	70	0	92	93	1.05	1.3	1.6	1.4	1.6
EKEC APPENDIX A, MAP 6												
CEKEC1004	EKEC1004	6.2	72	72	0	93	93	1.41	2.6	3.0	2.6	3.0
CEKEC1006	EKEC1006	15.5	49	70	0	88	93	0.75	5.1	6.1	6.2	7.3
CEKEC1105	EKEC1105	24.2	68	68	0	92	92	0.95	9.6	11.3	9.6	11.3
CEKEC1201	EKEC1201	4.4	40	68	1	87	92	1.38	1.4	1.7	1.8	2.1
CEKEC1203	EKEC1203	6.4	50	61	0	90	91	0.97	2.3	2.7	2.5	2.9
CEKEC1208	EKEC1208	9.5	85	85	0	95	96	0.83	4.0	4.7	4.0	4.7
EKED APPENDIX A, MAPS 6, 10												
CEKED3000	EKED3000	4.5	60	66	0	90	91	0.56	1.6	1.9	1.7	2.0
CEKED3101	EKED3101	5.6	12	50	3	78	87	0.78	0.5	1.0	1.9	2.3
CEKED3300	EKED3300	6.0	58	63	0	88	90	0.89	2.1	2.5	2.2	2.7
CEKED3303	EKED3303	1.6	95	95	0	97	97	1.11	0.7	0.8	0.7	0.8
CEKED3400	EKED3400	12.4	38	56	0	84	88	0.51	3.0	4.0	4.2	5.1
CEKED3401	EKED3401	3.6	59	59	0	89	89	1.35	1.3	1.6	1.3	1.6
CEKED3402	EKED3402	6.6	65	65	0	91	91	0.57	2.5	2.9	2.5	2.9
CEKED3405	EKED3405	28.5	24	50	1	82	88	0.94	5.0	7.4	9.4	11.4
CEKED3409	EKED3409	14.7	25	60	1	83	91	1.19	2.9	4.2	5.5	6.5
CEKED3412	EKED3412	29.6	50	76	1	87	93	1.20	9.6	11.7	12.2	14.3

Sub-basin Name	Outlet Node	Sub-basin Area (acres)	Impervious Area (%)			Curve Number		Average Sub-basin Slope (%)	Existing Sub-basin Peak Flows (cfs)		Future Sub-basin Peak Flows (cfs)	
			Existing Land Use	Future Land Use	Percent Increase	Existing Land Use	Future Land Use		10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)	10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)
CEKED3423	EKED3423	2.4	90	90	0	96	96	1.00	1.1	1.2	1.1	1.2
CEKED3425	EKED3425	37.5	28	67	1	82	91	0.95	7.2	10.4	14.5	17.1
EKEE APPENDIX A, MAP 6												
CEKEE3001	EKEE3001	14.6	31	67	1	88	92	1.05	4.2	5.2	5.8	6.8
EKEF APPENDIX A, MAP 10												
CEKEF4004	EKEF4004	4.7	50	70	0	86	91	1.09	1.5	1.9	1.9	2.2
CEKEF4112	EKEF4112	4.4	80	80	0	92	92	1.09	1.8	2.1	1.8	2.1
CEKEF4122	EKEF4122	2.2	70	70	0	91	91	2.00	0.9	1.0	0.9	1.0
EKEG APPENDIX A, MAP 10												
CEKEG5003	EKEG5003	18.0	70	73	0	93	94	1.00	7.3	8.6	7.4	8.7
EKEH APPENDIX A, MAP 10												
CEKEH6001	EKEH6001	11.0	40	50	0	84	86	0.75	2.8	3.7	3.5	4.2
EKEI APPENDIX A, MAP 10												
CEKEI7004	EKEI7004	14.6	40	50	0	85	87	0.90	4.0	5.1	4.7	5.7
EKEJ APPENDIX A, MAP 10												
CEKEJ8001	EKEJ8001	33.2	32	50	1	79	85	1.00	5.6	8.6	10.0	12.5
CEKEJ8007	EKEJ8007	1.2	65	65	0	89	89	1.88	0.5	0.6	0.5	0.6
EKEK APPENDIX A, MAP 12												
CEKEK9001	EKEK9001	5.4	12	51	3	77	87	1.00	0.4	0.9	1.8	2.2
CEKEK9100	EKEK9100	8.3	12	50	3	78	86	0.67	0.6	1.2	2.6	3.2
CEKEK9300	EKEK9300	1.2	12	50	3	77	86	0.67	0.1	0.2	0.4	0.5
CEKEK9312	EKEK9312	3.0	65	68	0	90	91	1.20	1.2	1.4	1.2	1.4

Sub-basin Name	Outlet Node	Sub-basin Area (acres)	Impervious Area (%)			Curve Number		Average Sub-basin Slope (%)	Existing Sub-basin Peak Flows (cfs)		Future Sub-basin Peak Flows (cfs)	
			Existing Land Use	Future Land Use	Percent Increase	Existing Land Use	Future Land Use		10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)	10yr 24hr Peak Flow (cfs)	25yr 24hr Peak Flow (cfs)
CEKEK9325	EKEK9325	7.6	57	59	0	89	90	1.11	2.7	3.2	2.8	3.3
CEKEK9401	EKEK9401	1.1	98	98	0	100	100	1.00	0.5	0.6	0.5	0.6
CEKEK9402	EKEK9402	2.7	60	60	0	89	89	1.20	1.0	1.2	1.0	1.2
CEKEK9405	EKEK9405	5.5	65	65	0	90	90	1.09	2.1	2.5	2.1	2.5
CEKEK9502	EKEK9502	4.5	38	50	0	84	88	1.20	1.2	1.6	1.5	1.8
CEKEK9603	EKEK9603	8.0	38	50	0	83	86	0.86	2.0	2.6	2.6	3.1
EKEL APPENDIX A, MAP 12												
CEKEL10002	EKEL10002	2.8	55	55	0	84	85	0.71	0.9	1.1	0.9	1.1
CEKEL10101	EKEL10101	4.6	38	50	0	76	81	1.59	0.8	1.2	1.2	1.6
CEKEL10200	EKEL10200	4.9	65	65	0	85	85	1.20	1.7	2.1	1.7	2.1
CEKEL10208	EKEL10208	2.4	12	50	3	66	80	2.18	0.1	0.2	0.7	0.9
EKEM APPENDIX A, MAP 12												
CEKEM11005	EKEM11005	6.0	12	50	3	69	82	1.38	0.3	0.4	1.7	2.2
EKEN APPENDIX A, MAP 12												
CEKEN12001	EKEN12001	39.6	10	50	4	82	86	0.46	4.0	7.2	12.1	15.0
EKEO APPENDIX A, MAP 13												
CEKEO13003	EKEO13003	14.2	50	50	0	86	86	0.67	4.4	5.4	4.4	5.4

Table C-2: Model Node and Conduit Parameters and Results

Conduit Name U/S Node	Conduit Name D/S Node	Capital Improvement Project (CIP) Name	Conduit Attributes: Type	Diameter/ Channel Height (inches)	Width (inches)	Left Channel Slope (H:V)	Right Channel Slope (H:V)	CIP Conduit Size (inches)	Conduit Length	Conduit Capacity (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Existing: 25yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Future: 25yr 24hr Peak Flow (cfs)	Future CIP Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Node Rim and Invert Elevation (IE): US Rim (ft)	US IE (ft)	DS Rim (ft)	DS IE (ft)	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) US	DS	25yr 24hr HGL (feet) US	DS	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) US	DS	25yr 24hr HGL (feet) US	DS	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) US	DS
ELK CREEK WEST																													
EKWA TO OUTFALL EKWA0001 APPENDIX A, MAPS 1, 3, 4, 5, 8, 9, 11																													
EKWA0002	EKWA0001		TRAPEZOIDAL	68	97	1.0	1.3		281	275	180.0	214.0	232.3	265.1	239.4	1290.9	1285.2	1288.0	1284.5	1289.6	1286.7	1290.0	--	1290.1	1287.1	1290.3	1287.2	1290.2	1287.1
EKWA0003	EKWA0002		BOX	56	120				41	300	178.1	212.2	230.4	288.9	237.6	1292.1	1285.3	1290.9	1285.2	1289.6	1289.6	--	1290.0	1290.2	1290.1	1290.3	1290.3	1290.2	1290.2
EKWA1000	EKWA0003		IRREGULAR	See model for channel cross-section					259	18	175.6	209.8	227.9	247.7	235.1	1292.0	1285.3	1292.1	1285.3	1291.1	1289.6	1291.7	--	1292.0	1290.2	1293.4	1290.3	1292.1	1290.2
EKWA1001	EKWA1000		BOX	48	96				287	274	153.6	187.3	204.1	218.4	210.1	1294.0	1286.4	1292.0	1285.3	1291.5	1291.1	1292.2	1291.7	1292.6	1292.0	1294.0	1293.4	1292.7	1292.1
EKWA2000	EKWA1001		CIRCULAR	78					253	192	153.6	187.2	204.0	218.3	210.1	1296.0	1287.6	1294.0	1286.4	1292.2	1291.5	1293.2	1292.2	1293.7	1292.6	1295.5	1294.0	1293.9	1292.7
EKWA3000	EKWA2000		CIRCULAR	78					275	193	152.2	185.0	201.8	216.3	208.1	1296.7	1288.8	1296.0	1287.6	1293.3	1292.2	1294.2	1293.2	1294.9	1293.7	1297.0	1295.5	1295.2	1293.9
EKWA3001	EKWA3000		CIRCULAR	78					119	194	151.2	183.7	200.3	215.0	206.7	1298.0	1289.4	1296.7	1288.8	1293.8	1293.3	1294.7	1294.2	1295.4	1294.9	1297.7	1297.0	1295.8	1295.2
EKWA4000	EKWA3001		CIRCULAR	78					434	193	150.1	182.7	198.5	213.5	206.9	1300.2	1291.4	1298.0	1289.4	1295.7	1293.8	1296.5	1294.7	1297.2	1295.4	1300.1	1297.7	1297.8	1295.8
EKWA4001	EKWA4000		CIRCULAR	72					459	258	138.8	164.4	181.0	195.9	188.3	1302.0	1297.2	1300.2	1291.4	1300.3	1295.7	1300.7	1296.5	1300.9	1297.2	1302.9	1300.1	1300.9	1297.8
EKWA5000	EKWA4001		CIRCULAR	72					580	60	138.8	164.4	181.1	194.8	188.2	1306.0	1297.6	1302.0	1297.2	1303.5	1300.3	1304.5	1300.7	1305.3	1300.9	1306.5	1302.9	1304.8	1300.9
EKWA5001	EKWA5000		CIRCULAR	72					163	178	137.5	162.2	179.2	192.0	186.2	1306.0	1298.6	1306.0	1297.6	1304.0	1303.5	1305.3	1304.5	1306.2	1305.3	1307.7	1306.5	1305.8	1304.8
EKWA6000	EKWA5001		CIRCULAR	72					280	272	137.2	162.8	178.9	192.3	190.6	1307.8	1299.8	1306.0	1298.6	1304.1	1304.0	1305.7	1305.3	1306.8	1306.2	1308.3	1307.7	1306.4	1305.8
EKWA7000	EKWA6000		CIRCULAR	72					808	271	133.7	156.4	173.0	212.5	182.1	1313.0	1303.0	1307.8	1299.8	1306.0	1304.1	1306.3	1305.7	1307.7	1306.8	1310.5	1308.3	1307.4	1306.4
EKWA7001	EKWA7000		BOX	54	102				267	563	102.1	120.2	138.3	149.3	129.5	1314.0	1305.7	1313.0	1303.0	1306.8	1306.0	1306.9	1306.3	1307.2	1307.7	1309.9	1310.5	1307.0	1307.4
EKWA7002	EKWA7001		TRAPEZOIDAL	60	59	0.5	0.6		203	245	102.1	120.2	138.3	148.1	129.5	1314.0	1308.6	1314.0	1305.7	1311.6	1306.8	1311.9	1306.9	1312.1	1307.2	1312.5	1309.9	1312.0	1307.0
EKWA7003	EKWA7002		CIRCULAR	2 - 36					109	72	102.1	120.2	138.3	148.1	129.5	1314.0	1309.7	1314.0	1308.6	1313.8	1311.6	1314.3	1311.9	1314.4	1312.1	1314.5	1312.5	1313.1	1312.0
EKWA8000	EKWA7003		TRAPEZOIDAL	60	59	0.5	0.6		22	206	102.1	120.2	138.3	148.1	129.5	1314.0	1310.0	1314.0	1309.7	1313.9	1313.8	1314.4	1314.3	1314.6	1314.4	1314.6	1314.5	1313.4	1313.1
EKWA8001	EKWA8000		BOX	36	72				98	234	94.8	112.2	130.8	140.3	121.7	1316.0	1311.2	1314.0	1310.0	1313.9	1313.9	1314.7	1314.4	1315.0	1314.6	1315.1	1314.6	1313.6	1313.4
EKWA8002	EKWA8001		TRAPEZOIDAL	57	49	0.5	0.7		220	19	88.8	105.6	124.5	133.0	115.1	1317.0	1311.3	1316.0	1311.2	1315.9	1313.9	1316.5	1314.7	1317.1	1315.0	1317.4	1315.1	1317.1	1313.6
EKWA8003	EKWA8002		CIRCULAR	54					68	43	88.8	105.8	125.3	134.5	116.0	1317.0	1311.4	1317.0	1311.3	1316.4	1315.9	1317.2	1316.5	1318.1	1317.1	1318.5	1317.4	1317.9	1317.1
EKWA8004	EKWA8003		TRAPEZOIDAL	59	125	0.5	0.4		926	269	88.9	105.8	127.2	139.3	117.6	1320.0	1316.2	1317.0	1311.4	1318.6	1316.4	1318.9	1317.2	1319.7	1318.1	1320.1	1318.5	1319.4	1317.9
EKWA8005	EKWA8004		CIRCULAR	36					119	37	88.9	105.8	127.2	139.3	117.6	1322.0	1317.4	1320.0	1316.2	1324.2	1318.6	1324.3	1318.9	1324.5	1319.7	1324.6	1320.1	1324.4	1319.4
EKWA9000	EKWA8005		TRAPEZOIDAL	57	50	0.6	0.6		65	168	94.9	105.9	127.3	140.0	117.8	1323.0	1318.0	1322.0	1317.4	1324.4	1324.2	1324.5	1324.3	1324.8	1324.5	1325.0	1324.6	1324.7	1324.4
EKWA9001	EKWA9000		TRAPEZOIDAL	57	50	0.6	0.6		1027	111	84.8	101.1	111.3	119.5	100.2	1326.9	1322.2	1323.0	1318.0	1326.9	1324.4	1327.9	1324.5	1328.8	1324.8	1331.2	1325.0	1328.0	1324.7
EKWA9002	EKWA9001		TRAPEZOIDAL	31	102	0.5	0.4		196	120	79.6	101.1	111.3	119.5	100.2	1328.0	1324.6	1326.9	1322.2	1328.1	1326.9	1329.7	1327.9	1330.9	1328.8	1333.3	1331.2	1329.6	1328.0
EKWA9003	EKWA9002		CIRCULAR	4 - 36					47	268	77.9	101.1	96.0	103.4	96.5	1330.0	1325.1	1328.0	1324.6	1328.1	1328.1	1330.2	1329.7	1330.9	1330.9	1333.3	1333.3	1329.7	1329.6
EKWA9004	EKWA9003		ARCH	71					63	115	73.0	88.6	91.6	96.5	75.2	1330.0	1325.3	1330.0	1325.1	1328.4	1328.1	1329.9	1330.2	1331.0	1330.9	1333.4	1333.3	1329.8	1329.7
EKWA9005	EKWA9004		ARCH	71					305	87	71.5	86.7	90.1	95.1	72.5	1332.0	1325.7	1330.0	1325.3	1329.3	1328.4	1330.4	1329.9	1331.4	1331.0	1334.0	1333.4	1330.1	1329.8
EKWA9006	EKWA9005		ARCH	71					382	122	71.5	86.6	89.8	94.9	72.5	1333.4	1326.9	1332.0	1325.7	1330.2	1329.3	1331.0	1330.4	1331.9	1331.4	1334.7	1334.0	1330.7	1330.1
EKWA9007	EKWA9006		ARCH	71					278	152	71.5	86.6	89.7	94.7	72.6	1335.7	1328.2	1333.4	1326.9	1331.1	1330.2	1331.7	1331.0	1332.3	1331.9	1335.2	1334.7	1331.3	1330.7
EKWA9008	EKWA9007		ARCH	71					73	180	69.7	85.0	88.2	93.3	69.8	1336.0	1328.7	1335.7	1328.2	1331.4	1331.1	1331.9	1331.7	1332.4	1332.3	1335.3	1335.2	1331.5	1331.3
EKWA9009	EKWA9008		ARCH	71					362	183	69.7	85.0	88.2	92.8	69.8	1337.2	1331.2	1336.0	1328.7	1333.7	1331.4	1334.0	1331.9	1334.1	1332.4	1335.8	1335.3	1333.7	1331.5
EKWA9010	EKWA9009		ARCH	71					140	188	69.7	85.0	88.2	92.6	69.8	1338.2	1332.2	1337.2	1331.2	1334.7	1333.7	1335.0	1334.0	1335.1	1334.1	1336.0	1335.8	1334.7	1333.7
EKWA10000	EKWA9010		ARCH	71					259	184	67.5	83.0	86.4	90.8	66.3	1342.0	1334.0	1338.2	1332.2	1336.5	1334.7	1336.8	1335.0	1336.9	1335.1	1336.9	1336.0	1336.5	1334.7
EKWA10001	EKWA10000		CIRCULAR	48					390	67	65.3	80.9	84.6	88.9	62.5	1344.0	1336.9	1342.0	1334.0	1340.1	1336.5	1341.2	1336.8	1341.6	1336.9	1342.1	1336.9	1340.0	1336.5
EKWA10002	EKWA10001		CIRCULAR	48					234	67	65.3	80.9	84.6	88.9	62.5	1344.0	1338.6	1344.0	1336.9	1341.8	1340.1	1343.8	1341.2	1344.4	1341.6	1345.2	1342.1	1341.7	1340.0
EKWA10003	EKWA10002		CIRCULAR	48					246	67	65.3	81.0	84.7	88.9	62.5	1347.8	1340.4	1344.0	1338.6	1343.6	1341.8	1346.5	1343.8	1347.4	1344.4	1348.4	1345.2	1343.5	1341.7
EKWA10004	EKWA10003		BOX	54	108				79	1141	66.3	87.8	93.4	101.7	95.7	1345.2	1340.7	1347.8	1340.4	1343.6	1343.6	1346.4	1346.5	1347.3	1347.4	1348.4	1348.4	1343.5	1343.5
EKWA10005	EKWA10004		TRAPEZOIDAL	48	84	0.4	1.4		1502	106	65.8	85.8	88.2	93.1	89.3	1349.3	1346.7	1345.2	1340.7	1349.3	1343.6	1349.7	1346.4	1350.1	1347.3	1350.7	1348.4	1350.1	1343.5
EKWA10006	EKWA10005		TRAPEZOIDAL	42	59	1.2	1.2		192	875	62.5	81.9	82.8	85.6	83.3	1356.4	1351.0	1349.3	1346.7	1351.8	1349.3	1352.0	1349.7	1352.0	1350.1	1352.0	1350.7	1352.0	1350.1
EKWA10007	EKWA10006		BOX	31	84				62	240	62.5	81.9	82.8	85.6	83.3	1357.1	1351.9	1356.4	1351.0	1352.8	1351.8	1352.9	1352.0	1352.9	1352.0	1353.0	1352.0	1352.9	1352.0
EKWA10008	EKWA10007		CIRCULAR	54					173	69	62.5	81.9	82.8	85.6	83.3	1356.0	1352.7	1357.1	1351.9	1355.3	1352.8	1355.7	1352.9	1355.7	1352.9	1355.8	1353.0	1355.7	1352.9
EKWA10009	EKWA10008		CIRCULAR	54					206	69	62.5	82.0	82.8	85.6	83.3	1359.0	1353.5	1356.0	1352.7	1356.7	1355.3	1357.3	1355.7	1357.3	1355.7	1357.4	1355.8	1357.4	1355.7
EKWA10010	EKWA10009		CIRCULAR	54					247	71	62.7	82.0	82.9	85.6	83.4	1360.2	1354.6	1359.0	1353.5	1357.9	1356.7	1358.7	1357.3	1358.7	1357.3	1358.9	1357.4	1358.8	1357.4
EKWA11000	EKWA10010		CIRCULAR	54					284	41	79.3	82.0	87.6	96.3	89.6	1362.0	1355.1	1360.2	1354.6	1359.0	1357.9	1360.2	1358.7	1360.3	1358.7	1360.5	1358.9	1360.3	1358.8
EKWA11001	EKWA11000		CIRCULAR	48					162	92	36.2	49.2	54.8	63.1	58.3	1363.0	1357.3	1362.0	1355.1	1359.2	1359.0	1360.7	1360.2	1360.9	1360.3	1361.4	1360.5	1361.0	1360.3
EKWA12000	EKWA11001		CIRCULAR	48					315	55	47.2	52.4	54.6	63.0	58.3	1364.9	1358.9	1363.0	1357.3	1361.4	1359.2	1361.9	1360.7	1362.3	1360.9	1363.3	1361.4	1362.5	1361.0
EKWA12001	EKWA12000		CIRCULAR	48					137	53	29.9	43.4	49.0	57.2	53.2	1362.2	1359.5	1364.9	1358.9	1361.7	1361.4	1362.4	1361.9	1362.8	1362.3	1364.0	1363.3	1363.0	1362.5
EKWA12002	EKWA12001		CIRCULAR	48					24	110	29.8	43.4	49.0	57.2	53.2	1364.5	1360.0	1362.2	1359.5	1361.8	1361.7	1362.4	1362.4	1362.7	1362.8	1364.1	1364.0	1363.0	1363.0
EKWA12003	EKWA12002		CIRCULAR	48					28	74	29.5	43.4	48.9	57.1	53.1	1365.5	1360.3	1364.5	1360.0	1362.0	1361.8	1362.6	1362.4	1362.9	1362.7	1364.2	1364.1	1363.2	1363.0
EKWA12004	EKWA12003		CIRCULAR	48					138	38	34.0	46.8	50.5	58.7	54.8	1366.0	1360.6	1365.5	1360.3	1362.9	1362.0	1363.5	1362.6	1363.7	1362.9	1364.9	1364.2	1364.0	1363.2
EKWA12005	EKWA12004		TRAPEZOIDAL	24	72	3.5	3.5		2730	94	32.1	42.0	46.8	53.9	51.6	1392.0	1390.0	1366.0	1360.6	1391.1	1362.9	1391.3	1363.5	1391.4	1363.7	1391.5	1364.9	1391.5	1364.0
EKWA12006	EKWA12005		TRAPEZOIDAL	24	72	3.5	3.5		715	48	32.2	44.7	46.8	56.4	53.4	1394.0	1392.0	1392.0	1390.0	1394.0	1391.1	1394.7	1391.3	1394.9	1391.4	1395.7	1391.5	1395.5	1391.5
EKWA12007	EKWA12006		TRAPEZOIDAL	24	72	3.5	3.5		629	57	27.3	37.8	42.7	52.4	51.7	1397.5	1394.5	1394.0	1392.0	1395.9	1394.0	1396.2	1394.7	1396.4	1394.9	1397.5	1395.7	1397.3	1395.5
EKWA12008	EKWA12007		CIRCULAR	30					145	22	27.3	38.2	42.7	52.4	51.7	1399.4	1394.9	1397.5	1394.5	1396.8	1395.9	1397.6	1396.2	1398.1	1396.4	1399.7	1397.5	1399.4	1397.3
EKWA13000	EKWA12008		CIRCULAR	30					220	35	27.6	38.7	42.7	55.0	54.9	1402.0	1396.5	1399.4	1394.9	1398.2	1396.8	1399.4	1397.6	1400.5	1398.1	1403.0	1399.7	1402.6	1399.4
EKWA14000	EKWA13000		CIRCULAR	30					80	61	10.5	13.7	17.0	26.7	22.1	1402.3	1398.3	1402.0	1396.5	1399.0	1398.2	1399.3	1399.4	1400.5	1400.5	1403.0	1403.0	1402.6	1402.6
EKWA14001	EKWA14000		TRAPEZOIDAL	24	60	1.0	1.0		4200	55	2.4	3.5	5.7	6.6	2.4	1451.5	1449.5	1402.3	1398.3	1449.6	1399.0	1449.7	1399.3	1449.7	1400.5	1449.8	1403.0	1449.6	1402.6
EKWA14002	EKWA14001		CIRCULAR	24					60	21	2.4	3.5	5.7	6.6	2.4	1452.0	1450.0	1451.5	1449.5	1450.5	1449.6	1450.6	1449.7	1450.7	1449.7	1450.8	1449.8	1450.5	1449.6

Conduit Name U/S Node	Conduit Name D/S Node	Capital Improvement Project (CIP) Name	Conduit Attributes: Type	Conduit Attributes: Diameter/ Channel Height (inches)	Conduit Attributes: Width (inches)	Conduit Attributes: Left Channel Slope (H:V)	Conduit Attributes: Right Channel Slope (H:V)	Conduit Attributes: CIP Conduit Size (inches)	Conduit Attributes: Conduit Length	Conduit Capacity (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 25yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 25yr 24hr Peak Flow (cfs)	Future CIP Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Node Rim and Invert Elevation (IE): US Rim (ft)	Node Rim and Invert Elevation (IE): US IE (ft)	Node Rim and Invert Elevation (IE): DS Rim (ft)	Node Rim and Invert Elevation (IE): DS IE (ft)	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Existing Conditions: 25yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Existing Conditions: 25yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future Conditions: 25yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future Conditions: 25yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) DS
EKWB TO OUTFALL EKWB0001 APPENDIX A, MAP 2																												
EKWB1000	EKWB0001		CIRCULAR	42					123	41	23.6	28.0	32.8	40.3	20.7	1288.0	1282.5	--	1282.3	1284.1	1283.7	1284.3	1283.9	1284.4	1284.0	1284.7	1284.2	1284.0	1283.6
EKWB1100	EKWB1000		CIRCULAR	18					303	8	3.2	3.8	3.2	3.8	3.2	1288.0	1284.3	1288.0	1282.5	1284.9	1284.1	1285.0	1284.3	1284.9	1284.4	1285.0	1284.7	1284.9	1284.0
EKWB1200	EKWB1000		CIRCULAR	36					185	49	16.2	19.5	25.9	31.6	13.4	1288.0	1283.4	1288.0	1282.5	1284.6	1284.1	1284.8	1284.3	1285.1	1284.4	1285.3	1284.7	1284.5	1284.0
EKWB1201	EKWB1200		CIRCULAR	36					73	32	16.2	19.6	25.9	31.6	13.4	1288.0	1283.6	1288.0	1283.4	1284.9	1284.6	1285.1	1284.8	1285.3	1285.1	1285.6	1285.3	1284.8	1284.5
EKWB1202	EKWB1201		CIRCULAR	36					312	41	16.2	19.6	25.9	31.6	13.4	1290.0	1284.7	1288.0	1283.6	1286.1	1284.9	1286.2	1285.1	1286.5	1285.3	1286.7	1285.6	1285.9	1284.8
EKWB1203	EKWB1202		CIRCULAR	30					252	36	16.2	19.5	25.9	31.6	13.5	1290.0	1286.7	1290.0	1284.7	1287.9	1286.1	1288.0	1286.2	1288.3	1286.5	1288.5	1286.7	1287.8	1285.9
EKWB1300	EKWB1203		CIRCULAR	30					255	26	16.2	19.5	25.9	31.7	13.5	1294.0	1287.7	1290.0	1286.7	1289.1	1287.9	1289.3	1288.0	1289.6	1288.3	1290.1	1288.5	1289.0	1287.8
EKWB1400	EKWB1300		CIRCULAR	24					163	29	13.8	17.0	18.6	22.0	13.5	1296.0	1290.4	1294.0	1287.7	1291.4	1289.1	1291.5	1289.3	1291.6	1289.6	1291.8	1290.1	1291.4	1289.0
EKWB1401	EKWB1400		CIRCULAR	24					364	11	13.8	17.1	19.1	22.4	13.5	1294.0	1291.3	1296.0	1290.4	1293.0	1291.4	1294.0	1291.5	1294.5	1291.6	1295.6	1291.8	1293.0	1291.4
EKWB1402	EKWB1401		CIRCULAR	35					115	11	9.1	10.5	10.9	72.8	5.4	1294.0	1291.4	1294.0	1291.3	1293.2	1293.0	1294.1	1294.0	1294.6	1294.5	1295.8	1295.6	1293.1	1293.0
EKWB1403	EKWB1402		CIRCULAR	24					55	4	9.0	10.6	11.0	71.6	5.4	1294.0	1291.5	1294.0	1291.4	1293.5	1293.2	1294.5	1294.1	1294.7	1294.6	1295.9	1295.8	1293.2	1293.1
EKWB1404	EKWB1403		CIRCULAR	24					143	13	9.0	10.6	11.0	12.0	5.4	1296.0	1292.0	1294.0	1291.5	1293.7	1293.5	1294.9	1294.5	1295.6	1294.7	1296.2	1295.9	1293.2	1293.2
EKWB1405	EKWB1404		CIRCULAR	24					60	23	9.0	10.5	11.0	11.9	5.4	1296.0	1292.6	1296.0	1292.0	1293.6	1293.7	1295.1	1294.9	1296.0	1295.6	1296.3	1296.2	1293.3	1293.2
EKWB1406	EKWB1405		CIRCULAR	21					321	11	9.0	10.6	11.0	12.0	5.4	1298.0	1294.0	1296.0	1292.6	1295.2	1293.6	1298.0	1295.1	1298.0	1296.0	1298.0	1296.3	1294.8	1293.3
EKWB1407	EKWB1406		CIRCULAR	21					241	11	9.0	10.8	11.0	12.0	5.4	1300.0	1295.0	1298.0	1294.0	1296.3	1295.2	1299.4	1298.0	1299.8	1298.0	1300.0	1298.0	1295.9	1294.8
EKWB1408	EKWB1407		CIRCULAR	15					266	4	3.8	5.0	5.8	6.8	5.4	1300.2	1296.2	1300.0	1295.0	1297.2	1296.3	1300.1	1299.4	1300.2	1299.8	1301.7	1300.0	1298.8	1295.9
EKWB1409	EKWB1408		CIRCULAR	15					291	4	3.9	5.1	7.6	7.3	6.2	1302.0	1297.3	1300.2	1296.2	1298.3	1297.2	1302.0	1300.1	1302.0	1300.2	1304.5	1301.7	1298.2	1298.8
EKWB1409	EKWB1409a	Table Rock Road Improvements	CIRCULAR	--				24	2120	13	--	--	--	--	6.2	1302.0	1297.3	--	--	--	--	--	--	--	--	--	--	1298.2	--
EKWB1410	EKWB1409		CIRCULAR	21					296	10	3.9	5.4	6.9	6.8	6.2	1303.2	1298.3	1302.0	1297.3	1299.1	1298.3	1303.2	1302.0	1303.2	1302.0	1305.0	1304.5	1299.3	1298.2
EKWB1411	EKWB1410		CIRCULAR	18					296	7	3.9	5.4	6.8	7.3	6.2	1304.3	1299.5	1303.2	1298.3	1300.4	1299.1	1300.8	1303.2	1304.4	1303.2	1306.1	1305.0	1300.7	1299.3
EKWB1412	EKWB1411		CIRCULAR	18					357	10	3.9	5.4	6.2	7.5	6.2	1305.0	1302.6	1304.3	1299.5	1303.3	1300.4	1303.4	1300.8	1303.8	1304.4	1307.6	1306.1	1303.5	1300.7
EKWC TO OUTFALL EKWC0001 APPENDIX A, MAP 2																												
EKWC0002	EKWC0001		CIRCULAR	18					114	5	7.1	8.4	7.1	8.4	7.1	1288.0	1283.7	--	1283.5	1285.1	1284.5	1285.4	1284.6	1285.1	1284.5	1285.4	1284.6	1285.1	1284.5
EKWC0003	EKWC0002		CIRCULAR	18					250	5	5.7	6.7	5.7	6.7	5.7	1288.0	1284.4	1288.0	1283.7	1285.7	1285.1	1286.4	1285.4	1285.7	1285.1	1286.4	1285.4	1285.7	1285.1
EKWC0004	EKWC0003		CIRCULAR	15					296	5	5.7	6.7	5.7	6.7	5.7	1290.0	1286.0	1288.0	1284.4	1289.1	1285.7	1290.0	1286.4	1288.8	1285.7	1290.0	1286.4	1289.9	1285.7
EKWD TO OUTFALL EKWD0001 APPENDIX A, MAP 2																												
EKWD0002	EKWD0001		CIRCULAR	48					343	65	44.1	50.3	46.4	53.1	46.2	1296.0	1286.2	--	1285.5	1288.5	1287.5	1288.6	1287.6	1288.5	1287.5	1288.7	1287.7	1288.5	1287.5
EKWD0003	EKWD0002		CIRCULAR	48					347	65	44.1	50.3	46.4	53.1	46.2	1294.0	1286.9	1296.0	1286.2	1289.3	1288.5	1289.5	1288.6	1289.3	1288.5	1289.6	1288.7	1289.3	1288.5
EKWD0004	EKWD0003		CIRCULAR	48					45	100	44.1	50.4	46.4	53.1	46.3	1294.0	1287.1	1294.0	1286.9	1289.3	1289.3	1289.5	1289.5	1289.4	1289.3	1289.6	1289.6	1289.4	1289.3
EKWD0005	EKWD0004		CIRCULAR	42					193	71	41.9	47.8	44.1	50.4	44.0	1296.0	1288.1	1294.0	1287.1	1290.1	1289.3	1290.3	1289.5	1290.1	1289.4	1290.3	1289.6	1290.1	1289.4
EKWD0006	EKWD0005		CIRCULAR	42					152	68	41.9	47.9	44.2	50.5	44.1	1298.0	1288.7	1296.0	1288.1	1290.7	1290.1	1290.9	1290.3	1290.8	1290.1	1291.0	1290.3	1290.8	1290.1
EKWD0007	EKWD0006		CIRCULAR	42					737	72	39.5	44.8	41.5	47.2	41.5	1302.0	1292.5	1298.0	1288.7	1294.3	1290.7	1294.5	1290.9	1294.4	1290.8	1294.6	1291.0	1294.4	1290.8
EKWD0008	EKWD0007		CIRCULAR	42					83	71	39.5	44.9	41.5	47.2	41.5	1304.0	1292.9	1302.0	1292.5	1294.8	1294.3	1294.9	1294.5	1294.8	1294.4	1295.0	1294.6	1294.8	1294.4
EKWD1000	EKWD0008		CIRCULAR	24					104	16	39.5	44.9	41.6	47.3	41.5	1304.4	1293.4	1304.0	1292.9	1298.0	1294.8	1299.3	1294.9	1298.4	1294.8	1299.8	1295.0	1298.3	1294.8
EKWD1100	EKWD1000		CIRCULAR	24					23	15	29.6	32.8	29.7	33.1	29.7	1304.0	1293.5	1304.4	1293.4	1298.4	1298.0	1299.9	1299.3	1298.8	1298.4	1300.3	1299.8	1298.7	1298.3
EKWD1110	EKWD1100		CIRCULAR	24					219	28	6.7	8.2	7.2	8.7	7.2	1302.0	1296.8	1304.0	1293.5	1298.5	1298.4	1300.2	1299.9	1298.9	1298.8	1300.6	1300.3	1298.9	1298.7
EKWD1120	EKWD1100		CIRCULAR	24					272	32	23.3	24.8	23.3	24.8	23.3	1304.0	1299.0	1304.0	1293.5	1300.8	1298.4	1304.0	1299.9	1302.9	1298.8	1304.0	1300.3	1301.4	1298.7
EKWD1121	EKWD1120		CIRCULAR	24					526	17	23.3	25.1	23.3	25.0	23.3	1308.0	1302.0	1304.0	1299.0	1306.6	1300.8	1309.0	1304.0	1306.7	1302.9	1309.5	1304.0	1306.6	1301.4
EKWD1122	EKWD1121		CIRCULAR	24					60	20	23.3	25.3	23.3	25.1	23.3	1308.0	1302.5	1308.0	1302.0	1306.9	1306.6	1309.7	1309.0	1307.3	1306.7	1310.3	1309.5	1307.2	1306.6
EKWD1123	EKWD1122		CIRCULAR	24					43	20	18.3	19.5	18.2	19.5	18.2	1308.0	1302.8	1308.0	1302.5	1307.1	1306.9	1310.0	1309.7	1307.6	1307.3	1310.6	1310.3	1307.5	1307.2
EKWD1124	EKWD1123		CIRCULAR	24					95	17	18.2	19.6	18.2	19.5	18.2	1307.2	1303.3	1308.0	1302.8	1307.7	1307.1	1310.7	1310.0	1308.1	1307.6	1311.3	1310.6	1308.1	1307.5
EKWD1125	EKWD1124		CIRCULAR	18					20	17	18.2	20.1	18.3	20.0	18.2	1306.9	1303.8	1307.2	1303.3	1308.3	1307.7	1311.4	1310.7	1308.7	1308.1	1311.9	1311.3	1308.6	1308.1
EKWD1126	EKWD1125		CIRCULAR	18					512	8	8.6	9.2	8.6	9.2	8.8	1310.0	1306.6	1306.9	1303.8	1311.4	1308.3	1314.9	1311.4	1311.7	1308.7	1315.5	1311.9	1311.6	1308.6
EKWD1127	EKWD1126		CIRCULAR	18					465	8	8.7	10.1	8.8	10.1	10.2	1314.0	1309.4	1310.0	1306.6	1314.4	1311.4	1318.2	1314.9	1314.6	1311.7	1318.8	1315.5	1314.5	1311.6
EKWD1128	EKWD1127		CIRCULAR	18					163	8	8.8	10.3	8.9	10.5	8.9	1314.0	1310.4	1314.0	1309.4	1315.5	1314.4	1319.5	1318.2	1315.6	1314.6	1320.1	1318.8	1315.6	1314.5
EKWD1200	EKWD1000		CIRCULAR	24					20	16	10.5	12.4	12.7	14.5	12.7	1304.0	1293.5	1304.4	1293.4	1298.0	1298.0	1299.4	1299.3	1298.5	1298.4	1300.0	1299.8	1298.4	1298.3
EKWD1201	EKWD1200		CIRCULAR	24					424	23	10.3	12.4	12.5	14.5	12.5	1304.0	1297.8	1304.0	1293.5	1298.8	1298.0	1304.0	1299.4	1299.4	1298.5	1304.0	1300.0	1299.4	1298.4
EKWD1202	EKWD1201		CIRCULAR	24					395	22	10.3	12.4	12.5	14.4	12.5	1308.0	1301.5	1304.0	1297.8	1302.5	1298.8	1302.6	1304.0	1302.6	1299.4	1302.8	1304.0	1302.6	1299.4
EKWD1203	EKWD1202		CIRCULAR	24					488	13	10.3	12.4	12.5	14.5	12.5	1310.0	1303.1	1308.0	1301.5	1304.5	1302.5	1304.7	1302.6	1304.7	1302.6	1305.0	1302.8	1304.7	1302.6
EKWD1204	EKWD1203		CIRCULAR	24					188	10	10.3	12.4	12.5	14.5	12.5	1310.0	1303.5	1310.0	1303.1	1305.0	1304.5	1305.3	1304.7	1305.3	1304.7	1305.7	1305.0	1305.3	1304.7
EKWD1205	EKWD1204		CIRCULAR	24					163	10	10.3	12.4	12.5	14.5	12.5	1310.0	1303.8	1310.0	1303.5	1305.4	1305.0	1305.7	1305.3	1305.7	1305.3	1306.4	1305.7	1305.7	1305.3
EKWD1206	EKWD1205		CIRCULAR	24					16	10	10.3	12.4	12.5	14.5	12.5	1310.0	1303.9	1310.0	1303.8	1305.5	1305.4	1305.8	1305.7	1305.8	1305.7	1306.5	1306.4	1305.8	1305.7
EKWD1207	EKWD1206		CIRCULAR	24					499	16	10.3	12.5	12.5	14.8	12.5	1312.0	1306.4	1310.0	1303.9	1307.5	1305.5	1307.7	1305.8	1307.7	1305.8	1308.1	1306.5	1307.7	1305.8
EKWD1208	EKWD1207		CIRCULAR	24					507	14	8.4	10.2	10.5	12.3	10.5	1314.0	1308.4	1312.0	1306.4	1309.5	1307.5	1309.6	1307.7	1309.6	1307.7	1309.8	1308.1	1309.6	1307.7
EKWD1209	EKWD1208		CIRCULAR	18					443	8	7.9	9.5	9.8	11.4	9.8	1316.0	1310.7	1314.0	1308.4	1312.0	1309.5	1316.0	1309.6	1316.0	1309.6	1316.0	1309.8	1316.0	1309.6
EKWD1210	EKWD1209		CIRCULAR	18					352	7	2.8	3.4	4.0	4.6	4.0	1318.0	1312.1	1316.0	1310.7	1312.7	1312.0	1313.3	1316.0	1313.8	1316.0	1318.0	1316.0	1313.8	1316.0

Conduit Name U/S Node	Conduit Name D/S Node	Capital Improvement Project (CIP) Name	Conduit Attributes: Type	Conduit Attributes: Diameter/ Channel Height (inches)	Conduit Attributes: Width (inches)	Conduit Attributes: Left Channel Slope (H:V)	Conduit Attributes: Right Channel Slope (H:V)	Conduit Attributes: CIP Conduit Size (inches)	Conduit Attributes: Conduit Length	Conduit Capacity (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 25yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 25yr 24hr Peak Flow (cfs)	Future CIP Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Node Rim and Invert Elevation (IE): US Rim (ft)	Node Rim and Invert Elevation (IE): US IE (ft)	Node Rim and Invert Elevation (IE): DS Rim (ft)	Node Rim and Invert Elevation (IE): DS IE (ft)	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Existing Conditions: 25yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Existing Conditions: 25yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future Conditions: 25yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future Conditions: 25yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) DS
EKWE TO OUTFALL EKWE0001 APPENDIX A, MAP 2																												
EKWE0002	EKWE0001		CIRCULAR	48					41	82	2.1	2.7	2.7	3.3	2.7	1293.0	1286.9	--	1286.6	1287.4	1287.0	1287.5	--	1287.5	1287.0	1287.5	1287.1	1287.5	1287.0
EKWE1000	EKWE0002		CIRCULAR	24					14	22	2.1	2.7	2.7	3.3	2.7	1293.0	1287.1	1293.0	1286.9	1287.5	1287.4	1287.6	1287.5	1287.6	1287.5	1287.6	1287.5	1287.6	1287.5
EKWE1200	EKWE1000		CIRCULAR	18					97	5	2.1	2.7	2.7	3.3	2.7	1292.0	1287.3	1293.0	1287.1	1287.9	1287.5	1288.0	1287.6	1288.0	1287.6	1288.1	1287.6	1288.0	1287.6
EKWE1201	EKWE1200		CIRCULAR	18					70	6	2.1	2.7	2.7	3.3	2.7	1290.0	1287.5	1292.0	1287.3	1288.1	1287.9	1288.2	1288.0	1288.2	1288.0	1288.3	1288.1	1288.2	1288.0
EKWF APPENDIX A, MAP 1																												
EKWF1001	EKWA1000		CIRCULAR	15					57	15	9.2	10.3	9.0	10.3	9.0	1292.0	1288.3	1292.0	1285.3	1292.2	1291.1	1293.0	1291.7	1293.0	1292.0	1294.5	1293.4	1293.2	1292.1
EKWF1002	EKWF1001		CIRCULAR	15					57	9	9.2	10.4	9.1	10.4	9.1	1292.0	1289.3	1292.0	1288.3	1293.4	1292.2	1294.4	1293.0	1294.1	1293.0	1295.7	1294.5	1294.2	1293.2
EKWF1003	EKWF1002		CIRCULAR	15					213	4	6.8	7.7	6.7	7.6	6.7	1293.8	1290.2	1292.0	1289.3	1295.7	1293.4	1297.4	1294.4	1296.4	1294.1	1298.4	1295.7	1296.5	1294.2
EKWF1004	EKWF1003		CIRCULAR	15					143	4	6.9	7.7	6.8	7.7	6.8	1296.0	1290.6	1293.8	1290.2	1297.3	1295.7	1299.4	1297.4	1297.9	1296.4	1300.2	1298.4	1298.0	1296.5
EKWF1100	EKWF1004		CIRCULAR	15					120	4	7.3	8.2	7.1	8.2	7.1	1294.0	1291.0	1296.0	1290.6	1298.7	1297.3	1301.1	1299.4	1299.2	1297.9	1301.8	1300.2	1299.3	1298.0
EKWF1101	EKWF1100		CIRCULAR	15					143	4	5.9	7.1	5.9	7.1	5.9	1296.0	1291.4	1294.0	1291.0	1299.6	1298.7	1302.4	1301.1	1300.1	1299.2	1303.1	1301.8	1300.3	1299.3
EKWF1102	EKWF1101		CIRCULAR	15					109	3	1.1	1.5	1.5	1.5	1.4	1294.0	1291.7	1296.0	1291.4	1299.6	1299.6	1302.4	1302.4	1300.1	1300.1	1303.1	1303.1	1300.3	1300.3
EKWF1200	EKWF1100		CIRCULAR	12					386	2	1.5	1.7	1.6	1.7	1.7	1297.0	1292.4	1294.0	1291.0	1298.9	1298.7	1301.4	1301.1	1299.5	1299.2	1302.2	1301.8	1299.6	1299.3
EKWF1201	EKWF1200		CIRCULAR	12					48	2	1.6	2.3	1.6	2.2	1.7	1298.1	1292.5	1297.0	1292.4	1299.0	1298.9	1301.5	1301.4	1299.5	1299.5	1302.2	1302.2	1299.7	1299.6
EKWF1202	EKWF1201		CIRCULAR	12					345	2	1.3	1.5	1.3	1.5	1.3	1298.4	1294.0	1298.1	1292.5	1299.3	1299.0	1301.8	1301.5	1299.8	1299.5	1302.5	1302.2	1299.9	1299.7
EKWG APPENDIX A, MAP 1																												
EKWG2001	EKWA2000		CIRCULAR	12					167	5	3.4	3.9	3.4	4.0	3.3	1294.0	1290.5	1296.0	1287.6	1293.6	1292.2	1294.7	1293.2	1294.7	1293.7	1296.5	1295.5	1295.1	1293.9
EKWG2002	EKWG2001		CIRCULAR	12					69	2	3.4	4.0	3.4	4.0	3.4	1294.0	1290.6	1294.0	1290.5	1294.1	1293.6	1295.5	1294.7	1295.2	1294.7	1297.0	1296.5	1295.6	1295.1
EKWG2003	EKWG2002		CIRCULAR	12					35	2	3.4	4.0	3.4	4.0	3.4	1294.0	1290.7	1294.0	1290.6	1294.4	1294.1	1295.9	1295.5	1295.4	1295.2	1297.4	1297.0	1295.9	1295.6
EKWH APPENDIX A, MAP 1																												
EKWH3001	EKWA3000		CIRCULAR	12					126	6	2.3	2.8	2.3	2.8	2.3	1294.0	1292.2	1296.7	1288.8	1293.8	1293.3	1294.5	1294.2	1295.1	1294.9	1297.3	1297.0	1295.5	1295.2
EKWI APPENDIX A, MAP 1																												
EKWI4001	EKWA4000		CIRCULAR	24					257	12	9.8	11.6	9.8	11.6	9.8	1301.0	1296.3	1300.2	1291.4	1297.6	1295.7	1297.8	1296.5	1297.6	1297.2	1301.0	1300.1	1298.0	1297.8
EKWI4002	EKWI4001		CIRCULAR	24					414	13	9.8	11.6	9.8	11.6	9.8	1300.1	1297.6	1301.0	1296.3	1298.9	1297.6	1299.1	1297.8	1298.9	1297.6	1300.8	1301.0	1298.9	1298.0
EKWI4101	EKWA4000		CIRCULAR	30					175	20	15.2	18.8	19.7	22.6	19.6	1300.0	1295.4	1300.2	1291.4	1296.9	1295.7	1297.1	1296.5	1297.3	1297.2	1300.2	1300.1	1297.9	1297.8
EKWI4102	EKWI4101		CIRCULAR	30					198	20	2.2	3.7	6.1	7.5	6.0	1300.0	1295.9	1300.0	1295.4	1296.9	1296.9	1297.2	1297.1	1297.4	1297.3	1300.3	1300.2	1298.0	1297.9
EKWI4103	EKWI4102		CIRCULAR	30					273	19	2.2	3.6	6.1	7.0	6.1	1300.0	1296.5	1300.0	1295.9	1297.0	1296.9	1297.3	1297.2	1297.4	1297.4	1300.3	1300.3	1298.0	1298.0
EKWI4104	EKWI4103		CIRCULAR	30					86	17	2.2	3.5	6.1	7.7	6.1	1300.1	1296.6	1300.0	1296.5	1297.2	1297.0	1297.4	1297.3	1297.6	1297.4	1300.3	1300.3	1298.0	1298.0
EKWI4105	EKWI4104		CIRCULAR	30					431	10	2.3	3.6	6.1	9.9	6.1	1300.0	1296.9	1300.1	1296.6	1297.7	1297.2	1297.9	1297.4	1298.2	1297.6	1300.3	1300.3	1298.2	1298.0
EKWI4106	EKWI4105		CIRCULAR	30					462	18	2.3	3.6	6.1	7.4	6.1	1302.0	1297.7	1300.0	1296.9	1298.3	1297.7	1298.5	1297.9	1298.7	1298.2	1302.0	1300.3	1298.7	1298.2
EKWJ APPENDIX A, MAP 1																												
EKWJ5001	EKWA5000		CIRCULAR	30					307	47	2.8	3.4	3.3	4.1	3.8	1308.0	1301.8	1306.0	1297.6	1303.5	1303.5	1305.4	1304.5	1308.0	1305.3	1308.0	1306.5	1308.0	1304.8
EKWJ5002	EKWJ5001		CIRCULAR	30					453	30	2.8	3.4	3.3	3.9	3.3	1308.0	1304.3	1308.0	1301.8	1304.8	1303.5	1304.8	1305.4	1305.2	1308.0	1306.6	1308.0	1304.8	1308.0
EKWJ5003	EKWJ5002		CIRCULAR	24					356	19	1.4	1.8	1.8	2.1	1.8	1310.0	1306.9	1308.0	1304.3	1307.3	1304.8	1307.3	1304.8	1307.3	1305.2	1307.4	1306.6	1307.3	1304.8
EKWK APPENDIX A, MAP 1																												
EKWK6001	EKWA6000		CIRCULAR	15					213	4	5.1	5.9	6.2	6.7	6.2	1310.0	1305.4	1307.8	1299.8	1306.8	1304.1	1307.7	1305.7	1308.2	1306.8	1309.7	1308.3	1308.1	1306.4
EKWK6002	EKWK6001		CIRCULAR	15					208	4	5.1	5.9	6.2	6.9	6.2	1310.0	1306.3	1310.0	1305.4	1308.1	1306.8	1309.0	1307.7	1309.8	1308.2	1311.5	1309.7	1309.4	1308.1
EKWK6003	EKWK6002		CIRCULAR	12					60	1	3.2	3.8	4.5	4.9	4.5	1310.0	1306.5	1310.0	1306.3	1309.8	1308.1	1311.2	1309.0	1312.7	1309.8	1315.3	1311.5	1312.5	1309.4
EKWK6004	EKWK6003		CIRCULAR	12					142	0	3.2	3.9	4.6	5.2	4.6	1311.0	1306.5	1310.0	1306.5	1310.9	1309.8	1312.8	1311.2	1314.8	1312.7	1318.0	1315.3	1314.8	1312.5
EKWK6005	EKWK6004		CIRCULAR	12					210	2	1.3	1.9	2.8	3.2	2.8	1311.5	1307.5	1311.0	1306.5	1311.1	1310.9	1313.3	1312.8	1315.9	1314.8	1319.4	1318.0	1315.9	1314.8
EKWK6006	EKWK6005		CIRCULAR	12					150	3	1.2	1.8	2.9	3.4	2.9	1311.1	1308.5	1311.5	1307.5	1311.3	1311.1	1313.6	1313.3	1316.7	1315.9	1320.4	1319.4	1316.7	1315.9
EKWL APPENDIX A, MAP 3																												
EKWL7001	EKWA7000		CIRCULAR	72					116	871	33.9	37.2	34.1	38.5	56.6	1314.0	1307.4	1313.0	1303.0	1308.3	1306.0	1308.3	1306.3	1308.3	1307.7	1309.7	1310.5	1308.5	1307.4
EKWL7002	EKWL7001		CIRCULAR	24					36	47	33.9	37.3	34.1	37.4	2.2	1312.0	1309.0	1314.0	1307.4	1310.3	1308.3	1310.3	1308.3	1310.3	1308.3	1310.6	1309.7	1309.3	1308.5
EKWL7003	EKWL7002		TRAPEZOIDAL	60	60	1.8	1.8		200	197	33.9	37.3	34.1	37.4	2.2	1312.5	1309.5	1312.0	1309.0	1311.6	1310.3	1311.7	1310.3	1311.6	1310.3	1311.7	1310.6	1310.0	1309.3
EKWL7004	EKWL7003		CIRCULAR	24					45	1	34.1	37.5	34.3	37.6	2.4	1312.5	1309.5	1312.5	1309.5	1312.6	1311.6	1312.9	1311.7	1312.6	1311.6	1312.9	1311.7	1310.2	1310.0
EKWL7005	EKWL7004		TRAPEZOIDAL	60	60	1.8	1.8		260	111	34.5	38.1	34.7	38.3	57.1	1315.7	1309.7	1312.5	1309.5	1312.8	1312.6	1313.0	1312.9	1312.8	1312.6	1313.1	1312.9	1310.2	1310.2
EKWL7005	EKWL7001	Ehrman Way Improvements	CIRCULAR	--				36	50	56	--	--	--	--	57.1	1315.7	1309.7	1314.0	1307.4	--	--	--	--	--	--	--	--	1310.2	1308.5
EKWL7006	EKWL7005	Ehrman Way Improvements	CIRCULAR	24				36	240	6	32.8	36.0	32.9	36.2	55.1	1315.9	1309.9	1315.7	1309.7	1317.8	1312.8	1319.1	1313.0	1317.8	1312.8	1319.2	1313.1	1312.0	1310.2
EKWL7007	EKWL7006	Ehrman Way Improvements	CIRCULAR	24				36	15	14	32.8	36.0	32.9	36.2	55.1	1315.9	1309.9	1315.9	1309.9	1318.1	1317.8	1319.5	1319.1	1318.2	1317.8	1319.5	1319.2	1312.1	1312.0
EKWL7008	EKWL7007	Ehrman Way Improvements	CIRCULAR	24				36	25	11	33.1	36.4	33.3	36.6	55.2	1316.0	1310.0	1315.9	1309.9	1318.6	1318.1	1320.1	1319.5	1318.7	1318.2	1320.2	1319.5	1312.3	1312.1
EKWL7009	EKWL7008	Ehrman Way Improvements	CIRCULAR	2 - 18				30	75	11	21.1	23.0	21.2	23.1	40.6	1316.0	1310.2	1316.0	1310.0	1319.3	1318.6	1320.9	1320.1	1319.4	1318.7	1321.0	1320.2	1313.0	1312.3
EKWL7010	EKWL7009	Ehrman Way Improvements	CIRCULAR	2 - 18				30	740	13	14.3	14.9	14.3	15.0	29.0	1316.3	1312.9	1316.0	1310.2	1321.4	1319.3	1322.9	1320.9	1321.5	1319.4	1323.1	1321.0	1316.5	1313.0
EKWL7011	EKWL7010	Ehrman Way Improvements	CIRCULAR	18				30	18	1	5.5	5.7	5.5	5.8	20.4	1316.3	1312.9	1316.3	1312.9	1321.5	1321.4	1323.0	1322.9	1321.6	1321.5	1323.1	1323.1	1316.6	1316.5
EKWL7012	EKWL7011	Ehrman Way Improvements	CIRCULAR	18				30	545	3	16.7	19.6	16.9	19.7	24.5	1318.2	1313.5	1316.3	1312.9	1322.8	1321.5	1324.3	1323.0	1322.9	1321.6	1324.4	1323.1	1318.2	1316.6

Conduit Name U/S Node	Conduit Name D/S Node	Capital Improvement Project (CIP) Name	Conduit Attributes: Type	Conduit Attributes: Diameter/ Channel Height (inches)	Conduit Attributes: Width (inches)	Conduit Attributes: Left Channel Slope (H:V)	Conduit Attributes: Right Channel Slope (H:V)	Conduit Attributes: CIP Conduit Size (inches)	Conduit Attributes: Conduit Length	Conduit Capacity (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 25yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 25yr 24hr Peak Flow (cfs)	Future CIP Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Node Rim and Invert Elevation (IE): US Rim (ft)	Node Rim and Invert Elevation (IE): US IE (ft)	Node Rim and Invert Elevation (IE): DS Rim (ft)	Node Rim and Invert Elevation (IE): DS IE (ft)	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Existing Conditions: 25yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Existing Conditions: 25yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future Conditions: 25yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future Conditions: 25yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) DS
EKWL7100	EKWL7008		CIRCULAR	15					850	4	20.9	23.1	21.0	23.3	21.8	1315.5	1313.3	1316.0	1310.0	1322.7	1318.6	1324.2	1320.1	1322.8	1318.7	1324.3	1320.2	1317.9	1312.3
EKWL7100	EKWL7010		CIRCULAR	18					61	4	20.9	23.1	21.0	23.3	21.8	1315.5	1313.3	1316.3	1312.9	1322.7	1321.4	1324.2	1322.9	1322.8	1321.5	1324.3	1323.1	1317.9	1316.5
EKWL7101	EKWL7012	Ehrman Way Improvements	CIRCULAR	3 - 18				3 - 24	54	10	26.1	29.3	26.2	29.5	16.4	1317.8	1313.6	1318.2	1313.5	1322.8	1322.8	1324.3	1324.3	1322.9	1322.9	1324.4	1324.4	1317.9	1318.2
EKWL7101	EKWL7100		TRAPEZOIDAL	24	48	3.0	3.0		550	15	26.1	29.3	26.2	29.5	16.4	1317.8	1313.6	1315.5	1313.3	1322.8	1322.7	1324.3	1324.2	1322.9	1322.8	1324.4	1324.3	1317.9	1317.9
EKWL7102	EKWL7101		CIRCULAR	18					1330	7	7.9	8.2	8.0	8.2	8.3	1325.9	1319.8	1317.8	1313.6	1323.5	1322.8	1324.5	1324.3	1325.9	1322.9	1324.6	1324.4	1322.1	1317.9
EKWL7103	EKWL7102		CIRCULAR	2 - 12					80	4	7.9	8.2	8.0	8.2	8.3	1323.1	1320.0	1325.9	1319.8	1323.8	1323.5	1324.9	1324.5	1324.0	1325.9	1324.9	1324.6	1322.8	1322.1
EKWL7200	EKWL7103		CIRCULAR	12					18	0	71.3	87.8	76.2	87.9	75.0	1325.0	1320.0	1323.1	1320.0	1324.2	1323.8	--	1324.9	1324.3	1324.0	1325.0	1324.9	1323.7	1322.8
Hampton Detention Pond at Node EKWL7200																													
EKWL7201	EKWL7200		CIRCULAR	24					30	72	10.0	13.1	10.5	13.9	8.3	1325.0	1323.0	1325.0	1320.0	1324.2	1324.2	1325.0	--	1324.4	1324.3	1325.0	1325.0	1323.7	1323.7
EKWL7202	EKWL7201		TRAPEZOIDAL	30	36	1.0	1.0		900	1	7.8	9.4	7.8	9.4	7.8	1326.0	1323.0	1325.0	1323.0	1325.3	1324.2	1325.6	1325.0	1325.3	1324.4	1325.5	1325.0	1325.3	1323.7
EKWL7203	EKWL7202		CIRCULAR	18					94	6	5.3	6.3	5.3	6.3	5.3	1328.4	1323.3	1326.0	1323.0	1325.6	1325.3	1325.9	1325.6	1325.6	1325.3	1325.9	1325.5	1325.6	1325.3
EKWL7204	EKWL7203		CIRCULAR	18					35	6	5.3	6.3	5.3	6.3	5.3	1328.2	1323.4	1328.4	1323.3	1325.6	1325.6	1326.0	1325.9	1325.6	1325.6	1326.0	1325.9	1325.6	1325.6
EKWL7205	EKWL7204		CIRCULAR	30					214	24	5.5	6.5	5.5	6.5	5.5	1329.8	1324.1	1328.2	1323.4	1325.6	1325.6	1326.0	1326.0	1325.6	1325.6	1326.0	1326.0	1325.6	1325.6
EKWL7206	EKWL7205		CIRCULAR	30					314	33	5.5	6.5	5.5	6.5	5.5	1330.4	1325.9	1329.8	1324.1	1326.6	1325.6	1326.7	1326.0	1326.6	1325.6	1326.7	1326.0	1326.6	1325.6
EKWL7207	EKWL7206		CIRCULAR	18					198	9	5.5	6.5	5.5	6.5	5.5	1331.4	1327.3	1330.4	1325.9	1328.1	1326.6	1328.2	1326.7	1328.1	1326.6	1328.2	1326.7	1328.1	1326.6
EKWL7208	EKWL7207		CIRCULAR	18					510	8	2.2	2.6	2.2	2.6	2.2	1334.6	1330.0	1331.4	1327.3	1330.6	1328.1	1330.6	1328.2	1330.6	1328.1	1330.6	1328.2	1330.6	1328.1
EKWL7209	EKWL7208		CIRCULAR	18					286	9	2.2	2.6	2.2	2.6	2.2	1336.5	1332.1	1334.6	1330.0	1332.6	1330.6	1332.7	1330.6	1332.6	1330.6	1332.7	1330.6	1332.6	1330.6
EKWL7210	EKWL7209		CIRCULAR	18					255	4	2.2	2.6	2.2	2.6	2.2	1338.2	1332.5	1336.5	1332.1	1333.2	1332.6	1333.3	1332.7	1333.2	1332.6	1333.3	1332.7	1333.2	1332.6
EKWL7211	EKWL7210		CIRCULAR	15					255	6	2.2	2.6	2.2	2.6	2.2	1340.3	1334.5	1338.2	1332.5	1335.0	1333.2	1335.1	1333.3	1335.0	1333.2	1335.1	1333.3	1335.0	1333.2
EKWL7300	EKWL7200		TRAPEZOIDAL	36	96	2.0	2.0		150	876	52.4	64.4	54.9	65.4	53.3	1325.0	1321.9	1325.0	1320.0	1324.2	1324.2	1325.0	--	1324.3	1324.3	1325.0	1325.0	1323.7	1323.7
EKWL7301	EKWL7300		TRAPEZOIDAL	30	120	1.0	1.0		210	53	10.4	15.6	11.4	17.6	11.2	1326.0	1322.2	1325.0	1321.9	1324.2	1324.2	1325.1	1325.0	1324.3	1324.3	1325.0	1325.0	1323.7	1323.7
EKWL7302	EKWL7301		CIRCULAR	18					59	5	8.5	10.7	8.5	11.1	8.5	1327.6	1322.4	1326.0	1322.2	1324.2	1324.2	1325.0	1325.1	1324.3	1324.3	1325.1	1325.0	1323.7	1323.7
EKWL7303	EKWL7302		CIRCULAR	36					117	40	8.5	10.0	8.5	10.1	8.5	1328.2	1322.7	1327.6	1322.4	1324.2	1324.2	1325.0	1325.0	1324.3	1324.3	1325.0	1325.1	1323.7	1323.7
EKWL7304	EKWL7303		CIRCULAR	36					223	37	8.5	10.0	8.5	10.0	8.5	1328.7	1323.4	1328.2	1322.7	1324.4	1324.2	1325.0	1325.0	1324.4	1324.3	1325.0	1325.0	1324.4	1323.7
EKWL7306	EKWL7304		CIRCULAR	30					460	30	6.2	7.3	6.2	7.3	6.2	1330.6	1325.8	1328.7	1323.4	1326.5	1324.4	1326.6	1325.0	1326.5	1324.4	1326.6	1325.0	1326.5	1324.4
EKWL7307	EKWL7306		CIRCULAR	30					254	30	6.2	7.3	6.2	7.3	6.2	1331.2	1327.0	1330.6	1325.8	1327.8	1326.5	1327.8	1326.6	1327.8	1326.5	1327.8	1326.6	1327.8	1326.5
EKWL7308	EKWL7307		CIRCULAR	30					306	33	5.5	6.5	5.5	6.5	5.5	1333.6	1328.8	1331.2	1327.0	1329.5	1327.8	1329.6	1327.8	1329.5	1327.8	1329.6	1327.8	1329.5	1327.8
EKWL7309	EKWL7308		CIRCULAR	24					180	23	4.8	5.6	4.8	5.6	4.8	1335.2	1330.6	1333.6	1328.8	1331.2	1329.5	1331.3	1329.6	1331.2	1329.5	1331.3	1329.6	1331.2	1329.5
EKWL7310	EKWL7309		CIRCULAR	18					279	9	4.8	5.6	4.8	5.6	4.8	1337.7	1332.5	1335.2	1330.6	1333.3	1331.2	1333.4	1331.3	1333.3	1331.2	1333.4	1331.3	1333.3	1331.2
EKWL7311	EKWL7310		CIRCULAR	18					255	11	4.8	5.6	4.8	5.6	4.8	1340.6	1335.3	1337.7	1332.5	1336.0	1333.3	1336.0	1333.4	1336.0	1333.3	1336.0	1333.4	1336.0	1333.3
EKWL7312	EKWL7311		CIRCULAR	18					254	10	4.8	5.6	4.8	5.6	4.8	1342.7	1337.5	1340.6	1335.3	1338.2	1336.0	1338.3	1336.0	1338.2	1336.0	1338.3	1336.0	1338.2	1336.0
EKWL7400	EKWL7300		CIRCULAR	36					79	37	11.8	14.7	12.8	15.5	12.8	1327.2	1322.2	1325.0	1321.9	1324.2	1324.2	1325.1	1325.0	1324.3	1324.3	1325.0	1325.0	1323.7	1323.7
EKWL7500	EKWL7400		CIRCULAR	36					187	36	11.8	14.7	13.2	15.7	13.0	1327.9	1322.7	1327.2	1322.2	1324.2	1324.2	1325.0	1325.1	1324.3	1324.3	1325.0	1325.0	1323.9	1323.7
EKWL7501	EKWL7500		CIRCULAR	18					193	8	6.6	7.9	6.7	7.9	6.7	1328.6	1323.6	1327.9	1322.7	1324.7	1324.2	1325.4	1325.0	1324.7	1324.3	1325.4	1325.0	1324.7	1323.9
EKWL7502	EKWL7501		CIRCULAR	30					56	29	6.6	7.9	6.7	7.9	6.7	1328.9	1323.9	1328.6	1323.6	1324.8	1324.7	1325.1	1325.4	1324.8	1324.7	1325.2	1325.4	1324.8	1324.7
EKWL7503	EKWL7502		CIRCULAR	30					259	27	6.6	7.9	6.7	7.9	6.7	1331.2	1324.9	1328.9	1323.9	1325.8	1324.8	1325.9	1325.1	1325.8	1324.8	1325.9	1325.2	1325.8	1324.8
EKWL7504	EKWL7503		CIRCULAR	18					256	12	5.9	7.0	5.9	7.0	5.9	1333.1	1328.2	1331.2	1324.9	1328.9	1325.8	1329.0	1325.9	1328.9	1325.8	1329.0	1325.9	1328.9	1325.8
EKWL7505	EKWL7504		CIRCULAR	30					255	32	5.2	6.2	5.2	6.2	5.2	1335.0	1329.8	1333.1	1328.2	1330.4	1328.9	1330.5	1329.0	1330.4	1328.9	1330.5	1329.0	1330.4	1328.9
EKWL7506	EKWL7505		CIRCULAR	24					226	20	4.5	5.3	4.5	5.3	4.5	1336.6	1331.5	1335.0	1329.8	1332.1	1330.4	1332.2	1330.5	1332.1	1330.4	1332.2	1330.5	1332.1	1330.4
EKWL7507	EKWL7506		CIRCULAR	24					316	21	3.2	3.9	3.3	3.9	3.3	1339.3	1334.1	1336.6	1331.5	1334.7	1332.1	1334.7	1332.2	1334.7	1332.1	1334.7	1332.2	1334.7	1332.1
EKWL7508	EKWL7507		CIRCULAR	18					254	6	3.3	3.9	3.3	3.9	3.3	1341.1	1334.9	1339.3	1334.1	1335.7	1334.7	1335.7	1334.7	1335.7	1334.7	1335.7	1334.7	1335.7	1334.7
EKWL7509	EKWL7508		CIRCULAR	18					39	14	3.3	3.9	3.3	3.9	3.3	1340.3	1335.5	1341.1	1334.9	1336.1	1335.7	1336.1	1335.7	1336.1	1335.7	1336.1	1335.7	1336.1	1335.7
EKWL7510	EKWL7509		CIRCULAR	18					140	7	3.3	3.9	3.3	3.9	3.3	1340.5	1336.2	1340.3	1335.5	1336.8	1336.1	1336.9	1336.1	1336.8	1336.1	1336.9	1336.1	1336.8	1336.1
EKWL7600	EKWL7500		CIRCULAR	30					54	41	3.6	4.4	3.8	4.8	3.7	1327.2	1323.2	1327.9	1322.7	1324.3	1324.2	1325.1	1325.0	1324.4	1324.3	1325.1	1325.0	1323.8	1323.9
EKWL7601	EKWL7600		CIRCULAR	30					23	25	3.5	4.2	3.6	4.3	3.6	1327.2	1323.3	1327.2	1323.2	1324.2	1324.3	1325.1	1325.1	1324.4	1324.4	1325.1	1325.1	1323.9	1323.8
EKWL7602	EKWL7601		CIRCULAR	18					170	6	3.5	4.2	3.6	4.2	3.6	1328.0	1323.8	1327.2	1323.3	1324.6	1324.2	1325.1	1325.1	1324.6	1324.4	1325.1	1325.1	1324.6	1323.9
EKWL7603	EKWL7602		CIRCULAR	24					88	18	3.5	4.2	3.6	4.2	3.6	1328.5	1324.3	1328.0	1323.8	1324.9	1324.6	1325.1	1325.1	1324.9	1324.6	1325.0	1325.1	1324.9	1324.6
EKWL7604	EKWL7603		CIRCULAR	18					239	5	3.5	4.2	3.6	4.2	3.6	1329.7	1324.8	1328.5	1324.3	1325.7	1324.9	1325.8	1325.1	1325.7	1324.9	1325.8	1325.0	1325.7	1324.9
EKWL7605	EKWL7604		CIRCULAR	24					74	10	3.5	4.2	3.6	4.2	3.6	1329.3	1324.9	1329.7	1324.8	1325.8	1325.7	1325.9	1325.8	1325.8	1325.7	1325.9	1325.8	1325.8	1325.7
EKWL7610	EKWL7605		CIRCULAR	24					16	12	3.5	4.2	3.6	4.2	3.6	1329.4	1325.0	1329.3	1324.9	1325.8	1325.8	1325.9	1325.9	1325.8	1325.8	1325.9	1325.9	1325.8	1325.8
EKWL7611	EKWL7610		CIRCULAR	18					247	8	0.6	0.8	0.6	0.8	0.6	1329.7	1326.8	1329.4	1325.0	1327.0	1325.8	1327.1	1325.9	1327.0	1325.8	1327.1	1325.9	1327.0	1325.8
EKWL7620	EKWL7610		CIRCULAR	24					253	13	2.4	2.8	2.4	2.8	2.4	1332.1	1325.8	1329.4	1325.0	1326.4	1325.8	1326.5	1325.9	1326.4	1325.8	1326.5	1325.9	1326.4	1325.8
EKWL7621	EKWL7620		CIRCULAR	18					255	9	1.2	1.4	1.2	1.4	1.2	1333.6	1327.7	1332.1	1325.8	1328.0	1326.4	1328.1	1326.5	1328.0	1326.4	1328.1	1326.5	1328.0	1326.4
EKWL7622	EKWL7621		CIRCULAR	18					248	8	1.2	1.4	1.2	1.4	1.2	1332.4	1328.9	1333.6	1327.7	1329.3	1328.0	1329.4	1328.1	1329.3	1328.0	1329.4	1328.1	1329.3	1328.0
EKWM APPENDIX A, MAP 4																													
EKWM8100	EKWA8000		CIRCULAR	18					78	11	8.1	8.1	7.6	8.1	7.9	1313.3	1310.7	1314.0	1310.0	1314.3	1313.9	1314.9	1314.4	1315.0	1314.6	1315.1	1314.6	1313.9	1313.4
EKWM8102	EKWM8100		CIRCULAR	18					171	10	8.1	8.1	7.8	8.3	7.9	1315.2	1312.1	1313.3	1310.7	1315.2	1314.3	1315.9	1314.9	1315.8	1315.0	1316.1	1315.1	1315.2	1313.9
EKWM8103	EKWM8102		CIRCULAR	18					116	11	8.2	8.3	7.8	8.1	8.0	1316.2	1313.3	1315.2	1312.1	1316.1	1315.2	1316.5	1315.9	1316.4	1315.8	1316.8	1316.1	1316.2	1315.2
EKWM8104	EKWM8103		CIRCULAR	18					324	8	8.2	8.4	8.0	8.1	8.1	1318.1	1315.2	1316.2	1313.3	1318.1	1316.1	1318.4	1316.5	1318.1	1316.4	1318.7	1316.8	1318.1	1316.2
EKWM8105	EKWM8104		CIRCULAR	18					451	7	8.2	8.4	8.2	8.2	8.2	1319.9	1317.0	1318.1	1315.2	1319.9	1318.1	1321.0	1318.4	1320.4	1318.1	1321.4	1318.7	1319.9	1318.1
EKWM8106	EKWM8105		CIRCULAR	18					255	7	8.2	8.4	8.2	8.4	8.2	1321.3	1318.0	1319.9	1317.0	1321.3	1319.9	1322.5	1321.0	1321.8	1320.4	1322.9	1321.4	1321.3	1319.9
EKWM8107	EKWM8106		CIRCULAR	18					63	4	8.2	8.4	8.2	8.3	8.2	1321.6	1318.1	1321.3	1318.0	1321.6	1321.3	1322.8	1322.5	1322.1	1321.8	1323.2	1322.9	1321.6	1321.3
EKWM8108	EKWM8107		CIRCULAR	18					93	8	8.2	8.4	8.3	8.5	8.3	1321.9	1318.6	1321.6	1318.1	1321.9	1321.6	1323.4	1322.8	1322.6	1322.1	1323.8	1323.2	1322.0	1321.6

Conduit Name U/S Node	Conduit Name D/S Node	Capital Improvement Project (CIP) Name	Conduit Attributes: Type	Diameter/ Channel Height (inches)	Width (inches)	Left Channel Slope (H:V)	Right Channel Slope (H:V)	CIP Conduit Size (inches)	Conduit Length	Conduit Capacity (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Existing: 25yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Future: 25yr 24hr Peak Flow (cfs)	Future CIP Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Node Rim and Invert Elevation (IE): US Rim (ft)	US IE (ft)	DS Rim (ft)	DS IE (ft)	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) US	DS	25yr 24hr HGL (feet) US	DS	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) US	DS	25yr 24hr HGL (feet) US	DS	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) US	DS
EKWM8109	EKWM8108		CIRCULAR	18					187	5	8.2	8.5	8.3	8.5	8.3	1322.6	1319.0	1321.9	1318.6	1322.8	1321.9	1324.5	1323.4	1323.5	1322.6	1324.9	1323.8	1323.0	1322.0
EKWM8110	EKWM8109		CIRCULAR	18					226	7	8.3	8.7	8.3	9.0	9.0	1323.4	1320.1	1322.6	1319.0	1324.1	1322.8	1325.8	1324.5	1324.7	1323.5	1326.3	1324.9	1324.3	1323.0
EKWM8111	EKWM8110		CIRCULAR	18					178	6	6.7	7.1	6.6	7.1	6.7	1324.2	1320.7	1323.4	1320.1	1324.8	1324.1	1326.6	1325.8	1325.4	1324.7	1327.1	1326.3	1325.0	1324.3
EKWM8112	EKWM8111		CIRCULAR	18					369	6	7.0	7.2	7.1	7.4	7.1	1326.0	1322.1	1324.2	1320.7	1326.3	1324.8	1328.2	1326.6	1326.8	1325.4	1328.8	1327.1	1326.5	1325.0
EKWM8113	EKWM8112		CIRCULAR	18					315	7	7.2	7.4	7.3	7.6	7.3	1327.1	1323.5	1326.0	1322.1	1327.6	1326.3	1329.6	1328.2	1328.1	1326.8	1330.2	1328.8	1327.8	1326.5
EKWM8114	EKWM8113		CIRCULAR	18					208	6	7.3	7.7	7.3	7.7	7.3	1327.8	1324.2	1327.1	1323.5	1328.4	1327.6	1330.6	1329.6	1328.9	1328.1	1331.2	1330.2	1328.6	1327.8
EKWM8115	EKWM8114		CIRCULAR	18					214	5	5.7	6.1	5.7	6.2	5.8	1328.0	1324.7	1327.8	1324.2	1329.0	1328.4	1331.3	1330.6	1329.5	1328.9	1331.9	1331.2	1329.2	1328.6
EKWM8115	EKWM8216		CIRCULAR	18					72	5	5.7	6.1	5.7	6.2	5.8	1328.0	1324.7	1327.6	1324.2	1329.0	1329.6	1331.3	1332.0	1329.5	1330.1	1331.9	1332.6	1329.2	1329.8
EKWM8116	EKWM8115		CIRCULAR	18					114	8	1.9	1.6	1.9	1.9	1.5	1328.0	1325.4	1328.0	1324.7	1329.0	1329.0	1331.3	1331.3	1329.5	1329.5	1331.9	1331.9	1329.2	1329.2
EKWM8201	EKWA8001		CIRCULAR	18					372	2	15.9	18.7	16.1	18.9	16.1	1318.5	1314.1	1316.0	1311.2	1335.0	1313.9	1339.6	1314.7	1335.8	1315.0	1341.0	1315.1	1335.5	1313.6
EKWM8202	EKWM8201		CIRCULAR	18					176	5	8.1	9.8	8.7	10.6	8.5	1318.7	1314.4	1318.5	1314.1	1334.3	1335.0	1338.6	1339.6	1335.0	1335.8	1339.7	1341.0	1334.8	1335.5
EKWM8203	EKWM8202		CIRCULAR	18					172	5	7.5	9.1	8.1	9.8	7.9	1319.0	1314.7	1318.7	1314.4	1333.7	1334.3	1337.8	1338.6	1334.5	1335.0	1338.8	1339.7	1334.2	1334.8
EKWM8204	EKWM8203		CIRCULAR	18					129	6	7.0	8.5	7.5	9.1	7.4	1319.5	1315.1	1319.0	1314.7	1333.4	1333.7	1337.3	1337.8	1334.1	1334.5	1338.2	1338.8	1333.9	1334.2
EKWM8205	EKWM8204		CIRCULAR	18					355	7	6.3	7.6	6.7	8.2	6.6	1320.4	1316.5	1319.5	1315.1	1332.7	1333.4	1336.3	1337.3	1333.4	1334.1	1337.1	1338.2	1333.1	1333.9
EKWM8206	EKWM8205		CIRCULAR	18					83	9	5.7	6.9	6.1	7.4	6.0	1320.8	1317.2	1320.4	1316.5	1332.6	1332.7	1336.1	1336.3	1333.2	1333.4	1336.9	1337.1	1333.0	1333.1
EKWM8207	EKWM8206		CIRCULAR	18					171	7	5.3	6.5	5.7	6.9	5.6	1321.6	1317.9	1320.8	1317.2	1332.3	1332.6	1335.7	1336.1	1333.0	1333.2	1336.5	1336.9	1332.7	1333.0
EKWM8208	EKWM8207		CIRCULAR	18					354	6	4.8	5.8	5.0	6.1	5.0	1323.1	1318.8	1321.6	1317.9	1331.9	1332.3	1335.1	1335.7	1332.5	1333.0	1335.8	1336.5	1332.2	1332.7
EKWM8209	EKWM8208		CIRCULAR	18					105	7	4.3	5.2	4.6	5.5	4.5	1323.4	1319.3	1323.1	1318.8	1331.8	1331.9	1334.9	1335.1	1332.4	1332.5	1335.7	1335.8	1332.1	1332.2
EKWM8210	EKWM8209		CIRCULAR	18					294	7	4.0	4.8	4.2	5.1	4.2	1324.3	1320.5	1323.4	1319.3	1331.5	1331.8	1334.5	1334.9	1332.0	1332.4	1335.2	1335.7	1331.8	1332.1
EKWM8211	EKWM8210		CIRCULAR	18					201	7	3.7	4.4	3.9	4.6	3.8	1324.9	1321.4	1324.3	1320.5	1331.3	1331.5	1334.2	1334.5	1331.8	1332.0	1334.9	1335.2	1331.6	1331.8
EKWM8212	EKWM8211		CIRCULAR	18					155	5	3.5	4.2	3.7	4.3	3.7	1325.5	1321.7	1324.9	1321.4	1331.1	1331.3	1334.0	1334.2	1331.6	1331.8	1334.7	1334.9	1331.4	1331.6
EKWM8213	EKWM8212		CIRCULAR	18					198	7	3.4	4.0	3.5	4.1	3.5	1326.2	1322.6	1325.5	1321.7	1330.9	1331.1	1333.7	1334.0	1331.4	1331.6	1334.4	1334.7	1331.2	1331.4
EKWM8214	EKWM8213		CIRCULAR	18					247	7	3.5	3.9	3.5	4.0	3.6	1326.9	1323.6	1326.2	1322.6	1330.6	1330.9	1333.4	1333.7	1331.1	1331.4	1334.1	1334.4	1330.9	1331.2
EKWM8215	EKWM8214		CIRCULAR	18					132	8	3.8	3.9	3.7	4.0	3.9	1327.5	1324.4	1326.9	1323.6	1330.5	1330.6	1333.2	1333.4	1331.0	1331.1	1333.9	1334.1	1330.8	1330.9
EKWM8216	EKWM8215		CIRCULAR	12					100	1	5.2	5.8	5.2	5.8	5.4	1327.6	1324.2	1327.5	1324.4	1329.6	1330.5	1332.0	1333.2	1330.1	1331.0	1332.6	1333.9	1329.8	1330.8
EKWN APPENDIX A, MAP 4																													
EKWN9001	EKWA9000		CIRCULAR	36					60	172	16.9	21.3	25.8	23.8	26.6	1324.5	1322.0	1323.0	1318.0	1324.5	1324.4	1324.6	1324.5	1324.8	1324.8	1325.0	1325.0	1324.7	1324.7
EKWN9002	EKWN9001		CIRCULAR	2 - 24					60	59	10.3	10.2	15.7	18.7	15.7	1325.5	1323.0	1324.5	1322.0	1324.6	1324.5	1324.8	1324.6	1324.9	1324.8	1325.1	1325.0	1324.8	1324.7
EKWO APPENDIX A, MAP 4																													
EKWO10001	EKWA10000		CIRCULAR	36					316	70	3.7	4.5	4.2	4.9	4.2	1342.0	1337.7	1342.0	1334.0	1338.2	1336.5	1338.2	1336.8	1338.2	1336.9	1338.2	1336.9	1338.2	1336.5
EKWO10002	EKWO10001		CIRCULAR	36					347	40	1.8	2.0	1.8	2.0	1.8	1344.0	1338.8	1342.0	1337.7	1339.2	1338.2	1339.3	1338.2	1339.2	1338.2	1339.3	1338.2	1339.2	1338.2
EKWP APPENDIX A, MAP 5																													
EKWP11001	EKWA11000		CIRCULAR	18					15	43	6.6	6.8	6.4	10.7	6.4	1362.1	1357.4	1362.0	1355.1	1359.8	1359.0	1360.2	1360.2	1360.3	1360.3	1360.9	1360.5	1360.4	1360.3
EKWP11002	EKWP11001		CIRCULAR	18					20	6	7.9	6.1	8.6	14.1	9.0	1360.2	1357.5	1362.1	1357.4	1359.1	1359.8	--	1360.2	1360.2	1360.3	1360.2	1360.9	1360.2	1360.4
Stonefield Detention Pond at Node EKWP11002																													
EKWP11003	EKWP11002		CIRCULAR	18					28	13	7.5	3.5	6.5	6.3	6.7	1362.0	1357.9	1360.2	1357.5	1362.0	1359.1	1360.2	--	1362.0	1360.2	1362.0	1360.2	1362.0	1360.2
EKWP11004	EKWP11003		CIRCULAR	18					39	8	3.4	3.6	3.0	3.6	3.1	1362.0	1358.1	1362.0	1357.9	1359.2	1362.0	1360.3	1360.2	1360.3	1362.0	1360.3	1362.0	1360.3	1362.0
EKWP11005	EKWP11004		CIRCULAR	18					98	9	3.0	3.5	3.0	3.5	3.0	1362.0	1358.7	1362.0	1358.1	1359.4	1359.2	1360.2	1360.3	1360.3	1360.3	1360.5	1360.3	1360.3	1360.3
EKWP11006	EKWP11005		CIRCULAR	18					183	8	3.0	3.5	3.0	3.5	3.1	1363.3	1359.8	1362.0	1358.7	1360.4	1359.4	1360.5	1360.2	1360.4	1360.3	1360.5	1360.5	1360.4	1360.3
EKWP11007	EKWP11006		CIRCULAR	18					35	10	3.0	3.5	3.1	3.5	3.1	1362.9	1360.0	1363.3	1359.8	1360.6	1360.4	1360.7	1360.5	1360.6	1360.4	1360.7	1360.5	1360.6	1360.4
EKWP11008	EKWP11007		CIRCULAR	15					155	5	3.0	3.6	3.1	3.5	3.1	1364.8	1361.0	1362.9	1360.0	1361.7	1360.6	1361.8	1360.7	1361.7	1360.6	1361.8	1360.7	1361.7	1360.6
EKWP11009	EKWP11008		CIRCULAR	15					41	8	3.3	4.0	3.4	4.0	3.4	1365.7	1361.6	1364.8	1361.0	1362.2	1361.7	1362.2	1361.8	1362.2	1361.7	1362.2	1361.8	1362.2	1361.7
EKWP11010	EKWP11009		CIRCULAR	15					15	4	3.0	3.5	3.0	3.5	3.0	1365.7	1361.7	1365.7	1361.6	1362.4	1362.2	1362.5	1362.2	1362.4	1362.2	1362.5	1362.2	1362.4	1362.2
EKWP11011	EKWP11010		CIRCULAR	15					108	5	3.0	3.5	3.0	3.5	3.0	1366.6	1362.3	1365.7	1361.7	1363.0	1362.4	1363.1	1362.5	1363.0	1362.4	1363.1	1362.5	1363.0	1362.4
EKWP11012	EKWP11011		CIRCULAR	15					94	1	3.0	3.5	3.0	3.5	3.0	1364.3	1362.4	1366.6	1362.3	1363.4	1363.0	1363.5	1363.1	1363.4	1363.0	1363.5	1363.1	1363.4	1363.0
EKWP11100	EKWA11000		CIRCULAR	36					54	114	35.1	36.6	36.1	40.1	36.0	1362.2	1356.7	1362.0	1355.1	1359.6	1359.0	1360.4	1360.2	1360.5	1360.3	1362.2	1360.5	1360.5	1360.3
EKWP11101	EKWP11100		CIRCULAR	36					111	46	31.3	35.8	35.6	39.2	35.7	1362.4	1357.2	1362.2	1356.7	1359.2	1359.6	1360.6	1360.4	1360.8	1360.5	1361.1	1362.2	1360.9	1360.5
EKWP11200	EKWP11101		CIRCULAR	36					185	43	31.3	36.0	36.1	39.1	35.7	1363.8	1357.9	1362.4	1357.2	1359.8	1359.2	1361.1	1360.6	1361.3	1360.8	1361.8	1361.1	1361.4	1360.9
EKWP11201	EKWP11200		CIRCULAR	18					195	5	0.0	0.2	0.5	0.7	0.5	1364.0	1359.9	1363.8	1357.9	1359.9	1359.8	1361.1	1361.1	1361.2	1361.3	1361.8	1361.8	1361.3	1361.4
EKWP11300	EKWP11200		CIRCULAR	36					152	28	31.3	36.0	36.1	39.2	35.7	1365.3	1358.8	1363.8	1357.9	1361.4	1359.8	1362.4	1361.1	1362.8	1361.3	1363.5	1361.8	1362.8	1361.4
EKWP11400	EKWP11300		CIRCULAR	36					204	26	31.3	36.0	36.1	39.1	35.7	1367.3	1359.9	1365.3	1358.8	1362.8	1361.4	1364.2	1362.4	1364.9	1362.8	1365.9	1363.5	1364.8	1362.8
EKWP11401	EKWP11400		CIRCULAR	36					174	44	29.3	33.5	34.2	37.5	34.1	1369.0	1362.5	1367.3	1359.9	1364.3	1362.8	1365.5	1364.2	1366.2	1364.9	1367.8	1365.9	1366.3	1364.8
EKWP11410	EKWP11401		CIRCULAR	36					236	32	29.3	33.6	34.4	37.5	34.3	1371.2	1364.3	1369.0	1362.5	1366.6	1364.3	1367.1	1365.5	1368.2	1366.2	1370.4	1367.8	1368.4	1366.3
EKWP11411	EKWP11410		CIRCULAR	18					129	12	0.2	0.5	1.1	2.1	1.2	1371.5	1366.1	1371.2	1364.3	1366.6	1366.6	1367.1	1367.1	1368.8	1368.2	1370.4	1370.4	1369.3	1368.4
EKWP11412	EKWP11411		CIRCULAR	18					115	9	0.2	0.5	1.1	2.0	1.1	1372.3	1366.8	1371.5	1366.1	1367.0	1366.6	1367.1	1367.1	1368.2	1368.8	1370.4	1370.4	1368.3	1369.3
EKWP11420	EKWP11410		CIRCULAR	36					247	32	27.9	32.2	32.6	36.1	32.5	1373.7	1366.3	1371.2	1364.3	1368.4	1366.6	1368.7	1367.1	1370.2	1368.2	1372.8	1370.4	1370.2	1368.4
EKWP11421	EKWP11420		CIRCULAR	36					196	35	27.9	32.3	33.0	36.1	32.9	1375.6	1368.1	1373.7	1366.3	1370.1	1368.4	1370.4	1368.7	1371.7	1370.2	1374.8	1372.8	1371.8	1370.2
EKWP11430	EKWP11421		CIRCULAR	36					95	47	28.0	32.8	38.7	37.0	38.8	1377.3	1369.8	1375.6	1368.1	1371.4	1370.1	1371.6	1370.4	1372.3	1371.7	1375.7	1374.8	1372.4	1371.8
EKWP11440	EKWP11430		CIRCULAR	36					235	42	28.4	33.7	46.6	37.7	48.2	1376.0	1370.7	1377.3	1369.8	1371.9	1371.4	1372.0	1371.6	1372.5	1372.3	1375.9	1375.7	1372.5	1372.4
EKWP11440	EKWP11430		CIRCULAR	36					230	43	28.4	33.7	46.6	37.7	48.2	1376.0	1370.7	1377.3	1369.8	1371.9	1371.4	1372.0	1371.6	1372.5	1372.3	1375.9	1375.7	1372.5	1372.4
EKWP11441	EKWP11440		CIRCULAR	22					47	25	1.1	1.5	3.6	5.5	3.9	1377.4	1371.6	1376.0	1370.7	1371.9	1371.9	1372.1	1372.0	1372.4	1372.5	1376.0	1375.9	1372.5	1372.5
EKWP11442	EKWP11441		CIRCULAR	36					245	48	1.1	1.4	1.7	5.5	1.7	1380.4	1372.8	1377.4	1371.6	1373.1	1371.9	1373.2	1372.1	1373.2	1372.4	1376.1	1376.0	1373.2	1372.5

Conduit Name U/S Node	Conduit Name D/S Node	Capital Improvement Project (CIP) Name	Conduit Attributes: Type	Diameter/ Channel Height (inches)	Width (inches)	Left Channel Slope (H:V)	Right Channel Slope (H:V)	CIP Conduit Size (inches)	Conduit Length	Conduit Capacity (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Existing: 25yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Future: 25yr 24hr Peak Flow (cfs)	Future CIP Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Node Rim and Invert Elevation (IE): US Rim (ft)	US IE (ft)	DS Rim (ft)	DS IE (ft)	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) US	DS	25yr 24hr HGL (feet) US	DS	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) US	DS	25yr 24hr HGL (feet) US	DS	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) US	DS
EKWP11443	EKWP11442		CIRCULAR	36					69	92	1.1	1.4	1.7	4.8	1.7	1380.4	1374.0	1380.4	1372.8	1374.2	1373.1	1374.3	1373.2	1374.3	1373.2	1375.8	1376.1	1374.3	1373.2
EKWP11444	EKWP11443		CIRCULAR	18					209	11	1.1	1.4	1.7	2.0	1.7	1380.4	1376.0	1380.4	1374.0	1376.3	1374.2	1376.4	1374.3	1376.4	1374.3	1376.5	1375.8	1376.4	1374.3
EKWP11445	EKWP11444		CIRCULAR	15					90	8	1.1	1.4	1.7	2.0	1.7	1381.6	1377.2	1380.4	1376.0	1377.5	1376.3	1377.6	1376.4	1377.6	1376.4	1377.6	1376.5	1377.6	1376.4
EKWP11450	EKWP11440		CIRCULAR	36					45	63	26.4	30.6	32.3	35.0	32.5	1376.1	1370.3	1376.0	1370.7	1372.2	1371.9	1372.3	1372.0	1372.9	1372.5	1376.0	1375.9	1372.9	1372.5
EKWP11451	EKWP11450		CIRCULAR	36					251	40	25.7	29.9	30.6	34.5	30.6	1377.4	1371.2	1376.1	1370.3	1373.0	1372.2	1373.2	1372.3	1373.3	1372.9	1376.6	1376.0	1373.3	1372.9
EKWP11452	EKWP11451		CIRCULAR	36					16	173	25.7	29.9	30.6	34.8	30.6	1378.8	1374.8	1377.4	1371.2	1375.5	1373.0	1375.6	1373.2	1375.6	1373.3	1376.3	1376.6	1375.6	1373.3
EKWP11500	EKWP11400		CIRCULAR	18					38	30	1.2	1.8	2.2	3.6	2.3	1366.5	1363.0	1367.3	1359.9	1363.2	1362.8	1364.1	1364.2	1365.2	1364.9	1365.9	1365.9	1365.2	1364.8
EKWP11501	EKWP11500		CIRCULAR	18					104	9	1.2	1.8	3.2	3.6	3.2	1368.5	1363.7	1366.5	1363.0	1364.1	1363.2	1364.2	1364.1	1364.8	1365.2	1365.9	1365.9	1364.8	1365.2
EKWP11502	EKWP11501		CIRCULAR	18					18	11	0.8	1.1	1.9	2.9	1.9	1365.3	1363.9	1368.5	1363.7	1364.2	1364.1	1364.3	1364.2	1364.7	1364.8	1365.9	1365.9	1364.7	1364.8
EKWP11503	EKWP11502		TRAPEZOIDAL	24	36	1.5	1.5		522	30	0.8	1.1	1.0	1.3	1.0	1369.7	1366.9	1365.3	1363.9	1367.2	1364.2	1367.2	1364.3	1367.2	1364.7	1367.3	1365.9	1367.2	1364.7
EKWP11504	EKWP11503		CIRCULAR	36					176	48	0.8	1.1	1.0	1.3	1.0	1372.5	1367.9	1369.7	1366.9	1368.2	1367.2	1368.2	1367.2	1368.2	1367.2	1368.2	1367.3	1368.2	1367.2
EKWP11505	EKWP11504		CIRCULAR	36					21	48	0.8	1.1	1.0	1.3	1.0	1372.9	1368.0	1372.5	1367.9	1368.3	1368.2	1368.3	1368.2	1368.3	1368.2	1368.3	1368.2	1368.3	1368.2
EKWP11506	EKWP11505		CIRCULAR	36					36	128	0.8	1.1	1.0	1.3	1.0	1373.5	1369.5	1372.9	1368.0	1369.7	1368.3	1369.7	1368.3	1369.7	1368.3	1369.7	1368.3	1369.7	1368.3
EKWP11507	EKWP11506		CIRCULAR	36					175	32	0.0	0.1	0.1	0.1	0.1	1374.9	1369.1	1373.5	1369.5	1369.7	1369.7	1369.7	1369.7	1369.7	1369.7	1369.7	1369.7	1369.7	1369.7
EKWP11508	EKWP11507		CIRCULAR	36					79	56	0.0	0.0	0.0	0.0	0.0	1374.7	1369.7	1374.9	1369.1	1369.7	1369.7	1369.7	1369.7	1369.7	1369.7	1369.7	1369.7	1369.7	1369.7
EKWP11509	EKWP11508		CIRCULAR	36					176	82	0.0	0.0	0.0	0.0	0.0	1378.6	1372.1	1374.7	1369.7	1372.1	1369.7	1372.1	1369.7	1372.1	1369.7	1372.1	1369.7	1372.1	1369.7
EKWP11510	EKWP11509		CIRCULAR	36					97	65	0.0	0.0	0.0	0.0	0.0	1378.4	1373.0	1378.6	1372.1	1373.0	1372.1	1373.0	1372.1	1373.0	1372.1	1373.0	1372.1	1373.0	1372.1
EKWP11600	EKWP11452		TRAPEZOIDAL	36	180	0.5	0.5		15	436	25.7	29.9	30.6	36.5	30.6	1378.4	1374.4	1378.8	1374.8	1375.6	1375.5	1375.7	1375.6	1375.7	1375.6	1376.4	1376.3	1375.7	1375.6
EKWP11600	EKWP11510		CIRCULAR	3 - 18					48	82	25.7	29.9	30.6	36.5	30.6	1378.4	1374.4	1378.4	1373.0	1375.6	1373.0	1375.7	1373.0	1375.7	1373.0	1376.4	1373.0	1375.7	1373.0
EKWP11601	EKWP11600		TRAPEZOIDAL	36	36	1.5	2.0		581	92	25.0	28.9	29.4	34.0	29.3	1382.0	1379.0	1378.4	1374.4	1380.9	1375.6	1381.0	1375.7	1381.1	1375.7	1381.2	1376.4	1381.1	1375.7
EKWP11602	EKWP11601		CIRCULAR	24					257	25	25.4	32.5	33.1	37.9	33.1	1384.0	1382.0	1382.0	1379.0	1383.7	1380.9	1385.2	1381.0	1385.4	1381.1	1386.5	1381.2	1385.4	1381.1
EKWP11603	EKWP11602		IRREGULAR	See model for channel cross-section					465	458	17.7	24.1	25.3	28.2	25.3	1391.3	1386.8	1384.0	1382.0	1388.3	1383.7	1388.5	1385.2	1388.6	1385.4	1388.6	1386.5	1388.6	1385.4
EKWP11604	EKWP11603		CIRCULAR	36					572	23	18.1	24.7	25.9	28.2	25.8	1399.5	1389.2	1391.3	1386.8	1391.3	1388.3	1391.9	1388.5	1392.0	1388.6	1392.6	1388.6	1392.0	1388.6
EKWP11605	EKWP11604		CIRCULAR	36					181	59	18.9	25.9	26.9	28.8	26.9	1398.0	1394.0	1399.5	1389.2	1395.2	1391.3	1395.4	1391.9	1395.4	1392.0	1395.5	1392.6	1395.4	1392.0
EKWP11700	EKWN8909		CIRCULAR	42					32	134	24.3	38.1	41.7	49.2	41.7	1404.2	1396.9	#N/A	#N/A	1398.4	1398.6	1399.1	1399.3	1399.3	#N/A	1400.1	#N/A	1399.3	#N/A
EKWP11701	EKWP11700		CIRCULAR	36					60	65	7.0	19.2	23.1	33.9	23.1	1403.9	1397.4	1404.2	1396.9	1398.6	1398.4	1399.5	1399.1	1399.8	1399.3	1403.9	1400.1	1399.8	1399.3
EKWP11702	EKWP11701		CIRCULAR	36					140	49	2.9	4.2	5.5	8.5	5.5	1404.5	1398.2	1403.9	1397.4	1398.7	1398.6	1399.1	1399.5	1399.2	1399.8	1399.6	1403.9	1399.2	1399.8
EKWP11710	EKWP11702		CIRCULAR	36					133	83	2.9	3.7	4.3	5.0	4.3	1404.3	1400.5	1404.5	1398.2	1400.9	1398.7	1401.0	1399.1	1401.0	1399.2	1401.0	1399.6	1401.0	1399.2
EKWP11711	EKWP11710		CIRCULAR	36					48	125	2.9	3.7	4.3	5.0	4.3	1404.4	1398.8	1404.3	1400.5	1401.0	1400.9	1401.1	1401.0	1401.1	1401.0	1401.2	1401.0	1401.1	1401.0
EKWP11712	EKWP11711		CIRCULAR	36					31	26	2.9	3.7	4.3	5.0	4.3	1403.5	1399.0	1404.4	1398.8	1401.0	1401.0	1401.1	1401.1	1401.1	1401.1	1401.2	1401.2	1401.1	1401.1
EKWP11800	EKWP11700		CIRCULAR	30					46	44	16.2	22.8	23.9	28.6	24.1	1404.0	1397.4	1404.2	1396.9	1398.6	1398.4	1399.0	1399.1	1399.2	1399.3	1399.9	1400.1	1399.2	1399.3
EKWP11801	EKWP11800		CIRCULAR	24					221	17	12.7	16.1	16.1	19.5	16.1	1403.9	1398.6	1404.0	1397.4	1399.9	1398.6	1400.2	1399.0	1400.2	1399.2	1402.9	1399.9	1400.2	1399.2
EKWP11802	EKWP11801		CIRCULAR	24					37	20	12.7	16.1	16.1	19.3	16.1	1403.2	1398.9	1403.9	1398.6	1400.2	1399.9	1400.4	1400.2	1400.4	1400.2	1403.2	1402.9	1400.4	1400.2
EKWP11900	EKWP11800		CIRCULAR	24					35	105	5.1	8.8	10.4	16.1	10.4	1402.0	1397.8	1404.0	1397.4	1398.8	1398.6	1399.2	1399.0	1399.3	1399.2	1402.0	1399.9	1399.3	1399.2
EKWP11901	EKWP11900		CIRCULAR	24					16	16	5.2	8.3	9.6	18.4	9.6	1401.8	1397.9	1402.0	1397.8	1398.6	1398.8	1399.0	1399.2	1399.1	1399.3	1399.7	1402.0	1399.1	1399.3
EKWP11902	EKWP11901		TRAPEZOIDAL	24	60	1.0	1.0		3000	44	7.3	11.3	12.9	16.6	13.0	1430.9	1427.9	1401.8	1397.9	1428.4	1398.6	1428.6	1399.0	1428.7	1399.1	1428.8	1399.7	1428.7	1399.1
EKWP11903	EKWP11902		CIRCULAR	24					50	10	6.2	9.4	10.5	13.1	10.5	1431.0	1428.0	1430.9	1427.9	1429.0	1428.4	1429.3	1428.6	1429.4	1428.7	1429.6	1428.8	1429.4	1428.7
EKWP11903	EKWP11902		CIRCULAR	24					50	10	6.2	9.4	10.5	13.1	10.5	1431.0	1428.0	1430.9	1427.9	1429.0	1428.4	1429.3	1428.6	1429.4	1428.7	1429.6	1428.8	1429.4	1428.7
EKWQ APPENDIX A, MAP 5																													
EKWQ12001	EKWA12000		CIRCULAR	30					54	51	13.2	14.4	13.4	16.8	13.4	1365.4	1359.8	1364.9	1358.9	1361.7	1361.4	1361.9	1361.9	1362.3	1362.3	1363.3	1363.3	1362.5	1362.5
EKWQ12002	EKWQ12001		CIRCULAR	30					130	54	4.4	8.6	13.4	16.8	13.4	1366.6	1361.8	1365.4	1359.8	1362.3	1361.7	1362.5	1361.9	1362.7	1362.3	1363.3	1363.3	1362.7	1362.5
EKWQ12003	EKWQ12002		CIRCULAR	30					74	37	4.4	8.6	13.4	16.8	13.4	1367.0	1362.4	1366.6	1361.8	1363.0	1362.3	1363.2	1362.5	1363.4	1362.7	1363.6	1363.3	1363.4	1362.7
EKWR APPENDIX A, MAP 8																													
EKWR13001	EKWA13000		CIRCULAR	30					150	37	20.2	29.7	40.6	51.0	53.4	1402.3	1397.7	1402.0	1396.5	1399.0	1398.2	1399.9	1399.4	1401.8	1400.5	1404.9	1403.0	1404.6	1402.6
EKWR13002	EKWR13001		CIRCULAR	30					52	20	17.8	29.8	40.6	51.4	53.5	1402.4	1397.9	1402.3	1397.7	1399.4	1399.0	1400.2	1399.9	1402.2	1401.8	1405.7	1404.9	1405.4	1404.6
EKWR13003	EKWR13002		CIRCULAR	30					201	20	17.8	29.8	40.7	52.0	53.8	1403.3	1398.4	1402.4	1397.9	1400.1	1399.4	1401.2	1400.2	1404.1	1402.2	1408.7	1405.7	1408.4	1405.4
EKWR13004	EKWR13003		CIRCULAR	30					159	23	14.9	24.4	31.8	38.7	45.6	1403.8	1398.9	1403.3	1398.4	1400.4	1400.1	1401.8	1401.2	1405.1	1404.1	1410.1	1408.7	1410.1	1408.4
EKWR13005	EKWR13004		CIRCULAR	30					12	17	14.9	24.2	31.8	38.8	45.7	1403.8	1398.9	1403.8	1398.9	1400.4	1400.4	1401.8	1401.8	1405.1	1405.1	1410.2	1410.1	1410.2	1410.1
EKWR13006	EKWR13005		CIRCULAR	30					108	19	14.9	24.2	31.9	39.0	45.8	1404.4	1399.1	1403.8	1398.9	1400.7	1400.4	1402.2	1401.8	1405.8	1405.1	1411.1	1410.2	1411.4	1410.2
EKWR13007	EKWR13006		CIRCULAR	30					94	18	15.0	24.2	32.0	39.5	46.1	1404.8	1399.3	1404.4	1399.1	1400.9	1400.7	1402.7	1402.2	1406.3	1405.8	1412.0	1411.1	1412.4	1411.4
EKWR13008	EKWR13007		CIRCULAR	30					111	18	15.0	24.2	32.2	40.2	46.5	1404.8	1399.5	1404.8	1399.3	1401.2	1400.9	1403.0	1402.7	1407.0	1406.3	1412.9	1412.0	1413.6	1412.4
EKWR13009	EKWR13008		CIRCULAR	24					189	13	15.0	24.2	32.5	40.8	47.0	1405.0	1400.2	1404.8	1399.5	1402.0	1401.2	1405.0	1403.0	1410.8	1407.0	1418.6	1412.9	1421.4	1413.6
EKWR13010	EKWR13009		CIRCULAR	24					48	13	15.0	24.2	32.6	41.1	47.3	1404.9	1400.3	1405.0	1400.2	1402.2	1402.0	1405.5	1405.0	1411.8	1410.8	1420.0	1418.6	1423.4	1421.4
EKWR13011	EKWR13010		CIRCULAR	24					36	22	15.0	24.3	32.8	41.3	47.6	1404.5	1400.7	1404.9	1400.3	1402.2	1402.2	1405.9	1405.5	1412.4	1411.8	1421.0	1420.0	1424.8	1423.4
EKWR13012	EKWR13011		CIRCULAR	24					31	22	15.1	24.3	33.0	41.7	48.1	1405.2	1400.9	1404.5	1400.7	1402.4	1402.2	1406.2	1405.9	1413.0	1412.4	1421.9	1421.0	1426.0	1424.8
EKWR13013	EKWR13012		CIRCULAR	24					92	15	15.1	24.5	33.3	42.1	48.7	1406.8	1401.3	1405.2	1400.9	1402.8	1402.4	1407.2	1406.2	1414.7	1413.0	1424.6	1421.9	1429.6	1426.0
EKWR13014	EKWR13013		CIRCULAR	24					25	39	15.1	24.6	33.6	42.5	49.5	1407.0	1402.0	1406.8	1401.3	1403.1	1402.8	1407.5	1407.2	1415.2	1414.7	1425.3	1424.6	1430.6	1429.6
EKWR13015	EKWR13014		CIRCULAR	24					99	18	15.1	25.0	34.2	43.4	51.0	1407.5	1402.6	1407.0	1402.0	1404.0	1403.1	1408.5	1407.5	1417.1	1415.2	1428.3	1425.3	1434.7	1430.6
EKWR13016	EKWR13015		CIRCULAR	24					169	18	15.1	25.5	34.9	44.3	52.8	1408.3	1403.6	1407.5	1402.6	1405.0	1404.0	1410.4	1408.5	1420.5	1417.1	1433.7	1428.3	1442.0	1434.7
EKWR13017	EKWR13016		CIRCULAR	18					102	6	15.1	25.8	35.3	44.9	53.7	1407.7	1403.9	1408.3	1403.6	1406.9	1405.0	1415.7	1410.4	1430.7	1420.5	1450.2	1433.7	1464.8	1442.0

Conduit Name U/S Node	Conduit Name D/S Node	Capital Improvement Project (CIP) Name	Conduit Attributes: Type	Conduit Attributes: Diameter/ Channel Height (inches)	Conduit Attributes: Width (inches)	Conduit Attributes: Left Channel Slope (H:V)	Conduit Attributes: Right Channel Slope (H:V)	Conduit Attributes: CIP Conduit Size (inches)	Conduit Attributes: Conduit Length	Conduit Capacity (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 25yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 25yr 24hr Peak Flow (cfs)	Future CIP Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Node Rim and Invert Elevation (IE): US Rim (ft)	Node Rim and Invert Elevation (IE): US IE (ft)	Node Rim and Invert Elevation (IE): DS Rim (ft)	Node Rim and Invert Elevation (IE): DS IE (ft)	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Existing Conditions: 25yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Existing Conditions: 25yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future Conditions: 25yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future Conditions: 25yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) DS
EKWS APPENDIX A, MAP 8																												
EKWS14001	EKWA14000		CIRCULAR	30					50	26	4.6	6.1	5.5	6.9	5.5	1402.5	1398.5	1402.3	1398.3	1399.2	1399.0	1399.3	1399.3	1400.5	1400.5	1403.0	1403.0	1402.6	1402.6
EAST ELK CREEK																												
CEKWA TO OUTFALL EKWA0001 APPENDIX A, MAPS 7, 6, 10, 12, 13																												
EKEA0002	EKEA0001		CIRCULAR	84					41	360	121.6	143.9	146.2	161.7	206.3	1322.0	1310.8	--	1310.6	1313.6	1313.4	1313.8	1313.7	1313.9	1313.7	1314.1	1313.9	1314.5	1314.4
EKEA0003	EKEA0002		CIRCULAR	84					729	468	119.4	141.2	143.8	158.8	204.7	1324.0	1314.7	1322.0	1310.8	1317.1	1313.6	1317.3	1313.8	1317.4	1313.9	1317.5	1314.1	1318.0	1314.5
EKEA0004	EKEA0003		CIRCULAR	84					135	398	119.4	141.3	143.8	159.0	205.6	1324.0	1315.2	1324.0	1314.7	1317.8	1317.1	1318.1	1317.3	1318.1	1317.4	1318.3	1317.5	1318.8	1318.0
EKEA0005	EKEA0004		CIRCULAR	84					573	354	119.5	141.4	143.9	158.9	204.6	1327.9	1317.0	1324.0	1315.2	1319.8	1317.8	1320.1	1318.1	1320.1	1318.1	1320.3	1318.3	1320.8	1318.8
EKEA0006	EKEA0005		CIRCULAR	84					193	362	119.5	141.4	143.9	158.9	204.5	1330.0	1317.6	1327.9	1317.0	1320.4	1319.8	1320.7	1320.1	1320.7	1320.1	1320.9	1320.3	1321.4	1320.8
EKEA0007	EKEA0006		CIRCULAR	78					141	328	118.1	139.7	142.4	157.0	202.8	1332.0	1318.2	1330.0	1317.6	1320.9	1320.4	1321.2	1320.7	1321.2	1320.7	1321.4	1320.9	1321.9	1321.4
EKEA0008	EKEA0007		CIRCULAR	78					196	321	118.1	139.6	142.3	157.0	202.8	1332.0	1318.9	1332.0	1318.2	1321.6	1320.9	1321.9	1321.2	1321.9	1321.2	1322.1	1321.4	1322.7	1321.9
EKEA0009	EKEA0008		CIRCULAR	78					196	449	118.0	139.6	142.3	157.0	202.8	1334.0	1320.4	1332.0	1318.9	1322.7	1321.6	1323.0	1321.9	1323.0	1321.9	1323.2	1322.1	1323.7	1322.7
EKEA0010	EKEA0009		CIRCULAR	78					187	334	118.0	139.6	142.3	157.0	202.8	1334.0	1321.1	1334.0	1320.4	1323.8	1322.7	1324.1	1323.0	1324.1	1323.0	1324.3	1323.2	1324.8	1323.7
EKEA0011	EKEA0010		CIRCULAR	78					186	327	118.0	139.7	142.3	157.0	202.8	1336.0	1321.8	1334.0	1321.1	1324.5	1323.8	1324.8	1324.1	1324.8	1324.1	1325.0	1324.3	1325.6	1324.8
EKEA0012	EKEA0011		CIRCULAR	78					185	334	118.0	139.7	142.3	157.0	202.8	1338.0	1322.6	1336.0	1321.8	1325.3	1324.5	1325.5	1324.8	1325.6	1324.8	1325.8	1325.0	1326.3	1325.6
EKEA0013	EKEA0012		CIRCULAR	78					429	334	118.0	139.6	142.3	157.0	202.7	1342.0	1324.3	1338.0	1322.6	1327.0	1325.3	1327.3	1325.5	1327.3	1325.6	1327.5	1325.8	1328.0	1326.3
EKEA0014	EKEA0013		CIRCULAR	78					166	341	115.5	135.7	136.2	149.8	197.7	1342.0	1325.0	1342.0	1324.3	1327.6	1327.0	1327.9	1327.3	1327.9	1327.3	1328.1	1327.5	1328.6	1328.0
EKEA0015	EKEA0014		CIRCULAR	78					189	338	114.7	134.7	135.2	148.7	196.9	1344.0	1325.8	1342.0	1325.0	1328.4	1327.6	1328.7	1327.9	1328.7	1327.9	1328.8	1328.1	1329.4	1328.6
EKEA0016	EKEA0015		CIRCULAR	78					208	323	114.7	134.8	135.2	148.7	197.0	1344.0	1326.6	1344.0	1325.8	1329.2	1328.4	1329.5	1328.7	1329.5	1328.7	1329.7	1328.8	1330.2	1329.4
EKEA0017	EKEA0016		CIRCULAR	78					361	329	111.9	131.3	131.9	144.7	194.1	1344.5	1328.0	1344.0	1326.6	1330.6	1329.2	1330.9	1329.5	1330.9	1329.5	1331.0	1329.7	1331.6	1330.2
EKEA0018	EKEA0017		CIRCULAR	78					828	325	96.6	111.2	113.7	123.5	181.4	1352.0	1331.2	1344.5	1328.0	1333.6	1330.6	1333.8	1330.9	1333.9	1330.9	1334.0	1331.0	1334.7	1331.6
EKEA1000	EKEA0018		CIRCULAR	78					151	298	96.2	110.5	113.1	122.8	178.9	1350.0	1331.7	1352.0	1331.2	1334.2	1333.6	1334.4	1333.8	1334.5	1333.9	1334.6	1334.0	1335.3	1334.7
EKEA1001	EKEA1000		CIRCULAR	78					272	305	79.1	92.0	95.6	103.8	156.9	1350.0	1332.6	1350.0	1331.7	1334.9	1334.2	1335.1	1334.4	1335.2	1334.5	1335.3	1334.6	1336.0	1335.3
EKEA2000	EKEA1001		CIRCULAR	78					384	274	75.0	85.8	90.4	97.3	150.7	1348.0	1333.7	1350.0	1332.6	1336.0	1334.9	1336.2	1335.1	1336.2	1335.2	1336.3	1335.3	1337.1	1336.0
EKEA2001	EKEA2000	Disk Drive Improvements	CIRCULAR	30				42	259	77	56.2	59.6	59.7	62.2	84.3	1350.2	1342.6	1348.0	1333.7	1344.0	1336.0	1344.1	1336.2	1344.1	1336.2	1344.2	1336.3	1340.8	1337.1
EKEA2002	EKEA2001	Disk Drive Improvements	CIRCULAR	30				42	33	33	46.7	50.6	51.7	55.0	84.3	1350.4	1342.8	1350.2	1342.6	1345.3	1344.0	1347.1	1344.1	1347.5	1344.1	1347.5	1344.2	1341.1	1340.8
EKEA2003	EKEA2002	Disk Drive Improvements	CIRCULAR	30				42	243	19	46.7	50.6	51.6	54.8	84.3	1348.7	1343.3	1350.4	1342.8	1348.3	1345.3	1348.7	1347.1	1348.9	1347.5	1349.4	1347.5	1342.9	1341.1
EKEA2004	EKEA2003	Disk Drive Improvements	CIRCULAR	30				42	127	29	41.8	47.4	49.2	52.1	79.0	1347.7	1343.9	1348.7	1343.3	1349.5	1348.3	1350.2	1348.7	1350.5	1348.9	1351.2	1349.4	1343.7	1342.9
EKEA3000	EKEA2004	Disk Drive Improvements	CIRCULAR	30				42	478	32	44.6	47.3	49.3	52.1	79.3	1353.4	1346.9	1347.7	1343.9	1354.5	1349.5	1356.5	1350.2	1357.4	1350.5	1358.9	1351.2	1347.2	1343.7
EKEA3002	EKEA3000	Disk Drive Improvements	CIRCULAR	30				42	1532	38	44.1	49.4	52.9	54.1	68.0	1362.0	1359.7	1353.4	1346.9	1367.2	1354.5	1374.0	1356.5	1376.5	1357.4	1380.5	1358.9	1358.3	1347.2
EKEA3003	EKEA3002		IRREGULAR	See model for channel cross-section					458	524	44.4	47.5	49.8	51.5	76.4	1368.0	1362.7	1362.0	1359.7	1367.2	1367.2	1374.0	1374.0	1376.6	1376.5	1380.6	1380.5	1363.7	1358.3
EKEA3004	EKEA3003		CIRCULAR	60					52	83	42.9	54.8	59.8	63.6	59.3	1368.0	1362.9	1368.0	1362.7	1367.3	1367.2	1374.0	1374.0	1376.6	1376.6	1380.6	1380.6	1365.4	1363.7
EKEA3005	EKEA3004		TRAPEZOIDAL	47	48	0.9	0.9		1032	135	42.9	54.8	60.7	64.1	59.2	1377.9	1372.7	1368.0	1362.9	1374.9	1367.3	1375.7	1374.0	1377.7	1376.6	1381.8	1380.6	1375.3	1365.4
EKEA3006	EKEA3005		CIRCULAR	2 - 36					87	65	42.9	54.9	60.7	64.1	59.2	1379.4	1373.4	1377.9	1372.7	1380.0	1374.9	1382.1	1375.7	1377.9	1377.7	1382.3	1381.8	1377.5	1375.3
EKEA3007	EKEA3006		IRREGULAR	See model for channel cross-section					133	135	42.9	54.9	57.2	62.2	55.5	1376.0	1373.5	1379.4	1373.4	1380.0	1380.0	1382.2	1382.1	1378.0	1377.9	1382.3	1382.3	1377.6	1377.5
EKEA3008	EKEA3007		CIRCULAR	54					263	213	42.9	54.9	56.8	65.2	55.0	1379.0	1376.6	1376.0	1373.5	1380.1	1380.0	1382.3	1382.2	1378.2	1378.0	1382.4	1382.3	1378.2	1377.6
EKEA3009	EKEA3008		TRAPEZOIDAL	33	37	0.7	0.5		303	51	39.1	50.0	53.9	60.6	52.0	1382.7	1380.0	1379.0	1376.6	1382.4	1380.1	1385.6	1382.3	1385.0	1378.2	1385.6	1382.4	1384.8	1378.2
EKEA3010	EKEA3009		CIRCULAR	3 - 24					53	45	39.1	52.4	54.6	57.4	52.1	1382.5	1380.0	1382.7	1380.0	1382.6	1382.4	1385.9	1385.6	1385.4	1385.0	1385.9	1385.6	1385.1	1384.8
EKEA3011	EKEA3010		IRREGULAR	See model for channel cross-section					394	108	39.1	53.3	55.4	57.3	52.1	1387.0	1384.5	1382.5	1380.0	1386.4	1382.6	1387.1	1385.9	1387.0	1385.4	1387.1	1385.9	1386.8	1385.1
EKEA3012	EKEA3011		CIRCULAR	3 - 18					30	54	39.1	54.7	56.5	61.4	52.2	1387.9	1384.6	1387.0	1384.5	1387.2	1386.4	1387.9	1387.1	1387.9	1387.0	1387.9	1387.1	1387.5	1386.8
EKEA3013	EKEA3012		TRAPEZOIDAL	39					588	49	39.1	53.7	55.9	60.3	52.1	1390.0	1386.8	1387.9	1384.6	1389.7	1387.2	1390.7	1387.9	1390.8	1387.9	1393.4	1387.9	1390.6	1387.5
EKEA3014	EKEA3013		CIRCULAR	30					41	25	39.5	54.1	56.0	62.0	53.2	1390.2	1386.9	1390.0	1386.8	1390.1	1389.7	1391.4	1390.7	1391.6	1390.8	1394.0	1393.4	1391.3	1390.6
EKEA4000	EKEA3014		TRAPEZOIDAL	39					743	113	39.5	54.1	56.0	62.1	53.4	1396.0	1394.2	1390.2	1386.9	1396.1	1390.1	1396.5	1391.4	1396.5	1391.6	1396.7	1394.0	1396.5	1391.3
EKEA5000	EKEA4000		CIRCULAR	36					62	24	37.9	52.1	53.5	58.0	50.2	1398.0	1394.5	1396.0	1394.2	1397.1	1396.1	1398.0	1396.5	1398.0	1396.5	1398.3	1396.7	1397.8	1396.5
EKEA5001	EKEA5000		CIRCULAR	36					60	59	35.4	48.9	50.4	52.4	47.4	1398.0	1395.0	1398.0	1394.5	1397.1	1397.1	1398.3	1398.0	1398.4	1398.0	1398.7	1398.3	1398.1	1397.8
EKEA5002	EKEA5001		TRAPEZOIDAL	24					398	52	34.5	48.0	48.7	50.0	45.9	1402.8	1400.3	1398.0	1395.0	1401.9	1397.1	1402.7	1398.3	1402.9	1398.4	1403.4	1398.7	1402.3	1398.1
EKEA5003	EKEA5002		CIRCULAR	24					85	15	34.5	48.0	48.7	50.0	45.9	1406.7	1400.7	1402.8	1400.3	1403.9	1401.9	1404.3	1402.7	1404.4	1402.9	1404.4	1403.4	1403.1	1402.3
EKEA5004	EKEA5003		CIRCULAR	24					74	1	34.5	48.0	48.7	50.0	45.9	1406.7	1400.7	1406.7	1400.7	1405.3	1403.9	1405.4	1404.3	1405.4	1404.4	1405.4	1404.4	1403.9	1403.1
EKEA5005	EKEA5004		CIRCULAR	24					76	14	34.5	48.0	48.7	50.0	45.9	1407.6	1401.6	1406.7	1400.7	1405.5	1405.3	--	--	1405.6	1405.4	1405.6	1405.4	1406.6	1403.9
EKEA5006	EKEA5005		CIRCULAR	24					91	21	34.7	48.0	48.8	50.2	45.9	1408.4	1402.4	1407.6	1401.6	1405.5	1405.5	--	--	1405.7	1405.6	1405.7	1405.6	1407.5	1406.6
EKEA5007	EKEA5006		IRREGULAR	See model for channel cross-section					75	228	35.2	48.1	49.3	50.6	61.8	1406.0	1403.0	1408.4	1402.4	1405.5	1405.5	1405.7	1405.7	1405.7	1405.7	1405.7	1405.7	1407.5	1407.5
EKEA5008	EKEA5007		IRREGULAR	See model for channel cross-section					173	2532	35.2	48.2	49.4	50.7	70.9	1410.0	1406.0	1406.0	1403.0	1406.3	1405.5	1406.4	1405.7	1406.4	1405.7	1406.4	1405.7	1407.5	1407.5
EKEA5009	EKEA5008		IRREGULAR	See model for channel cross-section					192	1690	35.2	48.1	49.3	50.6	62.6	1408.5	1406.3	1410.0	1406.0	1407.4	1406.3	1407.4	1406.4	1407.4	1406.4	1407.4	1406.4	1407.5	1407.5
EKEA5010	EKEA5009		IRREGULAR	See model for channel cross-section					94	253	35.2	48.1	49.3	50.6	62.7	1411.7	1408.4	1408.5	1406.3	1409.8	1407.4	1410.0	1407.4	1410.1	1407.4	1410.1	1407.4	1410.3	1407.5
EKEA6000	EKEA5010		TRAPEZOIDAL	37	49	0.7	0.7		191	77	35.2	48.2	49.4	50.7	62.7	1410.7	1408.9	1411.7	1408.4	1412.4	1409.8	1412.8	1410.0	1412.8	1410.1	1412.9	1410.1	1413.2	1410.3
EKEA6001	EKEA6000		TRAPEZOIDAL	37	49	0.7	0.7		557	67	33.8	47.0	51.0	55.9	60.3	1417.5	1413.0	1410.7	1408.9	1416.9	1412.4	1417.2	1412.8	1415.5	1412.8	1415.5	1412.9	1416.4	1413.2
EKEA6002	EKEA6001		TRAPEZOIDAL	30	60	0.5	0.5		86	46	33.8	48.7	57.7	55.1	60.6	1417.5	1413.5	1417.5	1413.0	1417.5	1416.9	1417.9	1417.2	1417.6	1415.5	1420.9	1415.5	1417.0	1416.4
EKEA7000	EKEA6002		CIRCULAR	36					52	47	33.8	48.6	69.4	62.5	61.1	1419.0	1413.8	1417.5	1413.5	1417.9	1417.5	1419.0	1417.9	1418.8	1417.6	1421.1	1420.9	1417.4	1417.0
EKEA7001	EKEA7000		CIRCULAR	48					45	105	31.8	45.7	57.0	54.7	56.7	1419.3	1414.0	1419.0	1413.8	1417.9	1417.9	1419.3	1419.0	1417.9	1418.8	1421.2	1421.1	1417.4	1417.4
EKEA8000	EKEA7001		CIRCULAR	48					127	108	36.8	60.9	58.4	54.9	56.2	1419.8	1414.7	1419.3	1414.0	1417.9	1417.9	1419.8	1419.3	1417.6	1417.9	1421.3	1421.2	1417.5	1417.4
EKEA8001	EKEA8000		CIRCULAR	48					32	134	27.7	38.1	40.2	42.7	50.1	1418.0	1415.0	1419.8	1414.7	1417.9	1417.9	1418.4	1419.8	1417.4	1417.6	1421.3	1421.3	1417.4	1417.5
EKEA8002	EKEA8001		TRAPEZOIDAL	36	72	2.0	2.0		414	156	26.0	35.9	37.7	40.8	46.1	1422.0	1418.8	1418.0	1415.0	1420.0	1417.9	1420.2	1418.4	1420.2	1417.4	1421.6	1421.3	1420.4	1417.4
EKEA8003	EKEA8002		TRAPEZOIDAL	36	72	2.0	2.0		674	157	26.0	35.9	37.7	40.8	45.8	1428.0	1425.0	1422.0	1418.8	1426.2	1420.0	1426.4	1420.2	1426.5	1420.2	1426.5	1421.6	1426.6	1420.4

Conduit Name U/S Node	Conduit Name D/S Node	Capital Improvement Project (CIP) Name	Conduit Attributes: Type	Conduit Attributes: Diameter/ Channel Height (inches)	Conduit Attributes: Width (inches)	Conduit Attributes: Left Channel Slope (H:V)	Conduit Attributes: Right Channel Slope (H:V)	Conduit Attributes: CIP Conduit Size (inches)	Conduit Attributes: Conduit Length	Conduit Capacity (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 25yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 25yr 24hr Peak Flow (cfs)	Future CIP Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Node Rim and Invert Elevation (IE): US Rim (ft)	Node Rim and Invert Elevation (IE): US IE (ft)	Node Rim and Invert Elevation (IE): DS Rim (ft)	Node Rim and Invert Elevation (IE): DS IE (ft)	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Existing Conditions: 25yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Existing Conditions: 25yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future Conditions: 25yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future Conditions: 25yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) DS
EKEA8004	EKEA8003	Westwind Channel Improvements	TRAPEZOIDAL	28	44	0.4	0.4	Depth = 30", Width = 60" 3:1 Side Slopes	345	13	30.2	39.9	42.9	44.5	46.7	1427.8	1425.5	1428.0	1425.0	1431.0	1426.2	1433.0	1426.4	1433.4	1426.5	1434.1	1426.5	1427.9	1426.6
EKEA8005	EKEA8004		TRAPEZOIDAL	28	44	0.4	0.4		1463	40	26.5	36.2	41.2	47.5	43.2	1446.9	1443.9	1427.8	1425.5	1445.7	1431.0	1446.4	1433.0	1447.8	1433.4	1450.5	1434.1	1446.9	1427.9
EKEA9000	EKEA8005		CIRCULAR	54					53	97	27.0	37.5	44.7	55.4	45.2	1448.3	1443.8	1446.9	1443.9	1445.8	1445.7	1446.4	1446.4	1447.8	1447.8	1450.5	1450.5	1446.9	1446.9
EKEA9001	EKEA9000		TRAPEZOIDAL	19	96	0.2	0.5		571	51	15.9	23.7	29.9	38.9	29.9	1452.0	1450.4	1448.3	1443.8	1451.2	1445.8	1451.4	1446.4	1451.5	1447.8	1452.8	1450.5	1451.5	1446.9
EKEA10000	EKEA9001		TRAPEZOIDAL	19	96	0.2	0.5		268	57	15.2	22.9	29.1	38.0	29.1	1456.0	1454.4	1452.0	1450.4	1455.1	1451.2	1455.3	1451.4	1455.4	1451.5	1455.6	1452.8	1455.4	1451.5
EKEA11000	EKEA10000		TRAPEZOIDAL	19	96	0.2	0.5		458	57	13.1	20.2	26.0	33.8	26.0	1464.0	1461.0	1456.0	1454.4	1461.7	1455.1	1461.8	1455.3	1462.0	1455.4	1462.2	1455.6	1462.0	1455.4
EKEA12000	EKEA11000		CIRCULAR	5 - 18					133	1	13.7	21.0	25.5	33.4	25.5	1464.0	1461.0	1464.0	1461.0	1462.0	1461.7	1462.2	1461.8	1462.4	1462.0	1462.7	1462.2	1462.4	1462.0
EKEA12001	EKEA12000		TRAPEZOIDAL	18	60	0.3	0.1		2681	26	10.2	14.9	14.8	19.5	14.8	1494.2	1494.1	1464.0	1461.0	1494.9	1462.0	1495.1	1462.2	1495.1	1462.4	1495.3	1462.7	1495.1	1462.4
EKEA13000	EKEA12001		CIRCULAR	30					55	72	10.2	15.0	14.8	19.5	14.8	1497.8	1495.8	1494.2	1494.1	1496.5	1494.9	1496.6	1495.1	1496.6	1495.1	1496.7	1495.3	1496.6	1495.1
EKEA13001	EKEA13000		TRAPEZOIDAL	24	60	0.3	1.0		496	39	6.0	9.8	10.6	14.1	10.6	1502.0	1500.0	1497.8	1495.8	1500.6	1496.5	1500.9	1496.6	1501.0	1496.6	1501.2	1496.7	1501.0	1496.6
EKEA13002	EKEA13001		CIRCULAR	30					100	42	6.0	9.8	10.6	14.1	10.6	1506.0	1501.0	1502.0	1500.0	1501.6	1500.6	1501.8	1500.9	1501.9	1501.0	1502.0	1501.2	1501.9	1501.0
EKEB APPENDIX A, MAP 6																													
EKEB1001	EKEA1000		CIRCULAR	15					143	16	1.3	1.6	1.4	1.6	1.4	1349.2	1341.2	1350.0	1331.7	1341.4	1334.2	1341.4	1334.4	1341.4	1334.5	1341.4	1334.6	1341.4	1335.3
EKEB1002	EKEB1001		CIRCULAR	15					136	5	1.3	1.6	1.4	1.6	1.4	1348.6	1342.0	1349.2	1341.2	1342.5	1341.4	1342.5	1341.4	1342.5	1341.4	1342.5	1341.4	1342.5	1341.4
EKEB1003	EKEB1002		CIRCULAR	15					99	5	1.3	1.6	1.4	1.6	1.4	1347.0	1342.7	1348.6	1342.0	1343.1	1342.5	1343.2	1342.5	1343.2	1342.5	1343.2	1342.5	1343.2	1342.5
EKEC APPENDIX A, MAP 6																													
EKEC1001	EKEA1000		CIRCULAR	30					235	95	16.9	18.5	17.5	19.0	22.5	1349.7	1344.4	1350.0	1331.7	1345.1	1334.2	1345.1	1334.4	1345.1	1334.5	1345.1	1334.6	1345.2	1335.3
EKEC1002	EKEC1001		CIRCULAR	30					149	22	15.6	16.9	16.1	17.4	20.6	1350.0	1344.8	1349.7	1344.4	1346.2	1345.1	1346.3	1345.1	1346.3	1345.1	1346.3	1345.1	1346.5	1345.2
EKEC1003	EKEC1002		CIRCULAR	30					166	24	15.5	16.8	16.0	17.3	20.4	1350.0	1345.4	1350.0	1344.8	1346.8	1346.2	1346.9	1346.3	1346.9	1346.3	1346.9	1346.3	1347.1	1346.5
EKEC1004	EKEC1003		CIRCULAR	30					556	12	15.6	16.9	16.1	17.4	20.5	1347.9	1345.9	1350.0	1345.4	1348.0	1346.8	1348.2	1346.9	1348.1	1346.9	1348.2	1346.9	1348.6	1347.1
EKEC1005	EKEC1004		TRAPEZOIDAL	24	24	1.5	1.5		330	21	14.5	15.6	15.0	16.0	18.9	1349.9	1347.4	1347.9	1345.9	1349.1	1348.0	1349.2	1348.2	1349.1	1348.1	1349.2	1348.2	1349.8	1348.6
EKEC1006	EKEC1005	Posse Lane Culvert	CIRCULAR	24				2 - 24	51	6	39.9	38.6	40.3	37.5	23.4	1350.5	1348.0	1349.9	1347.4	1352.0	1349.1	1352.4	1349.2	1352.2	1349.1	1352.6	1349.2	1351.1	1349.8
EKEC1100	EKEC1006		TRAPEZOIDAL	48	60	3.0	3.0		552	840	25.1	24.0	25.8	24.1	17.4	1354.7	1350.7	1350.5	1348.0	1351.9	1352.0	1352.4	1352.4	1352.1	1352.2	1352.5	1352.6	1351.3	1351.1
EKEC1101	EKEC1100		TRAPEZOIDAL	72	24	1.0	1.0		63	190	9.5	11.2	9.5	11.2	9.5	1356.0	1351.1	1354.7	1350.7	1352.5	1351.9	1352.6	1352.4	1352.5	1352.1	1352.6	1352.5	1352.5	1351.3
EKEC1102	EKEC1101		CIRCULAR	21					342	13	9.5	11.3	9.5	11.3	9.5	1358.0	1353.3	1356.0	1351.1	1354.4	1352.5	1354.5	1352.6	1354.4	1352.5	1354.5	1352.6	1354.4	1352.5
EKEC1103	EKEC1102		CIRCULAR	21					409	9	9.6	11.3	9.6	11.3	9.6	1363.8	1354.5	1358.0	1353.3	1356.1	1354.4	1359.5	1354.5	1356.1	1354.4	1359.0	1354.5	1356.1	1354.4
EKEC1104	EKEC1103		CIRCULAR	18					210	12	9.6	11.3	9.6	11.3	9.6	1364.0	1357.0	1363.8	1354.5	1358.0	1356.1	1361.2	1359.5	1358.0	1356.1	1361.9	1359.0	1358.0	1356.1
EKEC1105	EKEC1104		CIRCULAR	18					385	7	9.6	11.3	9.6	11.3	9.6	1366.0	1358.5	1364.0	1357.0	1364.7	1358.0	1366.0	1361.2	1366.0	1358.0	1366.0	1361.9	1366.0	1358.0
EKEC1011	EKEC1203		CIRCULAR	18					407	12	4.0	4.6	4.0	4.6	4.0	1364.0	1359.9	1360.0	1354.4	1360.4	1355.2	1360.5	1355.2	1360.4	1355.2	1360.5	1355.2	1360.4	1355.2
EKEC1200	EKEC1100		TRAPEZOIDAL	48	60	3.0	3.0		739	138	7.6	8.9	8.2	9.5	8.2	1356.0	1352.0	1354.7	1350.7	1353.2	1351.9	1353.2	1352.4	1353.2	1352.1	1353.3	1352.5	1353.2	1351.3
EKEC1201	EKEC1200		CIRCULAR	24					103	21	7.6	8.9	8.2	9.5	8.2	1358.0	1352.9	1356.0	1352.0	1353.7	1353.2	1353.8	1353.2	1353.8	1353.2	1353.9	1353.3	1353.8	1353.2
EKEC1202	EKEC1201		CIRCULAR	24					88	21	6.3	7.3	6.4	7.5	6.4	1358.0	1353.6	1358.0	1352.9	1354.4	1353.7	1354.4	1353.8	1354.4	1353.8	1354.4	1353.9	1354.4	1353.8
EKEC1203	EKEC1202		CIRCULAR	24					82	23	6.3	7.3	6.4	7.5	6.4	1360.0	1354.4	1358.0	1353.6	1355.2	1354.4	1355.2	1354.4	1355.2	1354.4	1355.2	1354.4	1355.2	1354.4
EKEC1204	EKEC1011		CIRCULAR	18					46	12	4.0	4.6	4.0	4.6	4.0	1366.0	1360.5	1364.0	1359.9	1361.1	1360.4	1361.1	1360.5	1361.1	1360.4	1361.1	1360.5	1361.1	1360.4
EKEC1205	EKEC1204		CIRCULAR	18					30	18	4.0	4.6	4.0	4.6	4.0	1365.7	1361.4	1366.0	1360.5	1361.9	1361.1	1361.9	1361.1	1361.9	1361.1	1361.9	1361.1	1361.9	1361.1
EKEC1206	EKEC1205		CIRCULAR	18					324	2	4.0	4.6	4.0	4.6	4.0	1368.0	1361.5	1365.7	1361.4	1362.9	1361.9	1363.1	1361.9	1362.9	1361.9	1363.1	1361.9	1362.9	1361.9
EKEC1207	EKEC1206		CIRCULAR	18					82	10	4.0	4.7	4.0	4.7	4.0	1368.0	1362.2	1368.0	1361.5	1362.9	1362.9	1363.1	1363.1	1362.9	1362.9	1363.1	1363.1	1362.9	1362.9
EKEC1208	EKEC1207		CIRCULAR	15					699	6	4.0	4.7	4.0	4.7	4.0	1375.2	1368.2	1368.0	1362.2	1368.9	1362.9	1369.0	1363.1	1368.9	1362.9	1369.0	1363.1	1368.9	1362.9
EKED APPENDIX A, MAPS 6, 10																													
EKED2001	EKEA2000		CIRCULAR	72					161	229	26.6	34.1	37.5	41.2	67.2	1348.0	1334.1	1348.0	1333.7	1336.0	1336.0	1336.2	1336.2	1336.2	1336.2	1336.4	1336.3	1337.1	1337.1
EKED2002	EKED2001		CIRCULAR	72					151	229	26.6	34.1	37.5	41.2	67.0	1348.0	1334.6	1348.0	1334.1	1336.1	1336.0	1336.3	1336.2	1336.4	1336.2	1336.5	1336.4	1337.2	1337.1
EKED2003	EKED2002		CIRCULAR	72					98	229	26.6	34.1	37.5	41.2	67.1	1346.0	1334.9	1348.0	1334.6	1336.3	1336.1	1336.5	1336.3	1336.6	1336.4	1336.7	1336.5	1337.4	1337.2
EKED3000	EKED2003		CIRCULAR	72					388	344	26.6	34.3	37.8	41.4	69.9	1346.0	1337.6	1346.0	1334.9	1338.7	1336.3	1338.8	1336.5	1338.9	1336.6	1339.0	1336.7	1339.4	1337.4
EKED3100	EKED3000	Rossanley Bypass	CIRCULAR	--				72	100	326	--	--	--	--	68.0	1345.9	1338.2	1346.0	1337.6	--	--	--	--	--	--	--	--	1340.1	1339.4
EKED3101	EKED3100	Rossanley Bypass	CIRCULAR	--				36	182	67	--	--	--	--	33.3	1345.0	1339.3	1345.9	1338.2	--	--	--	--	--	--	--	--	1340.8	1340.1
EKED3102	EKED3101	Rossanley Bypass	CIRCULAR	--				36	100	52	--	--	--	--	33.3	1345.0	1339.9	1345.0	1339.3	--	--	--	--	--	--	--	--	1341.6	1340.8
EKED3103	EKED3102	Rossanley Bypass	CIRCULAR	--				36	82	54	--	--	--	--	32.2	1346.0	1340.4	1345.0	1339.9	--	--	--	--	--	--	--	--	1342.1	1341.6
EKED3104	EKED3103	Rossanley Bypass	CIRCULAR	--				36	40	52	--	--	--	--	32.2	1344.5	1340.7	1346.0	1340.4	--	--	--	--	--	--	--	--	1342.4	1342.1
EKED3201	EKED3100	Rossanley Bypass	CIRCULAR	--				42	30	197	--	--	--	--	37.9	1346.0	1340.3	1345.9	1338.2	--	--	--	--	--	--	--	--	1341.4	1340.1
EKED3100	EKED3000		CIRCULAR	18					282	7	0.5	1.0	1.9	2.3	68.0	1344.0	1338.9	1346.0	1337.6	1339.1	1338.7	1339.2	1338.8	1339.4	1338.9	1339.4	1339.0	-	-
EKED3101	EKED3100		CIRCULAR	18					85	5	0.5	1.0	1.9	2.3	33.3	1345.0	1339.1	1344.0	1338.9	1339.4	1339.1	1339.5	1339.2	1339.7	1339.4	1339.7	1339.4	-	-
EKED3200	EKED3000		CIRCULAR	42					65	196	24.8	32.6	35.5	38.6	--	1346.0	1340.1	1346.0	1337.6	1340.9	1338.7	1341.1	1338.8	1341.1	1338.9	1341.1	1339.0	-	-
EKED3201	EKED3200		CIRCULAR	42					66	60	24.8	31.4	34.0	37.1	37.9	1346.0	1340.3	1346.0	1340.1	1341.9	1340.9	1342.1	1341.1	1342.2	1341.1	1342.3	1341.1	1341.4	-
EKED3300	EKED3201		CIRCULAR	42					205	45	24.8	31.4	34.0	37.1	34.3	1346.0	1340.8	1346.0	1340.3	1342.5	1341.9	1342.7	1342.1	1342.8	1342.2	1342.9	1342.3	1342.7	1341.4
EKED3301	EKED3300		CIRCULAR	18					215	6	0.6	0.8	0.7	0.8	1.1	1346.0	1341.4	1346.0	1340.8	1342.5	1342.5	1342.7	1342.7	1342.8	1342.8	1343.0	1342.9	1342.7	1342.7
EKED3302	EKED3301		CIRCULAR	18					139	3	0.7	0.8	0.7	0.8	0.7	1344.0	1341.5	1346.0	1341.4	1342.5	1342.5	1342.8	1342.7	1342.8	1342.8	1343.0	1343.0	1342.7	1342.7
EKED3303	EKED3302		CIRCULAR	15					250	4	0.7	0.8	0.7	0.8	0.7	1346.0	1342.7	1344.0	1341.5	1343.0	1342.5	1343.1	1342.8	1343.0	1342.8	1343.1	1343.0	1343.0	1342.7
EKED3400	EKED3300		CIRCULAR	36					456	46	22.5	28.4	31.1	33.8	31.1	1350.0	1343.0	1346.0	1340.8	1344.4	1342.5	1344.7	1342.7	1344.8	1342.8	1344.9	1342.9	1344.8	1342.7
EKED3401	EKED3400		CIRCULAR	36					789	72	19.7	24.6	26.9	28.7	26.9	1356.0	1352.0	1350.0	1343.0	1353.1	1344.4	1353.3	1344.7	1353.3	1344.8	1353.4	1344.9	1353.3	1344.8
EKED3402	EKED3401		CIRCULAR	24					422	22	18.6	23.3	25.6	27.3	25.6	1360.0	1355.9	1356.0	1352.0	1357.4	1353.1	1357.8	1353.3	1360.0	1353.3	1360.3	1353.4	1360.0	1353.3
EKED3403	EKED3402		CIRCULAR	30					49	91	16.3	20.6	23.1	24.7	23.1	1360.0	1358.3	1360.0	1355.9	1359.1	1357.4	1359.2	1357.8	1359.4	1360.0	1360.3	1360.3	1359.4	1360.0

Conduit Name U/S Node	Conduit Name D/S Node	Capital Improvement Project (CIP) Name	Conduit Attributes: Type	Diameter/ Channel Height (inches)	Width (inches)	Left Channel Slope (H:V)	Right Channel Slope (H:V)	CIP Conduit Size (inches)	Conduit Length	Conduit Capacity (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Existing: 25yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Future: 25yr 24hr Peak Flow (cfs)	Future CIP Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Node Rim and Invert Elevation (IE): US Rim (ft)	US IE (ft)	DS Rim (ft)	DS IE (ft)	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) US	DS	25yr 24hr HGL (feet) US	DS	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) US	DS	25yr 24hr HGL (feet) US	DS	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) US	DS
EKED3404	EKED3403		CIRCULAR	30					305	25	16.3	20.6	23.1	24.8	23.1	1364.0	1359.5	1360.0	1358.3	1360.9	1359.1	1361.1	1359.2	1361.2	1359.4	1361.5	1360.3	1361.2	1359.4
EKED3405	EKED3404		CIRCULAR	30					300	26	16.4	20.7	23.5	24.9	23.5	1364.0	1360.7	1364.0	1359.5	1362.1	1360.9	1362.3	1361.1	1362.5	1361.2	1362.6	1361.5	1362.5	1361.2
EKED3406	EKED3405		TRAPEZOIDAL	22	21	0.6	0.7		589	13	12.9	14.7	16.6	15.6	16.6	1368.7	1365.5	1364.0	1360.7	1368.5	1362.1	1368.9	1362.3	1368.9	1362.5	1368.9	1362.6	1368.9	1362.5
EKED3407	EKED3406		CIRCULAR	36					46	28	17.1	19.5	22.0	23.1	22.0	1369.0	1365.7	1368.7	1365.5	1368.5	1368.5	--	1368.9	1369.0	1368.9	1369.0	1368.9	1369.0	1368.9
EKED3408	EKED3407		TRAPEZOIDAL	19	48	2.2	1.0		1070	25	17.3	19.7	23.0	25.2	23.0	1376.5	1372.4	1369.0	1365.7	1373.7	1368.5	1373.8	--	1374.0	1369.0	1374.5	1369.0	1374.0	1369.0
EKED3409	EKED3408		CIRCULAR	36					69	74	17.5	19.7	23.1	25.5	23.1	1376.5	1373.2	1376.5	1372.4	1374.3	1373.7	1374.4	1373.8	1374.5	1374.0	1374.6	1374.5	1374.5	1374.0
EKED3410	EKED3409		TRAPEZOIDAL	30	24	0.7	0.4		874	24	16.0	18.3	22.7	24.2	22.7	1384.5	1381.3	1376.5	1373.2	1384.5	1374.3	1385.8	1374.4	1387.7	1374.5	1388.6	1374.6	1387.7	1374.5
EKED3411	EKED3410		CIRCULAR	24					51	62	16.1	19.6	28.1	31.0	28.1	1387.1	1385.1	1384.5	1381.3	1385.8	1384.5	1386.1	1385.8	1388.0	1387.7	1389.0	1388.6	1388.0	1387.7
EKED3412	EKED3411		IRREGULAR	See model for channel cross-section					517	258	19.9	24.3	25.6	29.0	25.6	1394.0	1392.1	1387.1	1385.1	1393.6	1385.8	1393.8	1386.1	1393.9	1388.0	1394.0	1389.0	1393.9	1388.0
EKED3413	EKED3412		CIRCULAR	30					31	37	6.2	8.6	14.0	15.7	14.0	1396.3	1392.4	1394.0	1392.1	1393.7	1393.6	1394.0	1393.8	1393.9	1393.9	1394.0	1394.0	1393.9	1393.9
EKED3414	EKED3413		CIRCULAR	30					180	31	6.2	8.6	14.0	15.7	14.0	1398.3	1393.4	1396.3	1392.4	1394.2	1393.7	1394.3	1394.0	1394.6	1393.9	1394.7	1394.0	1394.6	1393.9
EKED3415	EKED3414		CIRCULAR	30					79	31	6.2	8.6	14.0	15.7	14.0	1398.4	1393.8	1398.3	1393.4	1394.6	1394.2	1394.8	1394.3	1395.0	1394.6	1395.1	1394.7	1395.0	1394.6
EKED3416	EKED3415		CIRCULAR	30					98	10	6.2	8.6	14.0	15.7	14.0	1398.5	1393.9	1398.4	1393.8	1394.7	1394.6	1394.9	1394.8	1395.4	1395.0	1395.5	1395.1	1395.4	1395.0
EKED3417	EKED3416		CIRCULAR	2 - 18					270	4	6.2	9.0	14.2	15.9	14.2	1396.0	1394.2	1398.5	1393.9	1398.5	1394.7	1401.6	1394.9	1399.3	1395.4	1400.6	1395.5	1399.3	1395.4
EKED3418	EKED3417		TRAPEZOIDAL	23	36	0.6	0.6		52	57	6.6	10.0	14.6	16.3	14.6	1396.9	1394.8	1396.0	1394.2	1398.5	1398.5	1401.6	1401.6	1399.4	1399.3	1400.7	1400.6	1399.4	1399.3
EKED3419	EKED3418		CIRCULAR	2 - 18					185	2	7.1	11.7	16.1	17.7	15.8	1398.6	1394.9	1396.9	1394.8	1399.1	1398.5	1402.7	1401.6	1402.2	1399.4	1404.3	1400.7	1402.2	1399.4
EKED3420	EKED3419		CIRCULAR	2 - 18					21	54	7.0	11.7	16.1	17.7	15.8	1400.3	1396.2	1398.6	1394.9	1399.1	1399.1	1402.8	1402.7	1402.3	1402.2	1404.4	1404.3	1402.3	1402.2
EKED3421	EKED3420		CIRCULAR	30					272	23	7.6	11.7	16.0	17.6	15.7	1402.6	1397.1	1400.3	1396.2	1399.1	1399.1	1402.9	1402.8	1402.7	1402.3	1404.9	1404.4	1402.7	1402.3
EKED3422	EKED3421		CIRCULAR	30					70	23	7.8	11.6	15.7	17.6	15.5	1402.0	1397.3	1402.6	1397.1	1399.1	1399.1	1402.9	1402.9	1402.8	1402.7	1405.0	1404.9	1402.8	1402.7
EKED3423	EKED3422		CIRCULAR	2 - 24					32	14	8.1	11.6	15.6	17.9	15.5	1403.2	1397.4	1402.0	1397.3	1399.2	1399.1	1403.0	1402.9	1402.9	1402.8	1405.1	1405.0	1402.9	1402.8
EKED3424	EKED3423		CIRCULAR	30					137	24	7.1	10.4	14.5	17.0	14.5	1402.7	1397.9	1403.2	1397.4	1399.2	1399.2	1403.0	1403.0	1403.0	1402.9	1405.3	1405.1	1403.0	1402.9
EKED3425	EKED3424		CIRCULAR	24					43	13	7.2	10.4	14.5	17.1	14.5	1402.7	1398.0	1402.7	1397.9	1399.2	1399.2	1403.1	1403.0	1403.2	1403.0	1405.5	1405.3	1403.2	1403.0
EKEE APPENDIX A, MAP 6																													
EKEE3001	EKEA3000		CIRCULAR	15					350	8	4.2	5.2	5.8	6.8	5.8	1356.6	1352.6	1353.4	1346.9	1356.6	1354.5	1357.8	1356.5	1358.9	1357.4	1361.2	1358.9	1353.3	1347.2
EKEF APPENDIX A, MAP 10																													
EKEF4001	EKEA4000		CIRCULAR	12					42	3	4.1	4.5	4.4	4.3	4.2	1399.0	1393.9	1396.0	1394.2	1396.4	1396.1	1396.7	1396.5	1396.9	1396.5	1397.3	1396.7	1397.2	1396.5
EKEF4002	EKEF4001		CIRCULAR	12					226	5	4.1	4.6	4.4	4.5	4.3	1401.6	1398.7	1399.0	1393.9	1399.4	1396.4	1401.1	1396.7	1399.5	1396.9	1401.6	1397.3	1401.1	1397.2
EKEF4003	EKEF4002		CIRCULAR	12					151	4	4.1	4.6	4.4	4.6	4.4	1403.0	1400.5	1401.6	1398.7	1401.4	1399.4	1403.0	1401.1	1401.8	1399.5	1403.0	1401.6	1403.0	1401.1
EKEF4004	EKEF4003		CIRCULAR	15					200	5	4.2	4.9	4.4	5.2	4.4	1403.7	1401.7	1403.0	1400.5	1402.5	1401.4	1402.9	1403.0	1402.6	1401.8	1403.2	1403.0	1402.6	1403.0
EKEF4005	EKEF4004		TRAPEZOIDAL	24	60	1.0	1.0		226	30	2.7	3.1	2.7	3.1	2.7	1405.5	1402.5	1403.7	1401.7	1403.0	1402.5	1403.0	1402.9	1403.0	1402.6	1403.3	1403.2	1403.0	1402.6
EKEF4006	EKEF4005		CIRCULAR	15					160	9	2.7	3.1	2.7	3.1	2.7	1409.0	1405.9	1405.5	1402.5	1406.3	1403.0	1406.4	1403.0	1406.3	1403.0	1406.4	1403.3	1406.3	1403.0
EKEF4007	EKEF4006		CIRCULAR	15					276	5	2.7	3.1	2.7	3.1	2.7	1410.2	1407.9	1409.0	1405.9	1408.5	1406.3	1408.6	1406.4	1408.5	1406.3	1408.6	1406.4	1408.5	1406.3
EKEF4008	EKEF4007		CIRCULAR	15					264	7	2.7	3.2	2.7	3.2	2.7	1413.5	1410.9	1410.2	1407.9	1411.4	1408.5	1411.4	1408.6	1411.4	1408.5	1411.4	1408.6	1411.4	1408.5
EKEF4009	EKEF4008		CIRCULAR	15					69	5	2.7	3.1	2.7	3.1	2.7	1414.0	1411.2	1413.5	1410.9	1411.9	1411.4	1412.0	1411.4	1411.9	1411.4	1412.0	1411.4	1411.9	1411.4
EKEF4010	EKEF4009		CIRCULAR	15					77	3	2.7	3.1	2.7	3.1	2.7	1414.1	1411.4	1414.0	1411.2	1412.2	1411.9	1412.3	1412.0	1412.2	1411.9	1412.3	1412.0	1412.2	1411.9
EKEF4011	EKEF4010		CIRCULAR	15					71	7	2.7	3.1	2.7	3.1	2.7	1414.8	1412.2	1414.1	1411.4	1412.8	1412.2	1412.8	1412.3	1412.8	1412.2	1412.8	1412.3	1412.8	1412.2
EKEF4100	EKEF4011		CIRCULAR	15					259	4	2.7	3.1	2.7	3.1	2.7	1417.7	1413.2	1414.8	1412.2	1413.9	1412.8	1414.0	1412.8	1413.9	1412.8	1414.0	1412.8	1413.9	1412.8
EKEF4110	EKEF4100		CIRCULAR	24					133	15	2.2	2.6	2.2	2.6	2.2	1417.8	1413.7	1417.7	1413.2	1414.2	1413.9	1414.3	1414.0	1414.2	1413.9	1414.3	1414.0	1414.2	1413.9
EKEF4111	EKEF4110		CIRCULAR	18					153	4	1.8	2.1	1.8	2.1	1.8	1417.0	1413.9	1417.8	1413.7	1414.6	1414.2	1414.7	1414.3	1414.6	1414.2	1414.7	1414.3	1414.6	1414.2
EKEF4112	EKEF4111		CIRCULAR	18					29	5	1.8	2.1	1.8	2.1	1.8	1417.0	1414.0	1417.0	1413.9	1414.7	1414.6	1414.7	1414.7	1414.7	1414.6	1414.7	1414.7	1414.7	1414.6
EKEF4120	EKEF4100		CIRCULAR	24					353	11	0.9	1.0	0.9	1.0	0.9	1417.7	1414.0	1417.7	1413.2	1414.3	1413.9	1414.3	1414.0	1414.3	1413.9	1414.3	1414.0	1414.3	1413.9
EKEF4120	EKEF4110		CIRCULAR	24					220	9	0.9	1.0	0.9	1.0	0.9	1417.7	1414.0	1417.8	1413.7	1414.3	1414.2	1414.3	1414.3	1414.3	1414.2	1414.3	1414.3	1414.3	1414.2
EKEF4121	EKEF4120		CIRCULAR	18					155	4	0.9	1.0	0.9	1.0	0.9	1416.8	1414.3	1417.7	1414.0	1414.7	1414.3	1414.8	1414.3	1414.7	1414.3	1414.8	1414.3	1414.7	1414.3
EKEF4122	EKEF4121		CIRCULAR	18					22	5	0.9	1.0	0.9	1.0	0.9	1416.8	1414.3	1416.8	1414.3	1414.8	1414.7	1414.8	1414.8	1414.8	1414.7	1414.8	1414.8	1414.8	1414.7
EKEG APPENDIX A, MAP 10																													
EKEG5001	EKEA5000		CIRCULAR	18					19	51	7.3	8.6	7.4	8.7	7.4	1401.0	1399.0	1398.0	1394.5	1399.4	1397.1	1399.4	1398.0	1399.4	1398.0	1399.4	1398.3	1399.4	1397.8
EKEG5002	EKEG5001		CIRCULAR	12					19	5	7.3	8.6	7.4	8.7	7.4	1401.3	1399.3	1401.0	1399.0	1400.8	1399.4	1401.1	1399.4	1400.8	1399.4	1401.3	1399.4	1400.7	1399.4
EKEG5003	EKEG5002		CIRCULAR	12					25	8	7.3	8.6	7.4	8.7	7.4	1402.7	1400.7	1401.3	1399.3	1401.5	1400.8	1402.3	1401.1	1401.5	1400.8	1402.4	1401.3	1401.5	1400.7
EKEH APPENDIX A, MAP 10																													
EKEH6001	EKEA6000		CIRCULAR	18					120	13	2.8	3.7	3.5	4.2	3.5	1416.0	1412.0	1410.7	1408.9	1412.4	1412.4	1412.8	1412.8	1412.9	1412.8	1413.0	1412.9	1413.2	1413.2

Conduit Name U/S Node	Conduit Name D/S Node	Capital Improvement Project (CIP) Name	Conduit Attributes: Type	Conduit Attributes: Diameter/ Channel Height (inches)	Conduit Attributes: Width (inches)	Conduit Attributes: Left Channel Slope (H:V)	Conduit Attributes: Right Channel Slope (H:V)	Conduit Attributes: CIP Conduit Size (inches)	Conduit Attributes: Conduit Length	Conduit Capacity (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 25yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 25yr 24hr Peak Flow (cfs)	Future CIP Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Node Rim and Invert Elevation (IE): US Rim (ft)	Node Rim and Invert Elevation (IE): US IE (ft)	Node Rim and Invert Elevation (IE): DS Rim (ft)	Node Rim and Invert Elevation (IE): DS IE (ft)	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Existing Conditions: 25yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Existing Conditions: 25yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future Conditions: 25yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future Conditions: 25yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) DS
EKEI APPENDIX A, MAP 10																												
EKEI7001	EKEA7000		CIRCULAR	15					108	9	3.5	4.4	4.3	4.9	4.3	1419.0	1416.0	1419.0	1413.8	1418.1	1417.9	1419.0	1419.0	1419.0	1418.8	1421.2	1421.1	1417.8	1417.4
EKEI7002	EKEI7001		CIRCULAR	15					113	2	3.6	4.5	4.3	5.0	4.3	1418.2	1416.4	1419.0	1416.0	1419.2	1418.1	1420.4	1419.0	1418.8	1419.0	1421.5	1421.2	1419.1	1417.8
EKEI7003	EKEI7002		CIRCULAR	15					485	2	3.9	5.0	4.6	5.6	4.6	1422.0	1418.5	1418.2	1416.4	1424.2	1419.2	1428.2	1420.4	1426.1	1418.8	1430.3	1421.5	1426.0	1419.1
EKEI7004	EKEI7003		CIRCULAR	15					35	5	4.0	5.1	4.7	5.7	4.7	1420.7	1418.7	1422.0	1418.5	1424.3	1424.2	1428.4	1428.2	1426.2	1426.1	1430.5	1430.3	1426.2	1426.0
EKEJ APPENDIX A, MAP 10																												
EKEJ8001	EKEA8000		CIRCULAR	18					31	21	6.1	9.1	10.5	13.0	10.5	1421.0	1415.9	1419.8	1414.7	1417.9	1417.9	1420.2	1419.8	1417.6	1417.6	1421.3	1421.3	1417.6	1417.5
EKEJ8002	EKEJ8001		TRAPEZOIDAL	24	48	1.3	1.3		42		0.5	1.4	0.5	0.6	0.5	1421.0	1419.4	1421.0	1415.9	1419.5	1417.9	1419.5	1420.2	1419.5	1417.6	1421.3	1421.3	1419.5	1417.6
EKEJ8003	EKEJ8002		CIRCULAR	12					30	5	0.5	0.6	0.5	0.6	0.5	1423.0	1420.0	1421.0	1419.4	1420.2	1419.5	1420.3	1419.5	1420.2	1419.5	1421.4	1421.3	1420.2	1419.5
EKEJ8004	EKEJ8003		CIRCULAR	12					230	4	0.5	0.6	0.5	0.6	0.5	1426.0	1422.4	1423.0	1420.0	1422.7	1420.2	1422.7	1420.3	1422.7	1420.2	1422.7	1421.4	1422.7	1420.2
EKEJ8005	EKEJ8004		CIRCULAR	12					160	5	0.5	0.6	0.5	0.6	0.5	1428.0	1425.0	1426.0	1422.4	1425.2	1422.7	--	1422.7	1425.2	1422.7	1425.2	1422.7	1425.2	1422.7
Colinwood Court Detention Pond at Node EKEJ8005																												
EKEJ8006	EKEJ8005		CIRCULAR	12					101	5	0.5	0.6	0.5	0.6	0.5	1431.0	1426.9	1428.0	1425.0	1427.1	1425.2	1427.2	--	1427.1	1425.2	1427.2	1425.2	1427.1	1425.2
EKEJ8007	EKEJ8006		CIRCULAR	12					242	3	0.5	0.6	0.5	0.6	0.5	1432.0	1428.3	1431.0	1426.9	1428.6	1427.1	1428.7	1427.2	1428.6	1427.1	1428.7	1427.2	1428.6	1427.1
EKEK APPENDIX A, MAP 12																												
EKEK9001	EKEA9000		CIRCULAR	36					100	49	11.5	15.2	16.1	18.8	16.2	1448.8	1444.3	1448.3	1443.8	1445.8	1445.8	1446.4	1446.4	1448.8	1447.8	1450.5	1450.5	1447.0	1446.9
EKEK9100	EKEK9001		CIRCULAR	36					200	36	11.3	14.7	24.5	17.5	15.0	1449.4	1444.9	1448.8	1444.3	1446.1	1445.8	1446.5	1446.4	1449.4	1448.8	1450.5	1450.5	1447.1	1447.0
EKEK9200	EKEK9100		CIRCULAR	27					35	57	11.2	14.1	16.5	15.2	12.7	1448.7	1446.1	1449.4	1444.9	1446.8	1446.1	1446.9	1446.5	1448.0	1449.4	1450.5	1450.5	1447.1	1447.1
EKEK9201	EKEK9200		CIRCULAR	27					115	18	10.5	13.0	11.9	14.1	11.9	1451.0	1446.5	1448.7	1446.1	1447.6	1446.8	1447.8	1446.9	1447.9	1448.0	1450.6	1450.5	1447.7	1447.1
EKEK9202	EKEK9201		CIRCULAR	27					293	21	10.5	13.0	11.9	14.1	11.9	1453.8	1447.7	1451.0	1446.5	1448.8	1447.6	1449.0	1447.8	1448.9	1447.9	1450.7	1450.6	1448.9	1447.7
EKEK9203	EKEK9202		CIRCULAR	24					98	34	10.5	13.0	11.9	14.1	11.9	1453.8	1449.8	1453.8	1447.7	1450.6	1448.8	1450.7	1449.0	1450.6	1448.9	1450.7	1450.7	1450.6	1448.9
EKEK9300	EKEK9203		CIRCULAR	24					15	27	10.6	13.1	12.0	14.2	12.0	1454.0	1450.0	1453.8	1449.8	1450.9	1450.6	--	1450.7	1450.9	1450.6	1451.0	1450.7	1450.9	1450.6
Shamila Court Detention Pond at Node EKEK9300																												
EKEK9301	EKEK9300		CIRCULAR	18					32	14	3.9	4.5	4.0	4.6	4.0	1453.5	1449.5	1454.0	1450.0	1451.0	1450.9	1451.1	1451.0	1451.1	1450.9	1451.2	1451.0	1451.1	1450.9
EKEK9302	EKEK9301		CIRCULAR	18					17	10	3.9	4.5	4.0	4.6	4.0	1453.4	1449.6	1453.5	1449.5	1451.0	1451.0	1451.2	1451.1	1451.1	1451.1	1451.2	1451.2	1451.1	1451.1
EKEK9310	EKEK9302		CIRCULAR	18					154	8	3.9	4.6	4.0	4.7	4.0	1455.7	1450.5	1453.4	1449.6	1451.2	1451.0	1451.3	1451.2	1451.2	1451.1	1451.4	1451.2	1451.2	1451.1
EKEK9311	EKEK9310		CIRCULAR	12					38	4	1.2	1.4	1.2	1.4	1.2	1455.6	1450.9	1455.7	1450.5	1451.3	1451.2	1451.3	1451.3	1451.3	1451.2	1451.3	1451.4	1451.3	1451.2
EKEK9312	EKEK9311		CIRCULAR	12					362	4	1.2	1.4	1.2	1.4	1.2	1459.8	1456.0	1455.6	1450.9	1456.4	1451.3	1456.4	1451.3	1456.4	1451.3	1456.4	1451.3	1456.4	1451.3
EKEK9320	EKEK9310		CIRCULAR	18					249	13	2.7	3.2	2.8	3.3	2.8	1458.0	1454.2	1455.7	1450.5	1454.7	1451.2	1454.7	1451.3	1454.7	1451.2	1454.7	1451.4	1454.7	1451.2
EKEK9321	EKEK9320		CIRCULAR	12					38	8	2.7	3.2	2.8	3.3	2.8	1458.3	1456.1	1458.0	1454.2	1456.5	1454.7	1456.5	1454.7	1456.5	1454.7	1456.5	1454.7	1456.5	1454.7
EKEK9322	EKEK9321		CIRCULAR	12					198	0	2.7	3.2	2.8	3.3	2.8	1460.0	1456.1	1458.3	1456.1	1458.6	1456.5	1459.3	1456.5	1458.8	1456.5	1459.0	1456.5	1459.5	1456.5
EKEK9323	EKEK9322		CIRCULAR	12					154	5	2.7	3.2	2.8	3.3	2.8	1462.6	1458.9	1460.0	1456.1	1459.5	1458.6	1459.6	1459.3	1459.5	1458.8	1459.7	1459.0	1459.5	1459.5
EKEK9324	EKEK9323		CIRCULAR	12					320	4	2.7	3.2	2.8	3.3	2.8	1466.0	1462.5	1462.6	1458.9	1463.1	1459.5	1463.2	1459.6	1463.1	1459.5	1463.2	1459.7	1463.1	1459.5
EKEK9325	EKEK9324		CIRCULAR	12					47	4	2.7	3.2	2.8	3.3	2.8	1467.0	1463.0	1466.0	1462.5	1463.6	1463.1	1463.7	1463.2	1463.6	1463.1	1463.7	1463.2	1463.6	1463.1
EKEK9400	EKEK9300		CIRCULAR	24					60	61	6.6	8.3	7.6	9.1	7.6	1458.9	1454.1	1454.0	1450.0	1454.6	1450.9	1454.6	1451.0	1454.6	1450.9	1454.7	1451.0	1454.6	1450.9
EKEK9401	EKEK9400		CIRCULAR	24					112	18	6.6	8.3	7.6	9.1	7.6	1460.0	1454.8	1458.9	1454.1	1455.6	1454.6	1455.8	1454.6	1455.7	1454.6	1455.8	1454.7	1455.7	1454.6
EKEK9402	EKEK9401		CIRCULAR	24					32	1	6.2	7.8	7.1	8.6	7.1	1460.1	1454.8	1460.0	1454.8	1455.8	1455.6	1455.9	1455.8	1455.8	1455.7	1455.9	1455.8	1455.8	1455.7
EKEK9403	EKEK9402		CIRCULAR	24					112	21	5.2	6.6	6.2	7.4	6.2	1460.8	1455.7	1460.1	1454.8	1456.4	1455.8	1456.5	1455.9	1456.5	1455.8	1456.5	1455.9	1456.5	1455.8
EKEK9404	EKEK9403		CIRCULAR	18					128	11	5.2	6.6	6.2	7.4	6.2	1461.5	1457.0	1460.8	1455.7	1457.8	1456.4	1457.9	1456.5	1457.8	1456.5	1457.9	1456.5	1457.8	1456.5
EKEK9405	EKEK9404		CIRCULAR	18					139	11	5.2	6.6	6.2	7.4	6.2	1462.8	1458.5	1461.5	1457.0	1459.3	1457.8	1459.4	1457.9	1459.3	1457.8	1459.4	1457.9	1459.3	1457.8
EKEK9406	EKEK9405		CIRCULAR	15					191	9	3.2	4.2	4.1	5.0	4.1	1466.0	1461.9	1462.8	1458.5	1462.5	1459.3	1462.5	1459.4	1462.5	1459.3	1462.6	1459.4	1462.5	1459.3
EKEK9500	EKEK9406		CIRCULAR	15					80	8	3.2	4.2	4.1	5.0	4.1	1466.0	1463.2	1466.0	1461.9	1463.7	1462.5	1463.8	1462.5	1463.8	1462.5	1463.9	1462.6	1463.8	1462.5
EKEK9501	EKEK9500		CIRCULAR	12					139	4	1.2	1.6	1.5	1.8	1.5	1468.0	1464.8	1466.0	1463.2	1465.2	1463.7	1465.3	1463.8	1465.3	1463.8	1465.3	1463.9	1465.3	1463.8
EKEK9502	EKEK9501		CIRCULAR	12					122	3	1.2	1.6	1.5	1.8	1.5	1470.0	1465.5	1468.0	1464.8	1466.0	1465.2	1466.0	1465.3	1466.0	1465.3	1466.1	1465.3	1466.0	1465.3
EKEK9600	EKEK9500		CIRCULAR	18					31	14	2.0	2.6	2.6	3.1	2.6	1468.0	1463.7	1466.0	1463.2	1464.1	1463.7	1464.1	1463.8	1464.1	1463.8	1464.2	1463.9	1464.1	1463.8
EKEK9601	EKEK9600		CIRCULAR	12					250	5	2.0	2.6	2.6	3.1	2.6	1471.0	1467.8	1468.0	1463.7	1468.3	1464.1	1468.4	1464.1	1468.3	1464.1	1468.4	1464.2	1468.3	1464.1
EKEK9602	EKEK9601		CIRCULAR	12					245	3	2.0	2.6	2.6	3.1	2.6	1474.0	1469.6	1471.0	1467.8	1470.2	1468.3	1470.3	1468.4	1470.3	1468.3	1470.4	1468.4	1470.3	1468.3
EKEK9603	EKEK9602		CIRCULAR	12					190	3	2.0	2.6	2.6	3.1	2.6	1474.0	1470.7	1474.0	1469.6	1471.4	1470.2	1471.5	1470.3	1471.5	1470.3	1471.7	1470.4	1471.5	1470.3

Conduit Name U/S Node	Conduit Name D/S Node	Capital Improvement Project (CIP) Name	Conduit Attributes: Type	Conduit Attributes: Diameter/ Channel Height (inches)	Conduit Attributes: Width (inches)	Conduit Attributes: Left Channel Slope (H:V)	Conduit Attributes: Right Channel Slope (H:V)	Conduit Attributes: CIP Conduit Size (inches)	Conduit Attributes: Conduit Length	Conduit Capacity (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Existing Elk Creek Basin Model - Peak Flows (cfs): 25yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Future Elk Creek Basin Model - Peak Flows (cfs): 25yr 24hr Peak Flow (cfs)	Future CIP Elk Creek Basin Model - Peak Flows (cfs): 10yr 24hr Peak Flow (cfs)	Node Rim and Invert Elevation (IE): US Rim (ft)	Node Rim and Invert Elevation (IE): US IE (ft)	Node Rim and Invert Elevation (IE): DS Rim (ft)	Node Rim and Invert Elevation (IE): DS IE (ft)	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Existing Conditions: 10yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Existing Conditions: 25yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Existing Conditions: 25yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future Conditions: 10yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future Conditions: 25yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future Conditions: 25yr 24hr HGL (feet) DS	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) US	Maximum Hydraulic Grade Line - Future CIP Conditions: 10yr 24hr HGL (feet) DS
EKEL APPENDIX A, MAP 12																												
EKEL10001	EKEA10000		TRAPEZOIDAL	36	480	1.0	1.0		150	472	3.5	4.5	4.5	5.6	4.5	1457.4	1454.4	1456.0	1454.4	1455.1	1455.1	1455.3	1455.3	1455.4	1455.4	1455.6	1455.6	1455.4	1455.4
EKEL10002	EKEL10001		CIRCULAR	18					20	9	3.5	4.5	4.5	5.7	4.5	1457.1	1454.6	1457.4	1454.4	1455.2	1455.1	1455.3	1455.3	1455.4	1455.4	1455.6	1455.6	1455.4	1455.4
EKEL10003	EKEL10002		CIRCULAR	15					139	5	2.6	3.4	3.6	4.5	3.6	1458.2	1455.3	1457.1	1454.6	1456.0	1455.2	1456.1	1455.3	1456.1	1455.4	1456.3	1455.6	1456.1	1455.4
EKEL10004	EKEL10003		CIRCULAR	15					31	10	2.6	3.4	3.6	4.5	3.6	1459.0	1456.1	1458.2	1455.3	1456.5	1456.0	1456.6	1456.1	1456.6	1456.1	1456.7	1456.3	1456.6	1456.1
EKEL10100	EKEL10004		CIRCULAR	15					156	4	2.6	3.4	3.6	4.5	3.6	1459.8	1456.7	1459.0	1456.1	1457.4	1456.5	1457.5	1456.6	1457.6	1456.6	1457.7	1456.7	1457.6	1456.6
EKEL10101	EKEL10100		CIRCULAR	12					229	2	0.8	1.2	1.2	1.6	1.2	1460.4	1457.6	1459.8	1456.7	1458.0	1457.4	1458.2	1457.5	1458.2	1457.6	1458.3	1457.7	1458.2	1457.6
EKEL10200	EKEL10100		CIRCULAR	12					74	6	1.9	2.2	2.4	2.9	2.4	1461.6	1458.5	1459.8	1456.7	1458.9	1457.4	1458.9	1457.5	1458.9	1457.6	1459.0	1457.7	1458.9	1457.6
EKEL10201	EKEL10200		CIRCULAR	12					181	4	0.1	0.2	0.7	0.9	0.7	1463.5	1460.6	1461.6	1458.5	1460.7	1458.9	1460.7	1458.9	1460.8	1458.9	1460.9	1459.0	1460.8	1458.9
EKEL10202	EKEL10201		CIRCULAR	12					32	3	0.1	0.2	0.7	0.9	0.7	1463.7	1460.9	1463.5	1460.6	1461.0	1460.7	1461.0	1460.7	1461.2	1460.8	1461.2	1460.9	1461.2	1460.8
EKEL10203	EKEL10202		CIRCULAR	12					181	1	0.1	0.2	0.7	0.9	0.7	1463.5	1461.1	1463.7	1460.9	1461.3	1461.0	1461.3	1461.0	1461.6	1461.2	1461.7	1461.2	1461.6	1461.2
EKEL10204	EKEL10203		CIRCULAR	12					99	2	0.1	0.2	0.7	0.9	0.7	1464.4	1461.9	1463.5	1461.1	1462.1	1461.3	1462.1	1461.3	1462.3	1461.6	1462.4	1461.7	1462.3	1461.6
EKEL10205	EKEL10204		CIRCULAR	12					165	3	0.1	0.2	0.7	0.9	0.7	1466.9	1463.3	1464.4	1461.9	1463.4	1462.1	1463.4	1462.1	1463.6	1462.3	1463.6	1462.4	1463.6	1462.3
EKEL10206	EKEL10205		CIRCULAR	12					113	4	0.1	0.2	0.7	0.9	0.7	1468.5	1464.9	1466.9	1463.3	1465.1	1463.4	1465.1	1463.4	1465.2	1463.6	1465.2	1463.6	1465.2	1463.6
EKEL10207	EKEL10206		CIRCULAR	12					87	3	0.1	0.2	0.7	0.9	0.7	1469.3	1465.7	1468.5	1464.9	1465.8	1465.1	1465.8	1465.1	1466.0	1465.2	1466.0	1465.2	1466.0	1465.2
EKEL10208	EKEL10207		CIRCULAR	12					65	4	0.1	0.2	0.7	0.9	0.7	1470.5	1466.5	1469.3	1465.7	1466.6	1465.8	1466.6	1465.8	1466.8	1466.0	1466.8	1466.0	1466.8	1466.0
EKEM APPENDIX A, MAP 12																												
EKEM11001	EKEA11000		TRAPEZOIDAL	36	240	1.0	1.0		330	--	0.3	0.4	1.7	2.2	1.7	1468.2	1466.2	1464.0	1461.0	1466.2	1461.7	1466.2	1461.8	1466.3	1462.0	1466.3	1462.2	1466.3	1462.0
EKEM11002	EKEM11001		CIRCULAR	15					63	9	0.3	0.4	1.7	2.2	1.7	1468.1	1464.9	1468.2	1466.2	1466.3	1466.2	1466.3	1466.2	1466.7	1466.3	1466.8	1466.3	1466.7	1466.3
EKEM11003	EKEM11002		CIRCULAR	15					160	5	0.3	0.4	1.7	2.2	1.7	1468.1	1464.9	1468.1	1464.9	1466.3	1466.3	1466.3	1466.3	1466.9	1466.7	1467.0	1466.8	1466.8	1466.7
EKEM11004	EKEM11003		CIRCULAR	15					160	5	0.3	0.4	1.7	2.2	1.7	1470.8	1465.7	1468.1	1464.9	1466.3	1466.3	1466.3	1466.3	1466.9	1466.9	1467.2	1467.0	1466.9	1466.8
EKEM11005	EKEM11004		CIRCULAR	15					95	6	0.3	0.4	1.7	2.2	1.7	1469.8	1466.5	1470.8	1465.7	1466.7	1466.3	1466.7	1466.3	1467.0	1466.9	1467.2	1467.2	1467.0	1466.9
EKEN APPENDIX A, MAP 12																												
EKEN12001	EKEA12000		TRAPEZOIDAL	24	60	1.0	1.0		500	55	4.0	7.2	12.1	15.0	12.1	1469.2	1467.2	1464.0	1461.0	1467.6	1462.0	1467.8	1462.2	1468.0	1462.4	1468.1	1462.7	1468.0	1462.4
EKEO APPENDIX A, MAP 13																												
EKEO13001	EKEA13000		CIRCULAR	30					293	11	4.4	5.4	4.4	5.4	4.4	1501.0	1496.1	1497.8	1495.8	1497.0	1496.5	1497.2	1496.6	1497.1	1496.6	1497.2	1496.7	1497.1	1496.6
EKEO13002	EKEO13001		CIRCULAR	24					101	21	4.4	5.4	4.4	5.4	4.4	1501.1	1496.9	1501.0	1496.1	1497.5	1497.0	1497.5	1497.2	1497.5	1497.1	1497.5	1497.2	1497.5	1497.1
EKEO13003	EKEO13002		CIRCULAR	24					310	22	4.4	5.4	4.4	5.4	4.4	1510.3	1499.5	1501.1	1496.9	1500.1	1497.5	1500.2	1497.5	1500.1	1497.5	1500.2	1497.5	1500.1	1497.5