### 7.7.2 Wetland Compensation / Restoration

The developed Plan Area will encompass two drainage corridors that correspond to the existing, largely channelized, drainages that cross the property from east to west. These drainage corridors will include a drainage component, designed to carry project stormwater flows, and a habitat component that will include restored wetland habitat and riparian woodland vegetation. The corridor associated with the South Tributary will encompass approximately 16 acres, while the North Tributary corridor, which extends the full length of the Plan Area from the east to the west and includes the vernal pool preservation area, will cover approximately 222 acres.

Compensatory wetlands constructed in these restoration areas will be used to offset Plan Area impacts to wetland habitat. In the event that Plan Area wetland impacts exceed the capacity for compensatory wetland habitat in the open space corridors, offsite mitigation – either through purchase of mitigation bank credits or development of offsite mitigation areas – will be utilized to ensure full mitigation of impacts.

### 7.7.3 Wetland Preservation and Compensation / Restoration Area Protection

The design of the open space corridors and the configuration of preserved, restored and compensatory wetland habitats within will be finalized as part of the Clean Water Act/Endangered Species Act permitting process. This design process will include development of appropriate preserve edge treatments, including but not limited to, fencing, access control and interpretive materials as well as development of a preserve/open space management plan, and estimates of the cost of long-term operations and maintenance of the preserve/open space areas. Wetland preservation and compensation areas within the Plan Area will be located within the designated open space areas, will be protected from potential impacts and encroachments of adjacent land uses via a number of mechanisms. These mechanisms may include, but are not limited to the following:

- Locate parks, trails, bike/pedestrian paths, the University campus, schools, and other open-space or low-impact use areas between more active land uses (e.g. residential areas, commercial areas) and the wetland preservation and compensation areas.
- Locate single-loaded streets adjacent to natural open space areas, where practicable.
- Direct surface runoff from streets, parking lots, and all development areas into the storm drainage system and provide first-flush treatment via water quality ponds, bioswales, oil and grease separators, or similar methods prior to discharge into the natural drainage system.
- Where residential lots back onto natural open space, prohibit the installation of gates or other methods of uncontrolled access to the natural open space areas. Provide open fencing to discourage dumping

of lawn clippings and yard waste into the natural open space and to encourage “eyes on the open space” by neighboring property owners.

All habitat preserve areas within the Plan Area will be protected by a conservation easement and will have a preserve management plan developed for the long-term management of the biological and wetland functions within these areas. The management plan will include detailed information on vegetation management, mechanisms for addressing erosion and sedimentation, maintenance, trespass and encroachment issues, mosquito and vector control, and other related tasks. Ownership and funding of preserve areas will be determined as part of the permitting and Development Agreement process.

Mitigation for vernal pool impacts will consist of preservation of existing vernal pool habitat onsite, and restoration/construction of vernal pool habitat offsite. Purchase of mitigation bank credits for vernal pool preservation, vernal pool creation, or both, may be used to supplement onsite vernal pool mitigation.

## *7.8 Open Space and Biological Resource Mitigation Strategy*

The open space and biological resource mitigation and management strategy for the RUSP is described and analyzed in the EIR. This strategy addresses integrated mitigation for impacts to open space, agricultural lands, wetlands and special status species to satisfy Placer County, state and federal resource objectives.

## *7.9 Cultural Resources*

A cultural resources inventory survey was completed by Jensen & Associates for potential cultural resources within the Plan Area and offsite areas. The following tasks were completed:

- Records research at the North Central Information Center at CSU-Sacramento and consultation with Native American representatives.
- Pedestrian field survey of the Plan Area.

The records at North Central Information Center document that 95% of the Plan Area has been previously surveyed, and that no sites or features have been formally recorded within the site. A pedestrian field survey was undertaken, and no evidence of demonstrably historic-period farm features, refuse or refuse disposal, homesteading, residential use, historic roadways or bridges was encountered. No paleontological resources were found as part of this survey. If any cultural and/or paleontological resources are discovered during site construction, mitigation measures contained within the EIR will be implemented. Refer to survey report for detailed information and results and to the RUSP EIR, for mitigation measures.

## *7.10 Vector Control/ Mosquito Abatement*

Natural open space areas will be managed under the terms and conditions of a preserve management plan which will include information on compatible mosquito and vector control methods that are appropriate for the various habitat types within the natural open space areas. The preserve manager will coordinate with the Placer County Mosquito Abatement District to ensure that habitat-appropriate vector control activities are implemented.

# Section 8 Public Utilities Element

## 8.1 Purpose

The Public Utilities section identifies the necessary utilities required to serve the Plan Area. This section provides an overview of the pre-specific plan systems and identifies the "backbone" infrastructure necessary to serve the Plan Area. Phasing of infrastructure improvements are described in the RUSP Public Facilities Phasing Plan and funding obligations are detailed in the RUSP Development Agreement and RUSP Finance Plan.

### 8.1.1 Utility Providers

The 1,157.5 acre Plan Area does not currently have the urban services or infrastructure facilities that are required for development to occur. Utility service providers, as shown in Table 8-1, are able to supply the Plan Area with the necessary utilities as summarized herein.

**Table 8-1 Utility Service Providers**

| Utility | Provider |
|---|---|
| Sanitary Sewer | Placer County |
| Water | Placer County Water Agency (PCWA) |
| Recycled Water Provider | City of Roseville |
| Recycled Water Distribution | Placer County or other public entity |
| Drainage and Flood Control | Placer County / Placer County Flood Control District and/or Community Services District (CSD) |
| Solid Waste Landfill/Disposal | Western Placer Waste Management Authority/Auburn Placer Disposal Service |
| Electric Service | Pacific Gas & Electric Company |
| Natural Gas | Pacific Gas & Electric Company |
| Telephone & Communications | AT&T |

## 8.2 Sanitary Sewer

### 8.2.1 Pre-Specific Plan Conditions

At the time of Specific Plan approval, no public sewage collection systems or treatment facilities existed within the Plan Area. The nearest treatment facility was the Pleasant Grove Wastewater Treatment Plant (PGWWTP) located at the intersection of Phillip Road and Westpark Drive in the West Roseville Specific Plan. The PGWWTP was planned for an ultimate capacity of 20.7 million gallons per day (mgd) average dry weather flow. Phase one began operation in 2004 with an initial capacity of 12.0 mgd.

The nearest existing wastewater collection system was a 42-inch diameter sewer trunk line in Phillip Road that delivers wastewater to the PGWWTP. The nearest point of connection to the PGWWTP is a 36-inch sewer stub at the "Influent Junction Structure" located approximately 1.3 miles east of the northeast corner of the Plan Area.

### 8.2.2 Wastewater Generation

The RUSP Sewer Master Plan[1] calculates that at full build out of the Plan Area, the combined University and Community sites will generate an estimated 1.17 mgd (ADWF) of wastewater. A summary of the land uses, flow rates, applicable factors, and calculated flows are detailed in the RUSP Sewer Master Plan[1]. All wastewater generation and capacity references hereafter are to "average dry weather flow" (ADWF) in million gallons per day (mgd).

The estimated RUSP ADWF was calculated using new wastewater flow rate factors from a Technical Memorandum – TM No. 2b, dated November 4, 2005, by Raines, Melton, & Carella, Inc. (RMC), prepared for the City of Roseville Environmental Utilities Department. TM No. 2b details "Build out Dry Weather Flow Projections within the Ultimate Service Area and is part of a series of Technical Memoranda by RMC for the "South Placer Regional Wastewater & Recycled Water Systems Evaluation Project." Data from TM – No. 2b, Table 6 is noted as follows:

- Regional University UGA Build out Dry Weather Flow (ADWF) to PGWWTP = 1.16 mgd. This estimate is consistent with the 1.17 mgd RUSP ADWF calculation. The slightly higher RUSP flow estimate is caused by a 21 acre increase in the Plan Area after the publication of RMC TM No. 2b.

### 8.2.3 Planned Wastewater Treatment

The Plan Area will deliver its wastewater to the Pleasant Grove Wastewater Treatment Plant (PGWWTP). The plant is operated by the City of Roseville on behalf of the members of the South Placer Wastewater Authority, which includes Placer County. Factors considered in concluding that the PGWWTP is the optimal treatment facility for the Plan Area are as follows:

- Treatment plant proximity: Measured along the most direct pipeline routes, the Plan Area is located 2.2 miles from the sewer connection point at the PGWWTP compared to 7.2 miles to the Dry Creek Wastewater Treatment Plant (DCWWTP). Offsite sewer pipeline infrastructure is minimized. The location of the PGWWTP is shown on Exhibit 8-2.
- Treatment plant capacity: The PGWWTP began operation in summer 2004 with an initial phased capacity of 12.0 mgd. The ultimate capacity, as described in the 1996 Wastewater Master Plan by Montgomery Watson, is 20.71 mgd, based on the 1996 Service Area Boundary, land uses, and flow rate factors for the various land uses.

[1] *Regional University Sewer Master Plan*, MacKay & Somps, November 2006.

Subsequent to the approval of the 1996 Service Area Boundary, ten areas have been annexed to the SPWA service area including the West Roseville Specific Plan. In addition, numerous potential urban growth areas including the RUSP have submitted applications for projects that could be developed in the county or potentially annexed to the City of Roseville.

These new urban growth areas require wastewater treatment and the City of Roseville recognized the need to update the 1996 Service Area Boundary for the Pleasant Grove and Dry Creek WWTPs. RMC was selected as the consultant to perform a series of studies to review and make recommendations related to the "Ultimate Service Area" and to update regional "treatment" flow rate factors for these two WWTPs. The RMC studies produced the series of Technical Memoranda.

Table 6 in the November 4, 2005 RMC Technical Memorandum (TM – No. 2b) quantified the projected "Build out" flow to PGWWTP at 23.4 mgd. Recommendations for the expansion of the PGWWTP to provide service to the RUSP and other UGAs is summarized in Technical Memorandum No. 4b, by RMC dated March 28, 2006

To provide a basis for the EIR prior to expansion to the ultimate 23.4 mgd capacity, a Cumulative Analysis of urban growth area impacts on Water Quality and Aquatic Resources in Pleasant Grove Creek has been completed by the RUSP developers and concludes it is both physically and financially feasible to expand the PGWWTP to handle the anticipated 23.4 mgd cumulative flow.

### ♦ Permits, Agreements, and other Studies

To provide local sewer service within the Plan Area, a County Service Area (CSA) will be formed by Placer County and the RUSP developers. This CSA will own and operate all sewerage facilities within the Plan Area boundary, with the exception of the University, which is proposed to privately own and maintain all of its sewer infrastructure.

In addition, steps to provide wastewater treatment service to the Plan Area and to expand the service area of the SPWA will include the following:

- Modify/update the current SPWA Sewer Service Boundary and Flow Rate Factors. The update shall include the RUSP as an Urban Growth Area in the SPWA's Regional Wastewater and Recycled Water System Evaluation.

  Note: this update has been initiated by the City of Roseville, and studies and Technical Memorandum related to: Service Area Boundary, Flow Rate Factors, and Dry Weather Flow from the Ultimate Service Area including Urban growth areas have been prepared by RMC for the City of Roseville.

- Modify/update the MOU between the City of Roseville and the Fish and Wildlife Service

- Modify/update the Funding and Operations Agreements between the SPWA partners, i.e., the City of Roseville, the South Placer Municipal Utility District and Placer County.

- Obtain an updated NPDES discharge permit for the PGWWTP

- Review the adequacy of the current 1000 foot buffer around the PGWWTP

- Study the need for a recycled water storage and distribution system to provide recycled water to the Plan Area

- Obtain from the State of California and other agencies, all necessary permits for the operation and maintenance of the private sewer collection system within the University. These permits include the State Water Quality Control Board and a possible "satellite" NPDES permit to discharge wastewater to a public sewer system.

### 8.2.4 Planned Onsite Wastewater Improvements

The 1157.5-acre Plan Area lies west of and downstream of the PGWWTP. The natural terrain for the Plan Area has an average gradient of less than 0.2 percent and falls westerly from approximate elevation 82 at the RUSP east boundary to elevation 57 at Brewer Road. With the elevation differential described, it is not possible to construct a sanitary sewer pipeline that will drain any portion of the Plan Area by gravity to the PGWWTP. A sanitary sewer pump station and force main system will be required to transport all wastewater from the Plan Area to the PGWWTP.

Within the Plan Area, wastewater will be collected in two sub-basins: the University and the Community. The proposed RUSP sanitary sewer collection, force main, and pump station system is shown on Exhibit 8-1.

- **University sub-basin**: All sewer facilities on the University site will be privately owned and maintained, and will include a gravity collection system and a sewer pump station located in the western area of the University campus. The private pump station and force main system will transport wastewater easterly to tie into the public force main system that delivers flows from the RUSP pump station to the PGWWTP. The University force main tie-in is located near 16$^{th}$ Street. The University will be responsible for any regulatory permits required for operation and maintenance of the private collection, force main, and pump station system.

- **Tributary sub-basins:** The Curry Creek Urban Growth Area is located north and south of the RUSP. The RUSP Sewer Master Plan studies the potential wastewater impact to RUSP from both the north and south regional UGA shed areas and shows conceptual wastewater collection systems that could service these areas. Wastewater flows from the north Curry Creek UGA would be picked up by RUSP gravity systems at three points along the RUSP north boundary. The south Curry Creek UGA will sewer to its own sewer pump station and force main system. All north

and south Curry Creek UGA sub-basins and conceptual trunk sewer systems are fully described in the RUSP Sewer Master Plan.

- **Community sub-basin**: All sewer facilities, including a pump station and force main system will be owned, operated and maintained by a County Service Area, (CSA). Sanitary sewer collection in the Community will be conventional gravity systems that begin with 6 and 8-inch lines that tie into larger collector and trunk sewer lines.

  Phasing of sewer improvements is proposed by the RUSP. Phase 1A will construct a temporary wastewater pump station at the south side of University Boulevard at 8th Street, and a temporary force main north in 8th Street to the north edge of the open space corridor. At this point, the temporary force main connects to the permanent force main, which continues east to Watt Avenue at the northeast corner of the RUSP, where it exits the Plan Area. The temporary pump station will be sized to service the build out of Phase 1.

  As phased development proceeds west into Phase 2A, all sewer collection facilities in the Community flow west to the permanent pump station location at the west side of 16th Street approximately 300 feet north of University Boulevard.

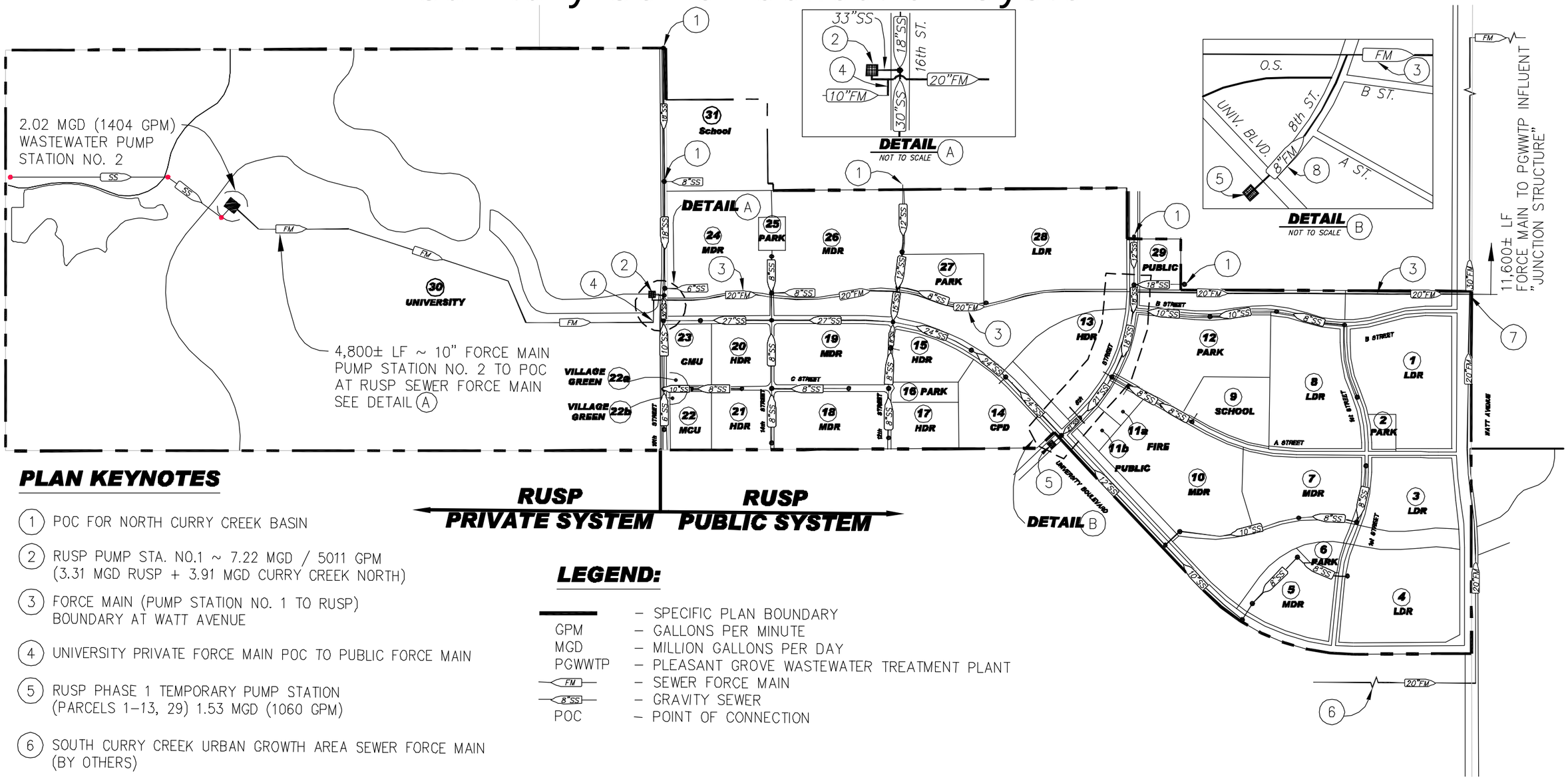
  From the permanent Community pump station, a sewer force main system will transport wastewater within road right of way or PUEs following a route south in 16th Street, then east along the north edge of the open space corridor to 8th Street to connect to the permanent force main constructed with Phase 1A.

### 8.2.5 Planned Off-site Wastewater Improvements

Once the sewer force main system exits the Plan Areas, the off-site route is north in future Watt Avenue and east in Phillip Road to the northwest 36-inch sewer stub at the PGWWTP Influent Junction Structure, a distance of approximately 11,900 feet. Exhibit 8-2 depicts four off-site sewer options.

All four options propose connection to the existing 36-inch sewer stub from the PGWWTP Influent Junction Structure. The capacity of this sewer stub was studied by RMC as part of the SPWA Wastewater and Recycled Water Systems Evaluation Project. RMC's TM No. 3b dated April 13, 2006 identifies sewer service to the Regional University and Curry Creek UGAs as Improvement Project 7 – Area L. The TM also confirms that the 36-inch stub from the Influent Junction Structure is sufficiently sized to convey the PWWF from the West Roseville Specific Plan, and the Creekview, Regional University, and Curry Creek UGAs.

# Sanitary Sewer Collection System




## PLAN KEYNOTES

1. POC FOR NORTH CURRY CREEK BASIN
2. RUSP PUMP STA. NO.1 ~ 7.22 MGD / 5011 GPM (3.31 MGD RUSP + 3.91 MGD CURRY CREEK NORTH)
3. FORCE MAIN (PUMP STATION NO. 1 TO RUSP) BOUNDARY AT WATT AVENUE
4. UNIVERSITY PRIVATE FORCE MAIN POC TO PUBLIC FORCE MAIN
5. RUSP PHASE 1 TEMPORARY PUMP STATION (PARCELS 1–13, 29) 1.53 MGD (1060 GPM)
6. SOUTH CURRY CREEK URBAN GROWTH AREA SEWER FORCE MAIN (BY OTHERS)
7. POC SOUTH CURRY CREEK UGA FORCE MAIN
8. TEMPORARY SEWER FORCE MAIN (SERVES RUSP PHASE 1 ONLY)

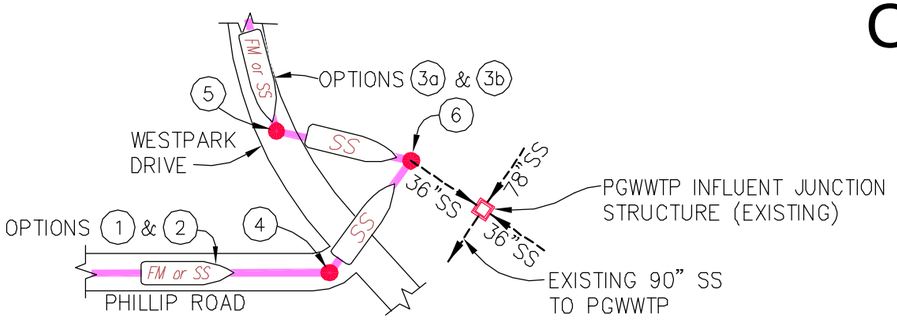
## LEGEND:

| | |
|---|---|
| ——— | – SPECIFIC PLAN BOUNDARY |
| GPM | – GALLONS PER MINUTE |
| MGD | – MILLION GALLONS PER DAY |
| PGWWTP | – PLEASANT GROVE WASTEWATER TREATMENT PLANT |
| FM | – SEWER FORCE MAIN |
| 8"SS | – GRAVITY SEWER |
| POC | – POINT OF CONNECTION |

Exhibit 8-1

Sanitary Sewer Collection System

# Offsite Sanitary Sewer




**DETAIL A**

NOT TO SCALE




## LEGEND:

| | |
|---|---|
| POC | – POINT OF CONNECTION |
| RUSP | – REGIONAL UNIVERSITY SPECIFIC PLAN |
| PGWWTP | – PLEASANT GROVE WASTEWATER TREATMENT PLANT |
| WRSP | – WEST ROSEVILLE SPECIFIC PLAN |
| | – RUSP BOUNDARY |
| FM | – OFFSITE SANITARY SEWER FORCE MAIN (PHASE 1A) |
| SS | – OFFSITE GRAVITY SEWER (PHASE 1) (4) |
| | – WRSP BOUNDARY |
| (1) | – OPTION 1 ~ FORCE MAIN TO MH AT (4) |
| (2) | – OPTION 2 ~ GRAVITY SEWER TO MH AT (5) |
| (3a) | – OPTION 3a ~ FORCE MAIN TO MH AT |
| (3b) | – OPTION 3b ~ FORCE MAIN & GRAVITY SEWER TO MH AT (5) |
| (4) | – OPTION 1 ~ TRANSITION MH<br>– OPTION 2 ~ STANDARD MH |
| (5) | – OPTION 3a ~ TRANSITION MH<br>– OPTION 3b ~ STANDARD MH |
| (6) | – RUSP SEWER POC. |

0' 500' 1000' 2000' 1/2 mile

Exhibit 8-2

Offsite Sanitary Sewer and Recycled Water

## *8.3 Water Supply*

The water needs of the Plan Area will be met using an integrated supply of the available water resources, including surface water, groundwater and recycled water. The Plan Area is within the service area of the Placer County Water Agency (PCWA), and PCWA is anticipated to be the surface water and groundwater provider. The Plan Area will be detached from PCWA Service Zone 5 and annexed into Service Zone 1, subject to approval by the PCWA Board of Directors (PCWA, 2005). PCWA has adequate water supply to meet the buildout demands of the RUSP area, in addition to the rest of the buildout demands currently anticipated within PCWA's projected service area in western Placer County during normal, single dry and multiple dry years. PCWA plans to meet these demands through the integrated use of existing surface water entitlements, a redundant groundwater and demand reduction. To ensure meeting water demands, in periods of drought, during supply emergencies and during normal maintenance, PCWA is pursuing a redundant groundwater supply (PCWA, 2005). The City of Roseville will provide recycled water for non-potable irrigation uses at flow rates up to the July average dry weather flow (ADWF) of wastewater received at the Pleasant Grove Regional Wastewater Treatment Plant (PGWWTP) from the Plan Area.

PCWA will provide treated surface water to the Plan area from the beginning of its development. Recycled water from PGWWTP will be used for non-potable irrigation supply when recycled water becomes available in 2010 (RMC, 2006). After recycled water is available, water provided by PCWA will be used to meet some irrigation demands, because the available recycled water supply may be somewhat less than the peak summer day irrigation demand. Groundwater will be used for drought protection, water supply emergencies and during PCWA maintenance events.

### 8.3.1 Pre Specific Plan Conditions

No records of the historical groundwater pumping exist for the RUSP Area. Therefore, the historical pumping was estimated based on historical agricultural practices (West Yost Associates, 2006). The pre-specific plan condition land uses in the RUSP are:

| | |
|---|---|
| Active Rice Farming | 643 acres |
| Abandoned Rice Farming | 297 acres |
| Dry Land Farming | 148 acres |
| Waters of the US | 70 acres |
| **Total** | **1158 acres** |

The historical pumping was estimated based on the cultivation of 600 acres of rice irrigated with 5 feet of applied water per year supplied by groundwater pumping (West Yost Associates, 2006). Table 8-3 lists the estimates of historical groundwater pumping.

**Table 8-2 Estimated Groundwater Pumping for Agricultural Production**

| Land Use | Approximate Area* (acres) | Applied Water (afy)** | Net Ground Water Pumping*** (afy) |
|---|---|---|---|
| Rice | 600 | 3,000 | 2,440 |

* areas and crops reported by farm manager (Johas 2006)
** afy- acre-feet per year
*** net of applied water plus precipitation, subtracting evapo-transpiration and runoff

## 8.3.2 Regional Surface Water Supply and Infrastructure

PCWA currently serves existing development in western Placer County from its 55-mgd Foothill and 8-mgd Sunset Water Treatment Plants, which have a combined treatment capacity of 63 mgd.

In 2006, the maximum day demand for treated water was 51.8 mgd. PCWA estimates that an additional 5.3 mgd of capacity, not reflected in the 2006 maximum day demand, is already reserved for planned developments that have paid water connection charges. This leaves capacity of 5.9 mgd for meeting future demands in western Placer County until PCWA's new 30-mgd Ophir Water Treatment Plant is brought on line in 2012, as currently scheduled (PCWA, 2006). Exhibit 8-3 shows the existing and planned regional surface water delivery infrastructure.

In addition, to meet future long-term regional water supply needs within its service area, PCWA, along with other local water purveyors, have proposed to construct a regional diversion structure, treatment plants and transmission pipelines on the Sacramento River north of the Sacramento International Airport. This effort is referred to as the Sacramento River Water Reliability Project (SRWRP). The project will enable PCWA to treat and deliver 35,000 afy of its contract or surface water rights to western Placer County. This supply, when available, could serve the Plan Area and is in addition to the supply available from existing Foothill and Sunset Water Treatment Plants and the future Ophir Water Treatment Plant. A possible transmission alignment is shown on Exhibit 8-3.

PCWA has indicated that the SRWRP supply is likely to be subject to a 25 percent reduction during droughts. Therefore, PCWA will require a redundant groundwater supply capable of delivering about 9,000 afy to supplement this supply. To deliver the water supply available from the current facilities at the Foothill and Sunset Water Treatment Plants, PCWA and the City of Roseville have an existing agreement that provides PCWA with capacity to deliver a maximum daily flow rate of10 mgd through the City distribution system. A portion of this 10-mgd capacity will be available to serve the Plan Area, but transmission pipelines are needed to deliver this supply. Three possible transmission pipeline routes are shown on Exhibit 8-3. A new agreement between PCWA and the City of Roseville may be needed for conveyance of water utilizing alignments A or B as shown on Exhibit 8-3.

Upon the initial development of Phase 1 of the Plan Area, a water pipeline extension and infrastructure upgrades to deliver PCWA surface water to the site from the current delivery location will be designed and constructed.

Once the 10 mgd capacity has been allocated, a new transmission main will be necessary. An extension of the PCWA system currently located near Hwy 65 and Athens Avenue is one possibility for the transmission main. Alternatively, if PCWA has constructed the planned water supply system contemplated in the SRWRP, delivery of additional water would be available by connecting to that system.

### 8.3.3 Plan Area Water Demands and Supplies

Table 8-4 lists the projected water demands for the University and Community at buildout. Refer to the RUSP Water Master Plan[2], for more detailed information on water demands.

**Table 8-3 Estimated Water Demands by Phase***

| | Potable Demand (afy) | Public-Area Irrigation Demand (afy) | Total (afy) |
|---|---|---|---|
| Phase 1** | | | |
| University | 0 | 0 | 0 |
| Community | 790 | 160 | 950 |
| **Total Phase 1** | **790** | **160** | **950** |
| Phase 2 | | | |
| University | 830 | 480 | 1,310 |
| Community | 1,620 | 290 | 1,910 |
| **Total Phase 2** | **2,450** | **770** | **3,220** |

*Individual entries rounded to the nearest 10 afy after calculating totals. Sums of rounded entries do not always match rounded totals.

** Recycled water may not be available to meet irrigation demands in Phase 1. Therefore, Phase I public-area irrigation demands may be initially met using water supplied by PCWA.

#### ♦ Surface Water Supply

Potable requirements both initially and at build out would be met using surface water. Surface water would be supplemented by groundwater in dry and critical years. The available recycled water supply may be used to meet non-potable irrigation requirements. Potable supply would be used to supplement recycled water during the peak irrigation demand months.

[2] Regional University Specific Plan Water Master Plan, West Yost Associates, November 2006

### ♦ Groundwater Supply

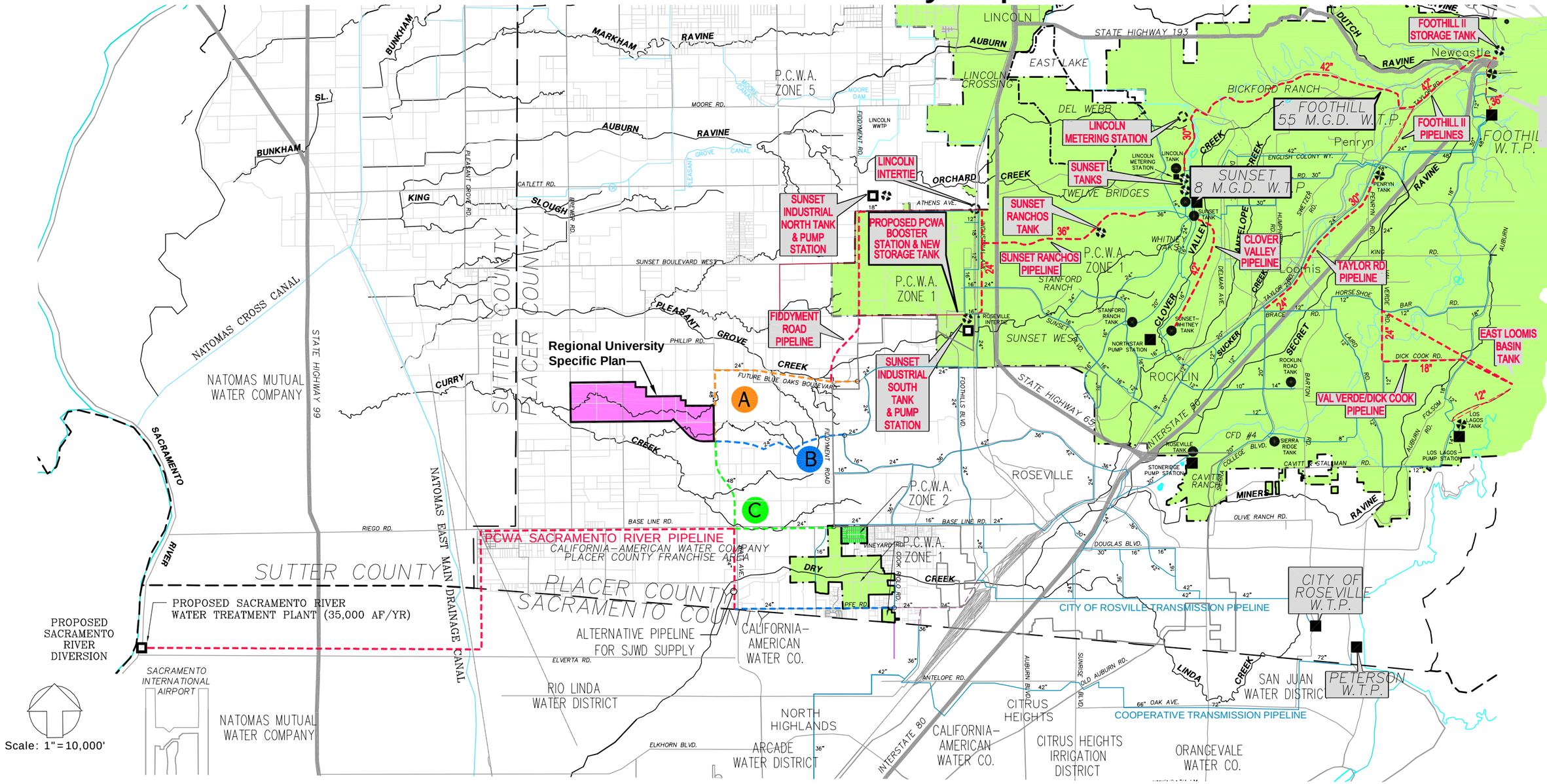
During dry and critical years, approximately 25 percent (620 afy) of the demand for treated surface water will be met using groundwater. Plan Area wells will be constructed to meet this demand and will provide PCWA with a portion of the infrastructure needed to meet their goal of achieving 25 percent supply redundancy.

The Plan Area water supply strategy allows for groundwater use, if supply and delivery systems are not available and only until such time that treated surface water and recycled water infrastructure are available. Groundwater will be used to supplement the potable supplies during dry and critical years and could be used to supplement the recycled water supply during peak irrigation demand months. Approximately 120 afy would be needed to supplement the recycled water supply. The reduction in groundwater pumping relative to historical levels will have a positive impact on groundwater elevation trends in the Plan Area.

Sampling of on-site irrigation wells indicates that wellhead treatment will not be needed for future municipal wells in the Plan Area[1]. However, groundwater will be treated, if necessary to meet drinking water standards for public supply. The proposed well sites include reservation of space for oxidation-filtration treatment for removal of arsenic, iron and manganese, if levels are above drinking water standards.

PCWA and the City of Roseville are signatory parties to the Water Forum Agreement (WFA), which includes a groundwater management element. PCWA has developed an integrated water resources plan, and PCWA and the Cities of Roseville and Rocklin have adopted a joint groundwater management plan. These efforts include the Plan Area and will guide future groundwater use in the Plan Area.

# Surface Water Delivery Pipelines




## Legend

- Existing Pipelines
- Planned or Proposed PCWA Pipelines
- Planned or Proposed by Others
- Planned City of Roseville Pipeline

Notes:

1. Pipeline Alignments A, B, and C are three possible routes to convey PCWA treated surface water through the existing City of Roseville distribution system from the Foothill and Sunset Water Treatment Plants to the Regional University Specific Plan Area.

Alignment A: POC at an existing 24–inch City of Roseville water line stub in Blue Oaks Boulevard at the intersection with Del Webb Boulevard, then west in Blue Oaks Boulevard to Fiddyment Road, west in the future West Roseville Specific Plan (WRSP) alignment of Blue Oaks Boulevard to Phillip Road, west in Phillip Road to the future northerly extension of the Watt Avenue intersection with Phillip Road, south in the future extension of Watt Avenue to the Plan Area. Total length, approximately 19,600 feet.

Alignment B: POC at an existing 24–inch City of Roseville water line at the intersection of Del Webb Boulevard and Sun City Boulevard; then west in Del Webb Boulevard to Fiddyment Road, west through the WRSP in future roadway alignments to the WRSP terminus of Pleasant Grove Boulevard, west in the future extension of Pleasant Grove Boulevard to the Plan Area. Total length, approximately 14,300 feet. Of this total length, approximately 4,800 feet is proposed for construction with Phase 1 of the WRSP.

Alignment C: POC at an existing 24–inch City of Roseville water line stub at the intersection of Base Line and Fiddyment Roads; then west in Base Line Road to future Watt Avenue and north in future Watt Avenue to the Plan Area. Total length, approximately 19,500 feet.

Exhibit 8-3

Surface Water Delivery Pipelines

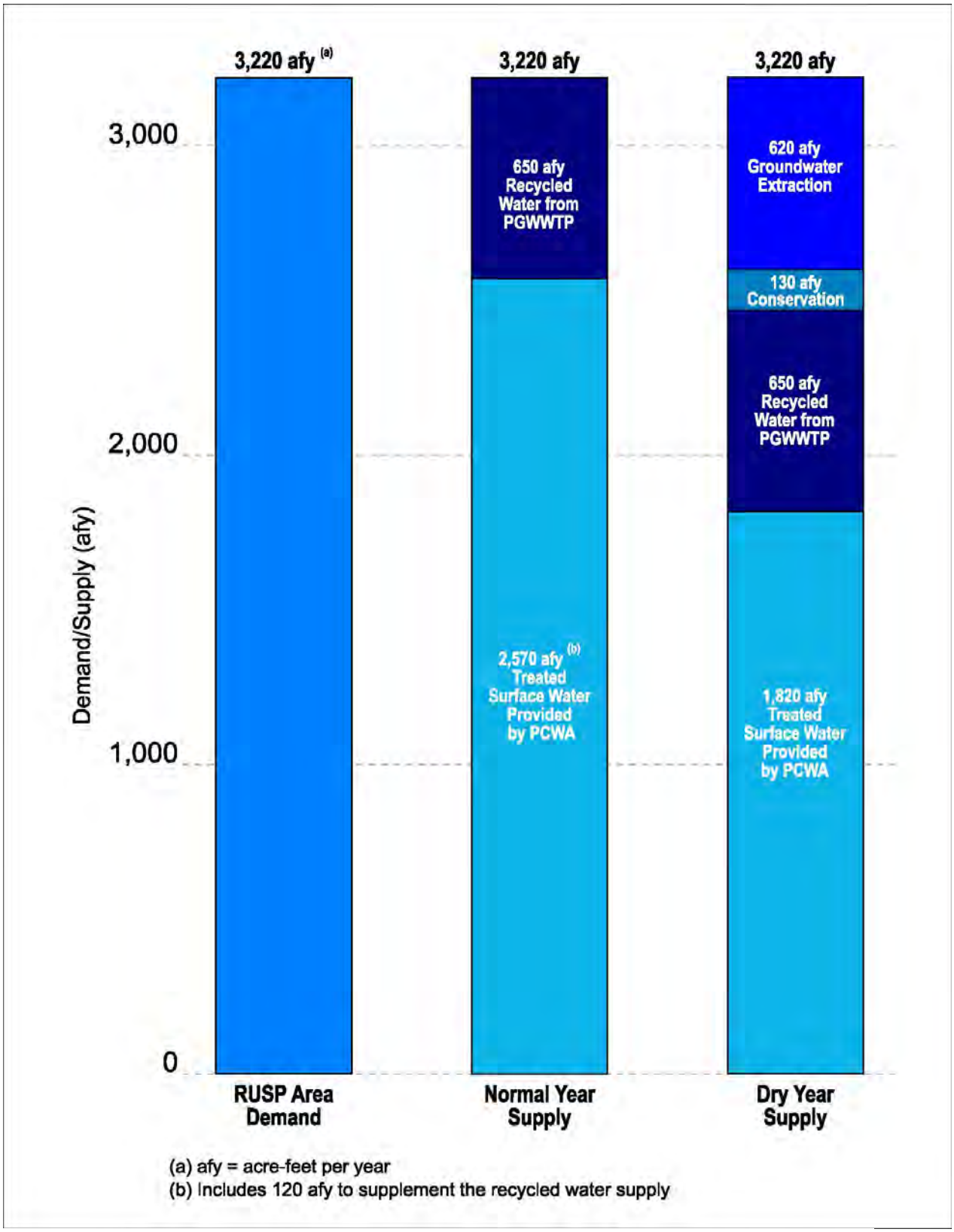



Exhibit 8-4

Integrated Water Supply Strategy

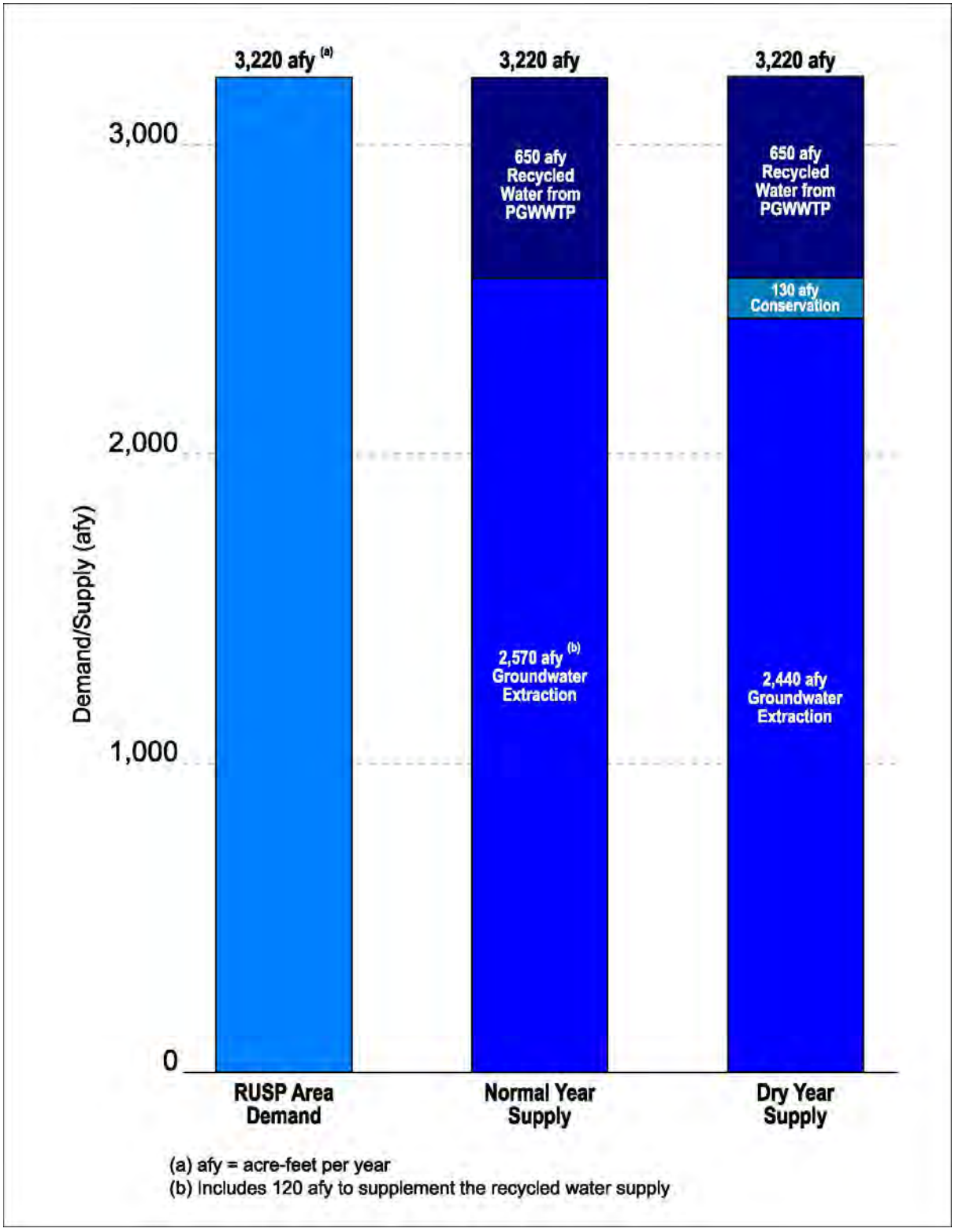



Exhibit 8-5

Groundwater-Recycled Water Supply Strategy

## ♦ Alternatives

An evaluation of potential groundwater impacts is provided in the RUSP Water Master Plan[2]. Two water supply alternatives were developed and evaluated to assess potential groundwater impacts due to the proposed project. The alternatives were evaluated using the numerical model results from previous regional efforts supporting the WFA combined with site-specific modeling of the historical and projected water demands in the Plan Area[2]

Under Alternative 1, the integrated water supply alternative, all project water demands would be met with surface water or recycled water during wet and normal years (Exhibit 8-4). RUSP area groundwater use would be limited to approximately 620 acre-feet during dry and critical years. Alternative 1 would cause a decrease in groundwater pumping and a year-round increase in groundwater levels during both dry and wet years.

Alternative 1 would result in an increase in both the available groundwater supply and local groundwater levels. Alternative 1 would cause no adverse groundwater impact.

Under Alternative 2, all potable water demands and 120 acre-feet of public-area irrigation demands for the project approximately –2.570 afy at buildout – would be met with groundwater. The remainder of the public-area irrigation demands would be met with recycled water (Exhibit 8-5). The net annual groundwater consumption for Alternative 2 (2.420 afy) would be slightly less than the historical net agricultural groundwater consumption that would be replaced by the project (2,440 afy).

Alternative 2 would result in no significant decrease in the available groundwater supply and no significant impacts to local groundwater levels.

## ♦ Recycled Water

The City of Roseville will be the wholesaler of recycled water from the PGWWTP to the Plan Area in approximately 2010, contingent on treating the wastewater from the Plan Area and construction of the necessary infrastructure for the recycled water. The publicly owned and operated recycled water infrastructure within the County will be owned and operated by the County or some other entity that may be created to serve as the recycled water retailer.

The City of Roseville will commit to providing the Plan Area with a July day supply of recycled water equal to the amount of wastewater generated by the Plan Area on an average day in July. The ADWF at buildout of the Plan Area is 1.17 mgd (Mackay & Somps, 2006).

[2] Regional University Specific Plan Water Master Plan, West Yost Associates, November 2006

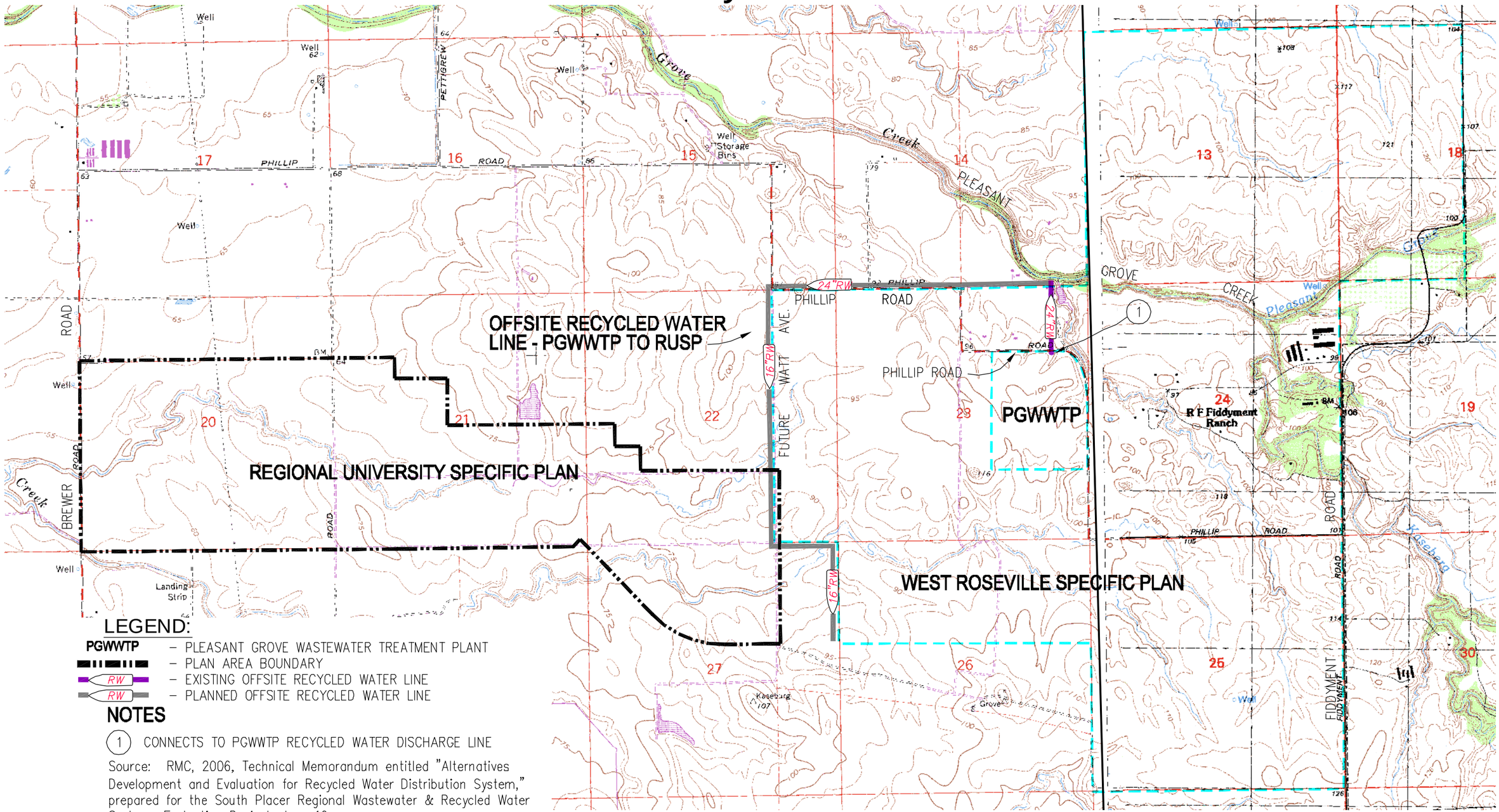
Approximately 650 acre-feet of recycled water will be used annually. The available recycled water supply will adequately irrigate approximately 213 acres of turf, except in the months of June, July and August. During these months a total of approximately 120 acre-feet of supplemental water will be needed to meet the recycled water/irrigation demand (West Yost Associates , 2006). If lower water demand landscape occurs a larger acreage can be irrigated.

### ♦ Planned On-site Water Improvements

The water infrastructure proposed for the RUSP for Phase 1 portion of the Plan Area consists of two main extensions from the PCWA transmission main in Watt Avenue, which will deliver treated surface water. Additional mains will be looped through Phase I and connected to one water well to provide a second source of supply for water supply emergencies, drought protection purposes and PCWA and PGWWTP maintenance events. A second well site is reserved for potential use by PCWA if necessary for additional drought protection. A 3.0 million gallon water storage tank and booster pump station will also be constructed with Phase 1.

Phase 2, which includes the University component of the plan, will extend the transmission main along University Blvd. into the University site. An additional well site is reserved within the University parcel. In the event PCWA's ability to meet all regional demands with surface water is restricted when the University component of the project is developed, the onsite wells will be utilized to supply water until PCWA can meet all water supply demands through their surface water delivery system. Refer to Exhibit 8-7 for possible locations of the wells and layout of the anticipated distribution system. Recycled water will be supplied from the PGWWTP. Phase 1 construction will provide the recycled pipeline distribution system throughout Phase 1 areas. Phase 2 recycled water infrastructure will consist of a pipeline connection to the PGWWTP, an onsite storage tank, booster pump and extension of the distribution system on University Blvd. Refer to Exhibit 8-8 for layout of the distribution system and other facilities.

# Offsite Recycled Water




LEGEND:

PGWWTP – PLEASANT GROVE WASTEWATER TREATMENT PLANT

– PLAN AREA BOUNDARY

RW – EXISTING OFFSITE RECYCLED WATER LINE

RW – PLANNED OFFSITE RECYCLED WATER LINE

## NOTES

(1) CONNECTS TO PGWWTP RECYCLED WATER DISCHARGE LINE

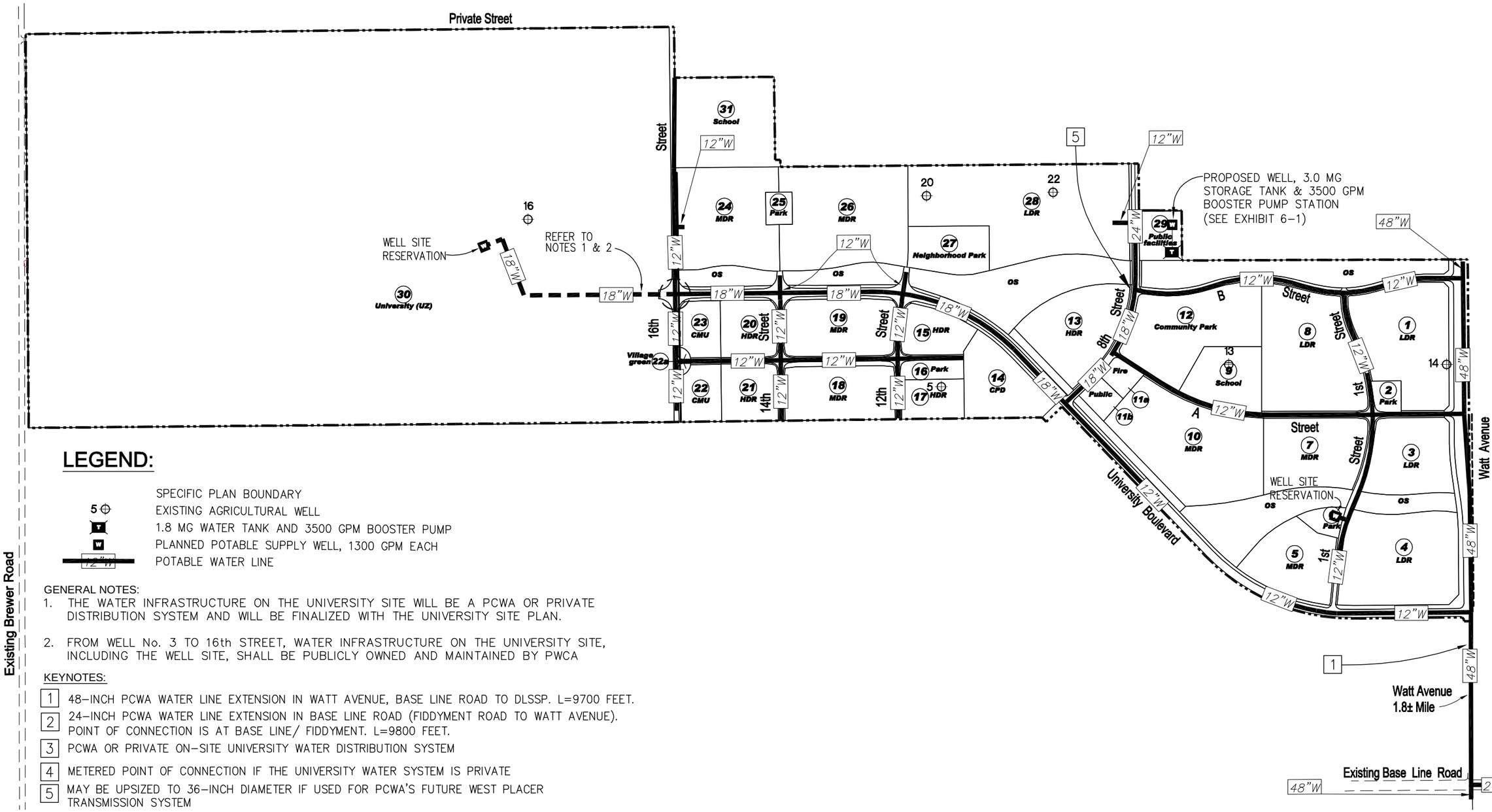
Source: RMC, 2006, Technical Memorandum entitled "Alternatives Development and Evaluation for Recycled Water Distribution System," prepared for the South Placer Regional Wastewater & Recycled Water Systems Evaluation Project, June 12.

0' 500' 1000' 2000' 1/2 mile

Exhibit 8-6

Offsite Recycled Water

# Potable Water Distribution System




## LEGEND:

- 5 — SPECIFIC PLAN BOUNDARY
- EXISTING AGRICULTURAL WELL
- 1.8 MG WATER TANK AND 3500 GPM BOOSTER PUMP
- PLANNED POTABLE SUPPLY WELL, 1300 GPM EACH
- 12"W — POTABLE WATER LINE

GENERAL NOTES:

1. THE WATER INFRASTRUCTURE ON THE UNIVERSITY SITE WILL BE A PCWA OR PRIVATE DISTRIBUTION SYSTEM AND WILL BE FINALIZED WITH THE UNIVERSITY SITE PLAN.
2. FROM WELL No. 3 TO 16th STREET, WATER INFRASTRUCTURE ON THE UNIVERSITY SITE, INCLUDING THE WELL SITE, SHALL BE PUBLICLY OWNED AND MAINTAINED BY PWCA

KEYNOTES:

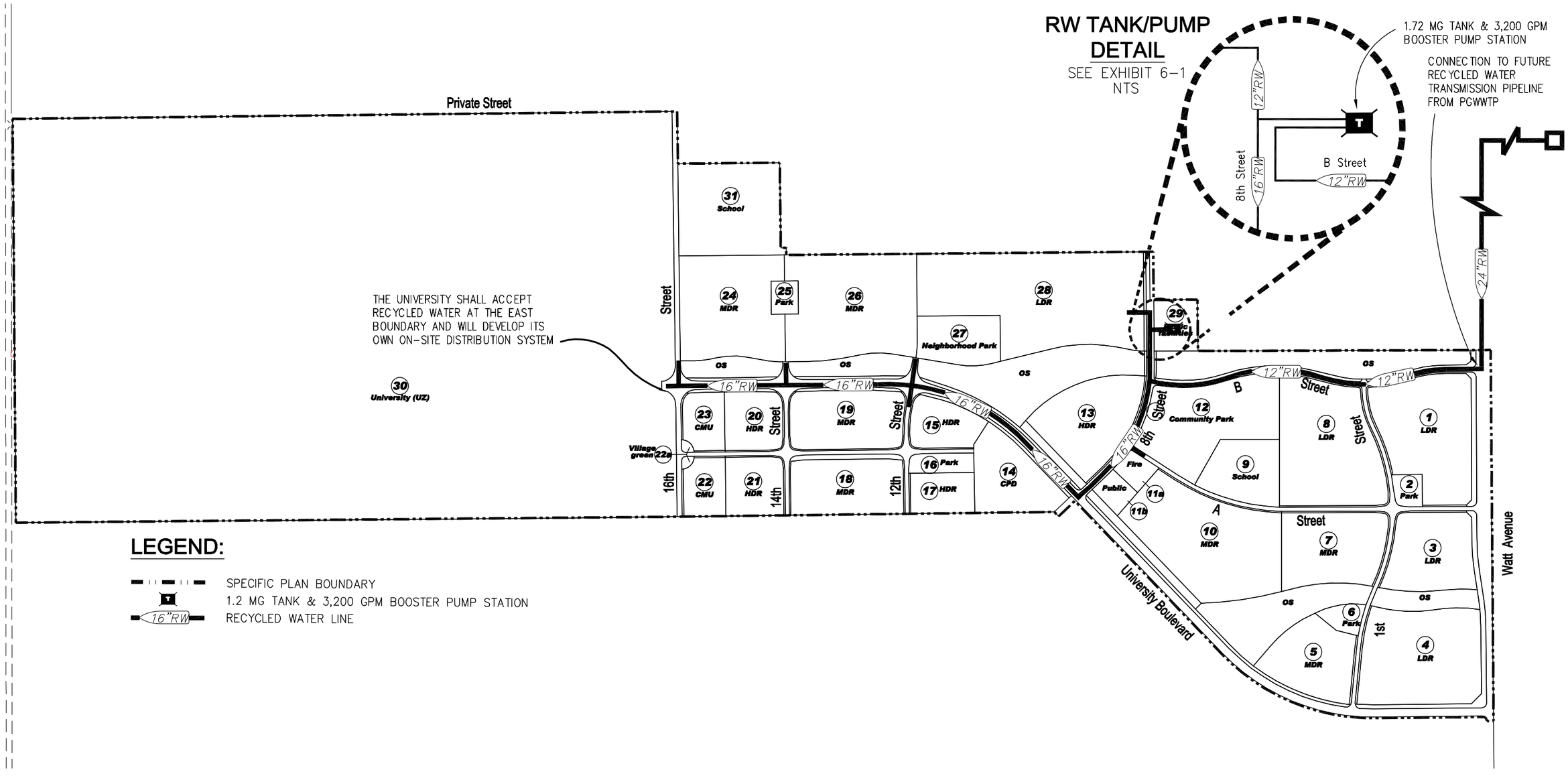
1. 48-INCH PCWA WATER LINE EXTENSION IN WATT AVENUE, BASE LINE ROAD TO DLSSP. L=9700 FEET.
2. 24-INCH PCWA WATER LINE EXTENSION IN BASE LINE ROAD (FIDDYMENT ROAD TO WATT AVENUE). POINT OF CONNECTION IS AT BASE LINE/ FIDDYMENT. L=9800 FEET.
3. PCWA OR PRIVATE ON-SITE UNIVERSITY WATER DISTRIBUTION SYSTEM
4. METERED POINT OF CONNECTION IF THE UNIVERSITY WATER SYSTEM IS PRIVATE
5. MAY BE UPSIZED TO 36-INCH DIAMETER IF USED FOR PCWA'S FUTURE WEST PLACER TRANSMISSION SYSTEM

0' 500' 1000' 2000' 1/2 mile

Exhibit 8-7

Potable Water Distribution System

# Recycled Water Distribution System




## LEGEND:

SPECIFIC PLAN BOUNDARY
1.2 MG TANK & 3,200 GPM BOOSTER PUMP STATION
RECYCLED WATER LINE

0' 500' 1000' 2000' 1/2 mile

Exhibit 8-8
Reycled Water Distribution System

## *8.4 Drainage and Flood Control*

The following is a summary of the drainage information included in RUSP Drainage Master Plan[4].

### 8.4.1 Pre-Specific Plan Conditions

The Plan Area is entirely located within the Curry Creek drainage shed as shown in Exhibit 8-9. Curry Creek is a tributary of the Natomas Cross Canal watershed that ultimately discharges into the Sacramento River near Verona. The creek has two sub-tributaries, which are referred to as the North and South Tributaries.

The North Tributary flows from the eastern Plan Area boundary in a man-made alignment for approximately 9000 feet until it follows a meandering route to Brewer Road. The South Tributary also drains in a man-made alignment through the eastern portion of the Plan Area.

The western and eastern portions of the Plan Area are distinct in topographic character. The western 480 acres of the Plan Area is generally in a natural contour condition. The most recent agricultural activities appear to be rice checks graded along elevation contours to create rice "paddies". During summer, the creek in this area would normally be dry or experiencing low flows from agricultural activities and/or upstream urban runoff. Flooding patterns on the western portion of the Plan Area are irregular due to the natural terrain.

**Existing Project Channel**

The eastern 678 acre portion of the Plan Area is land-leveled. The North and South Tributaries of Curry Creek through this portion of the Plan Area have been altered to linear alignments to facilitate row crop and/or rice farming. Shallow over-bank flooding in major storm events spreads over a wide flat area due to the previous land leveling. Pre-Specific Plan on-site flooding for major events is shown on Exhibit 8-10.

[4] Regional University Specific Plan Drainage Master Plan, April 2005

# Drainage Shed Areas

F:\205-003\DWG\PLANNING\EXH\EXH_8-09-DRAINSHEDAREAS.DWG Dec 13, 2006-03:27 pm KTATIPIGARI

*LEGEND:*

1. NORTH TRIBUTARY CURRY CREEK ENTERS DLSSP
2. SOUTH TRIBUTARY CURRY CREEK ENTERS DLSSP
3. CONFLUENCE MAIN CHANNEL AND SOUTH TRIBUTARY – CURRY CREEK
4. MAIN CHANNEL CURRY CREEK
5. NORTH TRIBUTARY CURRY CREEK
6. SOUTH TRIBUTARY CURRY CREEK

CURRY CREEK WATERSHED BOUNDARY

PROJECT BOUNDARY

KNOWN DRAINAGE PATH (Source: CESI)

0' 1500' 3000' 6000'

SOURCE OF TOPOGRAPHY: USGS QUADRANGLE MAPS.
CITRUS HEIGHTS, CALIFORNIA 1992 7.5 MINUTE SERIES (TOPOGRAPHIC) DMA 1761 III NE-SERIES V895
RIO LINDA, CALIFORNIA 1992 7.5 MINUTE SERIES (TOPOGRAPHIC) DMA 1761 III NW-SERIES V895
ROSEVILLE, CALIFORNIA 1992 7.5 MINUTE SERIES (TOPOGRAPHIC) DMA 1761 IV SE-SERIES V895
PLEASANT GROVE, CALIFORNIA 1967 SW/4 LINCOLN 15' QUADRANGLE 1967 PHOTO REVISED 1981 DMA 1761 IV SW-SERIES V895

Exhibit 8-9

Drainage Shed Areas

# Existing Drainage Conditions

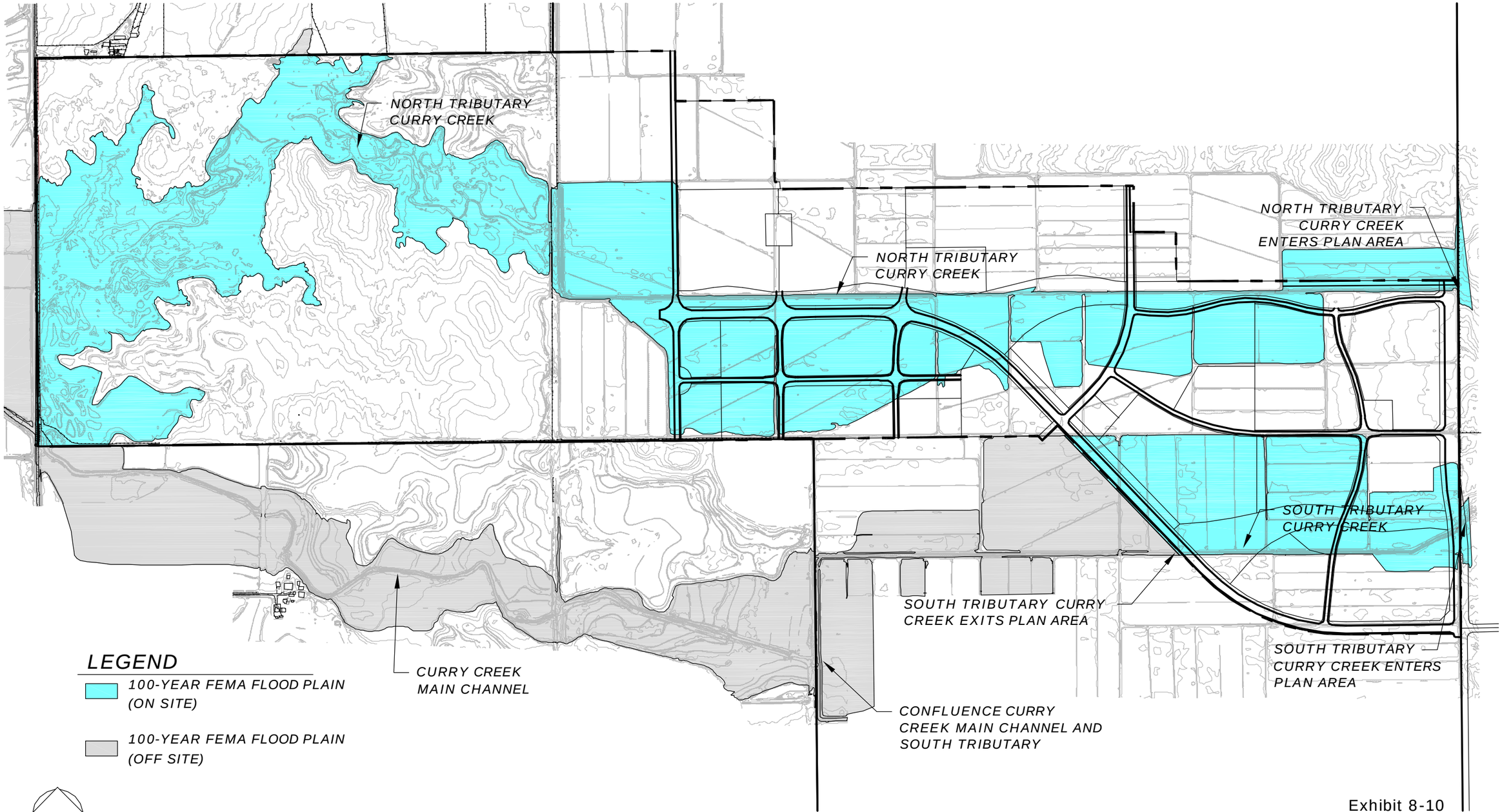



Exhibit 8-10

Pre-Specific Plan Drainage Conditions

## 8.4.2 Planned Drainage Improvements

The drainage improvements for the Plan Area consist of a combination of open space drainageways, retention and detention, and conventional subsurface pipe system. Drainage facilities will be designed and constructed in accordance with the Placer County Stormwater Management Manual.

### ♦ Open Space Drainageways

The post-project drainage analysis for the West Roseville Specific Plan (WRSP) has been utilized to model drainage flows entering the Plan Area from the east. To safely transport flood flows east to west through the Plan Area, the hydraulic capacity of the existing North and South Tributaries to Curry Creek will be maintained and/or enhanced with additional conveyance and storage capacity. Improvements will be constructed within the proposed open space drainage ways, generally following the existing tributary alignments. These corridors will convey the future, fully developed, unmitigated 100-year peak flows through the project, resulting in no change or a reduction in Pre-Specific Plan 100-year water surface elevations at the project boundaries, as depicted in Exhibit 8-11.

**Example of Open Space Drainageway**

The open space drainageways are designed to serve multiple purposes, including:

- transport 100-year peak flood flows through the Plan Area
- provide opportunities for drainage detention, retention, and storm water quality treatment
- provide areas to establish riparian corridor vegetation within natural appearing sloped and benched bank areas
- transport nuisance waters and dry season flows through the project within a low flow channel limiting contact with nuisance waters to the limits of the low flow channel.

- The shape and slope of the drainageways shall vary to create a more natural appearance. Cross- sections of the open space drainageways are shown in Exhibits 8-13 and 8-14. Refer to Exhibit 8-11 and 8-12 for section locations.