

5.7 HYDROLOGY AND WATER QUALITY

This section discusses and analyzes the surface hydrology, groundwater, and water quality characteristics of the proposed project. The information provided in this section is based on the Drainage Report prepared by Wood Rodgers (2005), and the City of Elk Grove General Plan Conservation and Air Quality Element. The Wood Rodgers Drainage Report is available for review at Elk Grove City Hall.

5.7.1 EXISTING SETTING

SURFACE WATER

Surface Hydrology

Regional Setting

Sacramento County is part of the Sacramento River watershed, which covers approximately 27,000 square miles. The City of Elk Grove is located in the Morrison Creek Stream Group drainage basin, a 192-square mile sub-shed of the Sacramento River watershed. Surface water resources that are a part of the Morrison Creek Stream group include Elder, Elk Grove, Laguna (and tributaries), Morrison, Strawberry, and Whitehouse creeks. Storm water in most of this stream group flows west to the Beach-Stone Lakes basin west of Interstate 5 and ultimately to the Sacramento River.

Laguna Creek, the main creek that flows through the City, has been altered by development. There have been channels, levees, and culverts created to reduce the possibility of flooding, as well as to accommodate different development scenarios. Some of the other creeks have also been altered to accommodate development or alleviate flooding potential.

Project Setting

As described in the EFSP, the project is located within a large storm water drainage basin that flows from Highway 99 in the east to Interstate 5 in the west. The basin is separated into three artificially created sub-basins from north to south, each of which drain directly into the Beach Lakes/Stone Lakes area, but do so at three distinctly different points under Interstate 5. The majority of the project site is located within the northern drainage shed of this basin (**Figure 5.7-1**) with a minor portion of the site draining through the Elk Grove Meadows project located in the central drainage shed. The northern drainage shed contains approximately 4,291 acres, of which 728 acres is within the EFSP area, approximately 1309 acres from developed and agricultural lands to the north and east, and the remaining 2,255 acres of drainage runoff contributed downstream of Franklin Boulevard to the west of the project site.

Existing drainage facilities at the project site include an earthen roadside drainage ditch running parallel to Franklin Boulevard between the Laguna South Channel, North Drainage and Poppy Ridge Road. This ditch receives storm water runoff from the west side of Franklin Boulevard and routes it northward to the Laguna South Channel, North Drainage and its associated seasonal wetlands. Storm water runoff from the east side of Franklin Boulevard north of Blossom Ridge Road flows into a curb and gutter system routed to Laguna South Channel, North Drainage. Storm water from the east side of Franklin Boulevard from Blossom Ridge Drive south to Poppy Ridge Road flows into a curb and gutter system that is routed to an existing storm drain connected to the Elk Grove Meadows development drainage system that, in turn, discharges to the central drainage shed. Storm water from Elk Grove Boulevard between Franklin Boulevard west to the UPRR overcrossing bridge is collected by an existing curb and gutter system that routes it eastward down the roadway slope to a 72-inch drain along the west side of Franklin

5.7 HYDROLOGY AND WATER QUALITY

Boulevard that flows south to discharge into Laguna South Channel, North Drainage. The culvert on Franklin Boulevard over Laguna South Channel North Drainage was previously widened as part of the Laguna South Channel Improvements/East Franklin North Drainage project and would not be altered under this project.

Surface Water Quality

Regional Setting

The City of Elk Grove is located entirely within the southern portion of Sacramento County, covering approximately 146 square miles (almost 15 percent of the land area for the entire County). Currently, Elder Creek, Elk Grove Creek, Morrison Creek, and the Sacramento River segment from Red Bluff to the Delta, are listed water bodies on the Federal Clean Water Act Section 303(d) list due to specific pollutants present in these water bodies. All four water bodies contain the pollutant Diazinon, which is an insecticide used to control pests on crops. Elder Creek contains chlorpyrifos which is also an insecticide used to control pests on crops. The Sacramento River portion contains mercury and has an unknown toxicity.

A Total Maximum Daily Load (TMDL) is in process for all four water bodies, most of which began in January 1998 or January 2001 to conclude in 2001 and 2005. The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region, for the Sacramento and San Joaquin River basins, identified objectives to maintain pesticide levels in the water bodies, and not to exceed the Maximum Contaminant Levels set forth in the California Code of Regulations, Title 22, Division 4, Chapter 15.

The City of Elk Grove, along with the County of Sacramento and Cities of Citrus Heights, Folsom, Galt, and Sacramento, are co-permittees under the National Pollution Discharge Elimination System (NPDES) permit #CAS082597 covering the Sacramento County Area-Wide Municipal Separate Storm Sewer System (MS4). Under its NPDES permit, the City of Elk Grove has discharge and monitoring requirements for storm waters and a target pollutant reduction strategy for diazinon, chlorpyrifos, copper, lead, mercury, and coliform/pathogens.

Project Setting

Elk Grove Boulevard within the project area is sloped upward approximately 50 feet from its intersection with Franklin Boulevard to the UPRR overcrossing. Existing roadways and site grading in the area have impeded the natural direction of flow resulting in shallow flooding throughout the majority of the area. Surface drainage in the area is directed into aboveground ditches on the west side of Franklin Boulevard, and underground through storm water drains and pipes on the east side of Franklin Boulevard toward Laguna South Channel, North Drainage.

Flooding

A large portion of the project site is located within the Federal Emergency Management Agency (FEMA) Flood Insurance Rate (FIRM) Map Zone X (other areas), which is identified as areas determined to be outside the 500-year floodplain¹. A smaller portion of the project site encompassing Franklin Boulevard near Elk Grove Boulevard is located within Zone AE, which is identified as a special flood hazard area inundated by 100-year flood where base flood elevations are determined. The project site is identified as being located outside the 100-year and 500-year flood zones in the City of Elk Grove General Plan Draft Environmental Impact Report (August 2003).

NPDES Stormwater Permit

The City of Elk Grove has been covered under Sacramento County's NPDES Stormwater Permit No. CA00082597 since 1990. The City was officially named as a Permittee in this Stormwater Permit when it was reissued in December 2002 as Order No. R5-2002-0206. The City adopted a Stormwater Quality Improvement Plan (SQIP) that contains a construction element, a commercial/industrial element, a municipal operations element, an illicit discharge element, a public outreach element, and a new development element. The Stormwater Permit and SQIP require that the City implement or require performance standards and Best Management Practices (BMPs) that ensure that pollutant discharges associated with stormwater are reduced to the Maximum Extent Practicable.

GROUNDWATER RESOURCES

Regional Setting

The City of Elk Grove is located within the Sacramento Hydrologic Basin as defined by the California Department of Water Resources (DWR) and is within Zone 40 of the Sacramento County Water Agency (SCWA). Within Zone 40, groundwater is contained in two aquifers. The first is a shallow aquifer (Laguna Formation) that begins approximately 70 to 90 feet below ground surface and is between 130 to 230 feet thick. It is considered to be of good quality, with the exception of the presence of arsenic in some areas. The second is a deeper aquifer (Mehrten Formation) that is separated from the shallower aquifer by a discontinuous clay layer and averages 1,600 feet thick. It is considered to have poorer quality water with higher concentrations of total dissolved solids (TDS), iron, and manganese. Extraction from the South Sacramento groundwater basin has formed a cone-of-depression in the groundwater table centered south of Elk Grove Boulevard between Interstate 5 and SR 99.

The long-term sustainable yield, or the safe yield, is generally described as the amount of pumping that does not result in damage to the groundwater aquifer. The determination of the safe yield of the groundwater system is dependent upon many factors, including increased pumping costs due to lower groundwater levels, in-migration of lower-quality water from the deep aquifer system or adjacent areas, causing wells to become inoperative due to lower groundwater levels, land subsidence, and/or increased rate of spreading or localized groundwater contamination.

¹ FEMA Flood Insurance Rate Map, Community Panel Number 060262 0315 D, February 4, 1998.

5.7 HYDROLOGY AND WATER QUALITY

According to the 2002 Zone 40 Master Plan Update, a long-term operational groundwater yield of 273,000 AF (acre feet) per year is assumed to be the safe yield for the Central Basin (the area bounded by the American and Cosumnes Rivers).

Project Setting

The project site is within Zone 40 of the Sacramento Hydrologic Basin and is underlain by the two aquifers described above. The shallow aquifer provides drinking water to the majority of residents in the project area, with the exception of the Van Ruiten Ranch subdivision. The groundwater quality in the City meets all the CCR Title 22 drinking water quality standards, with the exception of iron, manganese, and arsenic (SCWA, 2004).

In the project area, the aquifer system recharges from a combination of sources including inflow of subsurface water into the aquifer from other regions, rain and irrigation filtering down through the upper soil level into the aquifer, and percolation of water from surface streams and rivers such as the American, Cosumnes, and Sacramento Rivers.

Depth to groundwater in the project area is estimated to occur at approximately 55 feet below the ground surface (Initial Site Assessment, Wallace Kuhl & Associates, Inc., March 4, 2005). Grading and excavation activities may require grading up to depths of six feet for the roadway, utility trenching, and tree planting. Therefore, groundwater resources would not be impacted during construction activities.

5.7.2 REGULATORY FRAMEWORK

There are several agencies with jurisdiction over flood control and water quality activities in the project area. Some of these include the Sacramento Area Flood Control Agency (SAFCA), Department of Water Resources (DWR) through the Central Valley Regional Water Quality Control Board (RWQCB), U.S. Army Corps of Engineers, Federal Emergency Management Agency (FEMA), and the Sacramento County Water Agency (SCWA).

FEDERAL

Clean Water Act

The Clean Water Act (CWA) regulates the water quality of all discharges into waters of the United States including wetlands, perennial and intermittent stream channels. Section 401, Title 33, Section 1341 of the CWA sets forth water quality certification requirements for "any applicant applying for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters." Section 404, Title 33, Section 1344 of the CWA in part authorizes the U.S. Army Corps of Engineers to:

Set requirements and standards pertaining to such discharges: subparagraph (e);

Issue permits "for the discharge of dredged or fill material into the navigable waters at specified disposal sites": subparagraph (a);

Specify the disposal sites for such permits: subparagraph (b);

Deny or restrict the use of specified disposal sites if “the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies and fishery areas”: subparagraph (c);

Specify type of and conditions for non-prohibited discharges: subparagraph (f);

Provide for individual State or interstate compact administration of general permit programs: subparagraphs (g), (h), and (j);

Withdraw approval of such State or interstate permit programs: subparagraph (i);

Ensure public availability of permits and permit applications: subparagraph (o);

Exempt certain Federal or State projects from regulation under this Section: subparagraph (r); and,

Determine conditions and penalties for violation of permit conditions or limitations: subparagraph (s).

Section 401 certification is required prior to final issuance of Section 404 permits from the U.S. Army Corps of Engineers.

The California State Water Resources Control Board and RWQCBs enforce State of California statutes that are equivalent to or more stringent than the Federal statutes. RWQCBs are responsible for establishing water quality standards and objectives that protect the beneficial uses of various waters. The RWQCB is responsible for protecting surface and groundwater from both point and non-point sources of pollution.

STATE

Department of Water Resources

The Department of Water Resources (DWR) major responsibilities include preparing and updating the California Water Plan to guide development and management of the State's water resources, planning, designing, constructing, operating, and maintaining the State Water Resources Development System, protecting and restoring the Sacramento-San Joaquin Delta, regulating dams, providing flood protection, assisting in emergency management to safeguard life and property, educating the public, and serving local water needs by providing technical assistance. In addition, the DWR cooperates with local agencies on water resources investigations; supports watershed and river restoration programs; encourages water conservation; explores conjunctive use of ground and surface water; facilitates voluntary water transfers; and, when needed, operates a State drought water bank.

Regional Water Quality Control Board Discharge Permits

Senate Bill 227, also known as the Porter-Cologne Water Quality Control Act (Porter-Cologne), governs the coordination and control of water quality in the state, and includes provisions relating to non-point source pollution. The State Water Resources Control Board (State Board) has the ultimate authority over State water rights and water quality policy. However, Porter-Cologne also establishes nine Regional Water Quality Control Boards (Regional Boards) to oversee water quality on a day-to-day basis at the local/regional level. The Central Valley Regional Water Quality Control Board (RWQCB) oversees the Elk Grove area.

5.7 HYDROLOGY AND WATER QUALITY

Permits issued to control pollution (i.e. waste-discharge requirements and NPDES permits) must implement Basin Plan requirements (i.e. water quality standards), taking into consideration beneficial uses to be protected.

The City of Elk Grove Department of Public Works has jurisdiction over aspects of storm water management in the City of Elk Grove. The Sacramento County Department of Water Resources has jurisdiction over the remainder of the General Plan Planning Area.

Since construction activities associated with the proposed project would result in the disturbance of more than one acre, a National Pollutant Discharge Elimination System (NPDES) construction activities permit is required. The City of Elk Grove became a joint participant with Sacramento County's NPDES permit. The permit was renewed in December 2002, and allows for the City to discharge urban runoff from Municipal Separate Storm Sewer Systems (MS4s) in their municipal jurisdictions. The permit requires that the City impose water quality and watershed protection measures for all development projects. The NPDES also requires a permit for every new construction project that implements the following measures:

Eliminate or reduce non-storm water discharges to storm water systems and other waters of the nation;

Develop and implement a storm water pollution prevention plan (SWPPP); and

Perform inspections of storm water control structures and pollution prevention measures.

LOCAL

Sacramento Area Flood Control Agency

The Sacramento Area Flood Control Agency (SAFCA) was formed in 1989 by the California Legislature to coordinate regional flood control. SAFCA is a joint powers agency, combining the efforts of the City of Sacramento, the counties of Sacramento and Sutter, the American River Flood Control District, and Reclamation District 1000. The main goal of the agency was to provide for 200-year flood protection levels.

Sacramento County Water Agency (SCWA) Zone 40

The Sacramento County Water Agency created Zone 40 by Resolution No. 663 in May 1985. The purpose of Zone 40 was for the acquisition, construction, maintenance and operation of facilities for the production, conservation, transmittal, distribution and sale of ground or surface water or both for the present and future beneficial use of the lands or inhabitants within the zone. The boundaries and scope of Zone 40's activities were expanded in 1999 by Resolution WA-2331, and included the use of recycled water in conjunction with surface and groundwater.

Zone 40 Water Supply Master Plan

The Zone 40 Water Supply Master Plan (Zone 40 Master Plan) was adopted February 8, 2005. The Zone 40 Master Plan provides a plan of water management alternatives to be implemented and revised as availability and feasibility of water supply sources change in the future. The Zone 40 Master Plan reflects recent trends in the pattern of water demand growth, treatment for water quality, expansion of the original service area, and the availability of potential sources of surface water supplies.

Zone 40 Groundwater Management Plan

The Zone 40 Groundwater Management Plan (GMP) is a planning tool that assists SCWA in maintaining a safe, sustainable and high quality groundwater resource for users of the groundwater basin underlying Zone 40. The Zone 40 GMP has been prepared by SCWA primarily to begin the groundwater planning process for Zone 40- positioning the agency for future activities.

Sacramento County Department of Water Resources Local Floodplain Management Plan

The Sacramento County Water Agency has established the Local Floodplain Management Plan (2001). The Local Floodplain Management Plan area has been mapped and the Planning Area is included in the majority of the Morrison Creek Stream Group and a portion of the South County area. The Floodplain Management Plan outlines policies and mitigations for minimizing impacts from new development within most areas of Sacramento County.

Water Forum Agreement

The Water Forum is a group of water experts and community leaders that came together to help solve the region's water supply shortage and groundwater contamination problems. One of the main goals of the agreement is to *provide a reliable and safe water supply for the region's economic health and planned development to the year 2030* (Water Forum, 2000). Many cities and water agencies surrounding Elk Grove are members of the forum, such as Sacramento, Folsom, Galt, the Sacramento County Water Agency, and the Omochumne-Hartnell Water District.

City of Elk Grove General Plan

One of the goals in the City of Elk Grove General Plan Conservation and Air Quality Element is to provide surface water quality which promotes a healthy aquatic environment that is safe for public use and enjoyment; healthy, well managed marsh and riparian woodlands along the City's waterways; and promoting natural and open space values of urban stream corridors to be preserved and protected. **Table 5.7-1** identifies General Plan policies that pertain to General Plan goals and evaluates the project's consistency with these policies. While this EIR analyzes the project's consistency with the General Plan pursuant to CEQA Section 15125(d), the Elk Grove City Council determines the project's consistency with the General Plan.

**TABLE 5.7-1
PROJECT CONSISTENCY WITH GENERAL PLAN HYDROLOGY AND WATER QUALITY POLICIES**

| General Plan Policies | Consistency with Draft General Plan | Analysis |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Policy CAQ-5 Roads and structures shall be designed, built and landscaped so as to minimize erosion during and after construction.</p> | <p>Yes</p> | <p>The project would be subject to the City's Grading and Erosion Control Ordinance that would result in the project being designed, built, and landscaped to minimize erosion.</p> |
| <p>Policy CAQ-12 The City shall seek to ensure that the quality of groundwater and surface water is protected to the extent possible.</p> | <p>Yes</p> | <p>The project would install a permanent underground storm drainage system that would reduce runoff from the roadway directly into surface waters and adjacent lands.</p> |

5.7 HYDROLOGY AND WATER QUALITY

| General Plan Policies | Consistency with Draft General Plan | Analysis |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Policy CAQ-13</p> <p>Implement the City's NPDES permit through the review and approval of development projects and other activities regulated by the permit.</p> | Yes | <p>Implementation of mitigation measures identified in this section would require the project applicant to comply with the City's NPDES permit, which is enforced by the Regional Water Quality Control Board. Compliance with the NPDES permit would result in consistency with this policy.</p> |
| <p>Policy CAQ-14</p> <p>The City shall seek to minimize the amount of impervious surfaces and directly connected impervious surfaces in areas of new development and redevelopment and use on-site infiltration of runoff in areas with appropriate soils where the infiltration of storm water would not pose a potential threat to groundwater quality.</p> | Yes | <p>The project would install a permanent underground storm drainage system that would reduce runoff from the roadway directly into surface waters and adjacent lands. Under Alternatives AC and AD, the current or similar natural drainage ditch on the west side of Franklin Boulevard would be used for infiltration.</p> |
| <p>Policy CAQ-18</p> <p>Post-development peak storm water runoff discharge rates and velocities shall be designed to prevent or reduce downstream erosion, and to protect stream habitat.</p> | Yes | <p>Implementation of mitigation measures identified in this section would require the project applicant to comply with the City's NPDES permit, which is enforced by the Regional Water Quality Control Board. Compliance with the NPDES permit would result in consistency with this policy.</p> |
| <p>Policy CAQ-19</p> <p>Encourage the retention of natural stream corridors, and the creation of natural stream channels where improvements to drainage capacity are required.</p> | | <p>The project would not impact natural stream corridors (Laguna South Channel, North Drainage). The proposed project would install a permanent underground storm drainage system to handle any additional drainage capacity needed for the road widening.</p> |
| <p>Policy CAQ-20</p> <p>Fill may not be placed in any 100-year floodplain as delineated by currently effective FEMA Flood Insurance Rate Maps or subsequent comprehensive drainage plans unless specifically approved by the City.</p> <p>No fill shall be permitted in wetland areas unless approved by the City and appropriate state and federal agencies.</p> | Yes | <p>The project would develop a portion of the project in the 100-year floodplain. However, the project would widen an existing roadway and would not place an excessive amount of fill in the floodplain.</p> <p>The City would obtain a permit from the US Army Corps of Engineers to fill the existing drainage ditches and wetlands in order to install a permanent underground storm drainage system on the west side of Franklin Boulevard.</p> |
| <p>Policy CAQ-21</p> <p>Development adjacent to a natural stream(s) shall provide a "stream buffer zone" along the stream. Natural streams shall be generally considered to consist of the following, subject to site-specific review by the City:</p> <ul style="list-style-type: none"> • Deer Creek • Elk Grove Creek • Laguna Creek and its tributaries • Morrison Creek | Yes | <p>The project would not provide a stream buffer zone for development of Franklin Boulevard adjacent to the north and south banks of Laguna South Channel, North Drainage because the lands immediately adjacent are already biologically sensitive portions of an existing wildlife refuge managed under a conservation easement. The City would acquire only the minimum amount of right-of-way needed for roadway widening to minimize biological impacts to these lands. A fence along the City's right-of-way would prevent</p> |

| General Plan Policies | Consistency with Draft General Plan | Analysis |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Strawberry Creek • White House Creek <p><i>The remainder of this policy provides examples of desired features for the transition zone</i></p> | | access into the wildlife refuge lands. |
| <p>Policy CAQ-22</p> <p>Stream crossings shall be minimized and be aesthetically compatible with the natural appearance of the stream channel. The use of bridges and other stream crossings with natural (unpaved) bottoms shall be encouraged to minimize impacts to natural habitat.</p> | Yes | The project would not alter the culvert or stream channel of Laguna South Channel, North Drainage. Alternative AB would require construction of a retaining wall on a portion of the engineered channel bank on the east side of Franklin Boulevard just south of the culvert . The retaining wall would be designed to minimize aesthetic affects to the channel. |
| <p>Policy CAQ-23</p> <p>Uses in the stream corridors shall be limited to recreation and agricultural uses compatible with resource protection and flood control measures. Roads, parking, and associated fill slopes shall be located outside of the stream corridor, except at stream crossings.</p> | Yes | The project, AC and AD would not impact the Laguna South Channel North Drainage stream corridor. AB would include construction of a retaining wall on the southeast side of the culvert to support road widening on the east side of Franklin Boulevard. Due to engineering and safety considerations, this retaining wall cannot be placed outside of the stream corridor. The utility maintenance road under AD would not enter the stream corridor. |
| <p>Policy CAQ-24</p> <p>Open space lands within a stream corridor shall be required to be retained as open space as a condition of development approval for projects that include a stream corridor. Unencumbered maintenance access to the stream shall be provided.</p> | Yes | The project would not affect any open space lands within a stream corridor. |

City of Elk Grove Development Standards

The Land Grading and Erosion Control Ordinance is located in Chapter 44 of Title 16 of the City of Elk Grove Code. This ordinance establishes administrative procedures, standards for review, and implementation, and enforcement procedures for controlling erosion, sedimentation, other pollutant runoff, and the disruption of existing drainage and related environmental damage. The ordinance requires that prior to grading activities, a detailed set of plans be developed that include measures to minimize erosion, sediment, and dust created by improvement activities.

Improvement plans must identify the alteration of the natural flow of drainage before and after grading, as well as identification of all natural and man-made drainage facilities. In general, plans must identify:

- Time of concentration; and
- Overflow time; and
- Concentrated flow times;
- Rainfall intensity;
- Runoff coefficient; and
- Watersheds affecting the drainage facilities to which such surface water flows drain.

5.7 HYDROLOGY AND WATER QUALITY

Where increased drainage flows have the potential to exceed the capacity of the existing facilities, plans must identify the improvements needed to accommodate the increased flows. These improvements are typically the responsibility of the point source development.

The Water Use and Conservation Ordinance is located in Chapter 10 of Title 14 of the Elk Grove City Code. The purpose of this ordinance is to define the standards and procedures for the design, installation, and management of landscapes in order to utilize available plant, water, land, and human resources to the greatest benefit of the people of Elk Grove. The ordinance applies to new and rehabilitated landscaping for industrial, commercial, and institutional developments; to parks and other public recreational areas; to multi-family residential, common areas and model homes; and City road medians and corridors, recognizing that skillful planting and irrigation design, appropriate use of plants, and intelligent landscape management can assure landscape development that avoids excessive water demands and that is less vulnerable to periods of severe drought.

5.7.3 IMPACTS AND MITIGATION MEASURES

PROPOSED PROJECT DRAINAGE FEATURES

A storm water drainage system with eight components, as described below, would be constructed as a part of the project. Planned storm water drainage conveyance systems associated with the proposed project are described in more detail in the *Drainage Report Franklin Boulevard Road Widening* by Wood Rodgers, March 2005.

Drain A: Consists of approximately 700 linear feet of 12-inch diameter drain pipe that will connect to an existing 12-inch drain at the intersection of Poppy Hills Road and Franklin Boulevard.

Drains B & C: Includes approximately 600 linear feet of 12-inch drain that connect to an existing drainage system on the east side of Franklin Boulevard between Blossom Ridge Road and Laguna South Channel, North Drainage. Six drains installed on the west side of Franklin Boulevard would be piped under Franklin Boulevard and connect to piping systems running along the east side of Franklin Boulevard to route storm water northward into a 72-inch outfall to Laguna South Channel, North Drainage on the east side of the culvert.

Drain D: Includes one drain on the west side of Franklin Boulevard and 284 linear feet of 12-inch drain that will route storm water northward and discharge directly into Laguna South Channel, North Drainage at the west side of the culvert. The pipe would discharge directly to the channel rather than connecting to Drain C on the east side of the road.

Drains E & F: Include separate 12-inch drains of 15 and 28 linear feet, respectively along the west side of Franklin Boulevard north of the Laguna South Channel, North Drainage. Each drain would connect directly to the existing subsurface 72-inch drain that was installed with prior Elk Grove Boulevard improvement plans.

Drains G & H: Include separate 10-inch drains of 10 and 15 linear feet respectively. Each drain would connect to an existing 12-inch drain located in Elk Grove Boulevard. This 12-inch drain connects to the existing 72-inch drain that was designed for the previous Elk Grove Boulevard improvement plans and outfalls into the northern side of Laguna South Channel, North Drainage.

For AA, the project would not be constructed and the existing storm water drainage system would remain in place.

For AB, widening Franklin Boulevard approximately 38 feet to the east would require the existing underground storm water drainage system on the east side of Franklin Boulevard to be moved further east, while the current earthen natural drainage ditch on the west side of Franklin Boulevard would remain in its present condition. Storm water drainage for Elk Grove Boulevard within the project area would be similar to the PP.

For AC, widening Franklin Boulevard approximately 18 feet to the east and 10 feet to the west would require installing the same drainage improvements as the PP (including filling the existing natural drainage ditch on the west side of Franklin Boulevard and replacing it with an underground system of catch basins and piping). The drainage system on the east side of Franklin Boulevard would be moved further east to accommodate the eastern road widening.

For AD, the current drainage ditch adjacent to the west side of Franklin Boulevard would be modified by paving it over and constructing it west of the new roadway to function in the same capacity. The existing underground storm water drainage system on the east side of Franklin Boulevard would remain in its current location. With AD, similar improvements as the PP would be made to drain the portion of Franklin Boulevard north of Laguna South Channel, North Drainage and Elk Grove Boulevard.

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G thresholds of significance. These guidelines define a significant impact to be one that would:

- Violate any water quality standards or waste discharge requirements.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- Otherwise substantially degrade water quality.
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
- Place within a 100-year flood hazard area structures, which would impede or redirect flood flows.
- Expose people or structures to a significant loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.
- Inundation by seiche, tsunami or mudflow.

5.7 HYDROLOGY AND WATER QUALITY

METHODOLOGY

The hydrology and water quality analysis is based on a review of published information and reports regarding regional hydrology, climate, and geology; *East Franklin Specific Plan* (Sacramento County Planning Department, 2000); *Section 404 Permit Application for Laguna South Channel Improvements East Franklin North Drainage* (ECORP Consulting, Inc. November 13, 2001); *Drainage Report for Franklin Boulevard Widening* (Wood Rodgers, March 2005); *Elk Grove General Plan (Amended 2005)*, *Elk Grove General Plan EIR (2003)*, and field review of the project site.

PROJECT IMPACTS AND MITIGATION MEASURES

Impact 5.7.1 Violate Water Quality Standards/Runoff and Erosion

- PP, AB, AC, AD Soil disturbance associated with construction activities for the proposed project could cause accelerated soil erosion and sedimentation or the release of other pollutants to local drainages and waterways. This would be a **potentially significant** impact.
- AA Under the No Project alternative, there would be **no impact** to surface water quality from sedimentation or erosion because there would be no construction.

DISCUSSION

Construction activities such as grading and vegetation removal activities would increase soil erosion within the project area. Although the project site is relatively flat and the potential for soil erosion is considered low, storm water runoff could result in short-term sheet erosion in areas of exposed, raw soil. In addition, the compaction of soils by heavy equipment could reduce the infiltration capacity of the soils thereby increasing the runoff and erosion potential. If uncontrolled, the soil materials could result in blockage of drainage channels, and downstream sedimentation. The Laguna South Channel Northern Drainage, a tributary of Laguna Creek, draining into the Beach/Stone Lakes basin passes through the project area approximately 650 feet south of Elk Grove Boulevard.

In addition, refueling and the parking of construction equipment and other vehicles onsite during construction may result in spills of oil, grease, or related pollutants that may discharge into the earthen open drainage ditches along the west side of Franklin Boulevard or the storm drains on the east side of Franklin Boulevard and Elk Grove Boulevard. Improper handling, storage, or disposal of fuels and materials or improper cleaning of machinery could cause water quality degradation.

The RWQCB is responsible for administering NPDES permit requirements, such as the use of construction BMPs, to ensure that projects are in compliance with water quality standards as set forth in the CWA. A NPDES General Permit for Stormwater Discharges Associated with Construction Activities, NPDES No. CAS000002, Order No. 99-08-DWQ is required when a site involves clearing, grading, disturbances to the ground, such as stockpiling, or excavation that results in soil disturbances of one acre or more of total land area.

Mitigation Measures

The following mitigation measure is for PP, AB, AC, and AD.

MM 5.7.1

The project would require an NPDES General Permit for Stormwater Discharges Associated with Construction Activities, which requires the project applicant and/or contractor to develop and implement a Storm Water Pollution Prevention Plan (SWPPP). Prior to the issuance of grading permits, the City or its contractor shall prepare a Storm Water Pollution and Prevention Plan (SWPPP) to be administered through all phases of grading and project construction. The SWPPP shall incorporate Best Management Practices (BMPs) which describe the site, erosion and sediment controls, means of waste disposal, control of post-construction sediment and erosion control measures and maintenance responsibilities, water quality monitoring and reporting during storm events (which will be responsibility of the construction contractor), corrective actions for identified water quality problems and non-storm water management controls. The SWPPP shall address spill prevention and include a countermeasure plan describing measures to ensure proper collection and disposal of all pollutants handled or produced on the site during construction, including sanitary wastes, cement, and petroleum products. The measures included in the SWPPP shall ensure compliance with applicable regional, state and federal water quality standards. These measures shall be consistent with the City's Guidance Manual for On-Site Stormwater Quality Control Measures and Land Grading and Erosion Control Ordinance which may include (1) restricting grading to the dry season; (2) protecting all finished graded slopes from erosion using such techniques as erosion control matting and hydroseeding; (3) protecting downstream storm drainage facilities from sedimentation; (4) use of silt fencing and hay bales to retain sediment on the project site; (5) use of temporary water conveyance and water diversion structures to eliminate runoff; and (6) any other suitable measures. The SWPPP shall be submitted to and approved by the City and the Central Valley RWQCB. The City shall require all construction contractors to retain a copy of the approved SWPPP on each construction site.

Timing/Implementation: *Prior to and during construction activities.*

Enforcement/Monitoring: *City of Elk Grove Development Services.*

Implementation of the above mitigation measure would mitigate construction water quality impacts to a **less than significant** level.

Impact 5.7.2 Violate Water Standards/Runoff During Operation

PP, AB, AC, AD Constituents found in roadway runoff from increased impervious surfaces may degrade surface water quality. This would be a **potentially significant** impact.

AA Under the No Project alternative, constituents found in the existing roadway runoff may degrade surface water quality. However, these are already treatment controls in place for the existing roadway. No increase in impervious surfaces would occur with this alternative. Therefore, this would be a **less than significant** impact.

DISCUSSION

Widening of the roadway on the project site would result in an alteration in the existing site conditions and the introduction of additional urban pollutant sources. Roadway runoff typically

5.7 HYDROLOGY AND WATER QUALITY

consists of oils, grease, fuel, antifreeze, and byproducts of combustion (such as lead, cadmium, nickel, and other metals). Precipitation during the early portion of the wet season (November to April) carries these pollutants from the roadway surface into the storm water drainage system resulting in high pollutant concentrations in the initial wet weather runoff. This initial runoff with peak pollutant levels can be referred to as the "first flush" of storm events. It is estimated that during the rainy season, the first flush of heavy metals and hydrocarbons occurs during the first five inches of seasonal rainfall.

The amount and type of runoff generated by the project would be greater than that under existing conditions due to increases in impervious surfaces. There would be a corresponding increase in roadway runoff pollutants and first flush roadway contaminants such as heavy metals, oil, grease, fuel, as well as an increase in nutrients (i.e., fertilizers), and other chemicals from landscaped areas. These constituents will result in water quality impacts to onsite and offsite drainage flows.

The area served by the City of Elk Grove is subject to the requirements of the NPDES Storm water Permit No. CA00082597, renewed in December 2002, and enforced by the RWQCB. This permit requires that discharges of pollutants from areas of new development be reduced to the maximum extent practicable. Compliance with this standard requires that control measures be incorporated into the design to reduce pollution discharges in runoff over the life of the project.

Treatment Control BMPs involve physical treatment of the runoff, usually through structural means. A variety of treatment control measures have been utilized for storm water quality. However, the effectiveness of these controls is highly dependent on local conditions, such as climate, hydrology, soils, groundwater conditions, and extent of urbanization. Other treatment controls that can be used include biofiltration systems, vegetated swales, and oil/water separators. Oil/water separators are designed to remove petroleum compounds and grease, but which will also remove floatable debris and settleable solids.

The RWQCB is responsible for administering NPDES permit requirements, such as the use of operational BMPs, to ensure that projects are in compliance with water quality standards as set forth in the CWA. The project may require post construction storm water Best Management Practices (BMPs) pursuant to the Phase II SWRCB Water Quality Order No. 2003-0005-DWQ, NPDES General Permit No. CAS000004, WDRS for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4).

Mitigation Measures

The following mitigation measure is for PP, AB, AC, and AD.

MM 5.7.2 The City shall implement post-construction BMPs to ensure that long-term water quality is protected. The BMPs shall be designed, constructed and maintained to meet a performance standard established by the City and shall conform to the provisions of the NPDES permit. The City shall monitor the effectiveness of the BMPs selected. Monitoring activities, along with funding for monitoring, shall be established and shall include, but not be limited to, initial setup, annual maintenance, and annual monitoring.

The project shall implement actions and procedures established to reduce the pollutant loadings in storm drain systems. The two main categories of these BMPs are "source control" and "treatment control." Treatment Control BMPs involve physical treatment of the runoff, usually through structural

means. Source control BMPs are usually the most effective and economical in preventing pollutants from entering storm and non-storm runoff. Source control BMPs relevant to the proposed project that shall be implemented include, but are not limited to:

- 1) Provide a permanent storm drain message "No Dumping – Flows to Creek" or other approved message at each storm drain inlet. This may be accomplished with a stamped concrete impression (for curbs) or manufactured colored tiles, which are epoxied in place adjacent to the inlet (for parking lots and areas without curbs).
- 2) BMPs shall be used and designed to provide filtration of pollutants in project runoff. The project engineer shall consult with the City when designing these features, and designs shall be submitted to the City for review and approval prior to approval of the project plans. Water quality control features shall be consistent with the City's NPDES permit.
- 3) Street and storm drain maintenance activities. These activities control the movement of pollutants and remove them from pavements through catch basin cleaning, storm drain flushing, street sweeping, and by regularly removing illegally dumped material from storm channels and creeks. (The City of Elk Grove would be responsible for regular storm drain maintenance within the public right of way).

Timing/Implementation: BMPs and implementation procedures shall be submitted and approved by the City and the RWQCB prior to and during construction activities; BMPs shall be implemented and monitored throughout the life of the project.

Enforcement/Monitoring: City of Elk Grove

Implementation of the above mitigation measures would reduce long-term operational water quality impacts to **less than significant**.

Impact 5.7.3 Drainage Patterns, Surface Runoff, and Localized Flooding

PP, AB, AC, AD Development of the project may result in increased surface runoff and localized flooding. This would be a **less than significant** impact.

AA Under the No Project alternative, there would be no increases in the volume of storm water runoff, as there would not be any road widening or storm water drainage system alterations. Thus there would be **no impact**.

DISCUSSION

A majority of the project would not be located within a 100-year floodplain and would have no or a negligible impact to flooding within the area. A small portion of the project is located within the 100-year floodplain. However, the proposed drainage system would reduce potential flooding along the roadway due to the installation of an underground storm drainage system to handle increased flows.

5.7 HYDROLOGY AND WATER QUALITY

No improvements or alteration will be made to the existing Laguna South Channel or the berm located just west of Franklin Road that maintains hydrology to the historic swale and wetlands mitigation areas within the adjacent SLNWR-managed lands. Curbs, gutters, storm water catch basins, and conveyance pipes will be designed to convey storm water from the widened west half of Franklin Boulevard (from Blossom Ridge Drive northward) into Laguna South Channel North Drainage, (from Blossom Ridge Drive southward) and into Elk Grove Meadows drainage system that discharges to the Central Drainage System. The new curb, gutters, catch basins, and pipes on the west side of Franklin Boulevard would replace the current function of the roadside ditch. The widened roadway on the south side of Elk Grove Boulevard will be connected to the existing drainage system for Elk Grove Boulevard. The drainage would continue to follow existing and historic drainage patterns, and would not substantially alter the existing drainage pattern of the project area,

Improvements to the Laguna South Channel, North Drainage made in 2002-2003 in association with the EFSP took into consideration the extra volume of runoff water that would be produced from the future Franklin Road Widening project. Full buildout conditions for Franklin Boulevard were addressed in the overall hydrologic and hydraulic analysis for the EFSP, which concluded that storm water detention was not required for peak flow reduction due to timing and project location within the watershed.

The additional Franklin Boulevard drainage improvements designed and analyzed by Wood Rodgers, Inc. verified the drainage system was adequate to meet City of Elk Grove standards. The area immediately downstream of the project area is an undeveloped natural creek channel and associated wetlands that can effectively drain and store the extra volume of storm water produced from this project without a significant threat of flooding the project area.

Mitigation Measures

None required

5.7.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for the project is the Stone Lake Creek Watershed. The buildout of the project site and surrounding area, which includes the East Franklin Specific Plan, the approved Laguna Ridge Specific Plan, the Southeast Policy Area, and development under the Elk Grove General Plan, would result in the construction of additional impervious surfaces that would change drainage patterns, reduce water absorption and increase surface runoff. The increase in runoff would increase the flood elevation for the Beach-Stone Lakes area.

All surface flows within the watershed move generally from east to west and ultimately drain into Beach/Stone Lakes watershed. Since essentially all of the natural drainage courses in the area upstream of the project site have been altered by agricultural activities, surface water flows are channeled into agricultural and urban stream ditches and underground drainage systems.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Impact 5.7.4 Regional Water Quality and Runoff Patterns

PP, AB, AC, AD The project could contribute to the cumulative effects of degradation of regional water quality, changes to runoff patterns, and the potential for increased flooding. This would be a **potentially significant** cumulative impact.

AA Under the No Project alternative, there would be no increases in the volume of storm water runoff, as there would not be any road widening. There would be would be **no cumulative impact** to water quality and runoff.

DISCUSSION

Implementation of the proposed project would contribute to cumulative water quality impacts in the project area. However, a permanent underground storm water drainage system would be installed to provide for the drainage of storm water runoff from the increased roadway surfaces. Subsequent development under the existing Elk Grove General Plan Land Use Map would result in direct and indirect surface water quality impacts associated with human intrusion into wetlands and waterways in the City of Elk Grove and the SLNWR. Although the City of Elk grove has no plans for developing any other portions of SLNWR, increased urban runoff from future projects within the city limits that drain into the Beach/Stone Lake watershed may adversely impact water quality of the SLNWR.

Conformity with the standards provided in the City's Guidance Manual for On-Site Stormwater Quality Control Measures, the requirements of the Land Grading and Erosion Control Ordinance, the City NPDES permit requirements, and the RWQCB NPDES permit requirements would reduce the project's contribution to water quality impacts to a less than significant level.

Mitigation Measures

MM 5.7.4 Implementation of mitigation measures MM 5.7.1 and MM 5.7.2 would reduce the project's contribution to cumulative groundwater, water quality, and flooding impacts to less than significant.

REFERENCES

City of Elk Grove, 2005. *City of Elk Grove General Plan, Conservation and Air Quality Element*. Elk Grove, CA. Adopted November, 2003; Amended January, 2005.

Sacramento County Planning Department. *East Franklin Specific Plan*. Adopted April 28, 2000.

SCWA, 2005. *Zone 40 Water Supply Master Plan*. Sacramento County Water Agency. Sacramento, CA. February 2005.

Wood Rodgers. *Drainage Report Franklin Boulevard Widening*. March 2005.