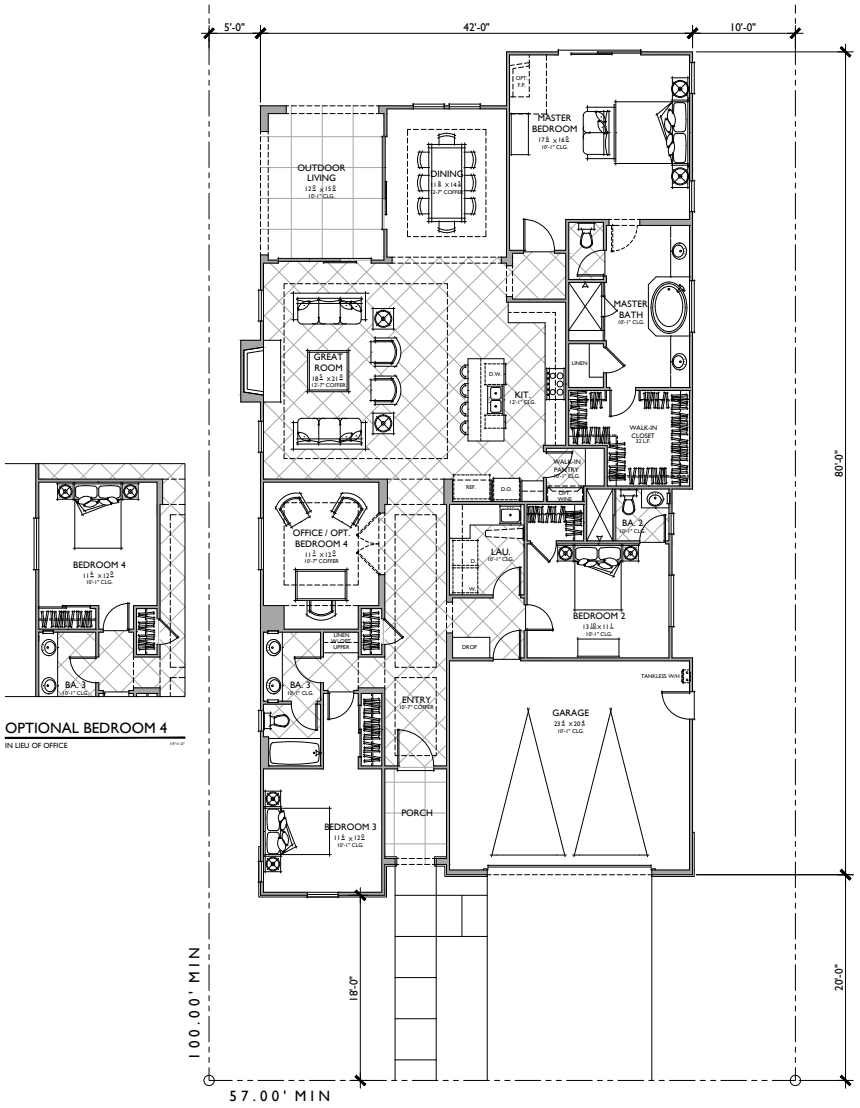
the creek via a vegetated, low flow bypass swale. The outflow of this basin would discharge into Kelly Creek just upstream of the existing storm drain outfall through a rock channel (see **Updated Figure 3.0-4**).

Public utility easements would be installed along the street rights-of-way of the new proposed streets to allow for joint trench facilities such as pull boxes and transformers. New electric~~, gas,~~ and communication facilities would be installed underground in a joint trench.



3 BEDROOMS / 3 BATHS / OFFICE / OPT. BED 4
2 - CAR GARAGE

FLOOR AREA TABLE	
1ST FLOOR	2,489 SQ. FT.
TOTAL	**2,489 SQ. FT.**
2 - CAR GARAGE	495 SQ. FT.
OUTDOOR LIVING	180 SQ. FT.
PORCH	188 SQ. FT.

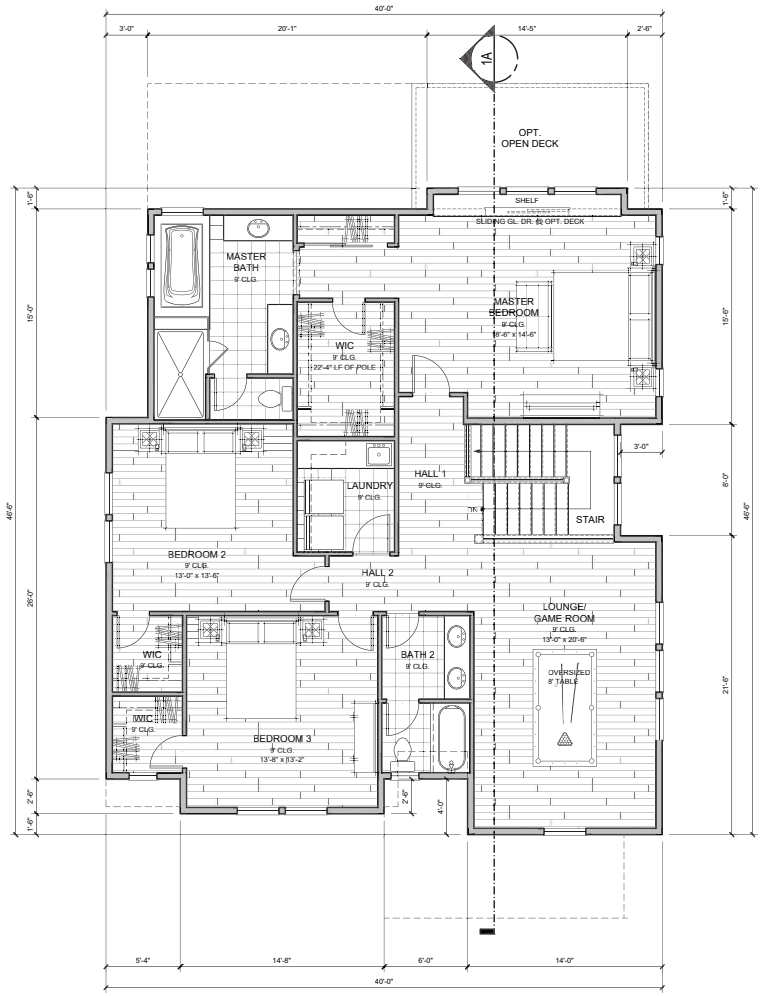
NOTE: SQUARE FOOTAGE MAY VARY DUE TO METHOD OF CALCULATION

SOURCE: Bassenian Lagoni, December 2016. ~~Bassenian | Logani Architects, Davidon Homes, 2018.~~

UPDATED FIGURE **3.0-11**

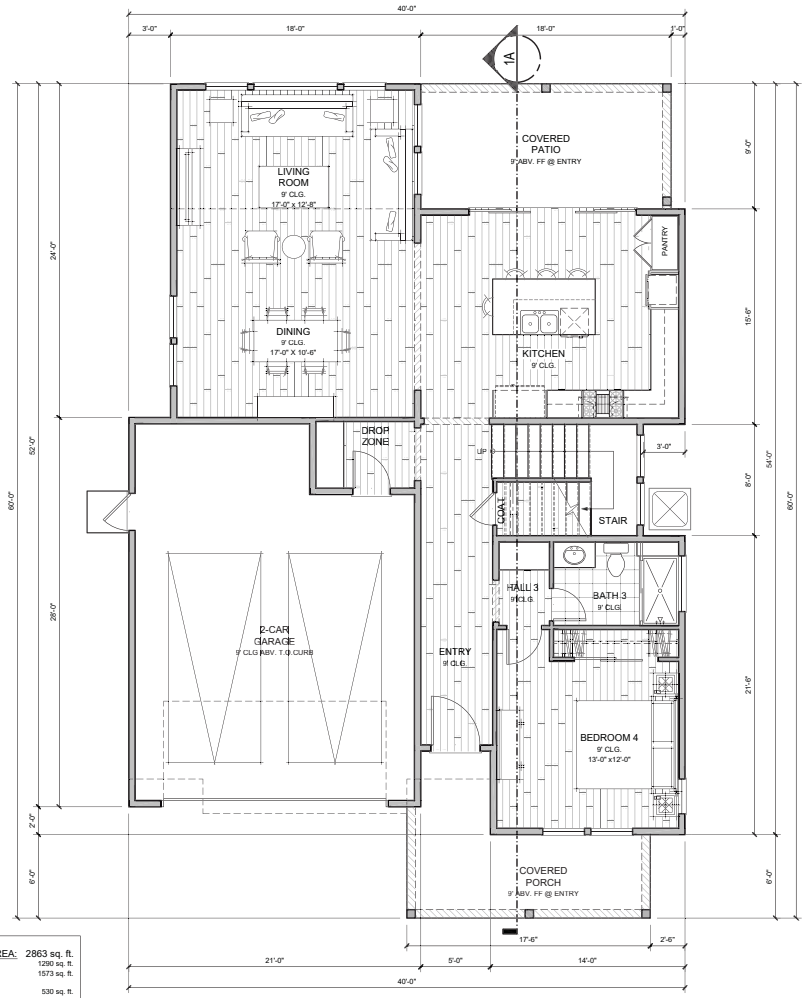
IMPACT SCIENCES

Representative Floor Plan Configuration for 2,678 sf Single-Story Home



PLAN 1 SECOND FLOOR PLAN, ELEVATION A, FARMHOUSE

SCALE: 1/4" = 1'-0"



PLAN 1 FIRST FLOOR PLAN, ELEVATION A, FARMHOUSE

SCALE: 1/4" = 1'-0"

PLAN 1	
TOTAL LIVING AREA:	2863 sq. ft.
First Floor:	1290 sq. ft.
Second Floor:	1573 sq. ft.
2 Car Garage:	530 sq. ft.
Covered Patio:	162 sq. ft.
Covered Porch @ Elev. A & C:	137 sq. ft.
Covered Porch @ Elev. B:	153 sq. ft.
Opt. 2nd Floor Deck:	153 sq. ft.
4 BR, 3 BA & LOUNGE	
Master Closet Pole: 22'-4"	

PLAN 1
FLOOR PLANS

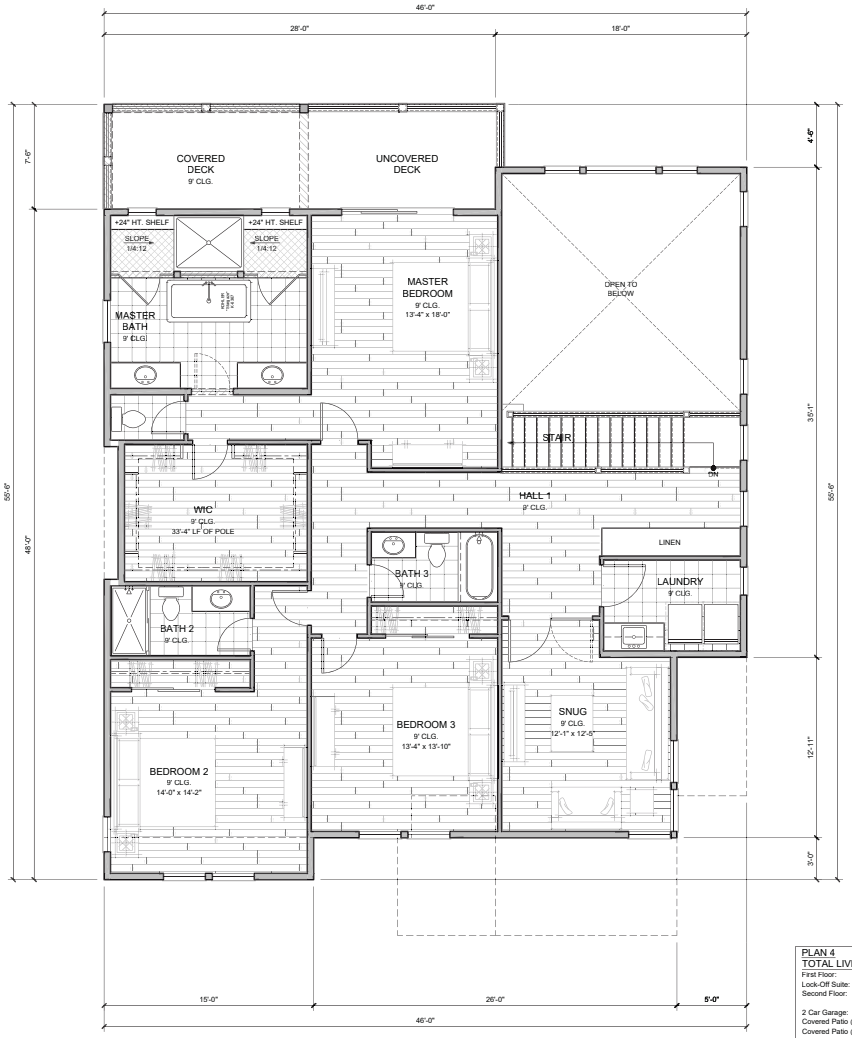
0 4 8 16

SOURCE: VanderToolen Associates, BKF Engineers, Dahlin, May 2019. ~~Bassenian | Logani Architects, Davidon Homes, 2018.~~

UPDATED FIGURE **3.0-12**

IMPACT SCIENCES

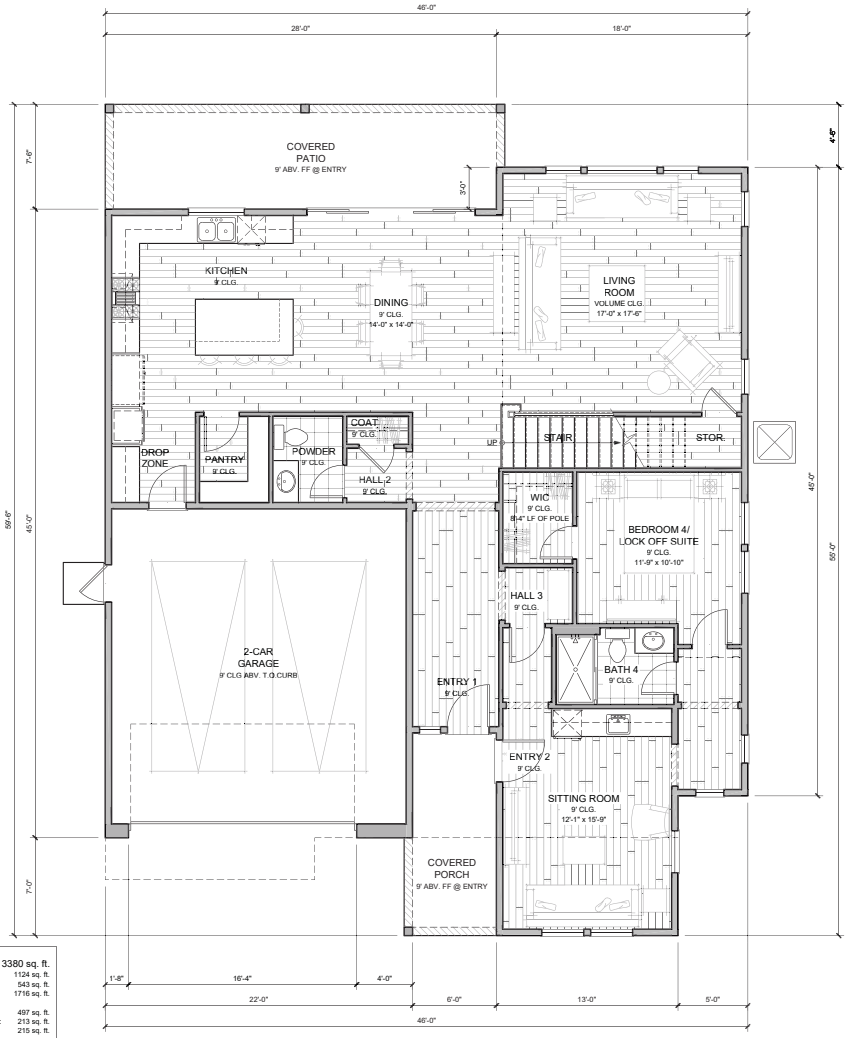
Representative Floor Plan Configuration for 2,928 sf Single-Story Home



PLAN 4 SECOND FLOOR PLAN, ELEVATION A, FARMHOUSE

SCALE: 1/4" = 1'-0"

PLAN 4	
TOTAL LIVING AREA:	3380 sq. ft.
First Floor:	1124 sq. ft.
Lock-Off Suite:	543 sq. ft.
Second Floor:	1716 sq. ft.
2 Car Garage:	497 sq. ft.
Covered Patio @ Elev. A, C & D:	213 sq. ft.
Covered Patio @ Elev. B:	215 sq. ft.
Covered Porch @ Elev. A:	64 sq. ft.
Covered Porch @ Elev. B:	54 sq. ft.
Covered Porch @ Elev. C & D:	63 sq. ft.
2nd Floor Deck @ Elev. A, C & D:	212 sq. ft.
2nd Floor Deck @ Elev. B:	215 sq. ft.
4 BR, 4.5 BA & SNUG	
Master Closet Pole: 33'-4"	



PLAN 4 FIRST FLOOR PLAN, ELEVATION A, FARMHOUSE

SCALE: 1/4" = 1'-0"

PLAN 4

0 4 8 16

SOURCE: VanderToolen Associates, BKF Engineers, Dahlin, May 2019. ~~Bassenian | Logani Architects, Davidon Homes, 2018.~~

UPDATED FIGURE **3.0-13**

Representative Floor Plan Configuration for 3,523 sf Two-Story Home

IMPACT SCIENCES

PLAN 4A FARMHOUSE, FRONT- RIGHT PERSPECTIVE

PLAN 4B CRAFTSMAN, FRONT- RIGHT PERSPECTIVE

PLAN 4C COTTAGE, FRONT- RIGHT PERSPECTIVE

PLAN 4D SPANISH, FRONT- RIGHT PERSPECTIVE

SOURCE: VanderToolen Associates, BKF Engineers, Dahlin, May 2019. ~~Bassenian | Legani Architects, Davidon Homes, 2018.~~

UPDATED FIGURE **3.0-14**

IMPACT SCIENCES

Architectural Styles

SOURCE: Google Maps, 2020.

FIGURE **3.0-15**

Off-Site D Street Sidewalk Improvement

IMPACT SCIENCES

1222.001•08/20

Sustainable Design Features

Residences would incorporate sustainable design features, including solar energy generation, in compliance with the new Building Energy Efficiency Standards of California Building Code Title 24. The project residences would generate enough energy from renewable sources to offset all on site electricity use. This would be accomplished through a combination of highly efficient building systems and solar power generation at each residence. California is the first state in the U.S. to require zero net electricity residences. ~~The residences would use natural gas for furnaces, water heaters, cooktops and fireplace inserts.~~ Although not required by the state's zero net electricity standard, consistent with the *All-Electric Construction in New Constructed Buildings* City ordinance adopted in 2021,[4] no natural gas would be used and no fireplaces would be installed in the homes.

The proposed project would also incorporate water conservation measures pursuant to applicable standards contained in Petaluma Municipal Code, Chapter 15.17, including the following:

Indoor Features

- Approved high efficiency toilets (HET) as designated on the city's list of qualifying HETs.
- Lavatory and/or bar faucets not exceeding 1.5 gallons per minute
- Showerheads with a flow rate of 2.0 gallons per minute or less
- Shower units with more than one showerhead would have each showerhead plumbed so it can be turned on and off independently from each other
- Kitchen and/or utility sink faucets not exceeding 2.2 gallons per minute
- High efficiency clothes washers (water factor of 6.0 or less)
- High efficiency dishwashers (Energy Star rated)

Outdoor Features

Landscaping and irrigation systems that meet the following requirements, in accordance with the current Petaluma Water Efficient Landscape Ordinance:

- Weather-based irrigation controller with rain shutoff
- Flow sensor and master valve shutoff

4 On May 3rd, 2021, the City of Petaluma adopted the All-Electric Construction in New Constructed Buildings ordinance with the goal of achieving carbon neutrality by 2030.

- Matched precipitation (flow) rates for sprinkler heads
- Drip/microspray/subsurface irrigation where appropriate
- Minimum irrigation system distribution uniformity of 75 percent
- Proper hydro-zoning, turf minimization and use of native/drought tolerant plant materials
- Use of landscaping contouring to minimize precipitation runoff

In addition to measures required under state and local law, the residential component would include ~~solar panels and~~ electric vehicle charger connections in each residence and would plant 112 oak trees, which would exceed the requirements of the City's Implementing Zoning Ordinance (IZO) for replacement of removed Protected Trees.

3.5.2 Putnam Park Extension Project Component

The proposed Putnam Park Extension Project component would extend the existing Helen Putnam Regional Park eastward to D Street by developing a park area on the approximately 47 ~~44~~ acres that constitute most of the project site and lie on the southwest corner of the intersection of Windsor Drive and D Street. **Updated Figure 3.0-4, Putnam Park Extension Project Component Conceptual Plan,** shows the location of the Putnam Park Extension Project component with respect to the proposed homes and common open space that would occupy the northern portion of the project site. The Putnam Park Extension Project component would include demolition of the existing unoccupied mobile home and the remnants of the collapsed farm home that was destroyed in a fire. It would also include restoration of the barn complex and development of a barn center, a trail network, nature study area, playground, picnic areas, parking, and restrooms. The park extension would also include pasture improvements, enhancement to the stock pond, ephemeral drainages stabilization, riparian corridor enhancement for Kelly Creek and the D Street Tributary, and two infiltration basins. The proposed project would result in the transfer of title of approximately 47~~44~~ acres of the project site to the Sonoma County Regional Parks to be retained for public recreation and as open space and protected habitat.

Demolition

The structures to be demolished as part of the proposed project would be a 1,000-square-foot mobile home and the remnants of a 2,000-square-foot collapsed farm home that was destroyed in a fire.

Barn Restoration and Barn Center

Several structures exist on the property north of Kelly Creek along D Street, including three barn structures and an old dairy equipment cleaning shed (**Figure 3.0-2, Existing Conditions**). The proposed project would develop a barn center that would include the renovation of the existing barn complex and the cleaning shed (one of the barns would be converted into an agricultural museum), pathways between the structures (surfaced with ADA-compliant material), bike parking, information kiosks, vegetable gardens, demonstration and working corrals, antique farm equipment with a hand pump, and ~~a~~an small amphitheater for outdoor learning activities. Restoration of the barn structures would most likely allow the barns to remain in their current location. However, if necessary to ensure the structural stability of the barns, provide a sound foundation, and/or prevent the barns from eventually collapsing into the creek channel, the barns may be relocated farther away from the creek bank, but would remain in the same general location.

Access to the barn center is currently provided via D Street by a driveway, which would be improved and used as a service vehicle entrance with removable bollards to prohibit automobile use. Indirect emergency vehicle access to the Putnam Park Extension Project component also would be provided via surface lots on D Street and B Street. Bus parking for school groups would be available through the D Street driveway by reservation. The barn center would be visible from D Street and accessible from the main parking lot (or lower parking lot). Interpretive signage providing information on the history of the site and agriculture in the area would be included. Exterior solar powered lighting would be installed around the barns for security and to discourage vandalism.

Trail Network

The proposed project would include a multi-use trail network of approximately one mile. This would include a multi-use loop trail of approximately 0.7 mile that would run along the north and south sides of Kelly Creek.

A 0.35-mile section of the loop trail along the north side of Kelly Creek (north trail) would connect Helen Putnam Regional Park on the west end of the project site to the barn center on the east end of the project site. Access to this trail section would be from the upper parking lot through a four-foot-wide, 0.02-mile-long, ADA-compliant trail (**Updated Figure 3.0-4, Putnam Park Extension Project Component Conceptual Plan**). The north trail would be surfaced with ADA-compliant material, such as park tread, asphalt, or decomposed granite. The majority of the north trail would be ten feet wide and designed to meet ADA-accessibility requirements. The north trail would narrow to four feet just before connecting with Helen Putnam Regional Park where terrain steepens. The north trail would

meet the General Plan's requirement for a trail along Kelly Creek connecting to the existing Helen Putnam Park.

The proposed project would also include a loop trail section along the south side of Kelly Creek (south trail), which would also be approximately 0.35-mile long and would connect to the north trail through a pedestrian bridge at the west end of the project site and extend to the proposed group picnic area and barn center, connecting ~~where it connects~~ again with the north trail. The south trail would be four feet wide and would also be surfaced with ADA-compliant material. The south trail would not be constructed during the first phase of the Putnam Park Extension Project component. Its ultimate construction would depend on SCRP management priorities and approvals from resource agencies.

The project also includes two trails that run parallel to D Street. The first is an approximately 0.25-mile Class I trail that would be constructed from the southeast corner of the project site along D Street to connect with a proposed sidewalk at the northeast corner of the site. This trail would be 10 feet wide, with 2-foot gravel shoulders, and surfaced with asphalt or other stabilized surface. There would be a minimum 5-foot separation (landscape strip) between the edge of pavement of the Class 1 trail and the roadway (in addition to the shoulder widths). The trail would transition to a Class II facility at the existing crossing over Kelly Creek.

The second trail would be an 8-foot wide paved trail with 2-foot shoulders that travels through the park, along the west side of the main parking lot, through a proposed playground area, over a footbridge above Kelly Creek, and through the barn center.

The proposed project, as shown in **Updated Figure 3.0-4**, **Putnam Park Extension Project Component Site Plan**, includes both of these trails.

Playground and Picnic Areas

An approximately 4,000-square-foot playground would be constructed between the main parking lot and Kelly Creek. The playground could include nature-themed features such as a climbing tree, boulders, slide, swing, and play structure. Across the proposed Class I trail alignment parallel to D Street and east of the playground, a small area would be developed with picnic tables and a sundial. Native butterfly gardens would be planted on both sides of the Class I trail. A vegetated berm would be placed between these areas and D Street to screen D Street vehicular traffic.

An approximately 10,000-square-foot group picnic area would be developed just before the entrance to the loop trail, along the trail south of Kelly Creek and west of the D Street tributary. The group picnic area would be surfaced primarily with permeable material. It would include accessible picnic tables.

Isolated wood benches would also be placed along Windsor Drive and at select locations throughout the park.

Pasture Improvement, Stock Pond Enhancement, and Habitat Conservation

Livestock exclusion fencing (5 strand barbed wire wildlife friendly with smooth wire on the bottom) would be installed to prevent ~~keep~~ cattle from harming ~~entering~~ Kelly Creek and the D Street Tributary. Additional livestock exclusionary fencing on the south side of Kelly Creek would prevent park users from creating unauthorized trails in sensitive habitats. Livestock would be excluded from the majority of the steeply sloped area north of Kelly Creek, with the exception of the northeast corner of the park extension. There would be a designated cattle crossing located across Kelly Creek, that crosses both the north and south trails. Currently, cattle have free reign in the creek and the proposed design would limit them to one crossing location that is armored with rock or arched culvert to prevent erosion in the creek.

Grasslands on either side of Kelly Creek would continue to support grazing activities of cows, or of goats or sheep on a rotational basis. As needed, some slopes would be stabilized with native woody plantings and native grasslands would be protected and enhanced. The native grasslands would remain intact where feasible. If any soil disturbance impacts native grasslands, the affected park or pasture area would be seeded with native grassland species suited for the site.

The existing stock pond in the southern portion of the project site is known to support California red-legged frog and is proposed to be enhanced as part of the Scott Ranch project. Enhancement of the stock pond would include planting of native understory and canopy vegetation to improve wildlife habitat and enhance emergent vegetation. In order to improve water quality, reduce erosion, and improve wildlife habitat, wildlife friendly, ~~permanent~~ exclusionary fencing would be installed around the stock pond to limit ~~exclude~~ cattle access. Instead of the cattle using the stock pond at will ~~directly~~, new water troughs would be placed north and ~~in two locations~~ south of Kelly Creek ~~and one location north of Kelly Creek~~. Water would be conveyed ~~from the stock pond~~ to the troughs either through use of a small solar pump or through trenched gravity-fed lines. The troughs would be concrete or metal and installed on a concrete foundation with wildlife friendly ramps so that any small animals that fall into them have a means of egress. A construction and operation plan for the stock pond improvements would be developed to protect wildlife, including California red-legged frog (CRLF). The plan would address construction timing and methodology, annual pumping timeframes, pump-screening requirements, and operational and maintenance needs for the cattle watering system to ensure compatibility with CRLF habitat and protection of individual CRLF.

Installation of the fencing and implementation of the native species planting would be conducted in compliance with the conservation measures included in the *Programmatic Biological Opinion for Issuance of Permits under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, including Authorizations under 22 Nationwide Permits, for Projects that May Affect the Threatened California Red-legged Frog in Nine San Francisco Bay Area Counties, California* (USFWS, 2014) to protect CRLF individuals and the habitat on site.

Ephemeral Drainages Stabilization

Two ephemeral drainages on the Putnam Park Extension Project component area of the project site would be restored by planting native vegetation (willow, sedge, and rush). Headcuts (i.e., eroding gullies) would be repaired using biotechnical stabilization and rock grade control to reduce sedimentation to Kelly Creek. Spoils from the project trail grading would be used to provide fill for the ephemeral drainages to maintain the water table at the same level before the restoration of the ephemeral drainages. An active headcut along the spillway channel east of the stock pond would also be repaired. Ephemeral drainages with headcut repairs would be fenced from any livestock. Puncheons or wet crossings would be installed for trail crossings at locations of the ephemeral drainages.

Riparian Corridor Enhancement

A riparian corridor of at least 100 feet from the centerline of Kelly Creek (minimum 200 feet total) would be established. The canopy along both Kelly Creek and the D Street Tributary would be enhanced with native plantings, such as oaks, bay, buckeye, and willow. Understory species such as coffeeberry, elderberry, sedges, and rush would be planted. Native grasses and wildflowers would be seeded on any disturbed areas upslope of the creek.

Setbacks and Urban Separator

The proposed riparian corridor, described above, would provide setbacks along Kelly Creek. The 300-foot band along the southern boundary of the project site that is designated Urban Separator on the General Plan Land Use map would be dedicated through a transfer of title to the Sonoma County Regional Parks[5] and retained as open space and protected habitat, as part of the park extension component (see **Updated Figure 3.0-3, Davidon (28-Lot) Residential Project Component**).

5 The dedication of the 300-foot Urban Separator is included in the total 47 ~~44~~ acres south of Kelly Creek that would be dedicated to the Sonoma County Regional Parks.

Conservation Easements

All or most of the Putnam Park Extension Project component portion of the project site would be protected by ~~one or more~~ two conservation easements to ensure it remains protected in perpetuity. Sonoma County, through its Agriculture and Open Space District, would hold one of the conservation easements as required by the District's one million dollar grant in support of the parkland purchase from Davidon Homes.

Restrooms

As part of the Putnam Park Extension Project component, a temporary, ADA-compliant restroom would be placed on the project site during the early phases of construction and a permanent 2-stall restroom would be constructed during the later construction phases. The permanent restroom would be near the playground area just north of the main parking lot. The permanent restroom would be a "green flush" restroom that would not be connected to the sewer system.[6] If the proposed permanent restroom is required to be connected to the City sewer system, an alternate location for the restroom would be in the barn center. The permanent restroom would be approximately ten feet in height, with a footprint of 10 feet by 20 feet.

3.5.3 Vehicle Access, Parking, and Roadway Improvements

Davidon (28-Lot) Residential Project Component

Development of the residential component would include two new public roads (A and B Streets) that would be accessed via Windsor Drive and end in cul-de-sacs (**Updated Figure 3.0-3, Davidon (28-Lot) Residential Project Component**).

Each of the two new public roads would be developed on a 50-foot right-of-way provided within the project site. Each roadway would be 36 feet wide curb to curb. The proposed roads would be developed with curbs, gutters, and sidewalks on both sides. The cul-de-sacs would have a 43-foot radius at the face of the curb to allow emergency vehicles to turn around.

Parking at the residential homes would include a two-car garage and a driveway for each home. In addition, the new public roads would have parking lanes on both sides that would provide on street parking for the neighborhood.

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6 Green Flush Technologies manufactures unique prefabricated restroom buildings equipped with flush toilets and sinks that require no on-site utility connections.

D Street/Windsor Drive Roundabout

A roundabout would be constructed adjacent to the project site, on City right-of-way at the intersection of D Street and Windsor Drive. **Updated Figure 3.0-3**, Davidon (28-Lot) Residential Project Component Site Plan shows the configuration of the proposed roundabout, which includes single-lane approaches to slow traffic along this portion of D Street and minimize pedestrian crossing distances. The roundabout would provide crosswalks on all approaches with Rectangular Rapid Flash Beacons (RRFB).[7]

Sidewalks and Crosswalks

Five-foot sidewalks would be provided along both sides of the new public roads and on the project frontage along Windsor Drive west of the new intersection of A and B Streets. A high-visibility crosswalk would also be provided on the east leg of the intersection of Windsor Drive with the proposed A and B Streets. A six-foot sidewalk would be provided on the south side of Windsor Drive from the new intersection to D Street (**Updated Figure 3.0-3, Davidon [28-Lot] Residential Project Component**). Public benches would be installed at appropriate locations along Windsor Drive subject to the approval of the City through SPAR.

In addition, as part of the Davidon (28-Lot) Residential Project Component, the proposed project would include an improvement to an off-site sidewalk along the east side of D Street between Windsor Drive and Sunnyslope Avenue. The sidewalk improvement would replace the existing asphalt sidewalk with City standard concrete sidewalk for a distance of approximately 800 feet, between Windsor Drive and Sunnyslope Avenue, to connect with the existing sidewalk on D Street.

Putnam Park Extension Project Component

Two public surface parking lots would be developed—a main parking lot (or lower parking lot) and an upper parking lot—to serve as a public access to the Putnam Park Extension Project component on the project site and the Helen Putnam Regional Park trail. The main parking lot along D Street would be approximately 11,000 square feet. It would contain 27 spaces including ~~and provide~~ spots for ADA and electric-vehicle parking and charging, as well as bicycle parking. Additional amenities include park entry signage at the entrance from D Street, kiosk at the trailhead access path, and service vehicle access. The main parking lot would be set back at least 100 feet from the centerline of Kelly Creek and 50 feet from the top of the bank of the D Street tributary to Kelly Creek. If permeable paving is not used

7 RRFBs are pedestrian-actuated conspicuity enhancements used in combination with a pedestrian, school, or trail crossing warning sign to improve safety at uncontrolled, marked crosswalks.

for the parking lot surface, a linear infiltration swale for parking lot runoff would be constructed immediately west of this parking lot. Overflow from the infiltration swale would discharge to the D Street Tributary through a rock channel.

The upper parking lot would be approximately 6,500 square feet and would be accessible from Windsor Drive. It would provide ten parking spaces (including one ADA spot) surfaced with concrete or other ADA compliant material. ~~Both~~ The parking lots would each include two electric vehicle charging stations.

3.5.4 Utilities

Potable Water

The City of Petaluma Water Resources and Conservation Division of the Department of Public Works and Utilities would provide water service to the project site. The City purchases wholesale water from the Sonoma County Water Agency (SCWA).

Potable water service would be provided to the project residences by the existing 10-inch water main in Windsor Drive located along the project frontage. The proposed project would develop a network of public 8-inch water mains within the project site to serve the proposed residences. Water infrastructure for the remainder of the site would include a connection to a stub out located near the service vehicle entrance to the barn center along D Street to facilitate the provision of potable water to the Putnam Park Extension Project component.

Irrigation would be needed for native plantings, under the park extension component, only for an establishment period of three to five years. Minimal permanent irrigation would be required for plantings around the playground, parking lots, and barn center. Permanent irrigation demand upon project implementation would be approximately 30,000 gallons per year. Water demand for temporary establishment irrigation would be approximately 40,000 gallons per year for three to five years. The existing water wells on the project site could be used for temporary and permanent irrigation demand if feasible. As mentioned above, if a "Green flush" restroom is used, it would require approximately 18,200 gallons per year (assuming use by 100 people per day on average) and would be installed near the playground area just north of the main parking lot off D Street.

Wastewater

The City of Petaluma provides wastewater services to the project site. Wastewater generated in the City and the nearby community of Penngrove is treated at the City-operated Ellis Creek Water Recycling Facility (WRF). The proposed project would be served by the city sanitary sewer system.

Wastewater generated by the project's residences would be collected through an on-site collection system and discharged into the existing City's operated 8-inch sewer main at Windsor Drive near the entrance to the existing Victoria Subdivision. Wastewater infrastructure improvements would include extending the public sanitary sewer mains along Windsor Drive to serve the proposed residences at the project site. Sewer lines and other utilities would run to a stub out located near the service vehicle entrance to the barn center along D Street to facilitate the provision of wastewater to the Putnam Park Extension Project component.

The Putnam Park Extension Project component would require sewer services if the proposed "green flush" restroom is infeasible.

Storm Drainage

The project site is located in the 360-acre Kelly Creek drainage basin. Currently, runoff from the site is not maintained and is in a natural condition. Kelly Creek bisects the project site and flows under D Street through an existing 7.5-foot by 7.5-foot box culvert. Under existing conditions, the majority of the project site drains to Kelly Creek. A small portion of the project site north of Windsor Drive drains to the storm drain system at the intersection of D Street and Windsor Drive, which connects to Kelly Creek downstream of the box culvert that crosses under D Street. Another small portion of the site drains to Windsor Drive and flows west to enter an existing storm drain in Windsor Drive.

The proposed project would include storm drains in the new streets that serve the proposed residences. The storm drains would collect the runoff generated by the new impervious surfaces on the project site, and all of the site storm drain subsystems would eventually discharge their flows into the section of Kelly Creek on the project site. This would include the areas north and south of Windsor Drive within the project site, which currently flow west to the existing Victoria storm drain at low points on Windsor Drive just east of the B Street park. Post-development, these areas would drain to the infiltration basin on the site first and then to Kelly Creek, thereby reducing a portion of existing stormwater flow that now goes through the Victoria subdivision drains.

National Pollutant Discharge Elimination System (NPDES) regulations require peak post-development discharge not to exceed pre-development discharge levels. To meet this requirement, storm water

collected at the project site storm drains would be detained and infiltrated on site before eventual discharge into Kelly Creek via a new outfall. A detention and infiltration basin would be constructed south of Windsor Drive (see **Updated Figure 3.0-3, Davidon [28-Lot] Residential Project Component**). This detention basin would collect stormwater from the project residences, streets, and the upper parking lot.

Another detention and infiltration basin at the southwest corner of Windsor Drive and D Street would be installed to capture existing, untreated runoff from Windsor Drive. The runoff would be intercepted on Windsor Drive in a newly constructed drop inlet and flow into a vegetated swale leading to the proposed basin on the park extension area of the project site. The basin would allow all low flows to enter the creek via a vegetated, low flow bypass swale. The basin itself would be designed to capture and treat water for a 2 to 5 year storm event. The outflow of this basin would discharge into Kelly Creek just upstream of the existing storm drain outfall.

Solid Waste

The project site is served by the Sonoma County Waste Management Agency (SCWMA) and the City of Petaluma Department of Public Works. Solid waste is hauled by Recology and taken to the Redwood Landfill and Recycling Center (RLRC). Recycling service to the proposed residences would be provided by the waste hauler.

Waste and recycling receptacles would be located on the proposed surface parking lots, trailheads, and park at appropriate locations to promote recycling of paper, metal, glass, and other recyclable material.

Electricity ~~and Natural Gas~~

Pacific Gas and Electric (PG&E) would provide electrical ~~and natural gas~~ service~~s~~ to the project site. New electric~~, gas,~~ and communication facilities would be installed underground in a joint trench. Public utility easements would be provided along the street rights-of-way to allow for joint trench facilities such as pull boxes and transformers. Electricity lines would run to a stub out located near the service vehicle entrance to the barn center along D Street to facilitate the provision of electricity to the Putnam Park Extension Project component.

3.5.5 Trees and Landscaping

There are 509 existing trees located on the project site. Of the existing trees, 478 trees are located within the proposed Putnam Park Extension Project component of the project site. Thirty-one trees are located within the residential portion of the project site and at the intersection of D Street and Windsor Drive.

Seven (7) ~~Nine (9)~~ trees would be removed to accommodate grading for the residences and installation of a sidewalk on the south side of Windsor Drive. Construction of the off-site roundabout at D Street/Windsor Drive would require the removal of nine (9) additional trees. Of these 16 ~~18~~ trees, nine are in good health and seven are in fair or marginal health. ~~The residential component would remove 16 trees Protected Trees.~~ In addition, ~~T~~there may be up to three trees that would require trimming or removal for the D Street off-site sidewalk improvement. As such, the residential component would result in the removal of ~~approximately~~ 6 ~~19 and~~ to 22 ~~19~~ trees.

Construction of the improvements for the Putnam Park Extension component, including the trail through the barn center, the footbridge over Kelly Creek, and the Class I trail adjacent to D Street, would result in the removal of 11 trees, eight of which are in fair health and three of which are in marginal health.[8, 9]

The proposed project would replace the trees that would be removed in compliance with the City of Petaluma IZO Section 17.060 — Tree Removal. The City's tree ordinance requires Protected Trees[10] determined to be in good to excellent condition to be replaced at a 1:1 trunk diameter ratio. Protected Trees determined to be in marginal to fair condition are required to be replaced at a ~~2:1~~1:2 trunk diameter ratio.[11] Protected Trees~~12~~ determined to be in poor condition are not required to be replaced (City of Petaluma IZO Section 17.065). ~~There are 509 existing trees located on the project site and approximately 30~~ In total, 27 ~~30~~ on-site trees would be removed (479 trees preserved) upon full implementation of the proposed project and another three trees along D Street might be removed, for a total of up to 30 trees. The proposed project would include planting 327 trees including 112 ~~159~~ oak trees of various sizes, as part of the residential component, and at least 215 additional trees as part of

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8 Prunuske Chatham, Inc. 2019. Tree Removal for Helen Putnam Park Extension. March.

9 In addition, to reduce wildfire risk consistent with the Fuel~~Vegetation~~ Management Program discussed below, additional trees may need to be removed, but only if they are dead.

10 As defined by the Tree Preservation Ordinance a Protected Tree is a: California native oak with a diameter at breast height (DBH) of 4 inches or greater, California buckeye with a DBH of 6 inches or greater, California bay with a DBH or 12 inches or greater, a coast redwood with a DBH of 18 inches or greater, or a tree of any species within the City right-of-way.

11 Example: A 24-inch protected tree in fair-to-marginal condition must be replaced with new trees totaling 12 inches in trunk diameter.

13 For the proposed residences along the proposed B Street, a 100-foot distance to the south would extend into the park extension portion and would fall under Fuel Modification Zone 1 standards, which includes among other provisions, grazing or cutting grass to a height of 4 inches or less. Because the area within 100 feet of the proposed residences would remain a grassland area, these standards would provide the same level of protection as the Residential Defensible Space/Landscape Zone standards. If the Petaluma Fire Department amends conditions in the future to require additional fuel management actions within 100 feet of the residential structures beyond the Fuel Management Zone 1 actions, the additional actions would be the responsibility of the residential Home Owners Association.

the restoration of the riparian corridor within the Putnam Park Extension Project component of the project site, thereby ~~which would~~ exceeding the IZO requirement for replacement of removed Protected Trees.

Native trees, shrubs, and groundcover would be planted throughout the development areas while remaining consistent with the Project's Fuel Management Plan. The front yards of new residences would be landscaped. Street trees and a 5-foot sidewalk would be introduced along new public streets, as required by City Standards. The proposed project would comply with water conservation standards for landscaping contained in Petaluma Municipal Code, Chapter 15.17. In addition, there would be a minimum 5-foot wildlife corridor between the fences of the project's residences and the existing fences of the adjacent Victoria subdivision.

3.5.6 Lighting

Proposed lighting would conform to the requirements of the City of Petaluma IZO Section 21.040.D to control glare. Street lighting within the residential project component would be installed along the new streets per City standards, and would be shielded and focused on the project site. Indoor and outdoor night lighting would be installed in and around the single-family homes. Construction lighting, if warranted, would be located and aimed away from adjacent residences and would consist of the minimum wattage necessary for safety and security.

Exterior lighting would also be installed around the barns for security and to discourage vandalism. Low lighting may also be installed on the footbridge to accommodate safe passage for any needed night crossings associated with maintenance or park events. Lighting would be solar and dark sky association approved.

3.5.7 Fuel Management Program

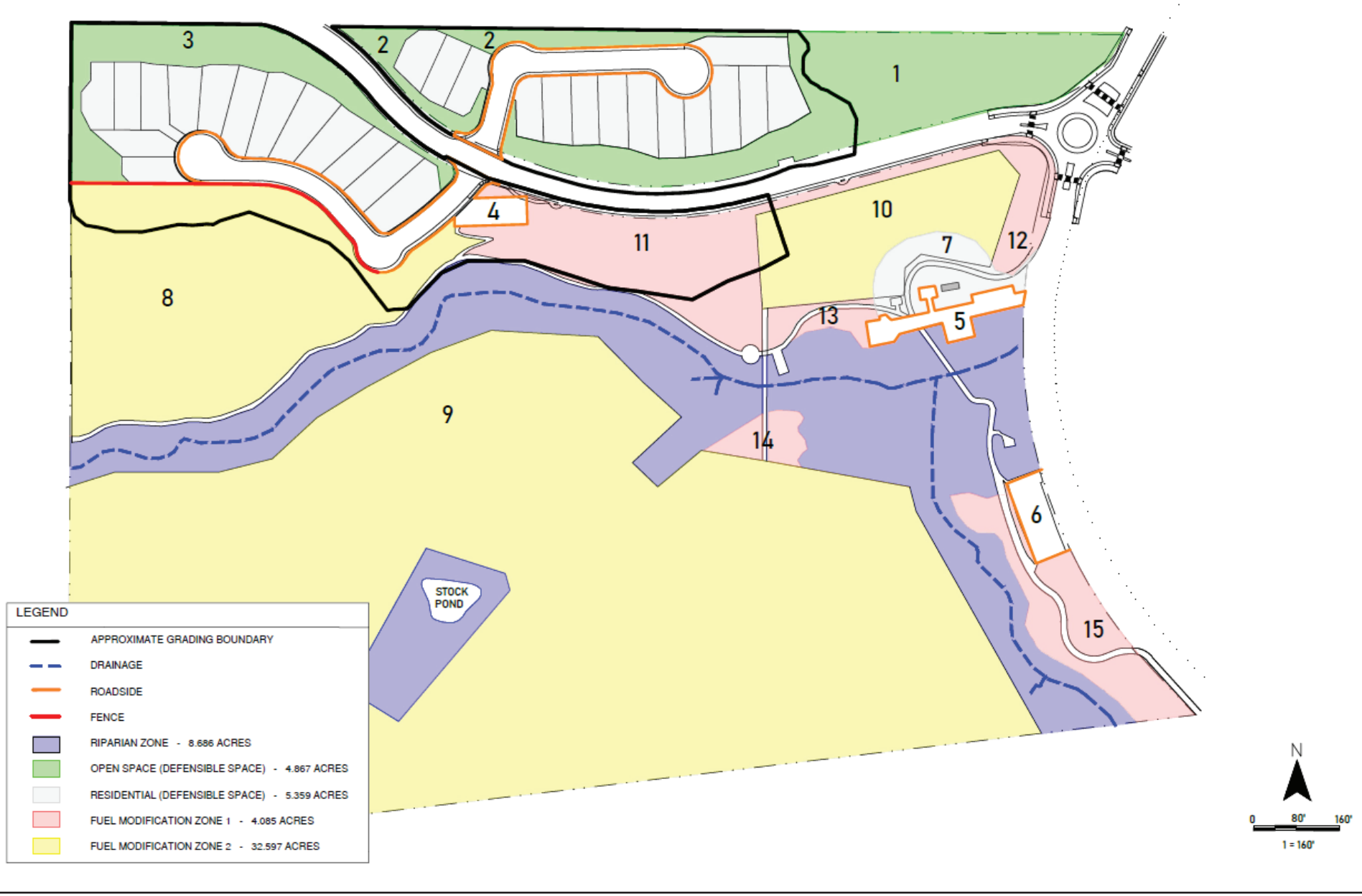
The Fuel Management Program, identified in the *Revised Fuel Management Plan* report prepared for the project and included in **Appendix RTC-D ~~4.15~~**, would be implemented as part of the proposed project to meet fire safety requirements established by the City of Petaluma. The Revised Fuel Management Plan has been prepared to reflect changes in fire management zone boundaries due to the reduction of residential acreage and increase in park acreage for the revised Davidon (28-Lot) Residential Project component.

The Fuel Management Program describes actions needed to maintain vegetative fuels in a fire-safe condition and to make vegetation management easier to implement. The Fuel Management Program (1) delineates fuel management zones at the project site, (2) establishes appropriate treatments for each,

(3) documents maintenance schedule and frequency, and (4) provides a schedule and criteria for updates to this plan. Detailed information regarding the wildfire analysis report can be found in **Section 4.15, Wildfire,** of this RDEIR, a full copy of the report is provided as **Appendix RTC-D ~~4.15~~** of this RDEIR.

As shown on **Updated Figure 3.0-16, Fuel Management Zones**, the Fuel Management Program delineates six treatment zones:

- Residential Defensible Space/Landscaping Zone (~~gold~~grey)



SOURCE: Zentner Planning and Ecology, August 2021. ~~WILDLAND RES MGT, Fuel Management Plan, November 2020.~~

UPDATED FIGURE **3.0-16**

IMPACT SCIENCES

Architectural Styles ~~Fuel Management Zones~~

1222.001•02/2022

- Open Space Defensible Space Zone (green)
- Roadside Vegetation Management Zone (orange boundary line ~~blue~~)
- Fuel-Modification Zone 1 (~~yellow~~tan)
- Fuel Modification Zone 2 (~~tan~~yellow)
- Riparian Zone (purple)

The **Residential Defensible Space/Landscaping Zone** and the **Open Space Defensible Space Zone** (including any barbecue areas in the developed portion of the extension of the Helen Putnam Regional Park) are designed to reduce ignitions near structures, support structural survival during a wildfire, and reduce the chance that an ignition will move off site. The Residential Defensible Space/Landscaping Zone, shown in ~~gold~~ grey on **Updated Figure 3.0-16**, ~~and labeled as '**DS**', would be within 100 feet of the single-family residences on residential lots~~. Area 7 shown on **Updated Figure 3.0-16**, would meet the standards defined below for the Residential Defensible Space Zone because it includes the barn complex. The Open Space Defensible Space Zone is indicated as green on the same figure, and is comprised of Areas 1, 2, and 3~~, 4, 5 and 7~~. Maintenance activities in the Open Space Defensible Space Zone would be within 100 feet of the single-family residences on homeowner association-owned open space adjacent to residential lots.

The **Roadside Vegetation Management Zone** consists of vegetation near roads, driveways and parking lots, and is designed to assist evacuation and emergency vehicle access and to limit ignitions from vehicles. It is shown in ~~blue~~ an orange boundary in **Updated Figure 3.0-16** (Areas 4, 5, and 6~~6, 8, and 10~~) and also applies along Streets A and B. The standards and actions to comply with both the Residential Defensible Space/Landscaping Zone and the Roadside Vegetation Management Zone are the same, with one exception. in the Roadside Vegetation Management Zone there must also be a 15-foot vertical clearance created by tree-trimming over pavement along the entire length of the roadway, parking lot, or driveway.

Fuel Modification Zones 1 and 2 encompass the remainder of the open space portion of the project site, and ensure the fuels do not exacerbate fire hazards to adjacent landowners and structures. Fuel Modification Zone 1 (tan ~~yellow~~) is within the ~~fenced cattle grazing area~~ portion of the proposed Helen Putnam Park Extension where any cattle grazing is most likely to occur and is designed to limit fire intensity and spread by means of the pruning of trees, reduction of understory plants, and use of prescribed grazing activities. Fuel Modification Zone 2 (yellow ~~tan~~) is also within the proposed Putnam Park Extension Project component, but is outside the ~~regular~~ most likely cattle grazing area;

accordingly, options for fuel reduction other than prescribed grazing activities are more likely to be used within this zone, although prescribed grazing is still an option.

The **Riparian Zone** is also within the proposed Putnam Park Extension Project component and outside the fenced cattle grazing area. This Zone covers those areas along Kelly Creek and its tributary, immediately surrounding the stock pond, and in ephemeral streams (shown in purple on **Updated Figure 3.0-16**).

For each of the identified zones, a set of maintenance standards has been identified in compliance with the California State Public Resource Code 4291 and the Petaluma Municipal Code.

Standards for Residential Defensible Space/Landscaping Zone

The set of maintenance standards would apply in the zone within 100 feet of the single-family residences on residential lots, or to the boundary of each residential lot, whichever is less.[13]

1. A 5-foot non-combustible buffer zone would be maintained around structures with liberal use of hardscaping. Examples of non-combustible surfaces include hardscape surfaces (such as patios, gravel, and bare soil), and landscape materials (such as lawn and succulent herbaceous plants). Wood mulch is not considered non-combustible. Woody plants would not be placed in this zone under windows, nor within 5 feet horizontally of openings into the structure, such as doors. This will better ensure that these plants remain away from both doors and windows to help reduce the potential for heat or embers to impact these openings in the structures.

2. All dead plants and dry vegetation on all residential parcels would be removed. The following actions would provide the same level of fire safety as removing all combustible material, per local and state fire codes.

    a. Grass and weeds would be cut to less than 4 inches in height when 30 percent of the grasses have cured. Beginning April 15, the grass would be inspected on a weekly basis to determine the state of grass curing. Grass would be cut within the week when 30 percent of the grass cover has cured, and no later than June 1. If late-season rains promote grass growth after the

13 For the proposed residences along the proposed B Street, a 100-foot distance to the south would extend into the park extension portion and would fall under Fuel Modification Zone 1 standards, which includes among other provisions, grazing or cutting grass to a height of 4 inches or less. Because the area within 100 feet of the proposed residences would remain a grassland area, these standards would provide the same level of protection as the Residential Defensible Space/Landscape Zone standards. If the Petaluma Fire Department amends conditions in the future to require additional fuel management actions within 100 feet of the residential structures beyond the Fuel Management Zone 1 actions, the additional actions would be the responsibility of the residential Home Owners Association.

first cutting, grass would remowed. Cutting of native grass and wildflowers may be delayed until after seed set if the Petaluma Fire Department concurs that these plants do not constitute a means of rapidly transmitting fire to any structure.

b. Ground, roofs, decking, and balconies would be kept free of dead leaves or other plant debris.

c. Leaves, bark, and humus would be cleared under trees and shrubs (including vines and semi-woody species). At no time would a buildup of leaves and humus exceed 1 inch in depth anywhere in a landscaped area. However, bare earth would not be exposed over more than 50 percent of the site.

d. Dead material that drapes over ground cover (including leaves, bark, and branches) would be removed.

e. All dead branches from within live ground covers, vines, shrubs (including semi-woody species), and immature and landscape trees would be removed.

3. Trees and large tree-form shrubs (e.g., oaks, toyon) that are being retained would be pruned to provide clearance of three times the height of the understory plant material, or 8 feet, whichever is higher.

   a. Limbs that are smaller than 3 inches in diameter would be pruned up to 8 feet above the ground; in young trees, branches on the lower one-third of the height of the tree would be pruned. (Thus, if a tree is 10 feet tall, the lower 3–4 feet would be pruned and the understory plant material kept to less than 1 ft in height. Then as it grows to 24 feet in height, it can achieve the 8-foot distance from the ground, and the understory plant material can reach 2.5 feet in height.)

   b. All branches within 10 feet of any chimney, flue, or stovepipe would be removed.

   c. A five-foot vertical clearance would be maintained between roof surfaces and overhanging portions of trees.

4. To avoid creating "ladder fuel situations" (in which a fire can climb from one vegetation layer to the next higher one), shrubs (including vines, semi-woody species, and all chaparral species) would not be planted under trees. In addition, replacement of dead plants would not be located under trees.

5. Woody plants would not be located under windows, or within 5 feet horizontally of openings into the structure, such as doors.

6~~5.~~ All landscaping would be fire-resistant in nature. Planting of plants that are highly ignitable and burn with intensity would be prohibited.

7~~6.~~ Individual plants or landscaping shrub masses would be managed to maintain adequate horizontal spacing. Distinct groupings of shrubs (including landscaping or native vines, semi-woody species, and all types of brush) would be designed to dampen the spread of fire.

a. Plant groupings would be small enough to provide adequate horizontal separation between groupings and to allow proper maintenance; groupings would not be wider than two times the grouping height, or 120 square feet. However, one row of shrubs in a linear band with a maximum width of 7 feet, located at least 10 feet from the structure, need not comply with the 120 square foot area limit.

b. The space between islands would be greater than three times the height of the shrubs, or 12 feet at a minimum. On emerging trees, a spacing of 12 feet from the edge of the canopy would be cleared.

8~~7.~~ All cut vegetation and hazardous refuse would be removed and disposed safely.

9~~8.~~ Chipped materials would remain on the site, provided the mulch layer is no greater than 2 inches in depth.

Standards for Open Space Defensible Space Zone

This set of maintenance standards would be implemented within 100 feet of the single-family residences and on homeowner association-owned open space adjacent to residential lots. These areas shown on **Updated Figure 3.0-16** as areas 1, 2, and 3.

1. All personnel conducting fuel management in the Open Space Defensible Space Zone would be trained in identification of and avoidance of impacts to California red-legged frog, and in identification of native grasses and wildflowers.

2. All ~~dead plants and dry vegetation~~ combustible materials, as defined by local and state fire codes, would be removed. The following actions would provide the same level of fire safety as removing all combustible material, per local and state fire codes.

a. Grass and weeds would be flash grazed or cut to less than 4 inches ~~in height when 30 percent of the grasses have cured. Beginning April 15, the grass would be inspected on a weekly basis to determine the state of grass curing. Grass would be cut within the week when 30 percent of the grass cover has been cured, and~~ no later than June 1. Grass would be removed if late-season rains promote grass growth after the first cutting. Cutting of native grass and wildflowers may be delayed until after seed set if nesting birds are found or if the Petaluma Fire Department concurs that these plants do not constitute a means of rapidly transmitting fire to any structure. In graded areas seeded with native grasses and wildflowers, grazing or cutting of grasses or wildflowers would be prohibited during the first year after seeding; thereafter, this area would be subject to the same regime as the remainder of the Open Space Defensible Zone.

b. Leaves, bark, and humus under trees and shrubs (including vines and semi-woody species) would be cleared. ~~At no time would a buildup of~~ Mulch, bark, leaves, and humus ~~exceed~~ may be as deep as 1 inch in depth, however, not deeper. ~~However, b~~Bare earth would not be exposed over more than 50 percent of the site.

c. Dead material that drapes over ground cover (including leaves, bark, and branches) would be removed.

d. All vines, loose papery bark, dead branches, and live branches smaller than 3 inches in diameter would be removed from mature trees to a height of 8 ft above the ground.

e. All dead branches would be removed from within live ground covers, vines, shrubs (including semi-woody species), and immature trees.

3. Trees and large tree-form shrubs (e.g., oaks, toyon) that are being retained would be pruned to provide clearance of three times the height of the understory plant material, or 8 feet, whichever is higher.

a. Limbs that are smaller than 3 inches in diameter would be pruned up to 8 feet above the ground; in young trees, branches would be pruned on the lower one-third of the height of the tree (If a tree is 10 feet tall, the lower 3–4 feet would be pruned and the understory plant material would be kept to less than 1 ft in height. Then as it grows to 24 feet in height, it can achieve the 8-foot distance from the ground, and the understory plant material can reach 2.5 feet in height.)

b. Tree canopy would not be thinned to avoid promoting growth of more flammable vegetation.

4. To avoid creating "ladder fuel situations" (in which a fire can climb from one vegetation layer to the next higher one), shrubs (including vines, semi-woody species, and all chaparral species) would not be planted under trees. In addition, planting new trees and shrubs would be offset more than 6 feet from existing tree canopies. ~~Replacement of dead plants or oaks planted as mitigation would not be located under trees.~~

5. All landscaping would be fire-resistant in nature. Planting of plants that are highly ignitable and burn with intensity would be prohibited.

6. Individual plants or landscaping shrub masses would be managed to maintain adequate horizontal spacing, with a maximum of 30 percent cover of shrubs. Distinct groupings of shrubs (including landscaping or native vines, semi-woody species, and all types of brush) would be designed to dampen the spread of fire.

    a. Plant groupings would be small enough to provide adequate horizontal separation between groupings and to allow proper maintenance; groupings would not be wider than two times the grouping height, or 120 square feet. However, one row of shrubs in a linear band with a maximum width of 7 feet, located at least 10 feet from the structure, need not comply with the 120 square foot area limit.

    b. The space between islands would be greater than three times the height of the shrubs, or 12 feet at a minimum. On emerging trees, a spacing of 12 feet from the edge of the canopy would be cleared.

7. All cut vegetation and hazardous refuse would be removed and disposed safely.

8. Chipped materials would remain on the site, provided the mulch layer is no greater than 2 inches in depth.

Standards for Roadside Vegetation Clearance

The standards for the Residential Defensible Space/Landscape Zone would apply to the strip of land within 10 feet of the pavement edge from both sides of the new roadways (A and B Streets), the driveway of the Putnam Park Extension Project, and parking lots (see the areas with orange boundaries and areas 4,5, and 6 on the **Updated Figure 3.0-16**). In the Roadside Vegetation Management Zone there would also need to be an unobstructed vertical clearance of 15 feet over the entire length of the new roadways, driveway, and parking lots. Where a Class 1 trail abuts a road, it would be part of the Roadside Zone; if the trail is 10 feet wide, treatment would only occur on the trail.

Standards for Fuel Modification Zones

The open space within the project would be managed to preclude the encroachment of shrubs (such as coyote bush, *Baccharis pilularis*), ~~which would increase~~ beyond a maximum of 30 percent cover to avoid increasing the fuel load and potential fire hazard. Maintaining the entire site as a grassland with scattered shrubs can be accomplished by many techniques, including grazing or removal of shrubs with handheld tools. Cattle grazing is currently occurring on much of the site. If this is discontinued, goats or mowing would be used to reduce fuels. ~~Would continue within~~ Fuel Modification Zone 1 ~~(shown in yellow on **Figure 3.0-16**)~~, which would be most likely regularly grazed shown in yellow as areas 8,9, and 10 on the **Updated Figure 3.0-16**. Fuel Modification Zone 2, ~~(shown in tan on **Figure 3.0-16**)~~ which most likely would not be regularly grazed is shown in tan, as areas 11 and 15 on the **Updated Figure 3.0-16**. The Fuel Modification Zones would be managed as described below.

1. All personnel conducting fuel management in the Fuel Modification Zones would be trained in identification of and avoidance of impacts to California red-legged frog, and in identification of native grasses and wildflowers.

2. Regular grazing or other fuel reduction methods would continue in Fuel Modification Zone 1.

3. The grass would be flash grazed or cut to less than 4 inches in height within Fuel Modification Zone 2. This maintenance activity would also apply to and Fuel Modification Zone 1 in the event that regular grazing would not reduce grasses to 4 inches in height, by June 1 unless approximately 0.85 acre of native grassland is planted on a north-facing slope within Fuel Modification Zone 1, adjacent to existing native grasslands. This area would be protected from grazing or cutting by temporary fencing for a period of five (5) years.

4. In both Fuel Modification Zones 1 and 2, cutting of native grass and wildflowers may be delayed until after seed set if the Petaluma Fire Department concurs that these plants do not constitute a means of rapidly transmitting fire to any structure.

5. The following maintenance activities would be implemented in the areas where trees have been established:

    a. Leaves, bark, and humus under trees and shrubs (including vines and semi-woody species) would be cleared. ~~At no time would a buildup of~~ Mulch, bark, leaves and humus ~~exceed~~ may be as deep as 1 inch in depth. However, they should not be deeper. ~~anywhere in a landscaped area~~. ~~However,~~ ~~b~~ Bare earth would not be exposed over more than 50 percent of the site.

b. Dead material that drapes over ground cover (including leaves, bark, and branches) would be removed.

c. All vines, loose papery bark, dead branches, and live branches smaller than 3 inches in diameter would be removed from mature trees to a height of 8 feet above the ground.

d. All dead branches from within live ground covers, vines, shrubs (including semi-woody species), and immature trees would be removed.

e. All eucalyptus trees smaller than eight inches in diameter would be removed.

f. Trees and large tree-form shrubs (e.g., oaks, toyon) that are being retained would be pruned to provide clearance of three times the height of the understory plant material, or 8 feet, whichever is higher.

g. Limbs that are smaller than 3 inches in diameter would be pruned up to 8 feet above the ground; in young trees, branches would be pruned on the lower one-third of the height of the tree (If a tree is 10 feet tall, the lower 3 to 4 feet would be pruned and the understory plant material would be kept to less than 1 feet in height. Then as it grows to 24 feet in height, it can achieve the 8-foot distance from the ground, and the understory plant material can reach 2.5 feet in height.)

h. The tree canopy would not be thinned to avoid promoting growth of more flammable vegetation.

i. Chipped materials would remain on the site provided the mulch layer is no greater than 2 inches in depth.

6. To avoid creating "ladder fuel situations" (in which a fire can climb from one vegetation layer to the next higher one), shrubs (including vines, semi-woody species, and all chaparral species) would not be planted under trees. In addition, planting new trees and shrubs would be offset more than 6 feet from existing tree canopies. ~~replacement of dead plants or oaks planted as a mitigation measure would not be located under trees~~.

7. Maintenance standards of the areas within 30 feet of picnic tables and 10 feet of any barbeque spaces would be similar to those identified for the Residential Defensible Space/Landscaping Zone. This would include mowing grass and removing lower tree branches.

Standards for Riparian Zone

Hand labor (or flash grazing and/or other fuel management methods if authorized by CDFW) would be used to treat fuels within the Riparian Zone to avoid trampling riparian vegetation or altering the alignment of Kelly Creek or the banks of the stock pond.

To protect wildlife habitat, maintenance activities for fire safety in the Riparian Zone would be limited and would focus on dead material, which can enhance fire safety without compromising wildlife habitat.

1. All personnel conducting fuel management in the Riparian Zone would be trained in identification of and avoidance of impacts to California red-legged frog, and in identification of native grasses and wildflowers.

2. Dead vegetation, vines, and dry fuels such as dead lower branches of trees would be removed.

3. Invasive alien plants such as French broom, yellow star thistle, and Italian thistle would be removed.

4. Living trees and shrubs would not be removed or pruned except as needed for trails, barbecue spaces and pedestrian bridges.

5. Maintenance standards of the areas within 10 feet of any barbeque spaces would be those identified for the Residential Defensible Space/Landscaping Zone. This would include mowing grass and removing lower tree branches.

Fire-Resistant Landscaping

1. Spacing and design of the garden is more critical than the species planted. Horizontal spaces would be maintained between planting masses, specimen trees, and houses to create a fire-safe landscape. Similarly, vertical spaces would be maintained between tree branches, shrubs, ground cover, and the structure (particularly windows).

2. Landscapes would be designed to discourage the creation of "fuel ladders"—a continuous fuel path by which a fire can climb from the ground to a shrub, to a tree, and ultimately to the structure.

Species Selection

Selected landscaping plant species would have a low fuel volume and high foliar moisture and would not have a tendency to produce and "hold" dead wood. Selected plant species would also have a proper

growth form (As an example, ground covers or fruit trees, which inherently have adequate vertical spacing or branches.)

A list of prohibited plant species is provided in the Wildfire Analysis Report (**Appendix 4.15**). Prohibited species are those that can exhibit dramatic fire behavior, such as junipers that are 6 square feet in area and can produce flames over 15 feet in length.

Factors considered in rating the fire performance of plants include:

- **Total volume**. The greater the volume of plant material (potential fuel) present, the greater the fire hazard.
- **Moisture content**. High levels of plant moisture can both lower fire risk and act as a heat sink if a fire occurs, reducing its intensity and spread.
- **Amount and distribution of dead material**. The amount of dead material in a given plant influences the total amount of water in the overall plant; the dead material is usually much drier than living tissue. Whereas dead material rarely has a moisture content higher than 25 percent, live foliage moisture content ranges from 60 to 80 percent for chaparral species in very dry conditions to a high of 200 to 400 percent for succulent plants or plants under irrigation.
- **Size of leaves, twigs, and branches**. Materials with large surface areas (such as needles, twigs, or large flat leaves) dry more rapidly under fire conditions than materials with lower surface ratios (such as branches and fleshy leaves).
- **Geometry and arrangement of the plant (overall spatial distribution of the biomass)**. The shape of a plant and the way in which the biomass is distributed throughout the plant is important because this bulk density affects the air flow and heat transfer through the plant. The arrangement of material within the plant affects its fuel continuity and its tendency to undergo preheating and promote fire spread.

Project design would incorporate the recommendation of a landscape professional on plant spacing, pruning, aeration, fertilization, irrigation, and other cultivation practices.

Ignition-Resistant Structures

The City of Petaluma has adopted a rigorous set of codes that bolster ignition resistance of structures through the design and material used in construction. Although not required by code, the proposed project would incorporate the following characteristics into the proposed residences:

Vents. Structures would include vents, which use 1/8-inch mesh metal screens and 26 gauge G90 finish galvanized steel lock sheets to block flying embers from entering structures.

Fences. Backyard fences would be constructed of either noncombustible material or of timbers with a minimum of one-inch nominal thickness. Side fences may be of one-inch nominal thickness. Typical back yard fencing might include "view fencing", consisting of open wire-mesh with 4 inch posts and bottom rails of 2 inch minimum thickness. There should be a noncombustible space of a minimum of 5 feet between the structure and any wooden fence members.

The proposed project would incorporate the following characteristics into the proposed accessory buildings:

Garden Structures. Garden structures, such as gazebos, spas, or other outbuildings – would meet the same minimum standard for materials, timber size, and other requirements as described above for other structures and fences.

Built-In Fireplaces. Built-in fireplaces would be either no farther than 15 feet from a water source or be equipped with a fire extinguisher. All associated chimneys would be fitted with a spark arrestor.

Barbecues. Barbecues (built-in or portable) would be surrounded by at least 10 feet radius of noncombustible materials and would be located 10 feet away from all overhanging structures or trees. Barbeques are not to be left unattended when in use. No structures or trees would overhang the use area within a distance of 10 feet. No barbeque would be located farther than 15 feet from a water source (including a garden hose). Vegetation would otherwise be consistent with the requirements of the zone in which the barbecue is located.

Fuel Management Responsibilities

Fuel management and structure maintenance in the Residential Defensible Space Zone would be the responsibility of the individual landowner, enforced through covenants, codes and restrictions (CC&Rs) and, to the extent mandated by law, the Petaluma Fire Department.

The homeowners association (HOA) would be responsible for fuel management on HOA-owned property, which comprises all of the Open Space Defensible Space Zone. ~~The HOA would also be responsible for managing Area 4 within the Putnam Park Extension Project component, shown on **Figure 3.0-16.**~~ The HOA would also be responsible for maintaining the Roadside Fuel Management Zone along A and B Streets. Where portions of residential parcels fall within the Roadside Fuel

Management Zone, CC&Rs would require homeowners to maintain the Roadside Fuel Management zone and would empower the HOA to enforce such maintenance obligations.

After transfer of title to KCPP, it would be responsible for the management of the park extension portion of the site until it is transferred to the Sonoma County Regional Parks. ~~However, as noted above, the HOA would continue to be responsible for management of the Area 4 portion of the park extension site.~~

Schedule of Initial Maintenance Responsibilities and Vegetation Management

Upon Petaluma Fire Department clearance for issuance of building permits, the fuel management standards would apply to the lot encompassed by the building permit. Roadside standards would be enforced at the time the first lot is sold.

Initial Treatment (Year 1)

- Once title transfers to the KCCP project, it would be responsible only for continuing existing grazing of the park extension portion of the site until it is transferred to Sonoma County Regional Parks.

- Davidon Homes would be responsible for implementing the Fuel Management Program's maintenance standards within Area 4.

- Initial vegetation management actions for any residential lot would be completed before framing of the <u>residence on the</u> first lot begins (if framing takes place between June 1 and November 1). These actions would include tree removal, tree pruning, and grass cutting or grazing.

- The HOA would be responsible to ensure fuel management is completed within 100 feet of the building under construction, regardless of land ownership.

Maintenance Phase

- All required clearing and grass cutting would be completed before June 1 of each year.

- No clippings would remain in piles or scattered. All brush piles and tree clippings would be removed within one week of cutting. No brush or clippings are permitted to remain in piles.

- Annual vegetation management measures would include:

i. Removal of all combustible vegetation along roadways, driveways, access roads, and trails according to stated standards

~~ii. Maintenance of the emergency access easement~~

ii.~~iii.~~ Maintenance of the defensible space around structures according to stated standards for the various fuel management zones.

Frequency of Maintenance

Grass. Grass would need to be grazed or mowed annually to a height of four inches or less in all zones other than the Riparian Zone. This would occur when 30 percent of the grass cover has cured (any time from April 15 - June 1). Should rains occur late in the season and produce more grass growth, the grass may need to be treated again by mowing or grazing.

Shrubs and Seedlings. The frequency of treatment of shrubs and removal of seedlings below the canopy of landscaping trees is estimated as every three years to five years. Shrubs may need to be pruned of dead wood or shortened, shrub groupings minimized in size, or new shrubs/ tree seedlings removed under tree canopies. Shrub removal or pruning may be done any time of year.

Application of an herbicide to prevent re-sprouting may be more effective in the spring, but would follow the licensed Pest Control Advisor recommendation.

Trees. Because trees typically grow from the top and ends of branches, subsequent pruning needs would occur only every five years to ten years, depending on the rate of growth, and significant events which may cause dead wood to develop or breakage to occur. Pruning of landscape trees and tree-like shrubs can be done at any time of the year, depending on recommendations from a professional arborist.

A rotation of pruning may be scheduled so that approximately one-third to one-fifth of the area is treated yearly.

SUMMARY OF FREQUENCY OF FUEL MANAGEMENT PROGRAM

Actions described above for both the Residential Defensible Space/Landscape Zone and Open Space Defensible Space Zone would be implemented in the residential component portion of the project site as soon as construction begins. Current grazing practices would be maintained in the park extension portion of the site until Sonoma County Regional Parks opens any portion to the general public, at which point fuel standards set forth in this plan would be implemented and maintained. However, if

in the future the city of Petaluma Fire Department determines that compliance with Fuel Management Zone 1 standards is found not to provide sufficiently defensible space in the park extension portion of the site that is within 100 feet of residential structures, and this Fuel Management Program is revised accordingly, it would be the responsibility of the residential HOA and not of Sonoma County Regional Parks to take the additional actions necessary to comply with the revised Fuel Management Program actions for this specific area.

Process for Plan Updates

The Petaluma Fire Department would have authority to review periodically the condition of vegetative fuel, in order to provide input and direction. Potential issues that would be addressed during this review include:

- Changed fuel hazard conditions including: height of tree branches, size, density or species of vegetation, or fuel load and erosion control or slope stability conditions.
- Lot line adjustments that may change the distances and areas for which the Property Owner is responsible.
- Changes in land use of adjacent properties.

An initial three-year interval of review would take place, with a five-year interval review thereafter. For example, if the expansion of shrub cover warrants additional action, this process provides for revisions of required maintenance options. Input of the Petaluma Fire Department would be based on site visits, results and observations from the annual inspections conducted by the Petaluma Fire Department and experiences from recent wildfires or changes in ordinances or regulations.

If any changes are proposed, the HOA would submit this plan, along with suggested revisions to the Petaluma Fire Department for their input. The ~~fire~~ Fire Department ~~distric~~t input would be incorporated, and the plan revised. The revised plan would be implemented the following year.

For the Putnam Park Extension Project component, Sonoma County Regional Parks would be responsible for the Fuel Management Program updates.

3.6 CONSTRUCTION ACTIVITIES AND SCHEDULE

3.6.1 Davidon (Lot-28) Residential Project Component

Construction of the Davidon (28-Lot) Residential Project Component would begin with removal of trees and clearing of vegetation. Following site clearing, construction areas would be graded, and the proposed roadways, the D Street/Windsor Drive roundabout, and utility infrastructure, including the two infiltration basins and associated grassy low flow bypass swale, would be installed. Grading of the parking lots would be completed as part of the grading phase for the residential component.

Subsequent construction phases would include building construction, completion of exterior improvements, and installation of landscaping. **Updated Figure 3.0-17, Limits of Disturbance - Davidon [28-Lot] Residential Project Component,** shows the limits of ground disturbance associated with the Davidon (28-Lot) Residential Project Component.

Depending on the slopes of each lot, cut and fill would be used to create the building pads and the driveways. Retaining walls would not exceed five feet in height. In some cases, tiered walls are implemented allowing landscaping in between walls for aesthetic enhancement (See **Figure 3.0-10, Retaining Walls Design**).

~~Preliminary grading studies indicate that cut and fill would be balanced on the project site, totaling approximately 224,000 cubic yards (cy), consisting of approximately 112,000 cy of cut and 112,000 cy of fill material on site.~~ The residential project has been designed to balance cut and fill. Measuring from existing to future finished surface, approximately 78,000 cubic yards (cy) would be cut during grading and 83,000 cy of fill would be required. The remaining 5,000 – 6,000 cy of fill material needed to achieve balance would come from construction spoils as opposed to mass grading. Construction spoils would result from smaller excavations for roadway structures, building pads, utility trenches, retaining walls, subdrains and storm water quality basins.

As shown in **Figure 3.0-2, Existing Conditions**, Davidon (28-Lot) Residential Project component's geotechnical consultants identified two small landslides, labeled E and F, in the southwest corner of the residential development area as originally shown in the Revised Draft EIR. The current version of the 28-Lot Residential Project would entirely avoid these mapped landslides and no remedial grading would be required for them. ~~Peer review by the City's geotechnical consultant questions whether Landslide F actually exists. To be conservative, **Figure 3.0-2, Existing Conditions** continues to show Landslide F; Davidon Homes would excavate both labeled landslides and, pursuant to current industry standards, replace them with engineered fill keyed into competent material.~~ As a precautionary measure, the keyway excavation required for rough grading of the site, located above a smaller

landslide, labeled "P" in **Figure 3.0-2, Existing Conditions**, would be further deepened to extend below the slide mass.

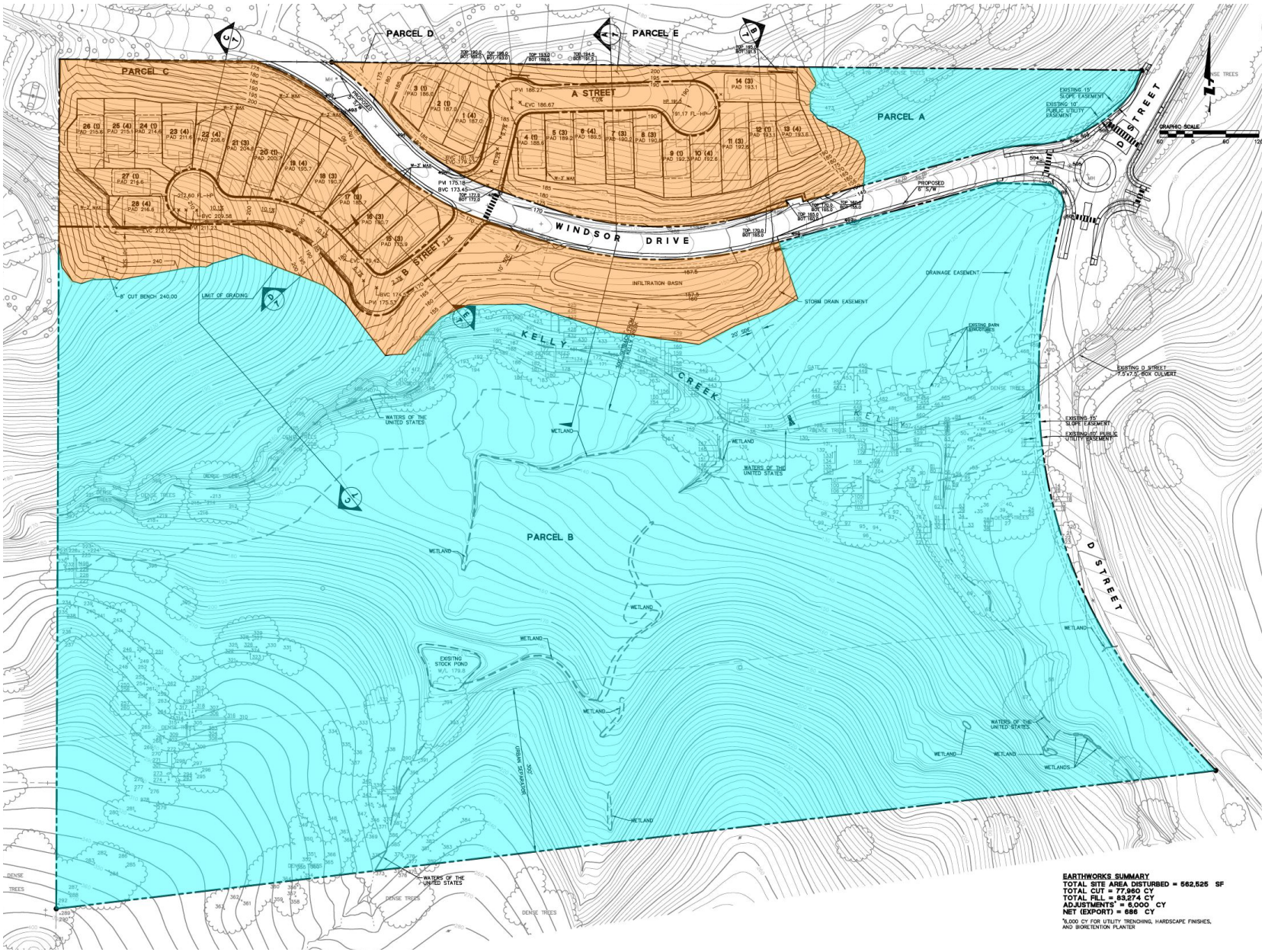
Project construction would involve the use of scrapers/graders, bull dozers, tractors, front loaders, backhoes, folk lifts, cranes, jack hammers, concrete mixers and pumps, pavers, air compressors, generators, and haul trucks. All equipment 50 horsepower or above would be Tier 3 or better. Construction staging would occur on-site within the areas proposed for development.

Site clearing, grading, and trenching for the Davidon (28-Lot) Residential Project component is anticipated to last for ~~nine~~ seven months, while construction of the residences is expected to take about 21 months, for an overall construction period of approximately ~~30~~ 28 months.

3.6.2 Putnam Park Extension Project Component

Barn Center

Construction activities related to the barn center would include demolition of the existing mobile home and collapsed farm house, general clean-up of the area, and minor grading for the purposes of drainage improvements and ADA compliance. The area between the barns and the service vehicle entrance would



SOURCE: BKF Engineers, July 2021, ~~BKF, 2019.~~

UPDATED FIGURE **3.0-17**

IMPACT SCIENCES

Limits of Disturbance

be paved with asphalt or a natural material such as decomposed granite. An appropriate section of base rock and paving material would be installed. The existing asphalt on the service vehicle entrance would be removed and replaced. The existing service vehicle entrance may also need widening to accommodate turning radii for emergency vehicles. The widening would occur in the direction of the pasture (to the north) and would not encroach on the creek. This widening would result in lifts of compacted fill on the north side of the existing drive. The existing eucalyptus in the barn center would be trimmed and protected to accommodate the construction activity. Signage, bike parking, trash and recycling receptacles and other site furnishings would be installed. The existing gate providing access from D Street would be replaced. Other improvements would include the construction of a small amphitheater in the location of the old mobile home. The amphitheater would be constructed of stone or wood. Vegetable boxes may also be installed. As ~~Depending on the Availability of~~ funding becomes available, the existing barns will~~may~~ be restored to become interpretive centers to exhibit ~~for~~ farm equipment, ~~or to~~ demonstrate farming practices, and educate visitors about wildlife conservation and climate change. The barns may be relocated as needed for stabilization and preservation purposes; however, they would remain in the same area of the site. One of the three barns would be improved for use as service vehicle parking. The degree of restoration on the barns is unknown at this time. Working and demonstration livestock corrals may also be constructed with tee (or wood) posts and wire fencing.

Trails

Construction of the trails loop ~~trail~~ north and south of Kelly Creek would include the removal of vegetation and branches as well as low lying saplings, weeds, and brush along the trail length. This would be followed by grading and trail paving. Mature trees would not be removed as part of trail construction, with the exception of the eucalyptus noted on the tree removal list. The north segment of the loop trail would be a 10-foot wide asphalt trail. The trail would primarily be excavated in cut to install the appropriate section of base rock and then paved with a surface of decomposed granite or asphalt. The trail would have 12″-18″ shoulders of compacted native soil. To limit the concentration of water, trails would be outsloped and runoff would flow over the surface as opposed to being intercepted in an inboard ditch. Grading would be required to create a stable cross slope and minimize the running slope as needed for ADA compliance **Updated Figure 3.0-18, Limits of Disturbance – Putnam Park Extension Project Component,** shows the limits of ground disturbance associated with the Putnam Park Extension Project component. Dozers and excavators may be used for initial grading and excavation. Construction equipment such as skid steers, dozers and bob cats would be used to move soil and earth materials that may be generated during trail construction; it is anticipated that cut and fill would be balanced, totaling approximately 3,400 cubic yards of cut and 3,400 cubic yards of

fill, and off-haul of materials would not be required. The entire trail would be paved with decomposed granite or asphalt. Where the trail approaches Helen Putnam Regional Park at the west property boundary, the width would be reduced to 4-feet wide due to topographic constraints. Any ~~The~~ trail south of Kelly Creek would be 4-feet wide. In addition, the trail to the south of Kelly Creek may not be excavated/cut in, but rather built up on a gravel lens that allows the migration of storm water underneath and perches the trail (by approximately 18") so it stays dry in the winter. Exposed soil in all trail construction areas would be seeded with native grasses suitable for the site.

Where the trails cross drainages, footbridges or puncheons would be installed. Rolling dips, switchbacks, and other hydrologic control measures may be incorporated in order to limit concentration of flow on long sections of the trail. In addition, appropriate erosion control and runoff protection measures would be incorporated at and near streams and crossings to provide additional protection. There would be a designated cattle crossing located across Kelly Creek, that crosses both the north and south trails.

Landscaping for the trail would be primarily composed of the riparian enhancement/restoration plantings, as the creek is adjacent to the majority of the trail. The trail would be set a minimum of 10-feet from the top of the creek bank.

Parking lots

As noted above, grading for the parking lots would occur as part of the grading for the residential component. Construction of the park extension component would include paving and striping the parking lots, as well as the installation of four electrical vehicle charging stations (2 in each parking lot).

Construction Schedule

~~The timing and implementation of the Putnam Park Extension Project component would depend on the availability of funds and priorities of Sonoma County Regional Parks after the transfer of title to Regional Parks.~~ The various elements of the Putnam Park Extension Project component would be implemented in three phases: Phase 1 would last approximately three to four months and would include grading the upper parking lot and completing the construction of the lower parking lot, associated infiltration basin, ~~two~~ pedestrian bridge, temporary restroom, ~~associated infiltration basin~~ and the north segment of the loop trail with connection to Helen Putnam Regional Park and the barn center. Phase 1 would also include restoration and enhancement of the stock pond, eroded gullies, and riparian corridor along Kelly Creek. Phase 2 would last approximately six to nine months and would include construction of the upper parking lot off Windsor Drive, permanent restroom, playground,

group picnic area, trail along D Street and Windsor Drive to the barn center, internal bracing of the barns, ~~ephemeral drainages restoration~~, a second bridge, pasture improvements, planting, and irrigation. Phase 3 would last approximately three to four months and would include completion of the loop trail, installation of the third footbridge, and barn restoration. Should funding allow, the proposed park extension component would be.