
APPENDIX D10

Preliminary Water Quality Management Plan

Preliminary

Water Quality Management Plan

For:

Kaiser Permanente Redlands

DEVELOPMENT PLAN SUBMITTAL
July 24, 2024

Prepared for:

Kaiser Permanente

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Prepared by:

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Revision Date: _____

Approval Date: _____

Project Owner's Certification

This Water Quality Management Plan (WQMP) has been prepared for Kaiser Permanente by Michael Baker International. The WQMP is intended to comply with the requirements of the City of Redlands, County of San Bernardino County, and the NPDES Areawide Stormwater Program requiring the preparation of a WQMP. The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with San Bernardino County's Municipal Storm Water Management Program and the intent of the NPDES Permit for San Bernardino County and the incorporated cities of San Bernardino County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors in interest and the city/county shall be notified of the transfer. The new owner will be informed of its responsibility under this WQMP. A copy of the approved WQMP shall be available on the subject site in perpetuity.

"I certify under a penalty of law that the provisions (implementation, operation, maintenance, and funding) of the WQMP have been accepted and that the plan will be transferred to future successors."

Project Data			
Permit/Application Number(s):	TBD	Grading Permit Number(s):	TBD
Tract/Parcel Map Number(s):	Parcel Map No. 15911	Building Permit Number(s):	TBD
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			APN: 0167-441-07-0-000
Owner's Signature			
Owner Name: Skyler Denniston			
Title	Contact Person		
Company	Kaiser Permanente		
Address	393 E. Walnut Street 4 th Floor		
Email			
Telephone #	626-405-6333		
Signature		Date	

Preparer's Certification

Project Data			
Permit/Application Number(s):	TBD	Grading Permit Number(s):	TBD
Tract/Parcel Map Number(s):	Parcel Map No. 15911	Building Permit Number(s):	TBD
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			APN: 0167-441-07-0-000

“The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan were prepared under my oversight and meet the requirements of Regional Water Quality Control Board Order No. R8-2010-0036.”

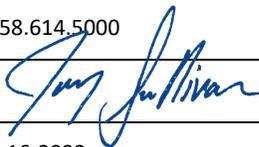
Engineer: Jay Sullivan, PE, CFM, QSD		PE Stamp Below
Title	Technical Manager	
Company	Michael Baker International	
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Signature		
Date	9-16-2022	

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Section 1 Discretionary Permit(s)

Form 1-1 Project Information					
Project Name		Redlands Medical Center			
Project Owner Contact Name:		Skyler Denniston			
Mailing Address:	393 E. Walnut Street, Pasadena, CA 91188	E-mail Address:		Telephone:	626.405.6333
Permit/Application Number(s):	TBD	Tract/Parcel Map Number(s):	Parcel Map No. 15911		
Additional Information/Comments:	Prepared for Entitlements Sept. 2022				
Description of Project:	<p>New medical facilities and associated parking and landscape at an existing Kaiser Permanente site. The total study area is approximately 36.5 acres, total disturbed area is 29.5 acres. Under existing conditions, approximately 7.0 acres are developed consisting of Kaiser medical facilities including a building, parking lot, landscape, and storm water BMPs. These structures and parking will remain, the existing BMPs will be re-designed to mitigate each of the four (4) phases of work. The remaining 29.5 acres are un-developed and consist of scattered brush. Runoff from a majority of the site is conveyed northwesterly to an existing triangular-shaped detention basin (176,494 SF bottom area and approximately eight (8) feet deep). This existing detention basin includes a riser that drains to the public storm drain located in Almond Avenue. The property splits this basin nearly in half, with approximately half the bottom area located on-site and half off-site.</p>				
Provide summary of Conceptual WQMP conditions (if previously submitted and approved). Attach complete copy.	Not Applicable				

Section 2 Project Description

2.1 Project Information

This section of the WQMP should provide the information listed below. The information provided for Conceptual/ Preliminary WQMP should give sufficient detail to identify the major proposed site design and LID BMPs and other anticipated water quality features that impact site planning. Final Project WQMP must specifically identify all BMP incorporated into the final site design and provide other detailed information as described herein.

The purpose of this information is to help determine the applicable development category, pollutants of concern, watershed description, and long term maintenance responsibilities for the project, and any applicable water quality credits. This information will be used in conjunction with the information in Section 3, Site Description, to establish the performance criteria and to select the LID BMP or other BMP for the project or other alternative programs that the project will participate in, which are described in Section 4.

Form 2.1-1 Description of Proposed Project				
1 Development Category (Select all that apply):				
<input checked="" type="checkbox"/> Significant re-development involving the addition or replacement of 5,000 ft ² or more of impervious surface on an already developed site	<input type="checkbox"/> New development involving the creation of 10,000 ft ² or more of impervious surface collectively over entire site	<input type="checkbox"/> Automotive repair shops with standard industrial classification (SIC) codes 5013, 5014, 5541, 7532- 7534, 7536-7539	<input type="checkbox"/> Restaurants (with SIC code 5812) where the land area of development is 5,000 ft ² or more	
<input type="checkbox"/> Hillside developments of 5,000 ft ² or more which are located on areas with known erosive soil conditions or where the natural slope is 25 percent or more	<input type="checkbox"/> Developments of 2,500 ft ² of impervious surface or more adjacent to (within 200 ft) or discharging directly into environmentally sensitive areas or waterbodies listed on the CWA Section 303(d) list of impaired waters.	<input checked="" type="checkbox"/> Parking lots of 5,000 ft ² or more exposed to storm water	<input type="checkbox"/> Retail gasoline outlets that are either 5,000 ft ² or more, or have a projected average daily traffic of 100 or more vehicles per day	
<input type="checkbox"/> Non-Priority / Non-Category Project <i>May require source control LID BMPs and other LIP requirements. Please consult with local jurisdiction on specific requirements.</i>				
2 Project Area (ft ²):	29.5	3 Number of Dwelling Units:	0	4 SIC Code: n/a
5 Is Project going to be phased? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, ensure that the WQMP evaluates each phase as a distinct DA, requiring LID BMPs to address runoff at time of completion.</i>				
There are four (4) proposed Phases of construction; however, Phase 2 includes ultimate-condition BMP's thus two (2) Phases are described herein with the understanding that Phase 2 BMPs are sized for Phase 3 and 4 conditions.				
6 Does Project include roads? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, ensure that applicable requirements for transportation projects are addressed (see Appendix A of TGD for WQMP)</i>				

2.2 Property Ownership/Management

Describe the ownership/management of all portions of the project and site. State whether any infrastructure will transfer to public agencies (City, County, Caltrans, etc.) after project completion. State if a homeowners or property owners association will be formed and be responsible for the long-term maintenance of project stormwater facilities. Describe any lot-level stormwater features that will be the responsibility of individual property owners.

Form 2.2-1 Property Ownership/Management

Describe property ownership/management responsible for long-term maintenance of WQMP stormwater facilities:

Maintenance of the WQMP facilities will be the sole responsibility of the property owner. The owner may choose to contract out the maintenance of the storm water facilities to a qualified contractor.

2.3 Potential Stormwater Pollutants

Determine and describe expected stormwater pollutants of concern based on land uses and site activities (refer to Table 3-3 in the TGD for WQMP).

Form 2.3-1 Pollutants of Concern			
Pollutant	Please check: E=Expected, N=Not Expected		Additional Information and Comments
Pathogens (Bacterial / Virus)	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Per Table 3-3 of TGM for WQMP
Nutrients - Phosphorous	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Per Table 3-3 of TGM for WQMP
Nutrients - Nitrogen	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Per Table 3-3 of TGM for WQMP
Noxious Aquatic Plants	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Per Table 3-3 of TGM for WQMP
Sediment	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Per Table 3-3 of TGM for WQMP
Metals	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Per Table 3-3 of TGM for WQMP
Oil and Grease	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Per Table 3-3 of TGM for WQMP
Trash/Debris	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Per Table 3-3 of TGM for WQMP
Pesticides / Herbicides	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Per Table 3-3 of TGM for WQMP
Organic Compounds	E <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Per Table 3-3 of TGM for WQMP
Other:	E <input type="checkbox"/>	N <input type="checkbox"/>	
Other:	E <input type="checkbox"/>	N <input type="checkbox"/>	
Other:	E <input type="checkbox"/>	N <input type="checkbox"/>	
Other:	E <input type="checkbox"/>	N <input type="checkbox"/>	
Other:	E <input type="checkbox"/>	N <input type="checkbox"/>	

2.4 Water Quality Credits

A water quality credit program is applicable for certain types of development projects if it is not feasible to meet the requirements for on-site LID. Proponents for eligible projects, as described below, can apply for water quality credits that would reduce project obligations for selecting and sizing other treatment BMP or participating in other alternative compliance programs. Refer to Section 6.2 in the TGD for WQMP to determine if water quality credits are applicable for the project.

Form 2.4-1 Water Quality Credits			
1 Project Types that Qualify for Water Quality Credits: <i>Select all that apply N/A</i>			
<input type="checkbox"/> Redevelopment projects that reduce the overall impervious footprint of the project site. [Credit = % impervious reduced]	Higher density development projects <input type="checkbox"/> Vertical density [20%] <input type="checkbox"/> 7 units/ acre [5%]	<input type="checkbox"/> Mixed use development, (combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that demonstrate environmental benefits not realized through single use projects) [20%]	<input type="checkbox"/> Brownfield redevelopment (redevelop real property complicated by presence or potential of hazardous contaminants) [25%]
<input type="checkbox"/> Redevelopment projects in established historic district, historic preservation area, or similar significant core city center areas [10%]	<input type="checkbox"/> Transit-oriented developments (mixed use residential or commercial area designed to maximize access to public transportation) [20%]	<input type="checkbox"/> In-fill projects (conversion of empty lots & other underused spaces < 5 acres, substantially surrounded by urban land uses, into more beneficially used spaces, such as residential or commercial areas) [10%]	<input type="checkbox"/> Live-Work developments (variety of developments designed to support residential and vocational needs) [20%]
2 Total Credit % <i>(Total all credit percentages up to a maximum allowable credit of 50 percent)</i>			
Description of Water Quality Credit Eligibility (if applicable)	Not Applicable		

Section 3 Site and Watershed Description

Describe the project site conditions that will facilitate the selection of BMP through an analysis of the physical conditions and limitations of the site and its receiving waters. Identify distinct drainage areas (DA) that collect flow from a portion of the site and describe how runoff from each DA (and sub-watershed DMAs) is conveyed to the site outlet(s). Refer to Section 3.2 in the TGD for WQMP. The form below is provided as an example. Then complete Forms 3.2 and 3.3 for each DA on the project site. ***If the project has more than one drainage area for stormwater management, then complete additional versions of these forms for each DA / outlet.***

Form 3-1 Site Location and Hydrologic Features			
Site coordinates take GPS measurement at approximate center of site	Latitude 34°04'19"	Longitude 117°13'43"	Thomas Bros Map page
<p>¹ San Bernardino County climatic region: <input checked="" type="checkbox"/> Valley <input type="checkbox"/> Mountain</p>			
<p>² Does the site have more than one drainage area (DA): Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If no, proceed to Form 3-2. If yes, then use this form to show a conceptual schematic describing DMAs and hydrologic feature connecting DMAs to the site outlet(s). An example is provided below that can be modified for proposed project or a drawing clearly showing DMA and flow routing may be attached</i></p>			
<pre> graph RL subgraph DA1 [DA-1] subgraph DMA_A1 [DMA A1] BMP1_A [BMP1-A] end subgraph DMA_B [DMA B] BMP1_B [BMP1-B] end subgraph DMA_E [DMA E] BMP1_E [BMP1-E] end end subgraph DA2 [DA-2] subgraph DMA_A2 [DMA A2] BMP1_A2 [BMP1-A2] end end BMP1_A --> DA1 BMP1_B --> DA1 BMP1_E --> DA1 BMP1_A2 --> DA2 DA1 --> Outlet1 [Outlet 1] DA2 --> Outlet2 [Outlet 2] </pre>			

Preliminary Water Quality Management Plan (WQMP)

<u>Phase 1</u>	
DA-1 DMA-A1 flows to BMP 1-A1	Runoff from DMA-A1 is captured by existing and proposed inlets and conveyed via new on-site storm drains to a new Bioretention Basin (BMP 1-A). Mitigated runoff is discharged at-grade to the existing large triangular basin located in the NW corner of the site, and then into the public storm drain within Almond Avenue (northerly project boundary). This BMP is replaced with underground infiltration in Phase 2.
DA-1 DMA-B flows to BMP 1-B	Runoff from DMA-B is captured by proposed inlets and conveyed via new on-site storm drains to a new Bioretention Basin (BMP 1-B). Mitigated runoff is discharged at-grade to the exiting large triangular basin located in the NW corner of the site and then into the public storm drain within Almond Avenue (northerly project boundary). This BMP remains through Phase 2 and the Ultimate condition.
DA-1 DMA-C	No existing or proposed impervious area. Runoff drains to the existing large triangular basin located in the NW corner of the site and then into the public storm drain within Almond Avenue (northerly project boundary).
DA-1 DMA-D	No existing or proposed impervious area. Runoff drains to Almond Avenue (northerly project boundary).
DA-1 DMA-E flows to BMP 1-E	Runoff from DMA-D is captured by existing and proposed inlets and conveyed via new on-site storm drains to a new Bioretention Basin (BMP 1-D). Mitigated runoff is discharged at-grade to the existing large triangular basin located in the NW corner and then into the public storm drain within Almond Avenue (northerly project boundary). This BMP is replaced with underground infiltration in Phase 2.
DA-2 DMA-A2 flows to BMP 2-A2	Runoff from DMA-A2 is captured by proposed inlets and conveyed via new on-site storm drains to a new Bioretention Basin (BMP 2-D). Mitigated runoff is discharged via a newly proposed connection to the existing storm drain within Lugonia Avenue (southerly project boundary). This BMP remains through Phase 2 and the Ultimate condition.
<u>Phase 2 (represents Ultimate Condition)</u>	
DA-1 DMA-A1 flows to BMP 1-A1	Runoff from DMA-A1 is captured by existing and proposed inlets and conveyed via new on-site storm drains to a new underground infiltration BMP (BMP 1-A). Mitigated runoff is discharged at-grade to the existing large triangular basin located in the NW corner of the site, and then into the public storm drain within Almond Avenue (northerly project boundary).
DA-1 DMA-B flows to BMP 1-B	Runoff from DMA-B is captured by proposed inlets and conveyed via new on-site storm drains to a new Bioretention Basin (BMP 1-B). Mitigated runoff is discharged at-grade to the exiting large triangular basin located in the NW corner of the site and then into the public storm drain within Almond Avenue (northerly project boundary).
DA-1 DMA-C flows to BMP 1-C	Runoff from DMA-B is captured by existing and proposed inlets and conveyed via new on-site storm drains to a new Bioretention Basin (BMP 1-C). Mitigated runoff is discharged at-grade to the existing large triangular basin located in the NW corner and then into the public storm drain within Almond Avenue (northerly project boundary).
DA-2 DMA-A2 flows to BMP 2-A2	Runoff from DMA-A2 is captured by proposed inlets and conveyed via new on-site storm drains to a new Bioretention Basin (BMP 2-D). Mitigated runoff is discharged via a newly proposed connection to the existing storm drain within Lugonia Avenue (southerly project boundary).

Form 3-2 Existing Hydrologic Characteristics for Drainage Area 1				
For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA A1	DMA B	DMA C	n/a
1 DMA drainage area (ft ²)	469,141	781,030	83,200	
2 Existing site impervious area (ft ²)	398,770	0	0	
3 Antecedent moisture condition <i>For desert areas, use http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf</i>	II	II	II	
4 Hydrologic soil group <i>Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/</i>	A	A	A	
5 Longest flowpath length (ft)	1,133	720	865	
6 Longest flowpath slope (ft/ft)	0.014	0.009	0.017	
7 Current land cover type(s) <i>Select from Fig C-3 of Hydrology Manual</i>	Commercial	Open Brush	Open Brush	
8 Pre-developed pervious area condition: <i>Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating</i>	Good	Poor	Poor	

Form 3-2 Existing Hydrologic Characteristics for Drainage Area 2				
For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA A2	n/a	n/a	n/a
1 DMA drainage area (ft ²)	258,311			
2 Existing site impervious area (ft ²)	0			
3 Antecedent moisture condition <i>For desert areas, use http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf</i>	II			
4 Hydrologic soil group <i>Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/</i>	A			
5 Longest flowpath length (ft)	766			
6 Longest flowpath slope (ft/ft)	0.009			
7 Current land cover type(s) <i>Select from Fig C-3 of Hydrology Manual</i>	Open Brush			
8 Pre-developed pervious area condition: <i>Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating</i>	Poor			

Form 3-3 Watershed Description for Drainage Area	
Receiving waters Refer to Watershed Mapping Tool - http://permitrack.sbcounty.gov/wap/ See "Drainage Facilities" link at this website	Santa Ana River, Reach 5
Applicable TMDLs Refer to Local Implementation Plan	Indicator Bacteria TMDL (USEPA) for Santa Ana River, Reach 3
303(d) listed impairments Refer to Local Implementation Plan and Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/ and State Water Resources Control Board website – http://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/index.shtml	Santa Ana River Reach 4 is 303(d) listed for pathogens Santa Ana River Reach 3 is 303(d) listed for copper, lead, and pathogens Santa Ana River Reach 2 is 303(d) listed for indicator bacteria
Environmentally Sensitive Areas (ESA) Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/	N/A
Unlined Downstream Water Bodies Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/	N/A
Hydrologic Conditions of Concern	<input checked="" type="checkbox"/> Yes Complete Hydrologic Conditions of Concern (HCO) Assessment. Include Forms 4.2-2 through Form 4.2-5 and Hydromodification BMP Form 4.3-10 in submittal <input type="checkbox"/> No
Watershed-based BMP included in a RWQCB approved WAP	<input type="checkbox"/> Yes Attach verification of regional BMP evaluation criteria in WAP <ul style="list-style-type: none"> • More Effective than On-site LID • Remaining Capacity for Project DCV • Upstream of any Water of the US • Operational at Project Completion • Long-Term Maintenance Plan <input checked="" type="checkbox"/> No

Section 4 Best Management Practices (BMP)

4.1 Source Control BMP

4.1.1 Pollution Prevention

Non-structural and structural source control BMP are required to be incorporated into all new development and significant redevelopment projects. Form 4.1-1 and 4.1-2 are used to describe specific source control BMPs used in the WQMP or to explain why a certain BMP is not applicable. Table 7-3 of the TGD for WQMP provides a list of applicable source control BMP for projects with specific types of potential pollutant sources or activities. The source control BMP in this table must be implemented for projects with these specific types of potential pollutant sources or activities.

The preparers of this WQMP have reviewed the source control BMP requirements for new development and significant redevelopment projects. The preparers have also reviewed the specific BMP required for project as specified in Forms 4.1-1 and 4.1-2. All applicable non-structural and structural source control BMP shall be implemented in the project.

Form 4.1-1 Non-Structural Source Control BMPs				
Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N1	Education of Property Owners, Tenants and Occupants on Stormwater BMPs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Prior to occupancy, contractor will provide educational materials to the owner.
N2	Activity Restrictions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Activity restrictions to minimize potential impacts to water quality will be prescribed by the Covenant, Conditions and Restrictions (CC&R's) or a similar effective measure. Activities that violate the ordinances in Chapter 13.54 of the City of Redlands Municipal Code will be restricted.
N3	Landscape Management BMPs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Maintenance activities for landscaped areas shall be consistent with City, County, and manufacturer guidelines for fertilizer and pesticide use.
N4	BMP Maintenance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Regular inspections and removal of debris, sediment buildup, and overgrown vegetation within the bioretention basins will be performed by on-site maintenance crews (Phase 1 and Ultimate-Condition basins). Regular inspection of the (Phase 2/Ultimate Condition) underground infiltration shall be performed in accordance with manufacturers' guidelines and may include the need for vacuum-trucks over time to maintain infiltration rates.
N5	Title 22 CCR Compliance (How development will comply)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Generated waste subject to Title 22 CCR is not anticipated.
N6	Local Water Quality Ordinances	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N7	Spill Contingency Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A spill contingency plan will be put into effect during construction. A post-construction spill plan will be developed consistent with Kaiser Permanente medical facilities and stored on-site.
N8	Underground Storage Tank Compliance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	There is no underground storage associated with Phase 1. The Phase 2 BMP improvements reflect Ultimate conditions and include underground infiltration that will

Form 4.1-1 Non-Structural Source Control BMPs				
				be designed in accordance with State regulations as enforced but the County Environmental Health Services on behalf of the State.
N9	Hazardous Materials Disclosure Compliance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not anticipated.

Form 4.1-1 Non-Structural Source Control BMPs				
Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N10	Uniform Fire Code Implementation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The proposed project will comply with Article 80 of the Uniform Fire Code
N11	Litter/Debris Control Program	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Trash management and litter control procedures will be implemented on-site. Maintenance areas include all common areas, landscape, and BMPs.
N12	Employee Training	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Maintenance crews will be trained on the proper use and staging of landscaping, BMPs, and other potential areas that might impact storm water runoff.
N13	Housekeeping of Loading Docks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The proposed loading dock (Phase 2 development) will be kept clean. Storm water runoff will be directed to on-site BMPs. Wash water will either be directed to the sanitary sewer with City approval or not allowed to discharge from the site.
N14	Catch Basin Inspection Program	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The owner shall have at least 80% of drainage facilities inspected, cleaned, and maintained, annually. 100% of the facilities shall be included in a 2-year period.
N15	Vacuum Sweeping of Private Streets and Parking Lots	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Parking and dock areas shall be swept regularly using a vacuum assisted sweeper. Frequency will depend on waste accumulations with a minimum of once annually prior to the start of the rainy season.
N16	Other Non-structural Measures for Public Agency Projects	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The development is not part of a Public Agency Project.
N17	Comply with all other applicable NPDES permits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project will comply with local, state, and federal requirements for storm water discharge during construction and post-construction. A SWPPP will be completed and processed through the State's SMARTS system.

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Form 4.1-2 Structural Source Control BMPs				
Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S1	Provide storm drain system stenciling and signage (CASQA New Development BMP Handbook SD-13)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	All storm drain inlets will include stenciling illustrating an anti-dumping message.
S2	Design and construct outdoor material storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-34)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	This project does not include the storage of materials outdoors.
S3	Design and construct trash and waste storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-32)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	The project will incorporate lined dumpsters to reduce leaking of liquid waste. Trash storage areas shall be located away from storm drain inlets.
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control (Statewide Model Landscape Ordinance; CASQA New Development BMP Handbook SD-12)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Irrigation systems will be designed to each landscaped area's specific water need. Irrigation controls shall include rain-triggered shutoff devices to prevent irrigation after precipitation.
S5	Finish grade of landscaped areas at a minimum of 1-2 inches below top of curb, sidewalk, or pavement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Landscaped areas will be 1-2 inches below top of curb or walk.
S6	Protect slopes and channels and provide energy dissipation (CASQA New Development BMP Handbook SD-10)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	All slopes will be vegetated to provide erosion protection and sediment transport. Riprap will be installed at all concentrated flow discharges.
S7	Covered dock areas (CASQA New Development BMP Handbook SD-31)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Covered dock areas are not proposed as part of this development.
S8	Covered maintenance bays with spill containment plans (CASQA New Development BMP Handbook SD-31)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Maintenance bays are not proposed as part of this development.
S9	Vehicle wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Vehicle wash areas are not proposed as part of this development.
S10	Covered outdoor processing areas (CASQA New Development BMP Handbook SD-36)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Outdoor processing areas is not associated with the proposed development.

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S11	Equipment wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Outdoor equipment is not associated with the proposed development.
S12	Fueling areas (CASQA New Development BMP Handbook SD-30)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Fueling areas are not included as part of this development.
S13	Hillside landscaping (CASQA New Development BMP Handbook SD-10)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hillside landscaping will be deep-rooted, drought tolerant plant species selected for erosion control.
S14	Wash water control for food preparation areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The proposed development does not include food preparation areas.
S15	Community car wash racks (CASQA New Development BMP Handbook SD-33)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The proposed development does not include community car wash areas.

4.1.2 Preventative LID Site Design Practices

Site design practices associated with new LID requirements in the MS4 Permit should be considered in the earliest phases of a project. Preventative site design practices can result in smaller DCV for LID BMP and hydromodification control BMP by reducing runoff generation. Describe site design and drainage plan including:

- A narrative of site design practices utilized or rationale for not using practices
- A narrative of how site plan incorporates preventive site design practices
- Include an attached Site Plan layout which shows how preventative site design practices are included in WQMP

Refer to Section 5.2 of the TGD for WQMP for more details.

Form 4.1-3 Preventative LID Site Design Practices Checklist
<p>Site Design Practices <i>If yes, explain how preventative site design practice is addressed in project site plan. If no, other LID BMPs must be selected to meet targets</i></p>
<p>Minimize impervious areas: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explanation: Bioretention basins are proposed throughout the site as opposed to only using underground storage with paved surfaces above.</p>
<p>Maximize natural infiltration capacity: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explanation: BMPs have been designed to retain the full DCV for each Phase of development. BMPs implemented during Phase 2 have been designed for the Ultimate Condition (Phase 4).</p>
<p>Preserve existing drainage patterns and time of concentration: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explanation: Project runoff will continue to drain to the existing storm drain systems within Almond Avenue (north of the site) and Lugonia Avenue (south of the site).</p>
<p>Disconnect impervious areas: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explanation: All runoff will drain to pervious are (either bioretention basins or underground infiltration) prior to discharge from the site.</p>
<p>Protect existing vegetation and sensitive areas: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explanation: Phase 1 will protect the existing triangular detention basin located in the NW corner of the site.</p>
<p>Re-vegetate disturbed areas: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explanation: Each Phase of work will ensure non-paved areas have re-established vegetation or stabilized ground cover.</p>
<p>Minimize unnecessary compaction in stormwater retention/infiltration basin/trench areas: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explanation: Compaction will be limited with the proposed BMP areas to the maximum extent. Drywells will be considered during Final Engineering to supplement infiltration within the proposed BMPs.</p>
<p>Utilize vegetated drainage swales in place of underground piping or imperviously lined swales: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explanation: Swales have been used to the maximum extent practicable for each of the four (4) phases.</p>
<p>Stake off areas that will be used for landscaping to minimize compaction during construction : Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explanation: Areas will be staked off to the maximum extent practicable for each of the four (4) phases.</p>

4.2 Project Performance Criteria

The purpose of this section of the Project WQMP is to establish targets for post-development hydrology based on performance criteria specified in the MS4 Permit. These targets include runoff volume for water quality control (referred to as LID design capture volume), and runoff volume, time of concentration, and peak runoff for protection of any downstream waterbody segments with a HCOC. ***If the project has more than one outlet for stormwater runoff, then complete additional versions of these forms for each DA / outlet.***

Methods applied in the following forms include:

- For LID BMP Design Capture Volume (DCV), the San Bernardino County Stormwater Program requires use of the P₆ method (MS4 Permit Section XI.D.6a.ii) – Form 4.2-1
- For HCOC pre- and post-development hydrologic calculation, the San Bernardino County Stormwater Program requires the use of the Rational Method (San Bernardino County Hydrology Manual Section D). Forms 4.2-2 through Form 4.2-5 calculate hydrologic variables including runoff volume, time of concentration, and peak runoff from the project site pre- and post-development using the Hydrology Manual Rational Method approach. For projects greater than 640 acres (1.0 mi²), the Rational Method and these forms should not be used. For such projects, the Unit Hydrograph Method (San Bernardino County Hydrology Manual Section E) shall be applied for hydrologic calculations for HCOC performance criteria.

Refer to Section 4 in the TGD for WQMP for detailed guidance and instructions.

The proposed BMPs will retain the DCV during each phase of construction.

Under Phase 1 Conditions, bioretention without underdrain basins BMP 1-A, 1-B, 1-E, and 2-D have been designed to retain the full DCV.

Phase 2 Conditions represent the Ultimate Condition from a BMP perspective. The full DCV is retained during Phase 2 Conditions via BMPs 1-B and 2-D constructed as part of Phase 1, a new bioretention without underdrain BMP 1-C constructed as part of Phase 2; and a new underground infiltration BMP 1-A₂ constructed as part of Phase 2.

A drainage study has been prepared under separate cover. The San Bernardino module within Advanced Engineering Software (AES 2016) has been used to determine peak flow under existing and proposed conditions using the 2-year, 1-hour point rainfall obtained from NOAA Atlas 14.

Form 4.2-1a LID BMP Performance Criteria for Design Capture Volume (DA 1 Phase 1)		
1 Project area DA 1 (ft ²): 1,353,410	2 Imperviousness after applying preventative site design practices (Imp%): 67	3 Runoff Coefficient (Rc): 0.50 <i>R_c = 0.858(Imp%)³-0.78(Imp%)²+0.774(Imp%)+0.04</i>
4 Determine 1-hour rainfall depth for a 2-year return period P _{2yr-1hr} (in): 0.48 http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html		
5 Compute P ₆ , Mean 6-hr Precipitation (inches): 0.71 <i>P₆ = Item 4 * C₁, where C₁ is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)</i>		
6 Drawdown Rate <i>Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.</i>		24-hrs <input type="checkbox"/> 48-hrs <input checked="" type="checkbox"/>
7 Compute design capture volume, DCV (ft ³): 79,041 <i>DCV = 1/12 * [Item 1 * Item 3 * Item 5 * C₂], where C₂ is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963)</i> <i>Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2</i>		

Form 4.2-1b LID BMP Performance Criteria for Design Capture Volume (DA 2 Phase 1)		
1 Project area DA 1 (ft ²): 117,176	2 Imperviousness after applying preventative site design practices (Imp%): 85	3 Runoff Coefficient (Rc): 0.66 <i>R_c = 0.858(Imp%)³-0.78(Imp%)²+0.774(Imp%)+0.04</i>
4 Determine 1-hour rainfall depth for a 2-year return period P _{2yr-1hr} (in): 0.48 http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html		
5 Compute P ₆ , Mean 6-hr Precipitation (inches): 0.71 <i>P₆ = Item 4 * C₁, where C₁ is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)</i>		
6 Drawdown Rate <i>Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.</i>		24-hrs <input type="checkbox"/> 48-hrs <input checked="" type="checkbox"/>
7 Compute design capture volume, DCV (ft ³): 8,990 <i>DCV = 1/12 * [Item 1 * Item 3 * Item 5 * C₂], where C₂ is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963)</i> <i>Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2</i>		

Form 4.2-1c LID BMP Performance Criteria for Design Capture Volume (DA 1 Phase 2/Ultimate)		
1 Project area DA 1 (ft ²): 1,584,894	2 Imperviousness after applying preventative site design practices (Imp%): 85	3 Runoff Coefficient (Rc): 0.66 $R_c = 0.858(\text{Imp}\%)^3 - 0.78(\text{Imp}\%)^2 + 0.774(\text{Imp}\%) + 0.04$
4 Determine 1-hour rainfall depth for a 2-year return period $P_{2\text{yr-1hr}}$ (in): 0.48 http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html		
5 Compute P_6 , Mean 6-hr Precipitation (inches): 0.71 $P_6 = \text{Item 4} * C_1$, where C_1 is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)		
6 Drawdown Rate <i>Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.</i>		24-hrs <input type="checkbox"/> 48-hrs <input checked="" type="checkbox"/>
7 Compute design capture volume, DCV (ft ³): 109,935 $DCV = 1/12 * [\text{Item 1} * \text{Item 3} * \text{Item 5} * C_2]$, where C_2 is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963) <i>Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2</i>		

Form 4.2-1d LID BMP Performance Criteria for Design Capture Volume (DA 2 Phase 2/Ultimate)		
1 Project area DA 1 (ft ²): 152,000	2 Imperviousness after applying preventative site design practices (Imp%): 85	3 Runoff Coefficient (Rc): 0.66 $R_c = 0.858(\text{Imp}\%)^3 - 0.78(\text{Imp}\%)^2 + 0.774(\text{Imp}\%) + 0.04$
4 Determine 1-hour rainfall depth for a 2-year return period $P_{2\text{yr-1hr}}$ (in): 0.48 http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html		
5 Compute P_6 , Mean 6-hr Precipitation (inches): 0.71 $P_6 = \text{Item 4} * C_1$, where C_1 is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)		
6 Drawdown Rate <i>Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.</i>		24-hrs <input type="checkbox"/> 48-hrs <input checked="" type="checkbox"/>
7 Compute design capture volume, DCV (ft ³): 11,662 $DCV = 1/12 * [\text{Item 1} * \text{Item 3} * \text{Item 5} * C_2]$, where C_2 is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963) <i>Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2</i>		

Form 4.2-2a Summary of HCOC Assessment (DA 1 Phase 1)

Does project have the potential to cause or contribute to an HCOC in a downstream channel: Yes No

Go to: <http://permittrack.sbcounty.gov/wap/>

If "Yes", then complete HCOC assessment of site hydrology for 2yr storm event using Forms 4.2-3 through 4.2-5 and insert results below
(Forms 4.2-3 through 4.2-5 may be replaced by computer software analysis based on the San Bernardino County Hydrology Manual)

If "No," then proceed to Section 4.3 Project Conformance Analysis

Condition	Runoff Volume (ft ³)	Time of Concentration (min)	Peak Runoff (cfs)
Pre-developed	¹ 1,198 <i>Form 4.2-3 Item 12</i>	² 17.8 <i>Form 4.2-4 Item 13</i>	³ 12.8 <i>Form 4.2-5 Item 10</i>
Post-developed	⁴ 50,551 <i>Form 4.2-3 Item 13</i>	⁵ 15.9 (un-mitigated) <i>Form 4.2-4 Item 14</i>	⁶ 24.3 (un-mitigated) <i>Form 4.2-5 Item 14</i>
Difference	⁷ 49,376 <i>Item 4 – Item 1</i>	⁸ 1.9 <i>Item 2 – Item 5</i>	⁹ 11.5 <i>Item 6 – Item 3</i>
Difference (as % of pre-developed)	¹⁰ 4,122% <i>Item 7 / Item 1</i>	¹¹ 11.9% <i>Item 8 / Item 2</i>	¹² 89.8% <i>Item 9 / Item 3</i>

Form 4.2-2b Summary of HCOC Assessment (DA 2 Phase 1)

Does project have the potential to cause or contribute to an HCOC in a downstream channel: Yes No

Go to: <http://permittrack.sbcounty.gov/wap/>

If "Yes", then complete HCOC assessment of site hydrology for 2yr storm event using Forms 4.2-3 through 4.2-5 and insert results below
(Forms 4.2-3 through 4.2-5 may be replaced by computer software analysis based on the San Bernardino County Hydrology Manual)

If "No," then proceed to Section 4.3 Project Conformance Analysis

Condition	Runoff Volume (ft ³)	Time of Concentration (min)	Peak Runoff (cfs)
Pre-developed	¹ 469 <i>Form 4.2-3 Item 12</i>	² 19.1 <i>Form 4.2-4 Item 13</i>	³ 1.5 <i>Form 4.2-5 Item 10</i>
Post-developed	⁴ 10,040 <i>Form 4.2-3 Item 13</i>	⁵ 7.4 (un-mitigated) <i>Form 4.2-4 Item 14</i>	⁶ 4.4 (un-mitigated) <i>Form 4.2-5 Item 14</i>
Difference	⁷ 9,571 <i>Item 4 – Item 1</i>	⁸ 12.3 <i>Item 2 – Item 5</i>	⁹ 2.9 <i>Item 6 – Item 3</i>
Difference (as % of pre-developed)	¹⁰ 2,041% <i>Item 7 / Item 1</i>	¹¹ 64.4% <i>Item 8 / Item 2</i>	¹² 193.3% <i>Item 9 / Item 3</i>

Form 4.2-2c Summary of HCOC Assessment (DA 1 Phase 2/Ultimate)

Does project have the potential to cause or contribute to an HCOC in a downstream channel: Yes No

Go to: <http://permittrack.sbcounty.gov/wap/>

If "Yes", then complete HCOC assessment of site hydrology for 2yr storm event using Forms 4.2-3 through 4.2-5 and insert results below
(Forms 4.2-3 through 4.2-5 may be replaced by computer software analysis based on the San Bernardino County Hydrology Manual)

If "No," then proceed to Section 4.3 Project Conformance Analysis

Condition	Runoff Volume (ft ³)	Time of Concentration (min)	Peak Runoff (cfs)
Pre-developed	¹ 4,567 <i>Form 4.2-3 Item 12</i>	² 17.8 <i>Form 4.2-4 Item 13</i>	³ 12.8 <i>Form 4.2-5 Item 10</i>
Post-developed	⁴ 122,776 <i>Form 4.2-3 Item 13</i>	⁵ 11.9 (un-mitigated) <i>Form 4.2-4 Item 14</i>	⁶ 28.4 (un-mitigated) <i>Form 4.2-5 Item 14</i>
Difference	⁷ 118,209 <i>Item 4 – Item 1</i>	⁸ 5.9 <i>Item 2 – Item 5</i>	⁹ 15.6 <i>Item 6 – Item 3</i>
Difference (as % of pre-developed)	¹⁰ 2,588% <i>Item 7 / Item 1</i>	¹¹ 33.1% <i>Item 8 / Item 2</i>	¹² 121.9% <i>Item 9 / Item 3</i>

Form 4.2-2d Summary of HCOC Assessment (DA 2 Phase 2/Ultimate)

Does project have the potential to cause or contribute to an HCOC in a downstream channel: Yes No

Go to: <http://permittrack.sbcounty.gov/wap/>

If "Yes", then complete HCOC assessment of site hydrology for 2yr storm event using Forms 4.2-3 through 4.2-5 and insert results below
(Forms 4.2-3 through 4.2-5 may be replaced by computer software analysis based on the San Bernardino County Hydrology Manual)

If "No," then proceed to Section 4.3 Project Conformance Analysis

Condition	Runoff Volume (ft ³)	Time of Concentration (min)	Peak Runoff (cfs)
Pre-developed	¹ 609 <i>Form 4.2-3 Item 12</i>	² 19.1 <i>Form 4.2-4 Item 13</i>	³ 1.5 <i>Form 4.2-5 Item 10</i>
Post-developed	⁴ 13,024 <i>Form 4.2-3 Item 13</i>	⁵ 7.3 (un-mitigated) <i>Form 4.2-4 Item 14</i>	⁶ 5.8 (un-mitigated) <i>Form 4.2-5 Item 14</i>
Difference	⁷ 12,415 <i>Item 4 – Item 1</i>	⁸ 11.8 <i>Item 2 – Item 5</i>	⁹ 4.3 <i>Item 6 – Item 3</i>
Difference (as % of pre-developed)	¹⁰ 2,039% <i>Item 7 / Item 1</i>	¹¹ 61.8% <i>Item 8 / Item 2</i>	¹² 286.7% <i>Item 9 / Item 3</i>

4.3 Project Conformance Analysis

Complete the following forms for each project site DA to document that the proposed LID BMPs conform to the project DCV developed to meet performance criteria specified in the MS₄ Permit (WQMP Template Section 4.2). For the LID DCV, the forms are ordered according to hierarchy of BMP selection as required by the MS₄ Permit (see Section 5.3.1 in the TGD for WQMP). The forms compute the following for on-site LID BMP:

- Site Design and Hydrologic Source Controls (Form 4.3-2)
- Retention and Infiltration (Form 4.3-3)
- Harvested and Use (Form 4.3-4) or
- Biotreatment (Form 4.3-5).

At the end of each form, additional fields facilitate the determination of the extent of mitigation provided by the specific BMP category, allowing for use of the next category of BMP in the hierarchy, if necessary.

The first step in the analysis, using Section 5.3.2.1 of the TGD for WQMP, is to complete Forms 4.3-1 and 4.3-3) to determine if retention and infiltration BMPs are infeasible for the project. For each feasibility criterion in Form 4.3-1, if the answer is “Yes,” provide all study findings that includes relevant calculations, maps, data sources, etc. used to make the determination of infeasibility.

Next, complete Forms 4.3-2 and 4.3-4 to determine the feasibility of applicable HSC and harvest and use BMPs, and, if their implementation is feasible, the extent of mitigation of the DCV.

If no site constraints exist that would limit the type of BMP to be implemented in a DA, evaluate the use of combinations of LID BMPs, including all applicable HSC BMPs to maximize on-site retention of the DCV. If no combination of BMP can mitigate the entire DCV, implement the single BMP type, or combination of BMP types, that maximizes on-site retention of the DCV within the minimum effective area.

If the combination of LID HSC, retention and infiltration, and harvest and use BMPs are unable to mitigate the entire DCV, then biotreatment BMPs may be implemented by the project proponent. If biotreatment BMPs are used, then they must be sized to provide sufficient capacity for effective treatment of the remainder of the volume-based performance criteria that cannot be achieved with LID BMPs (TGD for WQMP Section 5.4.4.2).

Under no circumstances shall any portion of the DCV be released from the site without effective mitigation and/or treatment.

Form 4.3-1 Infiltration BMP Feasibility (Entire Site, all Phases)	
Feasibility Criterion – Complete evaluation for each DA on the Project Site	
<p>¹ Would infiltration BMP pose significant risk for groundwater related concerns? <i>Refer to Section 5.3.2.1 of the TGD for WQMP</i></p>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
If Yes, Provide basis: (attach)	
<p>² Would installation of infiltration BMP significantly increase the risk of geotechnical hazards? (Yes, if the answer to any of the following questions is yes, as established by a geotechnical expert):</p> <ul style="list-style-type: none"> • The location is less than 50 feet away from slopes steeper than 15 percent • The location is less than eight feet from building foundations or an alternative setback. • A study certified by a geotechnical professional or an available watershed study determines that stormwater infiltration would result in significantly increased risks of geotechnical hazards. 	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
If Yes, Provide basis: (attach)	
<p>³ Would infiltration of runoff on a Project site violate downstream water rights?</p>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
If Yes, Provide basis: (attach)	
<p>⁴ Is proposed infiltration facility located on hydrologic soil group (HSG) D soils or does the site geotechnical investigation indicate presence of soil characteristics, which support categorization as D soils?</p>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
If Yes, Provide basis: (attach)	
<p>⁵ Is the design infiltration rate, after accounting for safety factor of 2.0, below proposed facility less than 0.3 in/hr (accounting for soil amendments)?</p>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
If Yes, Provide basis: (attach)	
<p>⁶ Would on-site infiltration or reduction of runoff over pre-developed conditions be partially or fully inconsistent with watershed management strategies as defined in the WAP, or impair beneficial uses? <i>See Section 3.5 of the TGD for WQMP and WAP</i></p>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
If Yes, Provide basis: (attach)	
<p>⁷ Any answer from Item 1 through Item 3 is “Yes”: <i>If yes, infiltration of any volume is not feasible onsite. Proceed to Form 4.3-4, Harvest and Use BMP. If no, then proceed to Item 8 below.</i></p>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<p>⁸ Any answer from Item 4 through Item 6 is “Yes”: <i>If yes, infiltration is permissible but is not required to be considered. Proceed to Form 4.3-2, Hydrologic Source Control BMP. If no, then proceed to Item 9, below.</i></p>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<p>⁹ All answers to Item 1 through Item 6 are “No”: <i>Infiltration of the full DCV is potentially feasible, LID infiltration BMP must be designed to infiltrate the full DCV to the MEP. Proceed to Form 4.3-2, Hydrologic Source Control BMP.</i></p>	

4.3.1 Site Design Hydrologic Source Control BMP

Section XI.E. of the Permit emphasizes the use of LID preventative measures; and the use of LID HSC BMPs reduces the portion of the DCV that must be addressed in downstream BMPs. Therefore, all applicable HSC shall be provided except where they are mutually exclusive with each other, or with other BMPs. Mutual exclusivity may result from overlapping BMP footprints such that either would be potentially feasible by itself, but both could not be implemented. Please note that while there are no numeric standards regarding the use of HSC, if a project cannot feasibly meet BMP sizing requirements or cannot fully address HCOCs, feasibility of all applicable HSC must be part of demonstrating that the BMP system has been designed to retain the maximum feasible portion of the DCV. Complete Form 4.3-2 to identify and calculate estimated retention volume from implementing site design HSC BMP. Refer to Section 5.4.1 in the TGD for more detailed guidance.

Site Design and Source Control BMPs will be implemented during Final Engineering. As a conservative approach during entitlements, they have not been used to reduce the DCV used for design of Treatment Control BMPs and Volume Reduction.

Form 4.3-2a Site Design Hydrologic Source Control BMPs (DA 1 Phase 1)			
1 Implementation of Impervious Area Dispersion BMP (i.e. routing runoff from impervious to pervious areas), excluding impervious areas planned for routing to on-lot infiltration BMP: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 2-5; If no, proceed to Item 6</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
2 Total impervious area draining to pervious area (ft ²)			
3 Ratio of pervious area receiving runoff to impervious area			
4 Retention volume achieved from impervious area dispersion (ft ³) $V = \text{Item 2} * \text{Item 3} * (0.5/12)$, assuming retention of 0.5 inches of runoff			
5 Sum of retention volume achieved from impervious area dispersion (ft ³):		<i>V_{retention} = Sum of Item 4 for all BMPs</i>	
6 Implementation of Localized On-lot Infiltration BMPs (e.g. on-lot rain gardens): Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 7-13 for aggregate of all on-lot infiltration BMP in each DA; If no, proceed to Item 14</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
7 Ponding surface area (ft ²)			
9 Surface area of amended soil/gravel (ft ²)			
10 Average depth of amended soil/gravel (ft)			
11 Average porosity of amended soil/gravel			
12 Retention volume achieved from on-lot infiltration (ft ³) <i>V_{retention} = (Item 7 * Item 8) + (Item 9 * Item 10 * Item 11)</i>			

13 Runoff volume retention from on-lot infiltration (ft³): 0 $V_{\text{retention}} = \text{Sum of Item 12 for all BMPs}$

**Form 4.3-2a cont. Site Design Hydrologic Source Control BMPs
(DA 1 Phase 1)**

14 Implementation of evapotranspiration BMP (green, brown, or blue roofs): Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 15-20. If no, proceed to Item 21</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
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15 Rooftop area planned for ET BMP (ft ²)			
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16 Average wet season ET demand (in/day) <i>Use local values, typical ~ 0.1</i>			
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17 Daily ET demand (ft ³ /day) <i>Item 15 * (Item 16 / 12)</i>			
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18 Drawdown time (hrs) <i>Copy Item 6 in Form 4.2-1</i>			
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19 Retention Volume (ft ³) $V_{\text{retention}} = \text{Item 17} * (\text{Item 18} / 24)$			
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20 Runoff volume retention from evapotranspiration BMPs (ft³): $V_{\text{retention}} = \text{Sum of Item 19 for all BMPs}$

21 Implementation of Street Trees: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 22-25. If no, proceed to Item 26</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
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22 Number of Street Trees			
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23 Average canopy cover over impervious area (ft ²)			
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24 Runoff volume retention from street trees (ft ³) $V_{\text{retention}} = \text{Item 22} * \text{Item 23} * (0.05/12)$ assume runoff retention of 0.05 inches			
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25 Runoff volume retention from street tree BMPs (ft³): $V_{\text{retention}} = \text{Sum of Item 24 for all BMPs}$

26 Implementation of residential rain barrel/cisterns: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 27-29; If no, proceed to Item 30</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
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27 Number of rain barrels/cisterns			
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28 Runoff volume retention from rain barrels/cisterns (ft ³) $V_{\text{retention}} = \text{Item 27} * 3$			
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29 Runoff volume retention from residential rain barrels/Cisterns (ft³): $V_{\text{retention}} = \text{Sum of Item 28 for all BMPs}$

30 Total Retention Volume from Site Design Hydrologic Source Control BMPs: 0 *Sum of Items 5, 13, 20, 25 and 29*

**Form 4.3-2b Site Design Hydrologic Source Control BMPs
(DA 2 Phase 1)**

<p>1 Implementation of Impervious Area Dispersion BMP (i.e. routing runoff from impervious to pervious areas), excluding impervious areas planned for routing to on-lot infiltration BMP: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 2-5; If no, proceed to Item 6</i></p>	<p>DA DMA BMP Type</p>	<p>DA DMA BMP Type</p>	<p>DA DMA BMP Type <i>(Use additional forms for more BMPs)</i></p>
<p>2 Total impervious area draining to pervious area (ft²)</p>			
<p>3 Ratio of pervious area receiving runoff to impervious area</p>			
<p>4 Retention volume achieved from impervious area dispersion (ft³) $V = \text{Item 2} * \text{Item 3} * (0.5/12)$, assuming retention of 0.5 inches of runoff</p>			
<p>5 Sum of retention volume achieved from impervious area dispersion (ft³):</p>		<p>$V_{\text{retention}} = \text{Sum of Item 4 for all BMPs}$</p>	
<p>6 Implementation of Localized On-lot Infiltration BMPs (e.g. on-lot rain gardens): Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 7-13 for aggregate of all on-lot infiltration BMP in each DA; If no, proceed to Item 14</i></p>	<p>DA DMA BMP Type</p>	<p>DA DMA BMP Type</p>	<p>DA DMA BMP Type <i>(Use additional forms for more BMPs)</i></p>
<p>7 Ponding surface area (ft²)</p>			
<p>8 Ponding depth (ft)</p>			
<p>9 Surface area of amended soil/gravel (ft²)</p>			
<p>10 Average depth of amended soil/gravel (ft)</p>			
<p>11 Average porosity of amended soil/gravel</p>			
<p>12 Retention volume achieved from on-lot infiltration (ft³) $V_{\text{retention}} = (\text{Item 7} * \text{Item 8}) + (\text{Item 9} * \text{Item 10} * \text{Item 11})$</p>			
<p>13 Runoff volume retention from on-lot infiltration (ft³): 0</p>		<p>$V_{\text{retention}} = \text{Sum of Item 12 for all BMPs}$</p>	

**Form 4.3-2b cont. Site Design Hydrologic Source Control BMPs
(DA 2 Phase 1)**

<p>14 Implementation of evapotranspiration BMP (green, brown, or blue roofs): Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>DA DMA BMP Type</p>	<p>DA DMA BMP Type</p>	<p>DA DMA</p>
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<i>If yes, complete Items 15-20. If no, proceed to Item 21</i>				BMP Type <i>(Use additional forms for more BMPs)</i>
15	Rooftop area planned for ET BMP (ft ²)			
16	Average wet season ET demand (in/day) <i>Use local values, typical ~ 0.1</i>			
17	Daily ET demand (ft ³ /day) <i>Item 15 * (Item 16 / 12)</i>			
18	Drawdown time (hrs) <i>Copy Item 6 in Form 4.2-1</i>			
19	Retention Volume (ft ³) <i>V_{retention} = Item 17 * (Item 18 / 24)</i>			
20 Runoff volume retention from evapotranspiration BMPs (ft ³):		<i>V_{retention} = Sum of Item 19 for all BMPs</i>		
21	Implementation of Street Trees: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 22-25. If no, proceed to Item 26</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
22	Number of Street Trees			
23	Average canopy cover over impervious area (ft ²)			
24	Runoff volume retention from street trees (ft ³) <i>V_{retention} = Item 22 * Item 23 * (0.05/12) assume runoff retention of 0.05 inches</i>			
25 Runoff volume retention from street tree BMPs (ft ³):		<i>V_{retention} = Sum of Item 24 for all BMPs</i>		
26	Implementation of residential rain barrel/cisterns: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 27-29; If no, proceed to Item 30</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
27	Number of rain barrels/cisterns			
28	Runoff volume retention from rain barrels/cisterns (ft ³) <i>V_{retention} = Item 27 * 3</i>			
29 Runoff volume retention from residential rain barrels/Cisterns (ft ³):		<i>V_{retention} = Sum of Item 28 for all BMPs</i>		
30 Total Retention Volume from Site Design Hydrologic Source Control BMPs: 0		<i>Sum of Items 5, 13, 20, 25 and 29</i>		

Form 4.3-2c Site Design Hydrologic Source Control BMPs (DA 1 Phase 2/Ultimate Condition)			
1 Implementation of Impervious Area Dispersion BMP (i.e. routing runoff from impervious to pervious areas), excluding impervious areas planned for routing to on-lot infiltration BMP: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 2-5; If no, proceed to Item 6</i>	DA BMP Type	DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
2 Total impervious area draining to pervious area (ft ²)			
3 Ratio of pervious area receiving runoff to impervious area			
4 Retention volume achieved from impervious area dispersion (ft ³) $V = \text{Item 2} * \text{Item 3} * (0.5/12)$, assuming retention of 0.5 inches of runoff			
5 Sum of retention volume achieved from impervious area dispersion (ft ³):		$V_{\text{retention}} = \text{Sum of Item 4 for all BMPs}$	
6 Implementation of Localized On-lot Infiltration BMPs (e.g. on-lot rain gardens): Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 7-13 for aggregate of all on-lot infiltration BMP in each DA; If no, proceed to Item 14</i>	DA BMP Type	DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
7 Ponding surface area (ft ²)			
8 Ponding depth (ft)			
9 Surface area of amended soil/gravel (ft ²)			
10 Average depth of amended soil/gravel (ft)			
11 Average porosity of amended soil/gravel			
12 Retention volume achieved from on-lot infiltration (ft ³) $V_{\text{retention}} = (\text{Item 7} * \text{Item 8}) + (\text{Item 9} * \text{Item 10} * \text{Item 11})$			
13 Runoff volume retention from on-lot infiltration (ft ³): 0		$V_{\text{retention}} = \text{Sum of Item 12 for all BMPs}$	
Form 4.3-2c cont. Site Design Hydrologic Source Control BMPs (DA 1 Phase 2/Ultimate Condition)			
14 Implementation of evapotranspiration BMP (green, brown, or blue roofs): Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 15-20. If no, proceed to Item 21</i>	DA BMP Type	DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
15 Rooftop area planned for ET BMP (ft ²)			

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16 Average wet season ET demand (in/day) <i>Use local values, typical ~ 0.1</i>			
17 Daily ET demand (ft ³ /day) <i>Item 15 * (Item 16 / 12)</i>			
18 Drawdown time (hrs) <i>Copy Item 6 in Form 4.2-1</i>			
19 Retention Volume (ft ³) <i>V_{retention} = Item 17 * (Item 18 / 24)</i>			
20 Runoff volume retention from evapotranspiration BMPs (ft ³): <i>V_{retention} = Sum of Item 19 for all BMPs</i>			
21 Implementation of Street Trees: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 22-25. If no, proceed to Item 26</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
22 Number of Street Trees			
23 Average canopy cover over impervious area (ft ²)			
24 Runoff volume retention from street trees (ft ³) <i>V_{retention} = Item 22 * Item 23 * (0.05/12) assume runoff retention of 0.05 inches</i>			
25 Runoff volume retention from street tree BMPs (ft ³): <i>V_{retention} = Sum of Item 24 for all BMPs</i>			
26 Implementation of residential rain barrel/cisterns: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 27-29; If no, proceed to Item 30</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
27 Number of rain barrels/cisterns			
28 Runoff volume retention from rain barrels/cisterns (ft ³) <i>V_{retention} = Item 27 * 3</i>			
29 Runoff volume retention from residential rain barrels/Cisterns (ft ³): <i>V_{retention} = Sum of Item 28 for all BMPs</i>			
30 Total Retention Volume from Site Design Hydrologic Source Control BMPs: 0 <i>Sum of Items 5, 13, 20, 25 and 29</i>			

Form 4.3-2d Site Design Hydrologic Source Control BMPs (DA 2 Phase 2/Ultimate Condition)			
1 Implementation of Impervious Area Dispersion BMP (i.e. routing runoff from impervious to pervious areas), excluding impervious areas planned for routing to on-lot infiltration BMP: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 2-5; If no, proceed to Item 6</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
2 Total impervious area draining to pervious area (ft ²)			
3 Ratio of pervious area receiving runoff to impervious area			
4 Retention volume achieved from impervious area dispersion (ft ³) $V = \text{Item 2} * \text{Item 3} * (0.5/12)$, assuming retention of 0.5 inches of runoff			
5 Sum of retention volume achieved from impervious area dispersion (ft ³):		$V_{\text{retention}} = \text{Sum of Item 4 for all BMPs}$	
6 Implementation of Localized On-lot Infiltration BMPs (e.g. on-lot rain gardens): Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 7-13 for aggregate of all on-lot infiltration BMP in each DA; If no, proceed to Item 14</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
7 Ponding surface area (ft ²)			
8 Ponding depth (ft)			
9 Surface area of amended soil/gravel (ft ²)			
10 Average depth of amended soil/gravel (ft)			
11 Average porosity of amended soil/gravel			
12 Retention volume achieved from on-lot infiltration (ft ³) $V_{\text{retention}} = (\text{Item 7} * \text{Item 8}) + (\text{Item 9} * \text{Item 10} * \text{Item 11})$			
13 Runoff volume retention from on-lot infiltration (ft ³): 0		$V_{\text{retention}} = \text{Sum of Item 12 for all BMPs}$	
Form 4.3-2d cont. Site Design Hydrologic Source Control BMPs (DA 2 Phase 2/Ultimate Condition)			
14 Implementation of evapotranspiration BMP (green, brown, or blue roofs): Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 15-20. If no, proceed to Item 21</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
15 Rooftop area planned for ET BMP (ft ²)			

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16 Average wet season ET demand (in/day) <i>Use local values, typical ~ 0.1</i>			
17 Daily ET demand (ft ³ /day) <i>Item 15 * (Item 16 / 12)</i>			
18 Drawdown time (hrs) <i>Copy Item 6 in Form 4.2-1</i>			
19 Retention Volume (ft ³) <i>V_{retention} = Item 17 * (Item 18 / 24)</i>			
20 Runoff volume retention from evapotranspiration BMPs (ft ³): <i>V_{retention} = Sum of Item 19 for all BMPs</i>			
21 Implementation of Street Trees: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 22-25. If no, proceed to Item 26</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
22 Number of Street Trees			
23 Average canopy cover over impervious area (ft ²)			
24 Runoff volume retention from street trees (ft ³) <i>V_{retention} = Item 22 * Item 23 * (0.05/12) assume runoff retention of 0.05 inches</i>			
25 Runoff volume retention from street tree BMPs (ft ³): <i>V_{retention} = Sum of Item 24 for all BMPs</i>			
26 Implementation of residential rain barrel/cisterns: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <i>If yes, complete Items 27-29; If no, proceed to Item 30</i>	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
27 Number of rain barrels/cisterns			
28 Runoff volume retention from rain barrels/cisterns (ft ³) <i>V_{retention} = Item 27 * 3</i>			
29 Runoff volume retention from residential rain barrels/Cisterns (ft ³): <i>V_{retention} = Sum of Item 28 for all BMPs</i>			
30 Total Retention Volume from Site Design Hydrologic Source Control BMPs: 0 <i>Sum of Items 5, 13, 20, 25 and 29</i>			

4.3.2 Infiltration BMPs

Use Form 4.3-3 to compute on-site retention of runoff from proposed retention and infiltration BMPs. Volume retention estimates are sensitive to the percolation rate used, which determines the amount of runoff that can be infiltrated within the specified drawdown time. The infiltration safety factor reduces field measured percolation to account for potential inaccuracy associated with field measurements, declining BMP performance over time, and compaction during construction. Appendix D of the TGD for WQMP provides guidance on estimating an appropriate safety factor to use in Form 4.3-3.

If site constraints limit the use of BMPs to a single type and implementation of retention and infiltration BMPs mitigate no more than 40% of the DCV, then they are considered infeasible and the Project Proponent may evaluate the effectiveness of BMPs lower in the LID hierarchy of use (Section 5.5.1 of the TGD for WQMP)

If implementation of infiltrations BMPs is feasible as determined using Form 4.3-1, then LID infiltration BMPs shall be implemented to the MEP (section 4.1 of the TGD for WQMP).

Form 4.3-3a Infiltration LID BMP - including underground BMPs (DA 1 Phase 1)			
1 Remaining LID DCV not met by site design HSC BMP (ft ³): 77,194 $V_{unmet} = \text{Form 4.2-1 Item 7} - \text{Form 4.3-2 Item 30}$			
BMP Type <i>Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs</i>	DA 1 DMA A1 BMP Type Bioretention without underdrain	DA 1 DMA B BMP Type Bioretention without underdrain	DA 1 DMA E BMP Type Bioretention without underdrain
2 Infiltration rate of underlying soils (in/hr) <i>See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods</i>	TBD	TBD	TBD
3 Infiltration safety factor <i>See TGD Section 5.4.2 and Appendix D</i>	2	2	2
4 Design percolation rate (in/hr) $P_{design} = \text{Item 2} / \text{Item 3}$	0.5	0.5	0.5
5 Pondered water drawdown time (hr) <i>Copy Item 6 in Form 4.2-1</i>	48	48	48
6 Maximum ponding depth (ft) <i>BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details</i>	1	1	1
7 Ponding Depth (ft) $d_{BMP} = \text{Minimum of } (1/12 * \text{Item 4} * \text{Item 5}) \text{ or Item 6}$	1	1	1
8 Infiltrating surface area, SA_{BMP} (ft ²) <i>the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP</i>	22,232	4,200	14,000
9 Amended soil depth, d_{media} (ft) <i>Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details</i>	2	2	2

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10 Amended soil porosity	0.4	0.4	0.4
11 Gravel depth, d_{media} (ft) <i>Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details</i>	1	1	1
12 Gravel porosity	0.4	0.4	0.4
13 Duration of storm as basin is filling (hrs) <i>Typical ~ 3hrs</i>	3	3	3
14 Above Ground Retention Volume (ft ³) $V_{retention} = \text{Item 8} * [\text{Item 7} + (\text{Item 9} * \text{Item 10}) + (\text{Item 11} * \text{Item 12}) + (\text{Item 13} * (\text{Item 4} / 12))]$	51,386	9,765	32,550
15 Underground Retention Volume (ft ³) <i>Volume determined using manufacturer's specifications and calculations</i>	N/A	N/A	N/A
16 Total Retention Volume from LID Infiltration BMPs: 94,004 <i>(Sum of Items 14 and 15 for all infiltration BMP included in plan)</i>			
17 Fraction of DCV achieved with infiltration BMP: 100% <i>Retention% = Item 16 / Form 4.2-1 Item 7</i>			
18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.</i>			

Form 4.3-3b Infiltration LID BMP - including underground BMPs (DA 2 Phase 1)			
1 Remaining LID DCV not met by site design HSC BMP (ft ³): 8,990 $V_{unmet} = \text{Form 4.2-1 Item 7} - \text{Form 4.3-2 Item 30}$			
BMP Type <i>Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs</i>	DA 2 DMA A2 BMP Type Underground Infiltration	DA DMA BMP Type	DA DMA BMP Type <i>(Use additional forms for more BMPs)</i>
2 Infiltration rate of underlying soils (in/hr) <i>See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods</i>	TBD		
3 Infiltration safety factor <i>See TGD Section 5.4.2 and Appendix D</i>	2		
4 Design percolation rate (in/hr) $P_{design} = \text{Item 2} / \text{Item 3}$	0.5		
5 Pondered water drawdown time (hr) <i>Copy Item 6 in Form 4.2-1</i>	48		
6 Maximum ponding depth (ft) <i>BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details</i>	2		

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7 Ponding Depth (ft) $d_{BMP} = \text{Minimum of } (1/12 * \text{Item 4} * \text{Item 5}) \text{ or Item 6}$	2		
8 Infiltrating surface area, SA_{BMP} (ft ²) <i>the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP</i>	6,035		
9 Amended soil depth, d_{media} (ft) <i>Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details</i>	2		
10 Amended soil porosity	0.4		
11 Gravel depth, d_{media} (ft) <i>Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details</i>	1		
12 Gravel porosity	0.4		
13 Duration of storm as basin is filling (hrs) <i>Typical ~ 3hrs</i>	3		
14 Above Ground Retention Volume (ft ³) $V_{retention} = \text{Item 8} * [\text{Item 7} + (\text{Item 9} * \text{Item 10}) + (\text{Item 11} * \text{Item 12}) + (\text{Item 13} * (\text{Item 4} / 12))]$	14,031		
15 Underground Retention Volume (ft ³) <i>Volume determined using manufacturer's specifications and calculations</i>	N/A		
16 Total Retention Volume from LID Infiltration BMPs: 14,031 <i>(Sum of Items 14 and 15 for all infiltration BMP included in plan)</i>			
17 Fraction of DCV achieved with infiltration BMP: 100% <i>Retention% = Item 16 / Form 4.2-1 Item 7</i>			
18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.</i>			

Form 4.3-3c Infiltration LID BMP - including underground BMPs (DA 1 Phase 2/Ultimate Condition)

1 Remaining LID DCV not met by site design HSC BMP (ft ³): 109,935 $V_{unmet} = \text{Form 4.2-1 Item 7} - \text{Form 4.3-2 Item 30}$			
BMP Type Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs	DA 1 DMA A1 BMP Type Underground Infiltration	DA 1 DMA B BMP Type Bioretention without underdrain	DA 1 DMA C BMP Type Bioretention without underdrain
2 Infiltration rate of underlying soils (in/hr) See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods	TBD	TBD	TBD
3 Infiltration safety factor See TGD Section 5.4.2 and Appendix D	2	2	2
4 Design percolation rate (in/hr) $P_{design} = \text{Item 2} / \text{Item 3}$	0.5	0.5	0.5
5 Pondered water drawdown time (hr) Copy Item 6 in Form 4.2-1	48	48	48
6 Maximum ponding depth (ft) BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details	2	1	1
7 Ponding Depth (ft) $d_{BMP} = \text{Minimum of } (1/12 * \text{Item 4} * \text{Item 5}) \text{ or Item 6}$	2	1	1
8 Infiltrating surface area, SA_{BMP} (ft ²) the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP	44,500	4,200	4,000
9 Amended soil depth, d_{media} (ft) Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details	N/A	2	2
10 Amended soil porosity	N/A	0.4	0.4
11 Gravel depth, d_{media} (ft) Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details	1	1	1
12 Gravel porosity	0.4	0.4	0.4
13 Duration of storm as basin is filling (hrs) Typical ~ 3hrs	3	3	3
14 Above Ground Retention Volume (ft ³) $V_{retention} = \text{Item 8} * [\text{Item 7} + (\text{Item 9} * \text{Item 10}) + (\text{Item 11} * \text{Item 12}) + (\text{Item 13} * (\text{Item 4} / 12))]$	N/A	9,765	9,300
15 Underground Retention Volume (ft ³) Volume determined using manufacturer's specifications and calculations	94,563	N/A	N/A
16 Total Retention Volume from LID Infiltration BMPs: 111,503 (Sum of Items 14 and 15 for all infiltration BMP included in plan)			
17 Fraction of DCV achieved with infiltration BMP: 100% $\text{Retention}\% = \text{Item 16} / \text{Form 4.2-1 Item 7}$			

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18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes No
 If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.

**Form 4.3-3d Infiltration LID BMP - including underground BMPs
(DA 2 Phase 2/Ultimate Condition)**

1 Remaining LID DCV not met by site design HSC BMP (ft³): 11,662 $V_{unmet} = \text{Form 4.2-1 Item 7} - \text{Form 4.3-2 Item 30}$

BMP Type Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs	DA 2 DMA A2 BMP Type Underground Infiltration	DA DMA BMP Type	DA DMA BMP Type (Use additional forms for more BMPs)
2 Infiltration rate of underlying soils (in/hr) See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods	TBD		
3 Infiltration safety factor See TGD Section 5.4.2 and Appendix D	2		
4 Design percolation rate (in/hr) $P_{design} = \text{Item 2} / \text{Item 3}$	0.5		
5 Pondered water drawdown time (hr) Copy Item 6 in Form 4.2-1	48		
6 Maximum ponding depth (ft) BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details	1		
7 Ponding Depth (ft) $d_{BMP} = \text{Minimum of } (1/12 * \text{Item 4} * \text{Item 5}) \text{ or Item 6}$	1		
8 Infiltrating surface area, SA_{BMP} (ft ²) the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP	6,035		
9 Amended soil depth, d_{media} (ft) Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details	2		
10 Amended soil porosity	0.4		
11 Gravel depth, d_{media} (ft) Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details	1		
12 Gravel porosity	0.4		
13 Duration of storm as basin is filling (hrs) Typical ~ 3hrs	3		
14 Above Ground Retention Volume (ft ³) $V_{retention} = \text{Item 8} * [\text{Item 7} + (\text{Item 9} * \text{Item 10}) + (\text{Item 11} * \text{Item 12}) + (\text{Item 13} * (\text{Item 4} / 12))]$	14,031		
15 Underground Retention Volume (ft ³) Volume determined using manufacturer's specifications and calculations	N/A		

16 Total Retention Volume from LID Infiltration BMPs: 14,031 <i>(Sum of Items 14 and 15 for all infiltration BMP included in plan)</i>
17 Fraction of DCV achieved with infiltration BMP: 100% <i>Retention% = Item 16 / Form 4.2-1 Item 7</i>
18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.</i>

4.3.3 Harvest and Use BMP

The full DCV is retained on-site. Per Section 5.5 WQMP Conformance Analysis, if the DCV can be retained/or treated and released with BMPs designed in accordance with the mythologies described in Section 5.4, no additional BMPs are required to achieve water quality treatment.

Harvest and use BMP may be considered if the full LID DCV cannot be met by maximizing infiltration BMPs. Form 4.3-4 to compute on-site retention of runoff from proposed harvest and use BMPs has been intentionally omitted.

Volume retention estimates for harvest and use BMPs are sensitive to the on-site demand for captured stormwater. Since irrigation water demand is low in the wet season, when most rainfall events occur in San Bernardino County, the volume of water that can be used within a specified drawdown period is relatively low. The bottom portion of Form 4.3-4 facilitates the necessary computations to show infeasibility if a minimum incremental benefit of 40 percent of the LID DCV would not be achievable with MEP implementation of on-site harvest and use of stormwater (Section 5.5.4 of the TGD for WQMP).

4.3.4 Biotreatment BMP

The full DCV is retained on-site. Per Section 5.5 WQMP Conformance Analysis, if the DCV can be retained/or treated and released with BMPs designed in accordance with the mythologies described in Section 5.4, no additional BMPs are required to achieve water quality treatment.

Biotreatment BMPs may be considered if the full LID DCV cannot be met by maximizing retention and infiltration, and harvest and use BMPs. A key consideration when using biotreatment BMP is the effectiveness of the proposed BMP in addressing the pollutants of concern for the project (see Table 5-5 of the TGD for WQMP).

Form 4.3-5 to summarize the potential for volume based and/or flow based biotreatment options to biotreat the remaining unmet LID DCV w. Biotreatment computations has been intentionally omitted.

- Use Form 4.3-6 to compute biotreatment in small volume based biotreatment BMP (e.g. bioretention w/underdrains);
- Use Form 4.3-7 to compute biotreatment in large volume based biotreatment BMP (e.g. constructed wetlands);
- Use Form 4.3-8 to compute sizing criteria for flow-based biotreatment BMP (e.g. bioswales)

4.3.5 Conformance Summary

Complete Form 4.3-9 to demonstrate how on-site LID DCV is met with proposed site design hydrologic source control, infiltration, harvest and use, and/or biotreatment BMP. The bottom line of the form is used to describe the basis for infeasibility determination for on-site LID BMP to achieve full LID DCV, and provides methods for computing remaining volume to be addressed in an alternative compliance plan. If the project has more than one outlet, then complete additional versions of this form for each outlet.

Form 4.3-9a Conformance Summary and Alternative Compliance Volume Estimate (DA 1 Phase 1)	
1	Total LID DCV for the Project DA-1 (ft ³): 77,194 <i>Copy Item 7 in Form 4.2-1</i>
2	On-site retention with site design hydrologic source control LID BMP (ft ³): 88,950 <i>Copy Item 30 in Form 4.3-2</i>
3	On-site retention with LID infiltration BMP (ft ³): 94,004 <i>Copy Item 16 in Form 4.3-3</i>
4	On-site retention with LID harvest and use BMP (ft ³): 0 <i>Copy Item 9 in Form 4.3-4</i>
5	On-site biotreatment with volume based biotreatment BMP (ft ³): 0 <i>Copy Item 3 in Form 4.3-5</i>
6	Flow capacity provided by flow based biotreatment BMP (cfs): 0 <i>Copy Item 6 in Form 4.3-5</i>
7	<p>LID BMP performance criteria are achieved if answer to any of the following is "Yes":</p> <ul style="list-style-type: none"> • Full retention of LID DCV with site design HSC, infiltration, or harvest and use BMP: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, sum of Items 2, 3, and 4 is greater than Item 1</i> • Combination of on-site retention BMPs for a portion of the LID DCV and volume-based biotreatment BMP that address all pollutants of concern for the remaining LID DCV: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, a) sum of Items 2, 3, 4, and 5 is greater than Item 1, and Items 2, 3 and 4 are maximized; or b) Item 6 is greater than Form 4.3-5 Item 6 and Items 2, 3 and 4 are maximized</i> ▪ On-site retention and infiltration is determined to be infeasible and biotreatment BMP provide biotreatment for all pollutants of concern for full LID DCV: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <i>If yes, Form 4.3-1 Items 7 and 8 were both checked yes</i>
8	<p>If the LID DCV is not achieved by any of these means, then the project may be allowed to develop an alternative compliance plan. Check box that describes the scenario which caused the need for alternative compliance:</p> <ul style="list-style-type: none"> • Combination of HSC, retention and infiltration, harvest and use, and biotreatment BMPs provide less than full LID DCV capture: <input type="checkbox"/> <i>Checked yes for Form 4.3-5 Item 7, Item 6 is zero, and sum of Items 2, 3, 4, and 5 is less than Item 1. If so, apply water quality credits and calculate volume for alternative compliance, $V_{alt} = (Item\ 1 - Item\ 2 - Item\ 3 - Item\ 4 - Item\ 5) * (100 - Form\ 2.4-1\ Item\ 2)\%$</i> • An approved Watershed Action Plan (WAP) demonstrates that water quality and hydrologic impacts of urbanization are more effective when managed in at an off-site facility: <input type="checkbox"/> <i>Attach appropriate WAP section, including technical documentation, showing effectiveness comparisons for the project site and regional watershed</i>

Form 4.3-9b Conformance Summary and Alternative Compliance Volume Estimate (DA 2 Phase 1)

1 Total LID DCV for the Project DA-1 (ft³): 8,990 *Copy Item 7 in Form 4.2-1*

2 On-site retention with site design hydrologic source control LID BMP (ft³): 13,277 *Copy Item 30 in Form 4.3-2*

3 On-site retention with LID infiltration BMP (ft³): 14,031 *Copy Item 16 in Form 4.3-3*

4 On-site retention with LID harvest and use BMP (ft³): 0 *Copy Item 9 in Form 4.3-4*

5 On-site biotreatment with volume based biotreatment BMP (ft³): 0 *Copy Item 3 in Form 4.3-5*

6 Flow capacity provided by flow based biotreatment BMP (cfs): 0 *Copy Item 6 in Form 4.3-5*

7 LID BMP performance criteria are achieved if answer to any of the following is "Yes":

- Full retention of LID DCV with site design HSC, infiltration, or harvest and use BMP: Yes No
If yes, sum of Items 2, 3, and 4 is greater than Item 1
- Combination of on-site retention BMPs for a portion of the LID DCV and volume-based biotreatment BMP that address all pollutants of concern for the remaining LID DCV: Yes No
If yes, a) sum of Items 2, 3, 4, and 5 is greater than Item 1, and Items 2, 3 and 4 are maximized; or b) Item 6 is greater than Form 4.3-5 Item 6 and Items 2, 3 and 4 are maximized
- On-site retention and infiltration is determined to be infeasible and biotreatment BMP provide biotreatment for all pollutants of concern for full LID DCV: Yes No
If yes, Form 4.3-1 Items 7 and 8 were both checked yes

8 If the LID DCV is not achieved by any of these means, then the project may be allowed to develop an alternative compliance plan. Check box that describes the scenario which caused the need for alternative compliance:

- Combination of HSC, retention and infiltration, harvest and use, and biotreatment BMPs provide less than full LID DCV capture:
*Checked yes for Form 4.3-5 Item 7, Item 6 is zero, and sum of Items 2, 3, 4, and 5 is less than Item 1. If so, apply water quality credits and calculate volume for alternative compliance, $V_{alt} = (Item\ 1 - Item\ 2 - Item\ 3 - Item\ 4 - Item\ 5) * (100 - Form\ 2.4-1\ Item\ 2)\%$*
- An approved Watershed Action Plan (WAP) demonstrates that water quality and hydrologic impacts of urbanization are more effective when managed in at an off-site facility:
Attach appropriate WAP section, including technical documentation, showing effectiveness comparisons for the project site and regional watershed

Form 4.3-9c Conformance Summary and Alternative Compliance Volume Estimate (DA 1 Phase 2/Ultimate)

1 Total LID DCV for the Project DA-1 (ft³): 109,935 *Copy Item 7 in Form 4.2-1*

2 On-site retention with site design hydrologic source control LID BMP (ft³): 120,040 *Copy Item 30 in Form 4.3-2*

3 On-site retention with LID infiltration BMP (ft³): 113,628 *Copy Item 16 in Form 4.3-3*

4 On-site retention with LID harvest and use BMP (ft³): 0 *Copy Item 9 in Form 4.3-4*

5 On-site biotreatment with volume based biotreatment BMP (ft³): 0 *Copy Item 3 in Form 4.3-5*

6 Flow capacity provided by flow based biotreatment BMP (cfs): 0 *Copy Item 6 in Form 4.3-5*

7 LID BMP performance criteria are achieved if answer to any of the following is "Yes":

- Full retention of LID DCV with site design HSC, infiltration, or harvest and use BMP: Yes No
If yes, sum of Items 2, 3, and 4 is greater than Item 1
- Combination of on-site retention BMPs for a portion of the LID DCV and volume-based biotreatment BMP that address all pollutants of concern for the remaining LID DCV: Yes No
If yes, a) sum of Items 2, 3, 4, and 5 is greater than Item 1, and Items 2, 3 and 4 are maximized; or b) Item 6 is greater than Form 4.3-5 Item 6 and Items 2, 3 and 4 are maximized
- On-site retention and infiltration is determined to be infeasible and biotreatment BMP provide biotreatment for all pollutants of concern for full LID DCV: Yes No
If yes, Form 4.3-1 Items 7 and 8 were both checked yes

8 If the LID DCV is not achieved by any of these means, then the project may be allowed to develop an alternative compliance plan. Check box that describes the scenario which caused the need for alternative compliance:

- Combination of HSC, retention and infiltration, harvest and use, and biotreatment BMPs provide less than full LID DCV capture:
*Checked yes for Form 4.3-5 Item 7, Item 6 is zero, and sum of Items 2, 3, 4, and 5 is less than Item 1. If so, apply water quality credits and calculate volume for alternative compliance, $V_{alt} = (Item\ 1 - Item\ 2 - Item\ 3 - Item\ 4 - Item\ 5) * (100 - Form\ 2.4-1\ Item\ 2)\%$*
- An approved Watershed Action Plan (WAP) demonstrates that water quality and hydrologic impacts of urbanization are more effective when managed in at an off-site facility:
Attach appropriate WAP section, including technical documentation, showing effectiveness comparisons for the project site and regional watershed

Form 4.3-9d Conformance Summary and Alternative Compliance Volume Estimate (DA 2 Phase 2/Ultimate)

1 Total LID DCV for the Project DA-1 (ft³): 11,662 *Copy Item 7 in Form 4.2-1*

2 On-site retention with site design hydrologic source control LID BMP (ft³): 13,277 *Copy Item 30 in Form 4.3-2*

3 On-site retention with LID infiltration BMP (ft³): 14,031 *Copy Item 16 in Form 4.3-3*

4 On-site retention with LID harvest and use BMP (ft³): 0 *Copy Item 9 in Form 4.3-4*

5 On-site biotreatment with volume based biotreatment BMP (ft³): 0 *Copy Item 3 in Form 4.3-5*

6 Flow capacity provided by flow based biotreatment BMP (cfs): 0 *Copy Item 6 in Form 4.3-5*

7 LID BMP performance criteria are achieved if answer to any of the following is "Yes":

- Full retention of LID DCV with site design HSC, infiltration, or harvest and use BMP: Yes No
If yes, sum of Items 2, 3, and 4 is greater than Item 1
- Combination of on-site retention BMPs for a portion of the LID DCV and volume-based biotreatment BMP that address all pollutants of concern for the remaining LID DCV: Yes No
If yes, a) sum of Items 2, 3, 4, and 5 is greater than Item 1, and Items 2, 3 and 4 are maximized; or b) Item 6 is greater than Form 4.3-5 Item 6 and Items 2, 3 and 4 are maximized
- On-site retention and infiltration is determined to be infeasible and biotreatment BMP provide biotreatment for all pollutants of concern for full LID DCV: Yes No
If yes, Form 4.3-1 Items 7 and 8 were both checked yes

8 If the LID DCV is not achieved by any of these means, then the project may be allowed to develop an alternative compliance plan. Check box that describes the scenario which caused the need for alternative compliance:

- Combination of HSC, retention and infiltration, harvest and use, and biotreatment BMPs provide less than full LID DCV capture:
*Checked yes for Form 4.3-5 Item 7, Item 6 is zero, and sum of Items 2, 3, 4, and 5 is less than Item 1. If so, apply water quality credits and calculate volume for alternative compliance, $V_{alt} = (Item\ 1 - Item\ 2 - Item\ 3 - Item\ 4 - Item\ 5) * (100 - Form\ 2.4-1\ Item\ 2)\%$*
- An approved Watershed Action Plan (WAP) demonstrates that water quality and hydrologic impacts of urbanization are more effective when managed in at an off-site facility:
Attach appropriate WAP section, including technical documentation, showing effectiveness comparisons for the project site and regional watershed

4.3.6 Hydromodification Control BMP

The full DCV is retained on-site. Per Section 5.5 WQMP Conformance Analysis, if the DCV can be retained/or treated and released with BMPs designed in accordance with the mythologies described in Section 5.4, no additional BMPs are required to achieve water quality treatment.

Form 4.3-10 has been intentionally omitted.

4.4 Alternative Compliance Plan (if applicable)

Not applicable.

Describe an alternative compliance plan (if applicable) for projects not fully able to infiltrate, harvest and use, or biotreat the DCV via on-site LID practices. A project proponent must develop an alternative compliance plan to address the remainder of the LID DCV. Depending on project type some projects may qualify for water quality credits that can be applied to reduce the DCV that must be treated prior to development of an alternative compliance plan (see Form 2.4-1, Water Quality Credits). Form 4.3-9 Item 8 includes instructions on how to apply water quality credits when computing the DCV that must be met through alternative compliance. Alternative compliance plans may include one or more of the following elements:

- On-site structural treatment control BMP - All treatment control BMP should be located as close to possible to the pollutant sources and should not be located within receiving waters;
- Off-site structural treatment control BMP - Pollutant removal should occur prior to discharge of runoff to receiving waters;
- Urban runoff fund or In-lieu program, if available

Depending upon the proposed alternative compliance plan, approval by the executive officer may or may not be required (see Section 6 of the TGD for WQMP).

Section 5 Inspection and Maintenance Responsibility for Post Construction BMP

All BMP included as part of the project WQMP are required to be maintained through regular scheduled inspection and maintenance (refer to Section 8, Post Construction BMP Requirements, in the TGD for WQMP). Fully complete Form 5-1 summarizing all BMP included in the WQMP. Attach additional forms as needed. The WQMP shall also include a detailed Operation and Maintenance Plan for all BMP and may require a Maintenance Agreement (consult the jurisdiction's LIP). If a Maintenance Agreement is required, it must also be attached to the WQMP.

Form 5-1a BMP Inspection and Maintenance (Phase 1)			
BMP	Reponsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
BMP 1-A1	Owner	Remove trash, debris, over-grown vegetation, and accumulated sediment.	1/Month Minimum
BMP 1-B	Owner	Remove trash, debris, over-grown vegetation, and accumulated sediment.	1/Month Minimum
BMP 1-E	Owner	Remove trash, debris, over-grown vegetation, and accumulated sediment.	1/Month Minimum
BMP 2-A2	Owner	Remove trash, debris, over-grown vegetation, and accumulated sediment.	1/Month Minimum

Form 5-1b BMP Inspection and Maintenance (Phase 2/ Ultimate)			
BMP	Reponsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
BMP 1-A1	Owner	<p>Inspect all inlets to ensure debris is not conveyed to underground infiltration. Check for standing runoff within underground storage after large storm events to ensure infiltration is functioning.</p> <p>System may require pumping and proper disposal of accumulated debris and sediment if not maintained properly; and may require full replacement if infiltration is completely cut off due to accumulate fines. Good Housing Keeping measures throughout the site will help prolong a functioning infiltration system.</p>	At the completion of each runoff producing rainfall event.
BMP 1-B	Owner	Remove trash, debris, over-grown vegetation, and accumulated sediment.	1/Month Minimum
BMP 1-C	Owner	Remove trash, debris, over-grown vegetation, and accumulated sediment.	1/Month Minimum
BMP 2-A2	Owner	Remove trash, debris, over-grown vegetation, and accumulated sediment.	1/Month Minimum

Section 6 WQMP Attachments

6.1. Site Plan and Drainage Plan

Include a site plan and drainage plan sheet set containing the following minimum information:

- Project location
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural Source Control BMP locations
- Site Design Hydrologic Source Control BMP locations
- LID BMP details
- Drainage delineations and flow information
- Drainage connections

6.2 Electronic Data Submittal

Minimum requirements include submittal of PDF exhibits in addition to hard copies. Format must not require specialized software to open. If the local jurisdiction requires specialized electronic document formats (as described in their local Local Implementation Plan), this section will describe the contents (e.g., layering, nomenclature, geo-referencing, etc.) of these documents so that they may be interpreted efficiently and accurately.

6.3 Post Construction

Attach all O&M Plans and Maintenance Agreements for BMP to the WQMP.

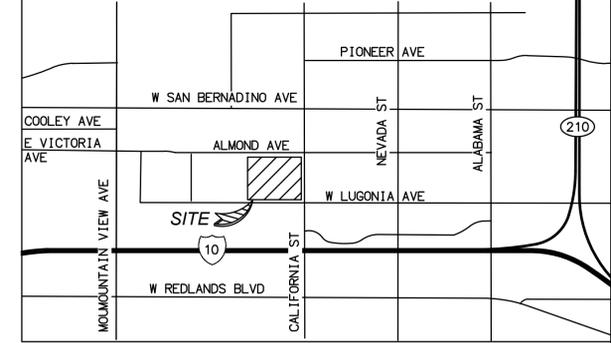
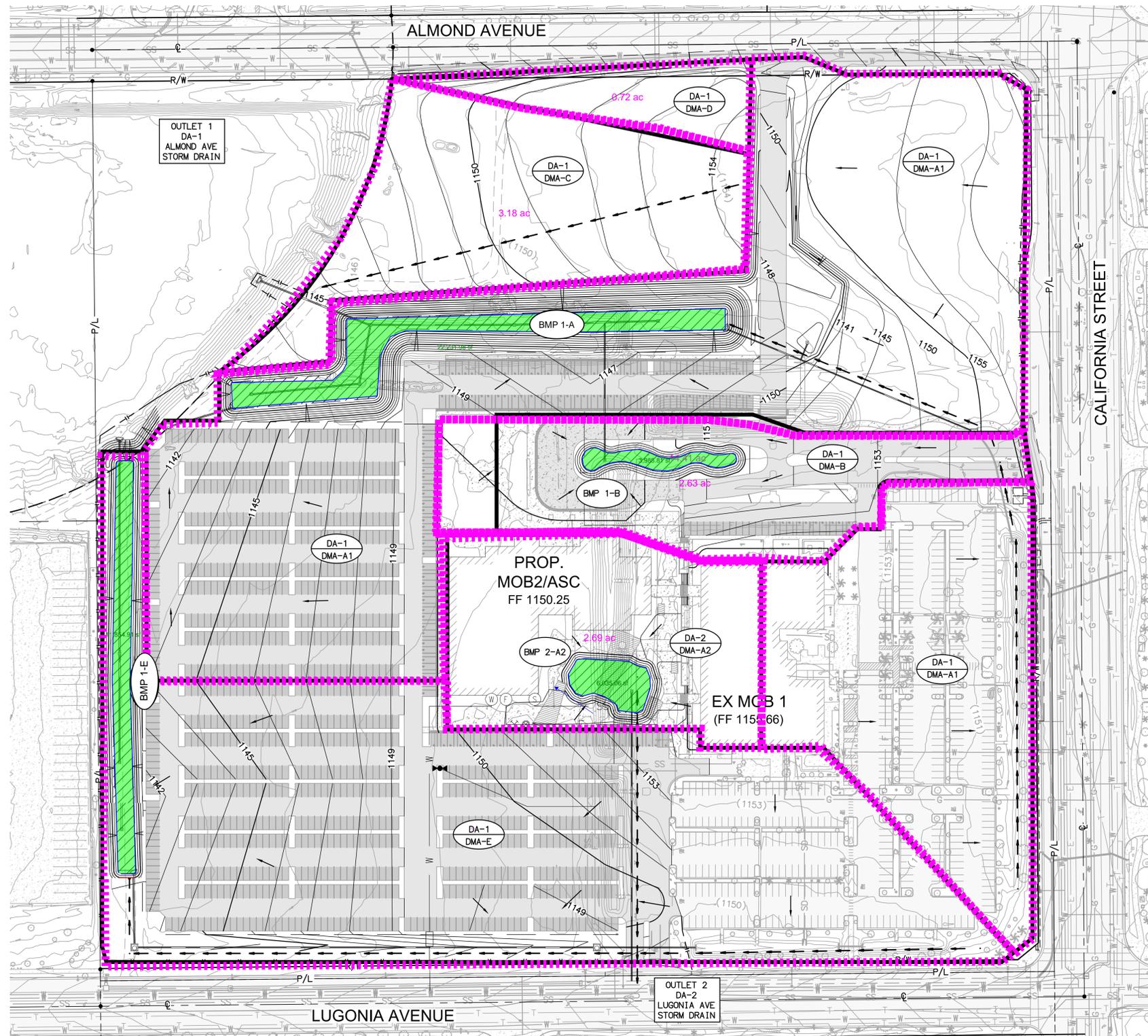
6.4 Other Supporting Documentation

- BMP Educational Materials
- Activity Restriction – C, C&R's & Lease Agreements

Appendix A

Vicinity Map and WQMP Exhibit

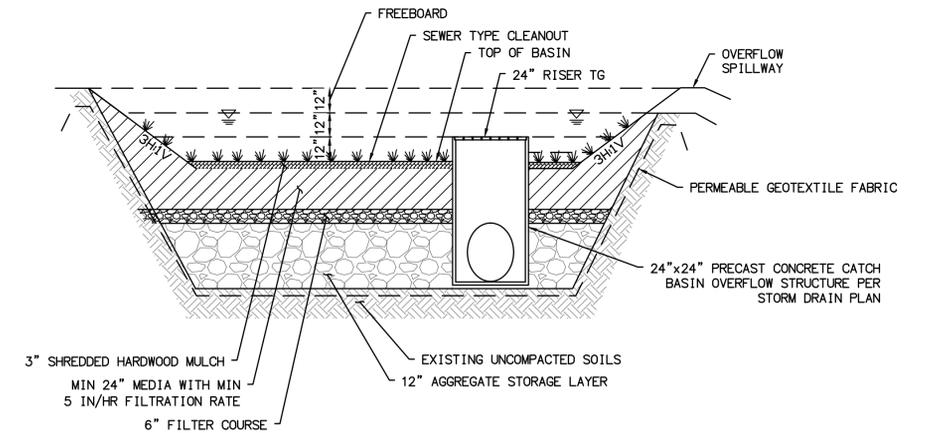
PHASE 1 BMP Plan



VICINITY MAP
N.T.S.

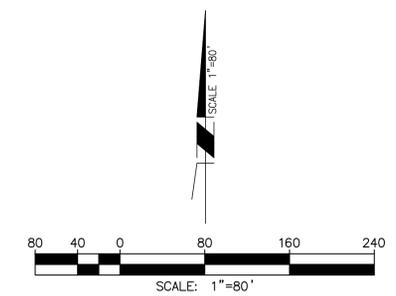
LEGEND

- STORM WATER BASIN
- DRAINAGE BOUNDARY
- FLOW ARROW
- FLOW DIRECTION
- DMA/DA ID
- BMP ID



TYPICAL BIO-RETENTION BASIN DETAIL
SCALE: NOT TO SCALE

DA	DMA	TOTAL AREA (SF)	IMPERVIOUS RATIO	DMA RUNOFF FACTOR	DESIGN CAPTURE VOLUME (CF)	BMP PROPOSED SURFACE AREA (SF)	VOLUME RETAINED BY BMP (CF)	BMP TYPE
1	A1	627,670	70%	0.49	35,967	22,232	51,689	BIORETENTION WITH NO UNDERDRAIN
1	B	114,563	85%	0.66	8,790	4,200	9,765	BIORETENTION WITH NO UNDERDRAIN (SIZED FOR ULTIMATE PHASE 4)
1	C	138,521	0%	0.04	643	N/A	N/A	SELF TREATING (NO EXISTING OR PROPOSED IMPERVIOUS AREA)
1	D	31,363	0%	0.04	146	N/A	N/A	SELF TREATING (NO EXISTING OR PROPOSED IMPERVIOUS AREA)
1	E	412,513	85%	0.66	31,649	14,000	32,550	BIORETENTION WITH NO UNDERDRAIN
2	A2	117,176	85%	0.66	8,990	6,035	14,031	BIORETENTION WITH NO UNDERDRAIN (SIZED FOR ULTIMATE PHASE 4)



SITE PHASING - 1 BMP PLAN

SEPTEMBER 09, 2022

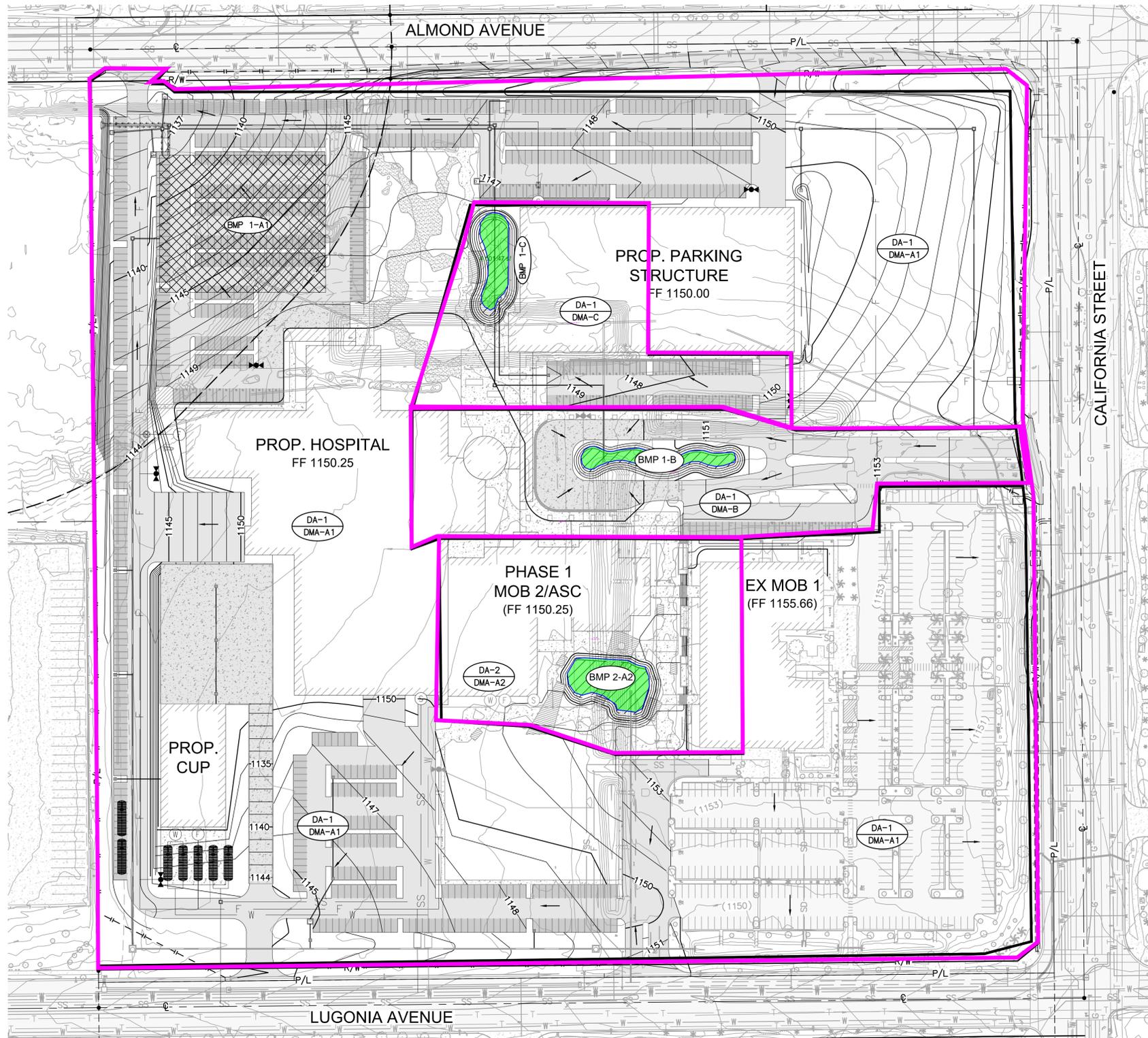


REDLANDS MEDICAL CENTER

Sheet: **C2.03**

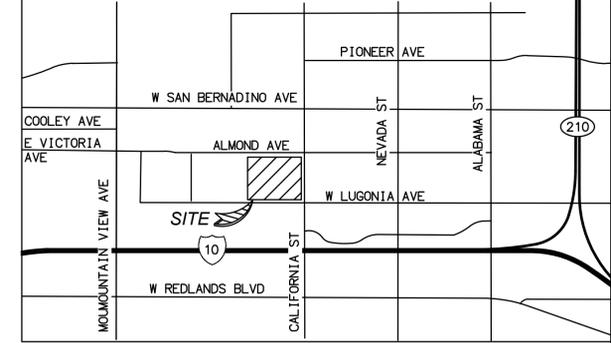
CITY OF REDLANDS

Site Development Plan Number:
 OWNER: Kaiser Foundation Hospitals PHONE: 626.405.6333
 ADDRESS: 393 E. Walnut Street Pasadena, CA 91108
 ARCHITECT/ENGINEER/DESIGNER: CO Architects, Michael Baker Int'l., Ridge Landscape Architects PHONE: 323.525.0500 (Architect)
 ADDRESS: 5750 Wilshire Boulevard, Suite 550, Los Angeles CA 90036 (Architect) LOCATION: 1301 California Street, Redlands, CA 92374
 TYPE OF DEVELOPMENT: XXXXX ACCESSOR'S PARCEL NUMBER: 0167-441-07-0-000
 ZONE: CR ZONE

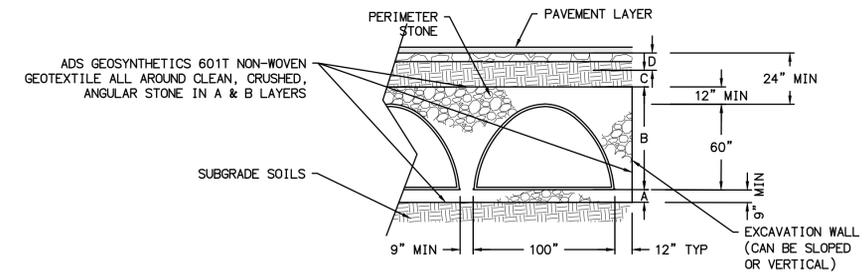


LEGEND

- STORM WATER BASIN
- UNDERGROUND INFILTRATION CHAMBERS
- DRAINAGE BOUNDARY
- FLOW ARROW
- FLOW DIRECTION
- DMA/DA ID
- BMP ID



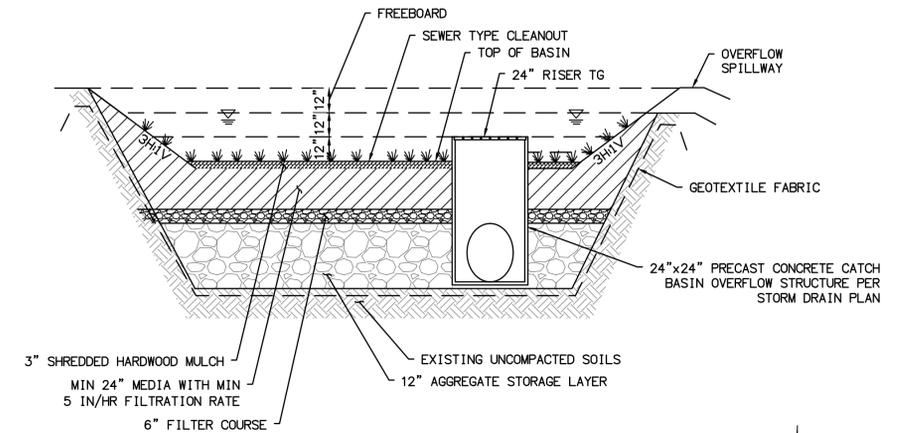
VICINITY MAP
N.T.S.



NOTES:

1. SECTION A - FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER
2. SECTION B - EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.
3. SECTION C - INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.
4. SECTION D - FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.

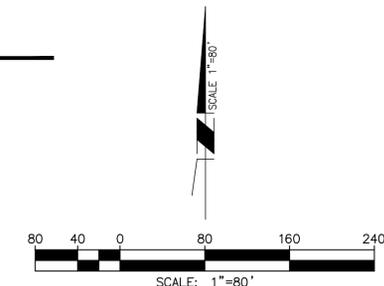
TYPICAL UNDERGROUND ADS STORMWATER CHAMBER INFILTRATION DETAIL
SCALE: NOT TO SCALE



TYPICAL BIO-RETENTION BASIN DETAIL
SCALE: NOT TO SCALE

DA	DMA	TOTAL AREA (SF)	IMPERVIOUS RATIO	DMA RUNOFF FACTOR	DESIGN CAPTURE VOLUME (CF)	BMP PROPOSED SURFACE AREA (SF)	VOLUME RETAINED BY BMP (CF)	BMP TYPE
1	A1	1,197,394	85%	0.66	91,866	43,500	92,438	UNDERGROUND INFILTRATION (SIZED FOR ULTIMATE PHASE 4)
1	B	126,200	85%	0.66	9,682	4,200	9,765	BIORETENTION WITH NO UNDERDRAIN (SIZED FOR ULTIMATE PHASE 4)
1	C	109,300	85%	0.66	8,386	4,000	9,300	BIORETENTION WITH NO UNDERDRAIN (SIZED FOR ULTIMATE PHASE 4)
2	A2	152,000	85%	0.66	11,662	6,035	14,031	BIORETENTION WITH NO UNDERDRAIN (SIZED FOR ULTIMATE PHASE 4)

PHASE 2 BMP Plan



**SITE PHASING - 2
BMP PLAN**

SEPTEMBER 09, 2022

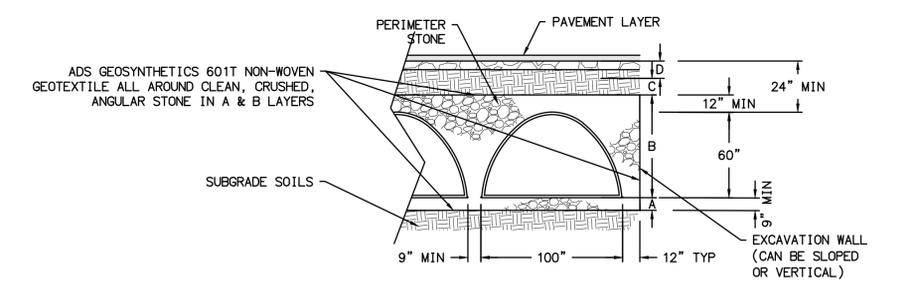
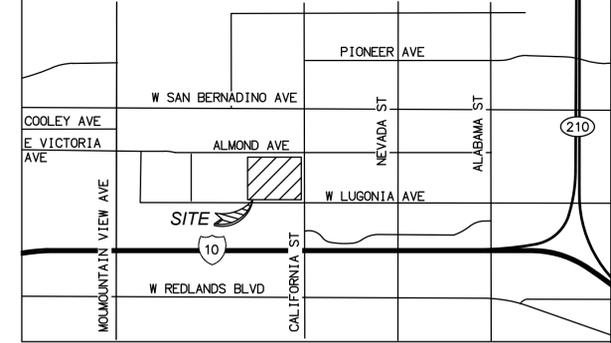
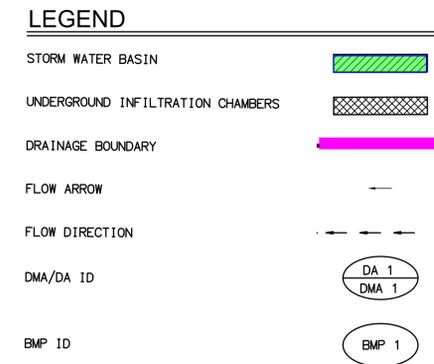
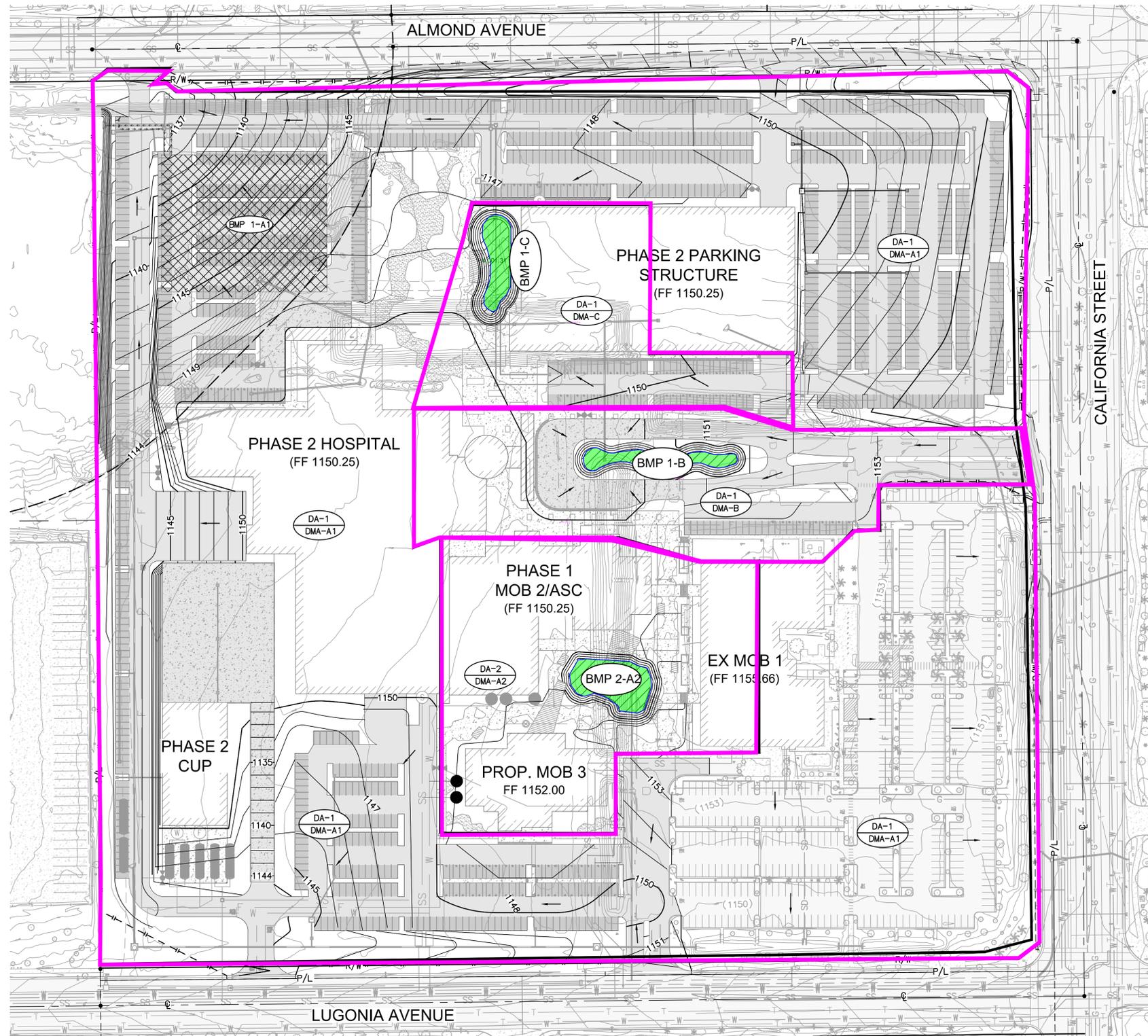


REDLANDS MEDICAL CENTER

Sheet: **C3.03**

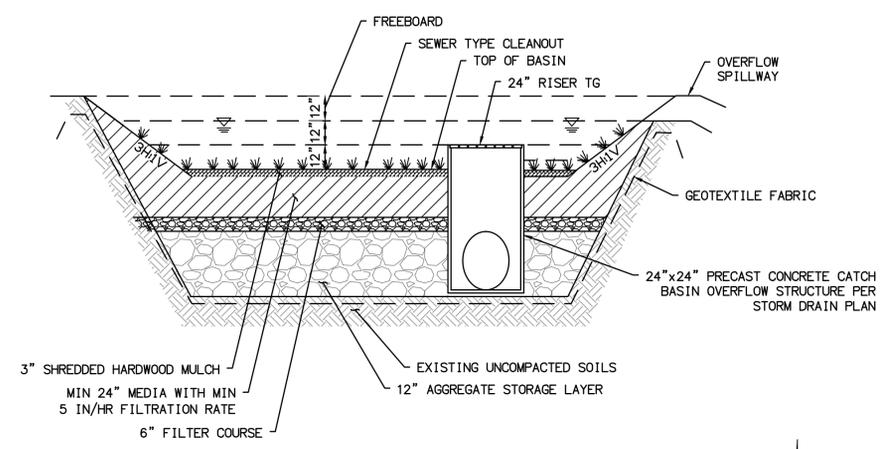
CITY OF REDLANDS

Site Development Plan Number:
 OWNER: Kaiser Foundation Hospitals PHONE: 626.405.6333
 ADDRESS: 383 E. Walnut Street Pasadena, CA 91108
 ARCHITECT/ENGINEER/DESIGNER: CO Architects, Michael Baker Intl., Ridge Landscape Architects PHONE: 323.525.0500 (Architect)
 ADDRESS: 5750 Wilshire Boulevard, Suite 550, Los Angeles CA 90036 (Architect) LOCATION: 1301 California Street, Redlands, CA 92374
 TYPE OF DEVELOPMENT: XXXXX ACCESSOR'S PARCEL NUMBER: 0167-441-07-0-000
 ZONE: CR ZONE



- NOTES:**
- SECTION A - FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER
 - SECTION B - EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.
 - SECTION C - INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.
 - SECTION D - FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.

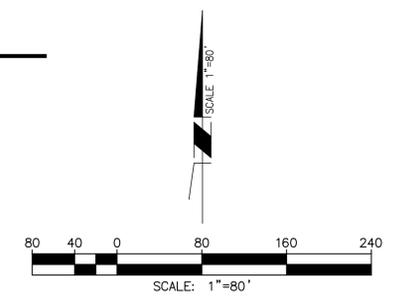
TYPICAL UNDERGROUND ADS STORMWATER CHAMBER INFILTRATION DETAIL
SCALE: NOT TO SCALE



TYPICAL BIO-RETENTION BASIN DETAIL
SCALE: NOT TO SCALE

DA	DMA	TOTAL AREA (SF)	IMPERVIOUS RATIO	DMA RUNOFF FACTOR	DESIGN CAPTURE VOLUME (CF)	BMP PROPOSED SURFACE AREA (SF)	VOLUME RETAINED BY BMP (CF)	BMP TYPE
1	A1	1,197,394	85%	0.66	91,866	43,500	92,438	UNDERGROUND INFILTRATION (SIZED FOR ULTIMATE PHASE 4)
1	B	126,200	85%	0.66	9,682	4,200	9,765	BIORETENTION WITH NO UNDERDRAIN (SIZED FOR ULTIMATE PHASE 4)
1	C	109,300	85%	0.66	8,386	4,000	9,300	BIORETENTION WITH NO UNDERDRAIN (SIZED FOR ULTIMATE PHASE 4)
2	A2	152,000	85%	0.66	11,662	6,035	14,031	BIORETENTION WITH NO UNDERDRAIN (SIZED FOR ULTIMATE PHASE 4)

PHASE 3 BMP Plan



**SITE PHASING - 3
BMP PLAN**

SEPTEMBER 09, 2022



REDLANDS MEDICAL CENTER

Sheet: **C4.03** CITY OF REDLANDS

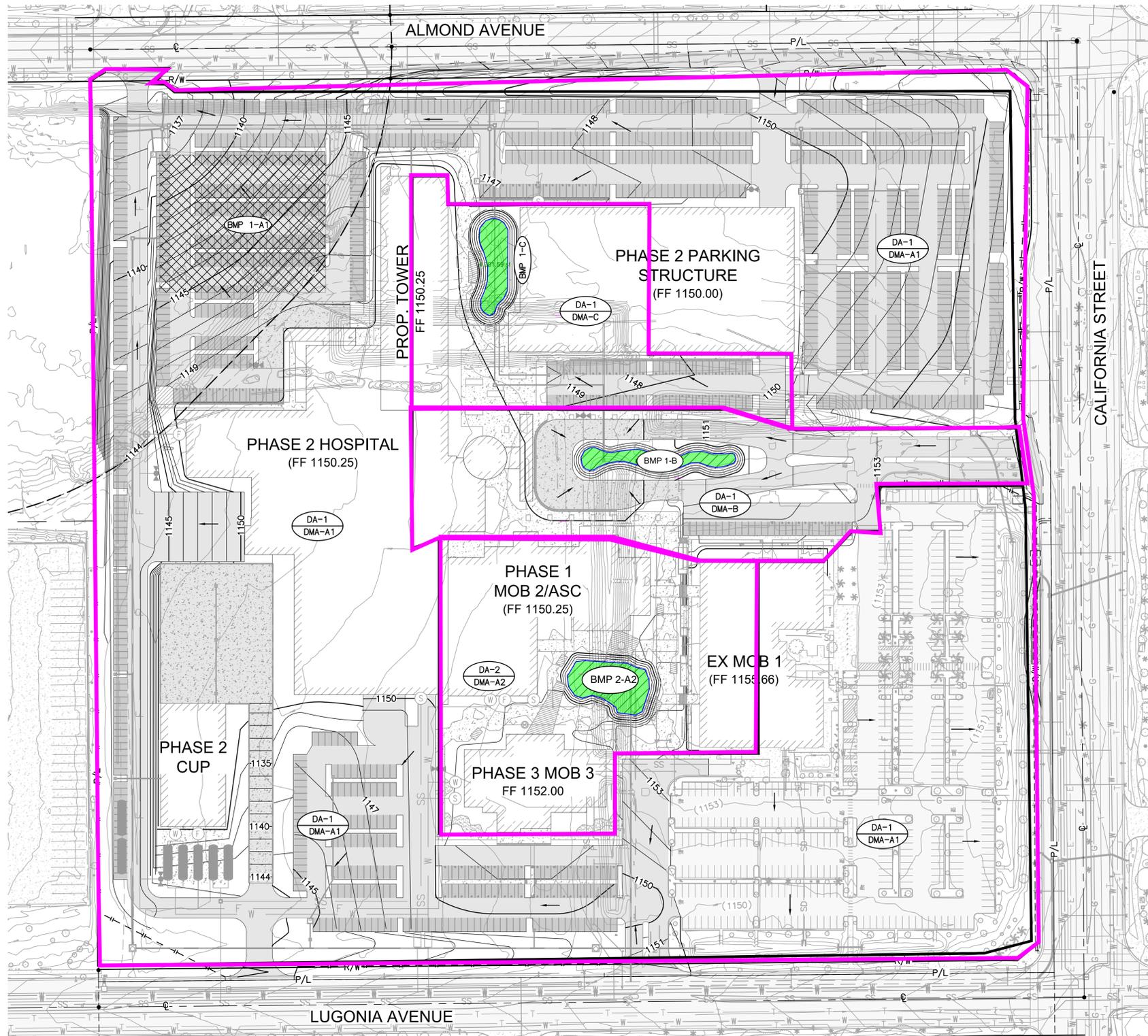
Site Development Plan Number: _____ PHONE: 626.405.6333

OWNER: Kaiser Foundation Hospitals ADDRESS: 383 E Walnut Street Pasadena, CA 91108

ARCHITECT/ENGINEER/DESIGNER: CO Architects, Michael Baker Intl., Ridge Landscape Architects PHONE: 323.525.0500 (Architect)

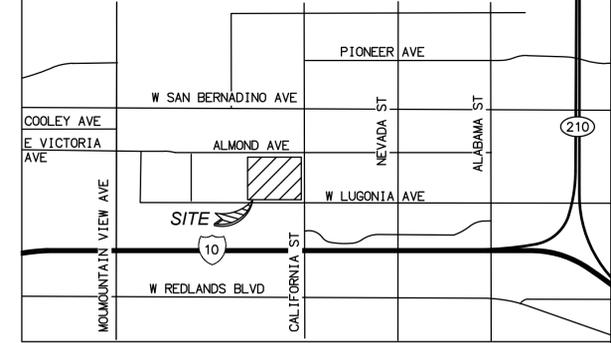
ADDRESS: 5750 Wilshire Boulevard, Suite 550, Los Angeles CA 90036 (Architect) LOCATION: 1301 California Street, Redlands, CA 92374

TYPE OF DEVELOPMENT: XXXXX ZONE: CR ZONE ACCESSOR'S PARCEL NUMBER: 0167-441-07-0-000

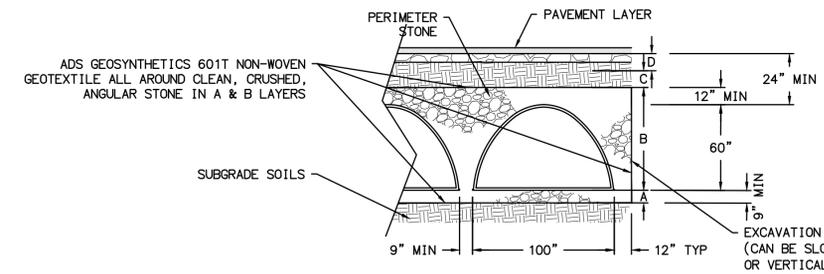


LEGEND

- STORM WATER BASIN
- UNDERGROUND INFILTRATION CHAMBERS
- DRAINAGE BOUNDARY
- FLOW ARROW
- FLOW DIRECTION
- DMA/DA ID
- BMP ID



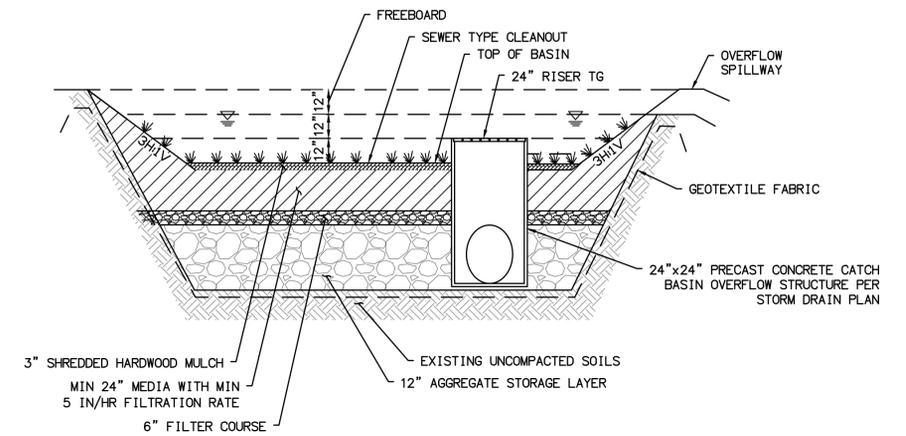
VICINITY MAP
N.T.S.



NOTES:

1. SECTION A - FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.
2. SECTION B - EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.
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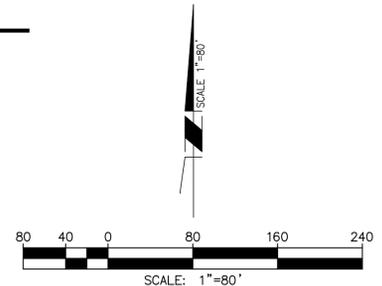
TYPICAL UNDERGROUND ADS STORMWATER CHAMBER INFILTRATION DETAIL
SCALE: NOT TO SCALE



TYPICAL BIO-RETENTION BASIN DETAIL
SCALE: NOT TO SCALE

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PHASE 4 BMP Plan



**SITE PHASING - 4
BMP PLAN**

SEPTEMBER 09, 2022



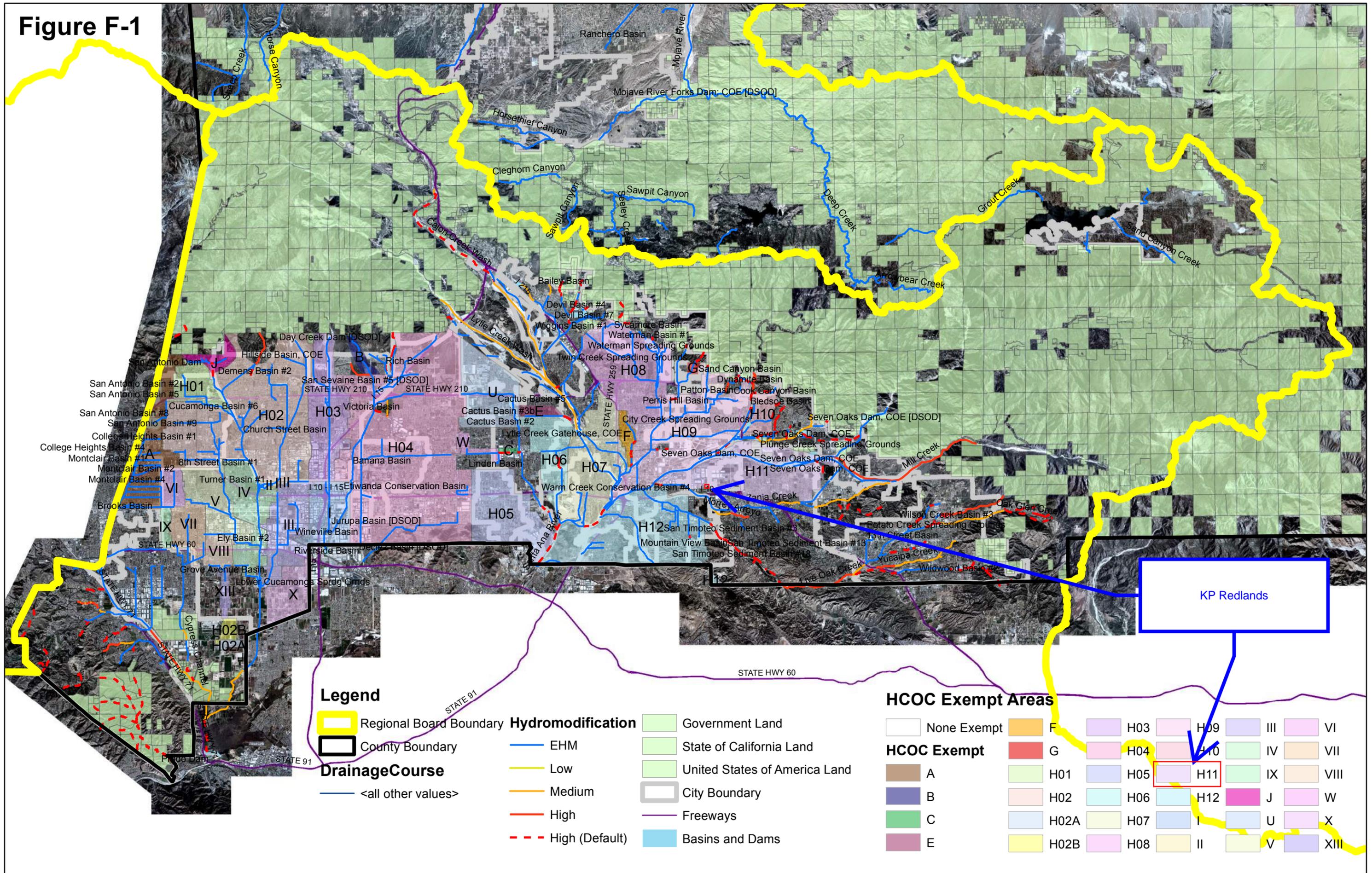
REDLANDS MEDICAL CENTER

Sheet: **C5.03**

CITY OF REDLANDS

Site Development Plan Number: _____ PHONE: 626.405.6333
 OWNER: Kaiser Foundation Hospitals
 ADDRESS: 303 E Walnut Street Pasadena, CA 91108
 ARCHITECT/ENGINEER/DESIGNER: CO Architects, Michael Baker Intl., Ridge Landscape Architects
 ADDRESS: 5750 Wilshire Boulevard, Suite 550, Los Angeles CA 90036 (Architect) PHONE: 323.525.0500 (Architect)
 TYPE OF DEVELOPMENT: XXXXX LOCATION: 1301 California Street, Redlands, CA 92374
 ZONE: CR ZONE ACCESSOR'S PARCEL NUMBER: 0167-441-07-0-000

Figure F-1



Hydromodification

A.1 Hydrologic Conditions of Concern (HCOC) Analysis

HCOC Exemption:

1. **Sump Condition:** All downstream conveyance channel to an adequate sump (for example, Prado Dam, Santa Ana River, or other Lake, Reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Sensitivity Maps.
2. **Pre = Post:** The runoff flow rate, volume and velocity for the post-development condition of the Priority Development Project do not exceed the pre-development (i.e, naturally occurring condition for the 2-year, 24-hour rainfall event utilizing latest San Bernardino County Hydrology Manual.
 - a. Submit a substantiated hydrologic analysis to justify your request.
3. **Diversion to Storage Area:** The drainage areas that divert to water storage areas which are considered as control/release point and utilized for water conservation.
 - a. See Appendix F for the HCOC Exemption Map and the on-line Watershed Geodatabase (<http://sbcounty.permitrack.com/wap>) for reference.
4. **Less than One Acre:** The Priority Development Project disturbs less than one acre. The Co-permittee has the discretion to require a Project Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The project disturbs less than one acre and is not part of a common plan of development.
5. **Built Out Area:** The contributing watershed area to which the project discharges has a developed area percentage greater than 90 percent.
 - a. See Appendix F for the HCOC Exemption Map and the on-line Watershed Geodatabase (<http://sbcounty.permitrack.com/wap>) for reference.

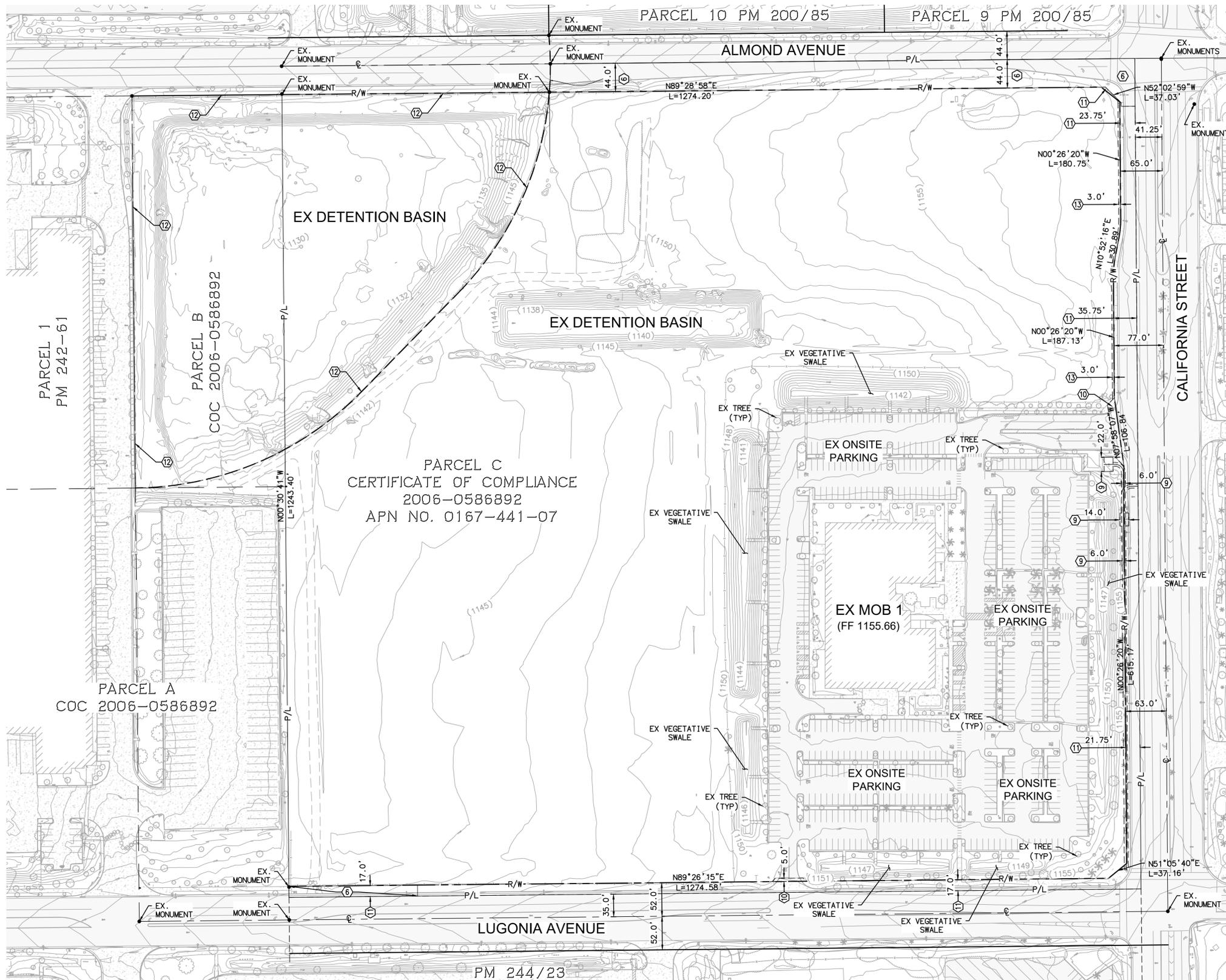
Summary of HCOC Exempted Area

	HCOC Exemption reasoning				
	1	2	3	4	5
Area					
A			X		X
B			X		
C					X
E			X		
F					X
G			X		X
H01	X		X		
H02	X		X		
H02A	X		X		
H02B			X		
H03			X		
H04	X		X		
H05	X				
H06			X		
H07	X				
H08	X		X		
H09	X				
H10	X		X		
H11	X		X		
H12	X				
J			X		
U			X		
W			X		
I			X		
II			X		
III					X
IV			X		X
V			X*		
VI					X
VII					X
VIII			X		
IX					X
X			X		
XIII			X		

*Detention/Conservation Basin

Appendix B

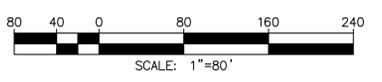
Entitlement Plans



EASEMENT NOTES

- ① AN OFFER OF DEDICATION FOR PUBLIC ROAD, UTILITY AND PUBLIC SERVICE USES AND INCIDENTAL PURPOSES, RECORDED JUNE 19, 2003 AS INSTRUMENT NO. 2003-0414272 OF OFFICIAL RECORDS TO THE CITY OF REDLANDS (PORTIONS ALMOND & LUGONIA STREETS)
- ② ELECTRIC EASEMENT TO SO. CAL EDISON CO. FOR UNDERGROUND ELECTRICAL SUPPLY AND COMMUNICATION SYSTEMS AND INCIDENTAL PURPOSES, RECORDED SEPTEMBER 05, 2007 AS INSTRUMENT NO. 2007-0511648 OF OFFICIAL RECORDS. (4 STRIPS, VARYING WIDTHS, AS SHOWN)
- ③ AN EASEMENT FOR SIDEWALK PURPOSES AND INCIDENTAL PURPOSES, RECORDED SEPTEMBER 06, 2007 AS INSTRUMENT NO. 2007-0514600 OF OFFICIAL RECORDS. IN FAVOR OF: CITY OF REDLANDS, A MUNICIPAL CORPORATION AFFECTS: AS DESCRIBED THEREIN

- ④ ROADWAY EASEMENT AND INCIDENTAL PURPOSES, RECORDED SEPTEMBER 06, 2007 AS INSTRUMENT NO. 2007-0514601 OF OFFICIAL RECORDS. IN FAVOR OF: CITY OF REDLANDS, A MUNICIPAL CORPORATION
- ⑤ THE TERMS, PROVISIONS AND EASEMENT(S) CONTAINED IN THE DOCUMENT ENTITLED "RECIPROCAL EASEMENT AGREEMENT" RECORDED SEPTEMBER 10, 2007 AS INSTRUMENT NO. 2007-0520620 OF OFFICIAL RECORDS. (DETENTION BASIN AS SHOWN)
- ⑥ AN EASEMENT FOR SIDEWALK PURPOSES AND INCIDENTAL PURPOSES, RECORDED OCTOBER 02, 2008 AS INSTRUMENT NO. 2008-0443990 OF OFFICIAL RECORDS. IN FAVOR OF: CITY OF REDLANDS, A MUNICIPAL CORPORATION AFFECTS: AS DESCRIBED THEREIN



OWNER/DEVELOPER

KAISER PERMANENTE
393 E. WALNUT STREET, 4TH FLOOR
PASADENA, CA 91188
CONTACT PERSON: SKYLER DENNISTON
PHONE NO. (626) 405-6333

CIVIL ENGINEER

MICHAEL BAKER INTERNATIONAL
9755 CLAIREMONT MESA BOULEVARD, SUITE 100
SAN DIEGO, CA 92124
PHONE NO. (858) 614-5000

ARCHITECT

CO ARCHITECTS
5055 WILSHIRE BOULEVARD, 9TH FLOOR
LOS ANGELES, CA 90036
PHONE NO. (323) 525-0500

SITE ADDRESS

1301 CALIFORNIA STREET
REDLANDS, CA 92374

FEMA ZONE

ZONE X, MINIMAL FLOOD HAZARD

EXISTING UTILITY NOTE

EXISTING UTILITIES HAVE BEEN SHOWN BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL LOCATE AND MARK OUT ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL CONTACT THE ENGINEER IF ANY UTILITIES ARE LOCATED THAT ARE NOT IDENTIFIED ON THESE PLANS.

STORM WATER NOTE

A STORMWATER POLLUTION PREVENTION PLAN (SWPPP), WHICH INCLUDES BEST MANAGEMENT PRACTICES TO REDUCE POLLUTANTS REACHING DOWNSTREAM WATER BODIES, WILL BE PREPARED PRIOR TO ISSUANCE OF GRADING PERMIT AND A NOTICE OF INTENT SUBMITTED TO THE STATE REGIONAL WATER QUALITY CONTROL BOARD.

EARTHWORK

PHASE 1 OUT: 33,000 CY FILL: 33,000 CY NET: 0 CY	PHASE 3 OUT: 79,000 CY FILL: 105,000 CY NET: 26,000 CY
PHASE 2 OUT: 79,000 CY FILL: 105,000 CY NET: 26,000 CY	PHASE 4 OUT: 79,000 CY FILL: 105,000 CY NET: 26,000 CY

DISTURBED AREA

GROSS DISTURBED AREA: 29.5 ACRES

LEGAL DESCRIPTION

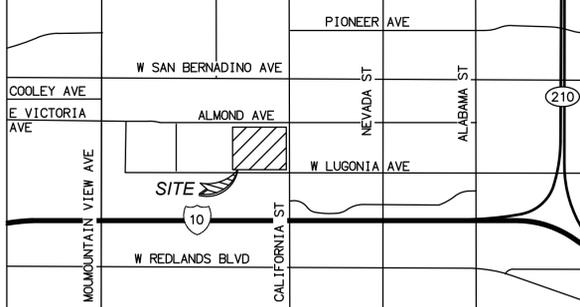
REAL PROPERTY IN THE CITY OF REDLANDS, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

THOSE PORTIONS OF PARCEL 26 OF PARCEL MAP NO. 15911, IN THE CITY OF REDLANDS, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP FILED IN BOOK 200, PAGES 85 TO 92, INCLUSIVE OF PARCEL MAPS, AND PARCEL "C" OF CERTIFICATE OF COMPLIANCE RECORDED AUGUST 16, 1991 AS INSTRUMENT NO. 91-312389, OF OFFICIAL RECORDS, BEING A PORTION OF LOTS 1, 2, 3, 4, 18, 19 AND 20 AND HUGO STREET (VACATED) OF THE ORANGE GROVE HOMESTEAD, AS PER MAP RECORDED IN BOOK 2, PAGE 5, OF MAPS, ALL IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF A LINE PARALLEL WITH AND 233.23 FEET EASTERLY, MEASURE AT RIGHT ANGLES FROM THE WESTERLY LINE OF SAID PARCEL 26 WITH THE NORTHERLY LINE OF SAID PARCEL 26, SAID NORTHERLY LINE ALSO BEING THE SOUTHERLY LINE OF ALMOND AVENUE, (88.00 FEET WIDE) AS SHOWN ON SAID PARCEL MAP NO. 15911; THENCE ALONG SAID PARALLEL LINE, SOUTH 00° 30' 44" EAST, 1243.45 FEET TO THE SOUTHERLY LINE OF SAID PARCEL "C"; THENCE ALONG SAID SOUTHERLY LINE OF PARCEL "C" NORTH 89° 25' 49" EAST, 1325.45 FEET TO THE EASTERLY LINE OF SAID PARCEL "C" THENCE ALONG SAID EASTERLY LINE OF SAID PARCEL "C" NORTH 00° 26' 27" WEST, 1286.12 FEET TO THE NORTHERLY LINE OF SAID PARCEL "C"; THENCE ALONG SAID NORTHERLY LINE OF PARCEL "C", SOUTH 89° 29' 16" WEST, 90908 FEET TO THE WESTERLY CURVED LINE OF SAID PARCEL "C" BEING THE BEGINNING OF A NON-TANGENT CURVE, CONCAVE WESTERLY, HAVING A RADIUS OF 500.00 FEET, A RADIAL LINE OF SAID CURVE TO ITS POINT OF BEGINNING BEARS NORTH 89° 29' 16" EAST; THENCE SOUTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 5° 02' 55" AN ARC DISTANCE OF 44.06 FEET TO THE NORTHEASTERLY CORNER OF SAID PARCEL 26; THENCE ALONG SAID NORTHERLY LINE OF PARCEL 26, SOUTH 89° 29' 16" WEST, 416.03 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM ALL MINERALS AND ALL MINERAL RIGHTS OF EVERY KIND AND CHARACTER NOW KNOWN TO EXIST OR HEREAFTER DISCOVERED, EXCLUDING THE AREA WITHIN THE TOP FIVE HUNDRED (500) FEET OF THE SURFACE OF THE LAND, INCLUDING, WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, OIL AND GAS AND RIGHTS THERETO, TOGETHER WITH THE SOLE, EXCLUSIVE AND PERPETUAL RIGHT TO EXPLORE FOR, REMOVE AND DISPOSE OF SAID MINERALS BY ANY MEANS OR METHODS SUITABLE TO GRANTOR, ITS SUCCESSORS AND ASSIGNS, BUT WITHOUT ENTERING UPON OR USING THE SURFACE OF THE PROPERTY, AND IN SUCH MANNER AS NOT TO DAMAGE THE SURFACE OF SAID LANDS OR ITS LATERAL OR HORIZONTAL SUPPORT OR TO INTERFERE WITH THE USE THEREOF BY GRANTEE, ITS SUCCESSORS OR ASSIGNS, AS RESERVED IN THE DEED FROM UNION PACIFIC RAILROAD COMPANY, A DELAWARE CORPORATION, RECORDED NOVEMBER 2, 2001 AS INSTRUMENT NO. 2001-503313, OFFICIAL RECORDS.

APN: 0167-441-07-0-000



VICINITY MAP

N.T.S.

LEGEND

- STREET CENTERLINE
- EASEMENT LINE
- RIGHT OF WAY/PROPERTY LINE
- PARCEL LINE

TOPOGRAPHY SOURCE

AEROTECH MAPPING, INC.
200 SPECTRUM CENTER DRIVE, SUITE 300
IRVINE, CA 92618
PHONE NO. (619) 606-5020
TOPO SOURCE: AERIAL TOPO
TOPO SOURCE DATE: 2022-07-13

BENCHMARK

THE BASIS OF ELEVATIONS FOR THIS SURVEY IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) PER NATIONAL GEODETIC SURVEY (NGS) DESIGNATION U1418. LOCATED APPROXIMATELY 196 FEET WEST OF THE CL INT OF CHURCH ST & E PENNSYLVANIA AVE, NORTH SIDE OF E PENNSYLVANIA BETWEEN SIDEWALK AND CURB ELEVATION: 1404.80

BASIS OF COORDINATES & BEARINGS

THE BASIS OF BEARINGS IS THE CALIFORNIA COORDINATE SYSTEM OF 1983, CCRS83, ZONE 5, (CCRS EPOCH 2017.5) BASED LOCALLY UPON FIELD-OBSERVED TIES TO THE FOLLOWING CONTINUOUS OPERATING REFERENCE STATIONS (CORS) AS PUBLISHED BY SCRIPPS ORBIT & PERMANENT ARRAY CENTER (SOPAC).

STATION	NORTHING (ft.)	GRID EASTING (ft.)	GRID
P612	1891277.943	6768672.068	
MSOB	1907327.945	6800419.744	

DISTANCES SHOWN HEREON ARE GROUND AND IN TERMS OF THE U.S. SURVEY FOOT. CONTROL POINT 1: GRID DISTANCE = GROUND DISTANCE X COMBINED SCALE FACTOR (0.9999428)

THE BASIS OF BEARINGS IS THE CALCULATED BEARING BETWEEN SAID CONTROL STATIONS P612 & MSOB I.E. N63°10'52"E

EXISTING CONDITIONS

SEPTEMBER 09, 2022

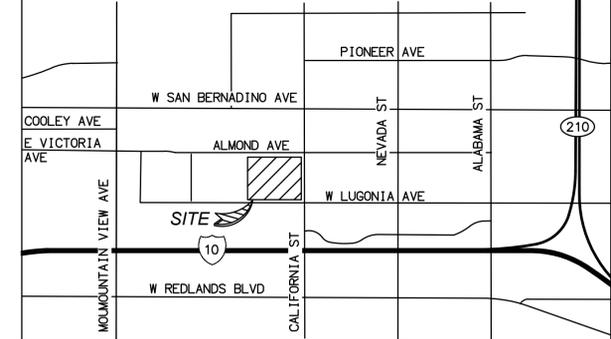
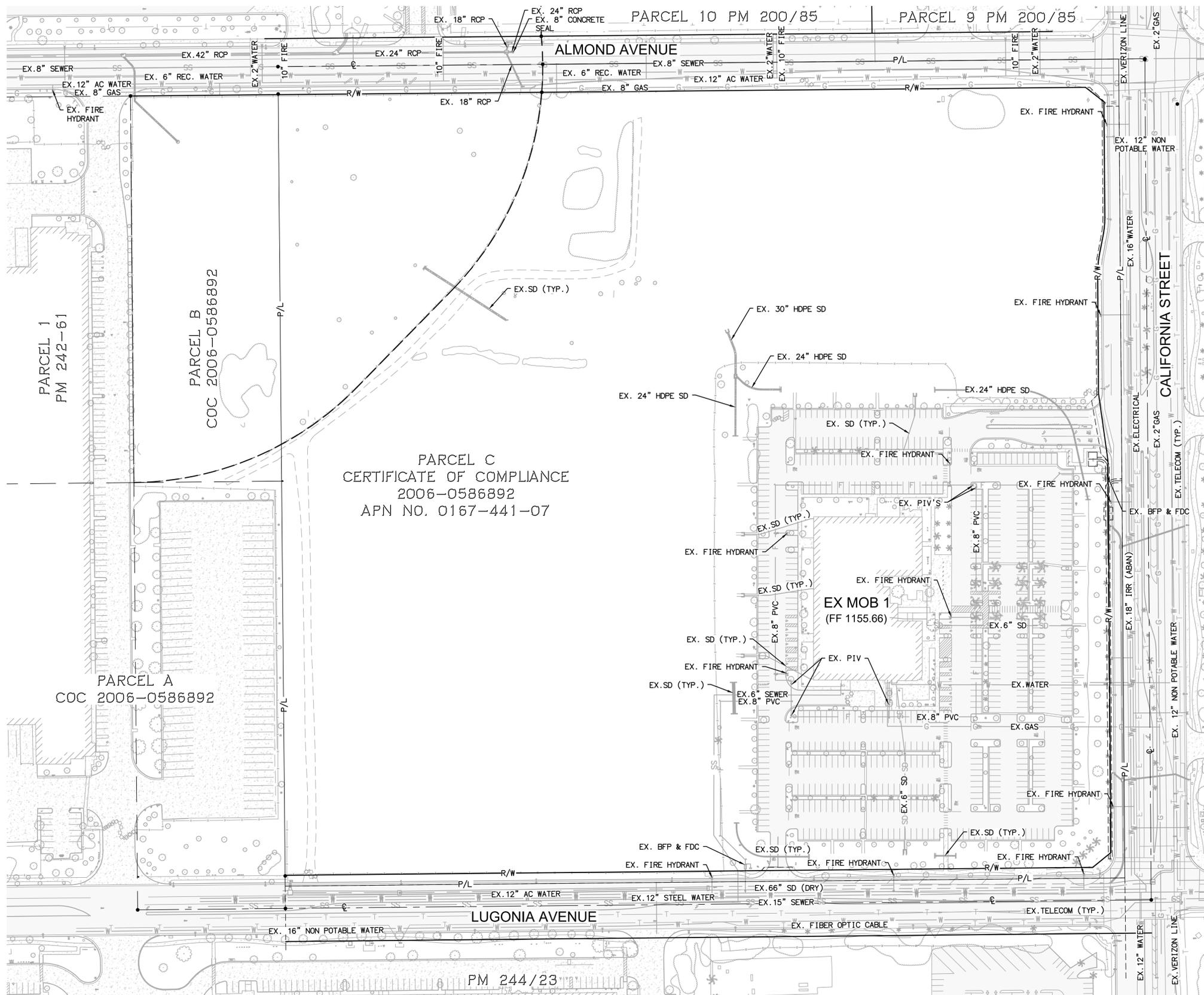


REDLANDS MEDICAL CENTER

Sheet: **C1.00**

CITY OF REDLANDS

Site Development Plan Number:	OWNER: Kaiser Foundation Hospitals	PHONE: 626.405.6333
ADDRESS: 393 E Walnut Street Pasadena, CA 91188	ARCHITECT/ENGINEER/DESIGNER: CO Architects, Michael Baker Int'l, Ridge Landscape Architects	PHONE: 323.525.0500 (Architect)
ADDRESS: 5750 Wilshire Boulevard, Suite 550, Los Angeles CA 90036 (Architect)	TYPE OF DEVELOPMENT: XXXXX	LOCATION: 1301 California Street, Redlands, CA 92374
		ACCESSORS/PARCEL NUMBER: 0167-441-07-0-000



VICINITY MAP
N.T.S.

LEGEND

EXISTING STORM DRAIN	---
EXISTING SEWER	SS ---
EXISTING WATER	W ---
EXISTING GAS	G ---
EXISTING FIRE	F ---
EXISTING TELECOM	T ---

EXISTING UTILITY NOTE

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EXISTING UTILITIES

SEPTEMBER 09, 2022

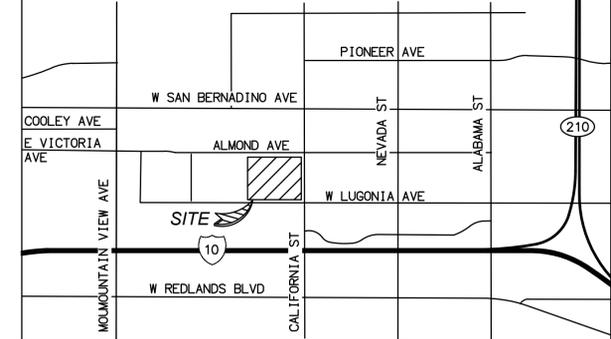
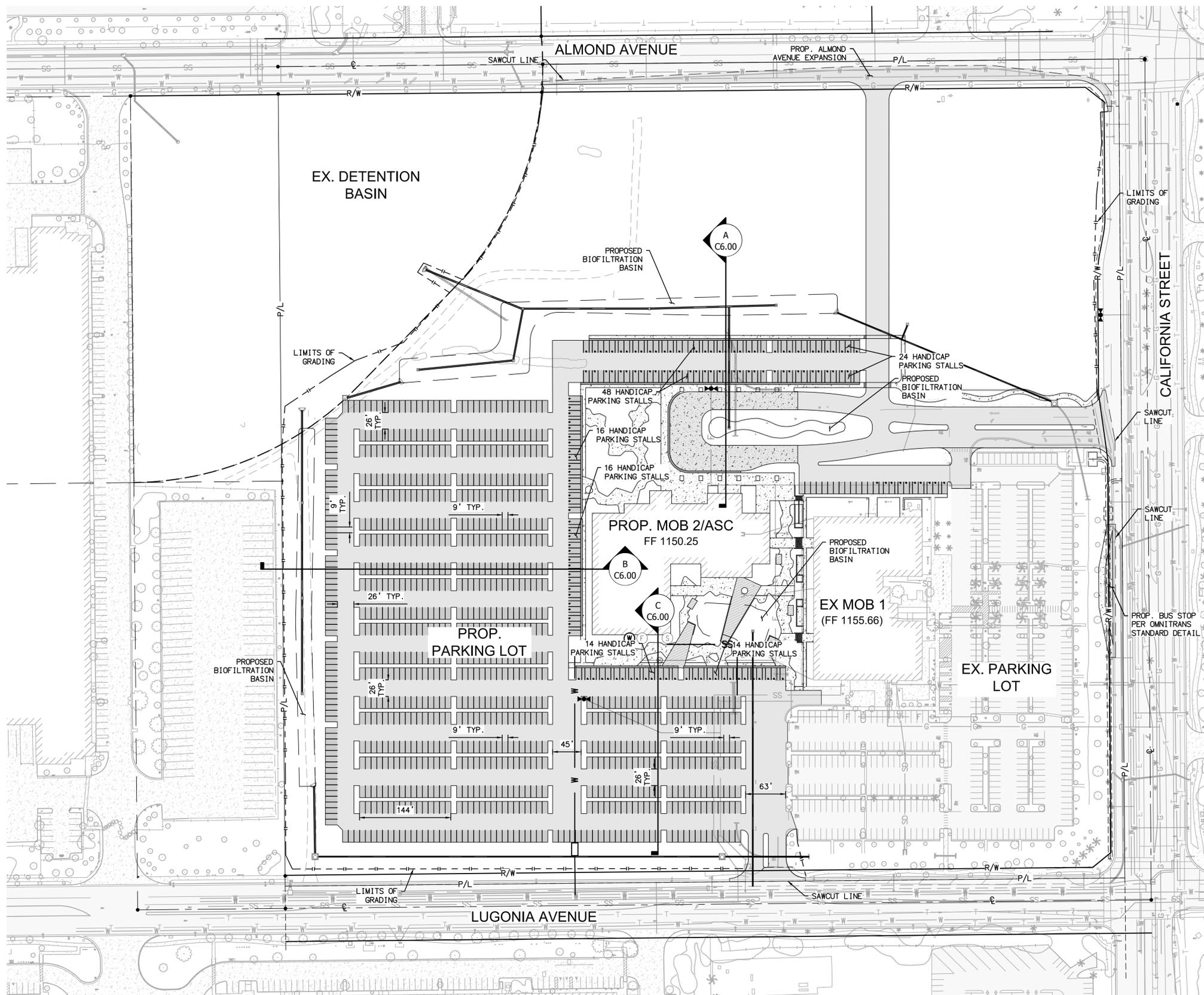


REDLANDS MEDICAL CENTER

Sheet: **C1.01**

CITY OF REDLANDS

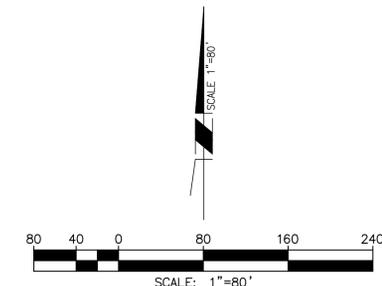
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TYPE OF DEVELOPMENT: XXXX	ACCESSOR'S PARCEL NUMBER: 0167-441-07-0-000
ZONE: CR ZONE	



VICINITY MAP
N.T.S.

LEGEND

RIGHT OF WAY	---
PROPERTY LINE	---
CURB AND GUTTER	---
AC PAVEMENT	▨
HEAVY VEHICULAR AC PAVEMENT	▨
HEAVY VEHICULAR CONCRETE PAVEMENT	▨
PEDESTRIAN CONCRETE PAVEMENT	▨
DG PATH	▨
PROPOSED BUILDING	▨
TRUNCATED DOMES	▨



SITE PHASING - 1
SITE PLAN

SEPTEMBER 09, 2022

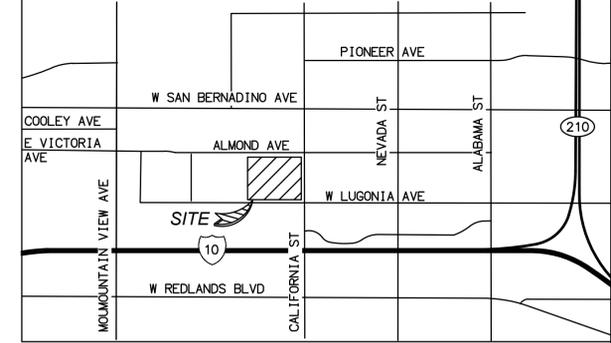
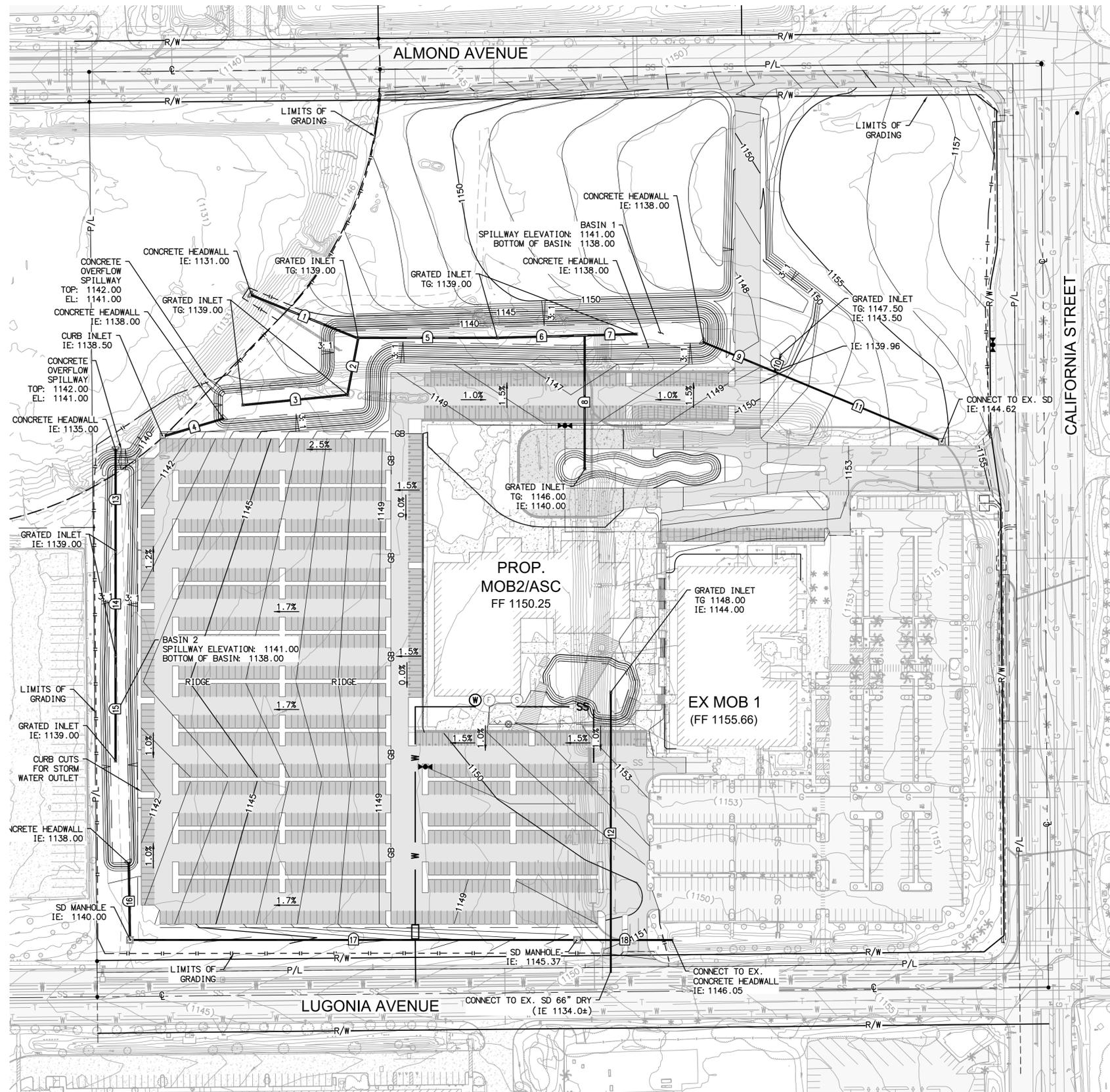


REDLANDS MEDICAL CENTER

Sheet: **C2.00**

CITY OF REDLANDS

Site Development Plan Number:	PHONE: 626.405.6333
OWNER: Kaiser Foundation Hospitals	ADDRESS: 393 E. Walnut Street Pasadena, CA 91108
ARCHITECT/ENGINEER/DESIGNER: CO Architects, Michael Baker Intl., Ridge Landscape Architects	PHONE: 323.525.0500 (Architect)
ADDRESS: 5750 Wilshire Boulevard, Suite 550, Los Angeles CA 90036 (Architect)	LOCATION: 1301 California Street, Redlands, CA 92374
TYPE OF DEVELOPMENT: XXXXX	ACCESSOR'S PARCEL NUMBER: 0167-441-07-0-000
ZONE: CR ZONE	



VICINITY MAP
N.T.S.

GRADING GENERAL NOTES

- ALL GRADING AND ON-SITE CONSTRUCTION SHALL MEET THE MINIMUM REQUIREMENTS OF THE UNIFORM BUILDING CODE, LATEST EDITION, APPENDIX CHAPTER 33 AND THE CALIFORNIA BUILDING CODE, LATEST EDITION. THESE CODES ARE AMENDED IN THE CITY OF REDLANDS MUNICIPAL CODE. IF CONTRADICTIONS ARISE BETWEEN PROVISIONS IN THESE PLANS FROM THOSE IN THE VARIOUS CODES, THE MOST RESTRICTIVE PROVISIONS WILL GOVERN.
- AFTER THE GRADING PERMIT HAS BEEN ISSUED, THE PROJECT MANAGER SHALL CONVENE AN ON-SITE PRECONSTRUCTION MEETING WITH THE CITY OF REDLANDS INSPECTOR, THE ENGINEER OF RECORD, THE GEOTECHNICAL ENGINEER AND THE GRADING CONTRACTOR. AT THIS MEETING, THE PROJECT SUPERINTENDENT SHALL BE IDENTIFIED AND AN EMERGENCY CONTACT PERSON SHALL BE IDENTIFIED TO THE INSPECTOR.
- USE BEST MANAGEMENT PRACTICES (BMPs) TO PREVENT AND CONTAIN ILLEGAL DISCHARGES WITHIN THE PROJECT BOUNDARY. THIS WILL BE IN EFFECT FOR THE ENTIRE DURATION OF THE PROJECT CONSTRUCTION TO ITS COMPLETION.
- BUILDING PERMITS SHALL NOT BE ISSUED UNTIL THE PROJECT SITE HAS BEEN GRADED AND THE ENGINEER OF RECORD HAS CERTIFIED TO THE SATISFACTION OF THE CITY ENGINEER THAT THE SITE HAS BEEN PREPARED ACCORDING TO THE RECOMMENDATIONS OF THE SOILS REPORT(S) AND TO THE SPECIFICATIONS OF THE APPROVED GRADING PLANS. IN ADDITION, A FINAL COMPACTION REPORT SHALL BE SUBMITTED TO BOTH THE INSPECTOR AND THE BUILDING OFFICIAL FOR APPROVAL.
- A WRITTEN REPORT BY A GEOTECHNICAL ENGINEER IS TO BE FURNISHED TO BOTH THE CITY'S MUNICIPAL UTILITIES AND ENGINEERING DEPARTMENT AND BUILDING AND SAFETY DIVISION, TO CERTIFY THAT ALL FILL MATERIAL AND MATERIAL UPON WHICH FILL IS TO BE PLACED IS ADEQUATE TO SUPPORT THE LOADS OF THE PROPOSED DEVELOPMENT. THIS REPORT SHALL INCLUDE SOIL TEST DATA ON ALL FILLS OF TWO FEET OR MORE.
- PREPARATION OF THE SITE SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE INSTRUCTIONS OF A GEOTECHNICAL ENGINEER AND ALL FILLS WILL BE MADE UNDER HIS DIRECTION.
- IN NO CASE IS ANY SLOPE TO EXCEED A GRADIENT OF TWO HORIZONTAL TO ONE VERTICAL (2:1).
- THE ENGINEER OF RECORD ASSUMES NO LIABILITY FOR THE EXISTENCE AND LOCATIONS OF UNDERGROUND UTILITY LINES, STRUCTURES OR IRRIGATION LINES. THE CONTRACTOR IS TO MAKE AN ON-SITE INSPECTION AND NOTIFY ALL UTILITY AND IRRIGATION COMPANIES PRIOR TO WORK OR EXCAVATION TO DETERMINE THE EXACT LOCATION OF ANY AND ALL UNDERGROUND FACILITIES.
- THE CONTRACTOR SHALL BE FAMILIAR WITH AND RESPONSIBLE FOR CLEARING THE SITE IN PREPARATION FOR CONSTRUCTION.
- THE ENGINEER'S ESTIMATE IS 33,000 CY OF EXCAVATION AND 33,000 CY OF EMBANKMENT FOR THE SITE GRADING. THESE ARE RAW QUANTITIES WITHOUT ALLOWANCES FOR LOSS, SHRINKAGE OR COMPACTION.
- INSTALL FIRE HYDRANTS AS REQUIRED PRIOR TO THE DELIVERY OF ANY BUILDING MATERIAL TO THE SITE.
- BENCHMARK: ENTER PROJECT SPECIFIC DATA HERE. ELEVATION:
- ALL SLOPES THREE FEET OR GREATER MUST BE LANDSCAPED AND IRRIGATED PRIOR TO OCCUPANCY.
- ACREAGE OF THE PROJECT IS: ACRE(S).
- APPROVAL OF THIS PLAN DOES NOT CONSTITUTE APPROVAL FOR THE CONSTRUCTION OF ANY WALLS, SIDEWALKS, SLABS, PAVING, ETC. TO BE CONSTRUCTED ON-SITE AS SHOWN HEREON. A SEPARATE PERMIT IS REQUIRED FROM THE BUILDING AND SAFETY DIVISION FOR THE CONSTRUCTION OF THESE ON-SITE ITEMS.
- ALL EARTHWORK SHALL CONFORM TO THE PRELIMINARY GEOTECHNICAL AND/OR GEOLOGIC INVESTIGATION REPORT FOR TBD PREPARED BY TBD, DATED TBD.
- THE ENGINEER OF RECORD MUST SET GRADE STAKES FOR ALL DRAINAGE DEVICES.
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY INSPECTIONS PRIOR TO POURING ANY CONCRETE.

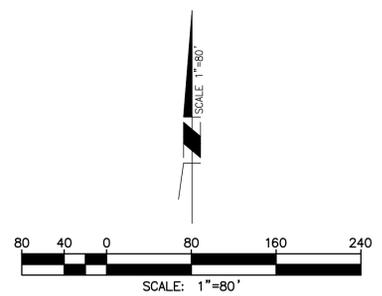
LEGEND

- MAJOR CONTOUR
- MINOR CONTOUR
- DAYLIGHT LINE
- SAWCUT LINE
- STORM DRAIN
- CURB INLET
- STORM DRAIN MANHOLE
- CATCH BASIN INLET
- CONCRETE HEADWALL
- CONCRETE STRUCTURE INLET

EARTHWORK

CUT: 33,000 CY
FILL: 33,000 CY
NET: 0 CY

NO	BEARING/Delta	LENGTH	SLOPE (%)	SIZE/TYPE
1	N68°06'52"W	162.75'	5.0	24" HDPE
2	N10°49'23"E	78.96'	0.5	12" HDPE
3	N84°22'55"E	147.14'	0.5	12" HDPE
4	N73°41'37"E	87.50'	0.5	12" HDPE
5	N89°59'25"E	196.00'	0.5	12" HDPE
6	N88°27'29"E	123.65'	0.5	12" HDPE
7	N88°27'29"E	72.42'	0.5	12" HDPE
8	N00°00'00"W	190.70'	0.5	12" HDPE
9	N67°35'04"W	109.99'	1.8	18" HDPE
10	N22°24'56"E	23.64'	15.0	12" HDPE
11	N67°35'04"W	260.99'	1.8	18" HDPE
12	N00°00'00"E	398.61'	2.5	18" HDPE
13	N00°00'00"E	142.93'	2.8	18" HDPE
14	N00°00'30"W	147.89'	0.5	12" HDPE
15	N00°00'29"E	152.11'	0.5	12" HDPE
16	N00°53'37"W	110.68'	1.8	12" HDPE
17	N90°00'00"E	642.38'	0.8	12" HDPE
18	N89°55'53"W	137.06'	0.5	12" HDPE



**SITE PHASING - 1
GRADING PLAN**

SEPTEMBER 09, 2022

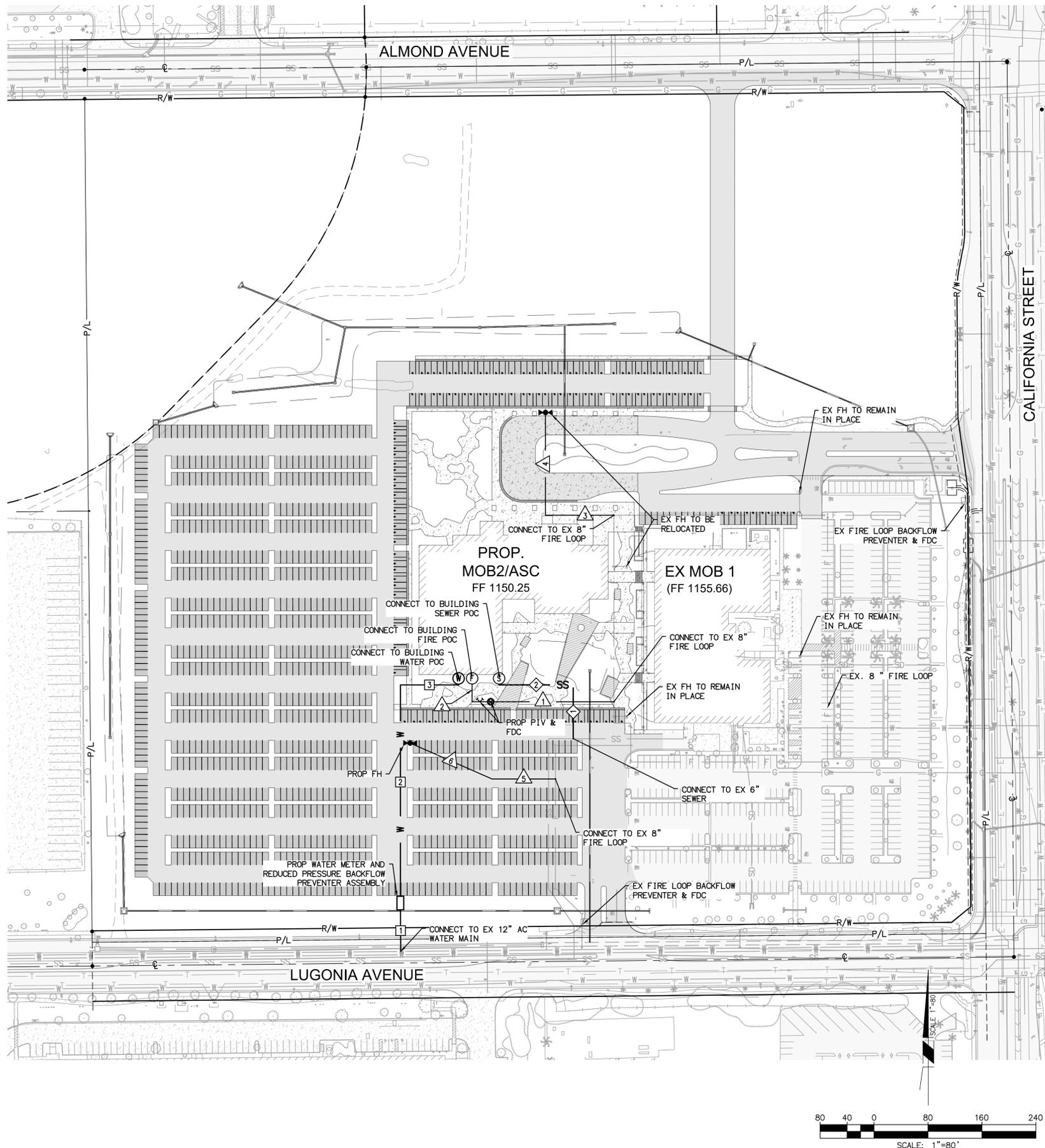


REDLANDS MEDICAL CENTER

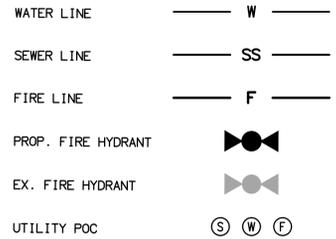
Sheet: **C2.01**

CITY OF REDLANDS

Site Development Plan Number:	PHONE: 626.405.6333
OWNER: Kaiser Foundation Hospitals	ADDRESS: 303 E Walnut Street Pasadena, CA 91108
ARCHITECT: ENGINEER: DESIGNER: CO Architects, Michael Baker Intl., Ridge Landscape Architects	PHONE: 323.525.0500 (Architect)
ADDRESS: 5750 Wilshire Boulevard, Suite 550, Los Angeles CA 90036 (Architect)	LOCATION: 1301 California Street, Redlands, CA 92374
TYPE OF DEVELOPMENT: XXXXX	ACCESSOR'S PARCEL NUMBER: 0167-441-07-0-000
ZONE: CR ZONE	



LEGEND



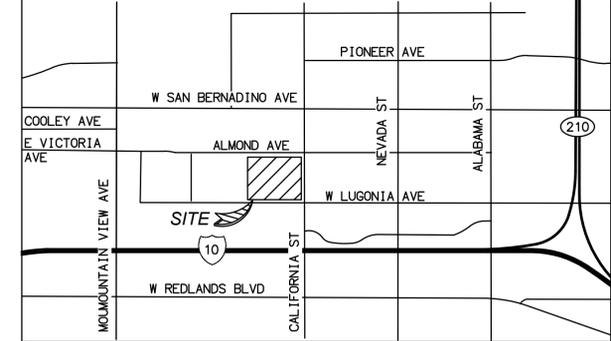
WATER GENERAL NOTES

- MATERIAL AND INSTALLATION SHALL CONFORM TO THE CITY OF REDLANDS MUNICIPAL WATER DIVISION STANDARD SPECIFICATION (LATEST REVISION THEREOF).
- THE APPROXIMATE LOCATIONS OF EXISTING UNDERGROUND UTILITY LINES ARE SHOWN IN THESE PLANS. THE LINES ARE PLOTTED FROM A COMBINATION OF RECORD AND FIELD DATA, AND THE CITY HAS TRIED WITHIN ITS AVAILABLE RESOURCES TO LOCATE ALL SUCH FACILITIES WITH REASONABLE ACCURACY. BY ENTERING INTO A CONTRACT FOR THIS WORK, THE CONTRACTOR AGREES PRIOR TO EXCAVATION TO NOTIFY ALL UTILITY AND IRRIGATION COMPANIES OPERATING IN THE AREA OF THE WORK, AND TO DETERMINE WITH AS MUCH ACCURACY AS IS NEEDED TO PERFORM THIS WORK, THE EXACT LOCATIONS OF ALL UNDERGROUND MAIN OR TRUNKLINE UTILITY FACILITIES.
- ALL SERVICE CONNECTIONS TO BE MINIMUM 1-INCH COPPER LATERALS.
- STANDARD WATER MAIN LOCATION IS 7 FEET OFF CURB FACE.
- THIS DRAWING IS SCHEMATIC ONLY, DO NOT SCALE.
- THE CONTRACTOR SHALL MAKE ALL WATER MAIN CONNECTIONS TO EXISTING WATER MAINS, UNLESS OTHERWISE NOTED.
- EXISTING UTILITIES ARE SHOWN ON DEVELOPMENT PLAN.
- HYDRO TEST TO XXX P.S.I. MIN 2 HOUR DURATION AT THE LOWEST POINT IN THE WATER MAIN.
- BUTTERFLY VALVES TO BE DRESSER 450 OR KENNEDY ADAP-TORQ, CLOW STYLE #2810.
- CONTRACTOR SHALL USE DOUBLE STRAP SERVICE CLAMPS OR H.D. TAPPED COUPLINGS WHEN CONNECTING SERVICE LATERALS.
- CONTRACTOR SHALL NOTIFY CITY 48 HOURS PRIOR TO SHUTDOWN OF WATER MAINS.
- INSTALLATION SHALL CONFORM TO MANUFACTURERS SPECIFICATIONS AND LATEST CITY SPECIFICATIONS AND/OR AS DIRECTED BY THE ENGINEER.
- METER BOXES IN THE SIDEWALK SHALL HAVE CAST IRON LIDS.
- PROVIDE A MINIMUM OF 10 FOOT SEPARATION BETWEEN SEWER AND WATER LATERALS WHERE POSSIBLE.
- BACKFILL COMPACTION AND RE-SURFACING IN EXISTING STREETS SHALL CONFORM TO STREET DIVISION SPECIFICATIONS (LATEST REVISION THEREOF).
- ALL VALVES INSTALLED BY THE CONTRACTOR SHALL BE ACCESSIBLE FOR OPERATION WITH COMPLETE VALVE BOX TO GRADE DIRECTLY FOLLOWING CONNECTION TO EXISTING WATER SYSTEM.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE SIZING OF THRUST BLOCKS BASED ON FIELD CONDITIONS. THE SIZE SHOWN ON THE PLANS IS THE MINIMUM SIZE REQUIRED.
- SAND BEDDING AND BACKFILL TO A DEPTH OF 12" ABOVE PIPE IS REQUIRED.
- IF WATER MAINS ARE ABANDONED AS A RESULT OF THIS PROJECT THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RECONNECTION OR REPLACEMENT OF SERVICE LATERALS AS DIRECTED BY THE CITY INSPECTOR. SERVICE LATERALS THAT ARE REPLACED SHALL BE THE SAME SIZE AS EXISTING.
- INTERIOR WATER SYSTEM INCLUDING FIRE HYDRANTS SHALL BE COMPLETE AND ACCEPTED BY THE CITY BEFORE ANY FRAMING PERMITS WILL BE ISSUED. CONTACT CITY FIRE MARSHALL FOR INTERIOR SYSTEM INSPECTIONS.
- CONTACT THE MUNICIPAL WATER DIVISION 48 HOURS PRIOR TO ANY WATER SYSTEM CONSTRUCTION.
- WHERE DESIGNATED ON THE PLANS, THE CONTRACTOR SHALL INSTALL POLY PIGS AND POLY PIG OUTLETS. THE CONTRACTOR SHALL NOTIFY THE CITY 48 HOURS IN ADVANCE TO REQUEST THE CITY TO FLUSH POLY PIGS THROUGH THE MAINS. THE FLUSHING PROCESS SHALL TAKE PLACE PRIOR TO HYDROSTATIC TESTING CHLORINATION AND FINAL FLUSHING OF THE MAIN BY THE CONTRACTOR. FINAL CONNECTIONS SHALL NOT BE MADE PRIOR TO BACTERIA TEST SAMPLES THAT MEET CITY REQUIREMENTS AND AUTHORIZATION FOR TIE-INS BY THE CITY INSPECTOR.
- A COMPLETE SET OF AS BUILT DRAWINGS SHALL BE SUBMITTED TO THE MUNICIPAL UTILITIES DEPARTMENT PRIOR TO FINAL INSPECTION.
- THE CONTRACTOR SHALL NOT OPERATE ANY EXISTING CITY WATER SYSTEM VALVES.
- WATER VALVE CANS SHALL BE PER SPEC A-20514 (SLIP CAN TYPE).

FIRE DATA TABLE				
NO	BEARING/DELTA	RADIUS	LENGTH	SIZE/TYPE
1	N 90°00'00" E	--	210.26'	4" PVC (C900 DR14)
2	N 00°00'00" E	--	34.73'	4" PVC (C900 DR14)
3	N 90°00'00" E	--	24.00'	6" PVC (C900 DR14)
4	N 00°00'00" E	--	151.59'	6" PVC (C900 DR14)
5	N 90°00'00" E	--	93.98'	6" PVC (C900 DR14)
6	N 66°27'53" W	--	132.49'	6" PVC (C900 DR14)

WATER DATA TABLE			
NO	BEARING/DELTA	LENGTH	SIZE/TYPE
1	N 00°33'50" W	61.38'	6" PVC (C900 DR18)
2	N 00°00'00" E	286.75'	6" PVC (C900 DR18)
3	N 90°00'00" E	86.25'	4" PVC (C900 DR18)

SEWER DATA TABLE				
NO	BEARING/DELTA	RADIUS	LENGTH	SIZE/TYPE
1	N 00°00'00" E	--	79.32'	6" PVC (SDR-35)
2	N 90°00'00" E	--	110.10'	6" PVC (SDR-35)



VICINITY MAP

N.T.S.

SEWER GENERAL NOTES

- SEWER INSTALLATION IS TO BE IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS AND DETAIL DRAWINGS OF THE CITY OF REDLANDS LATEST REVISION THEREOF.
- ALL SEWER PIPE ELEVATIONS GIVEN REFER TO THE FLOW LINE INVERT ELEVATIONS.
- THE APPROXIMATE LOCATIONS OF KNOWN EXISTING UNDERGROUND UTILITY LINES ARE SHOWN ON THESE PLANS. THE LINES ARE PLOTTED FROM A COMBINATION OF RECORD AND FIELD DATA. THE CITY HAS TRIED WITHIN ITS AVAILABLE RESOURCES TO LOCATE ALL SUCH FACILITIES WITH REASONABLE ACCURACY. BY ENTERING INTO A CONTRACT FOR THIS WORK THE CONTRACTOR AGREES, PRIOR TO ANY EXCAVATION TO NOTIFY ALL UTILITY AND IRRIGATION COMPANIES OPERATING IN THE AREA OF THE WORK AND TO DETERMINE WITH AS MUCH ACCURACY AS IS NEEDED TO PERFORM THIS WORK, THE EXACT LOCATIONS OF ALL UNDERGROUND MAIN OR SERVICE UTILITY FACILITIES.
- SAND BEDDING AND BACKFILL TO A DEPTH OF 12" ABOVE PIPE IS REQUIRED FOR ALL SEWER PIPE MAY BE REQUIRED IF IN THE OPINION OF THE CITY, THE NATIVE BACKFILL MATERIAL IS DEEMED UNSUITABLE.
- PVC SEWER IS NOT PERMITTED ON ANY HORIZONTAL OR VERTICAL CURVE.
- THE CONTRACTOR SHALL AIR TEST THE SEWER SYSTEM IN ACCORDANCE WITH CITY STANDARDS AFTER ALL OTHER UTILITIES HAVE BEEN INSTALLED AND COMPLETED WITHIN THE TRACT OR DEVELOPMENT. IN ADDITION, AFTER FINAL AIR TEST, THE CONTRACTOR SHALL CONNECT THE SEWER LATERALS TO THE HOUSE LATERALS AT THE PROPERTY.
- SEWER LATERALS SHALL BE CLEARLY MARKED WITH AN "L" CHISELED IN CURB FACE.
- REQUIRED SEPARATION OF THE WATER AND SEWER MAINS AND LATERALS SHALL BE STRICTLY ADHERED TO. INSTALLATION SHALL COMPLY WITH THE STATE DEPARTMENT OF HEALTH REGULATIONS AND BE A MINIMUM OF 10 FEET SEPARATION.
- SEWER LATERAL LOCATIONS SHALL NOT BE CHANGED MORE THAN 3 FEET (HORIZONTAL) WITHOUT AUTHORIZATION FROM THE CITY.
- IF PLASTIC SEWER PIPE IS USED, A MANDREL TEST SHALL BE PERFORMED BY THE CONTRACTOR IN THE PRESENCE OF THE CITY INSPECTOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE MUNICIPAL UTILITIES DEPARTMENT. LATEST REVISIONS EXCEPT THE MANDREL SHALL BE SUPPLIED BY THE PIPE MANUFACTURER APPROVED BY CITY OF REDLANDS AND SHALL BE PULLED THROUGH THE PIPE BY HAND. PVC PIPE-MAXIMUM 15" DIAMETER ALLOWABLE.
- PRIOR TO PAVING OF STREETS OVER A NEW SEWER MAIN ALL COMPACTION TESTS, AIR TESTS, BALLING AND MANDREL TESTS SHALL BE COMPLETED AND APPROVED BY THE CITY AND A COMPLETE SET OF AS-BUILT DRAWINGS SUBMITTED TO THE MUNICIPAL UTILITIES DEPARTMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION OF AS-BUILT DRAWINGS.
- PRIOR TO ACCEPTANCE BY THE CITY, NEW SEWER LINE SHALL REMAIN PLUGGED AT OR PHYSICALLY SEPARATED FROM THE DOWNSTREAM MANHOLE AND STREETS SHALL BE PAVED.
- THE CONTRACTOR SHALL REPLACE EXISTING STRIPING AS NECESSARY. THE CONTRACTOR SHALL OBTAIN AN ENCROACHMENT PERMIT FOR SEWER CONSTRUCTION FROM THE CITY OF REDLANDS PUBLIC WORKS DEPARTMENT PRIOR TO COMMENCEMENT OF WORK.
- PVC SEWER PIPE AND FITTINGS SHALL CONFORM TO AMERICAN SOCIETY FOR TESTING AND MATERIALS (A.S.T.M.) DESIGNATION D-3034, 15" MAXIMUM SIZE, SDR 35 LATEST REVISION.
- THE JOINTING OF PVC SEWER PIPE SHALL BE BY USING ELECTROMETRIC GASKET JOINTS. THE CRITICAL SEALING DIMENSIONS OF THE BELL, SPIGOT, AND GASKET SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S STANDARD DIMENSIONS AND TOLERANCES.
- MANHOLE RIM ELEVATIONS INDICATED HEREON ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL RIMS TO FINAL FINISH GRADE, IN COORDINATION WITH STREET IMPROVEMENTS.
- ALL SEWER STATIONS ARE CENTERLINE SEWER MAIN UNLESS OTHERWISE INDICATED.
- DURING THE PERIOD OF CONSTRUCTION THE CONTRACTOR SHALL FURNISH, ERECT, AND MAINTAIN ALL WARNINGS, SIGNS, BARRICADES, AND OTHER SAFETY MEASURES IN CONFORMANCE WITH THE STATE MANUAL OF TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE WORK ZONES, LATEST EDITION. THE CONTRACTOR SHALL PROVIDE SAFE AND CONTINUOUS PASSAGE FOR PEDESTRIAN AND VEHICULAR TRAFFIC AT ALL TIMES.

UNDERGROUND UTILITY NOTE

THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS WERE GENERATED FROM RECORDS AND/OR UTILITY PROVIDER RECORD MAPS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO OTHER EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN HEREON AND ANY OTHERS NOT OF RECORD OR NOT SHOWN ON THESE PLANS. ALL DAMAGES THERE TO CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE APPROPRIATE SPECIFICATIONS AND STANDARDS AT THE EXPENSE OF THE CONTRACTOR.

**SITE PHASING - 1
UTILITY PLAN**

SEPTEMBER 09, 2022

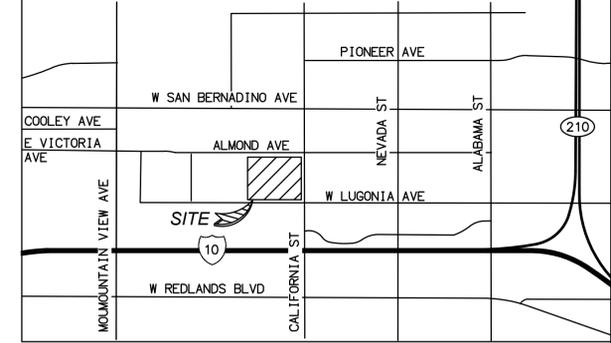
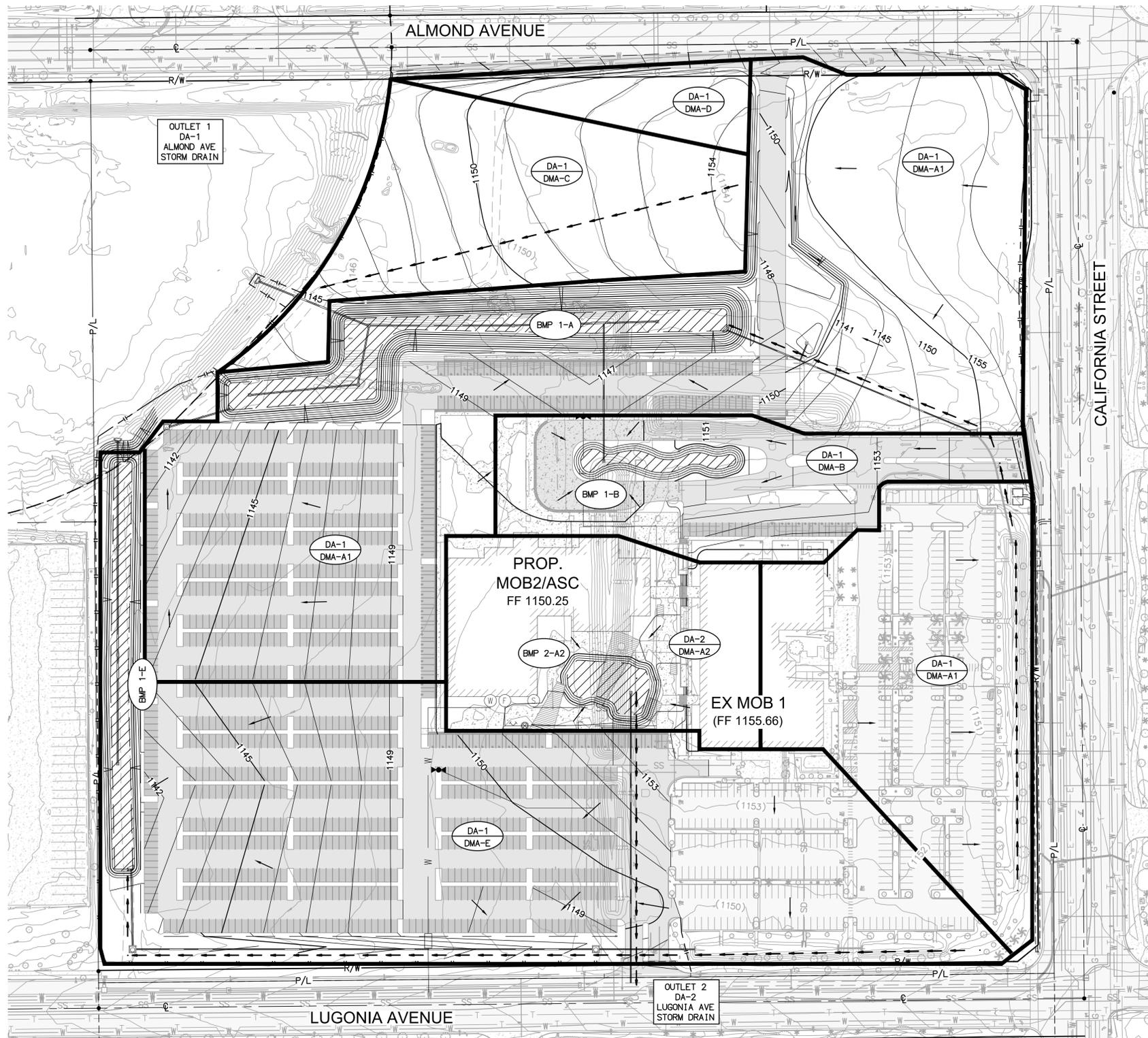


REDLANDS MEDICAL CENTER

Sheet: **C2.02**

CITY OF REDLANDS

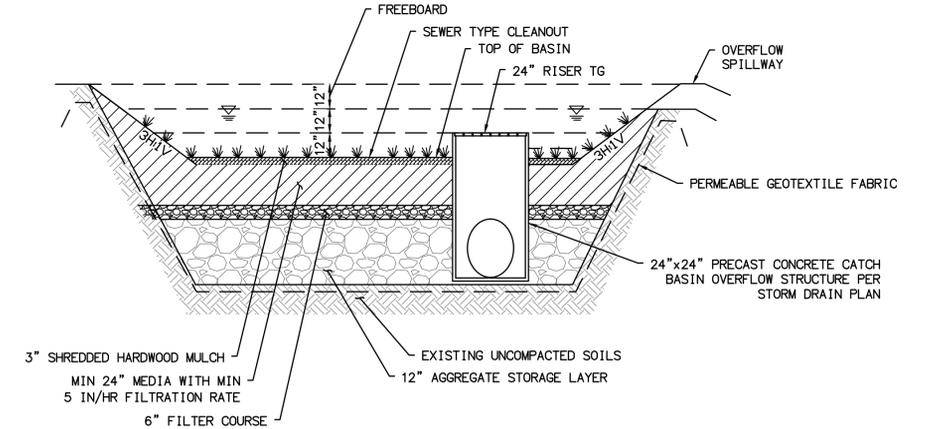
Site Development Plan Number:	PHONE: 626.405.6333
OWNER: Kaiser Foundation Hospitals	ADDRESS: 303 E. Walnut Street Pasadena, CA 91108
ARCHITECT: ENGINEER: DESIGNER: CO Architects, Michael Baker Int'l, Ridge Landscape Architects	PHONE: 323.525.0500 (Architect)
ADDRESS: 5750 Wilshire Boulevard, Suite 550, Los Angeles CA 90036 (Architect)	LOCATION: 1301 California Street, Redlands, CA 92374
TYPE OF DEVELOPMENT: XXXXX	ACCESSOR'S PARCEL NUMBER: 0167-441-07-0-000



VICINITY MAP
N.T.S.

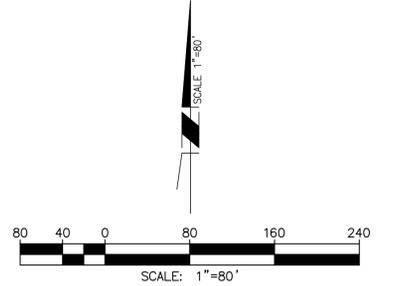
LEGEND

- STORM WATER BASIN
- DRAINAGE BOUNDARY
- FLOW ARROW
- FLOW DIRECTION
- DMA/DA ID
- BMP ID



TYPICAL BIO-RETENTION BASIN DETAIL
SCALE: NOT TO SCALE

DA	DMA	TOTAL AREA (SF)	IMPERVIOUS RATIO	DMA RUNOFF FACTOR	DESIGN CAPTURE VOLUME (CF)	BMP PROPOSED SURFACE AREA (SF)	VOLUME RETAINED BY BMP (CF)	BMP TYPE
1	A1	627,670	70%	0.49	35,967	22,232	51,689	BIORETENTION WITH NO UNDERDRAIN
1	B	114,563	85%	0.66	8,790	4,200	9,765	BIORETENTION WITH NO UNDERDRAIN (SIZED FOR ULTIMATE PHASE 4)
1	C	138,521	0%	0.04	643	N/A	N/A	SELF TREATING (NO EXISTING OR PROPOSED IMPERVIOUS AREA)
1	D	31,363	0%	0.04	146	N/A	N/A	SELF TREATING (NO EXISTING OR PROPOSED IMPERVIOUS AREA)
1	E	412,513	85%	0.66	31,649	14,000	32,550	BIORETENTION WITH NO UNDERDRAIN
2	A2	117,176	85%	0.66	8,990	6,035	14,031	BIORETENTION WITH NO UNDERDRAIN (SIZED FOR ULTIMATE PHASE 4)



SITE PHASING - 1
BMP PLAN

SEPTEMBER 09, 2022

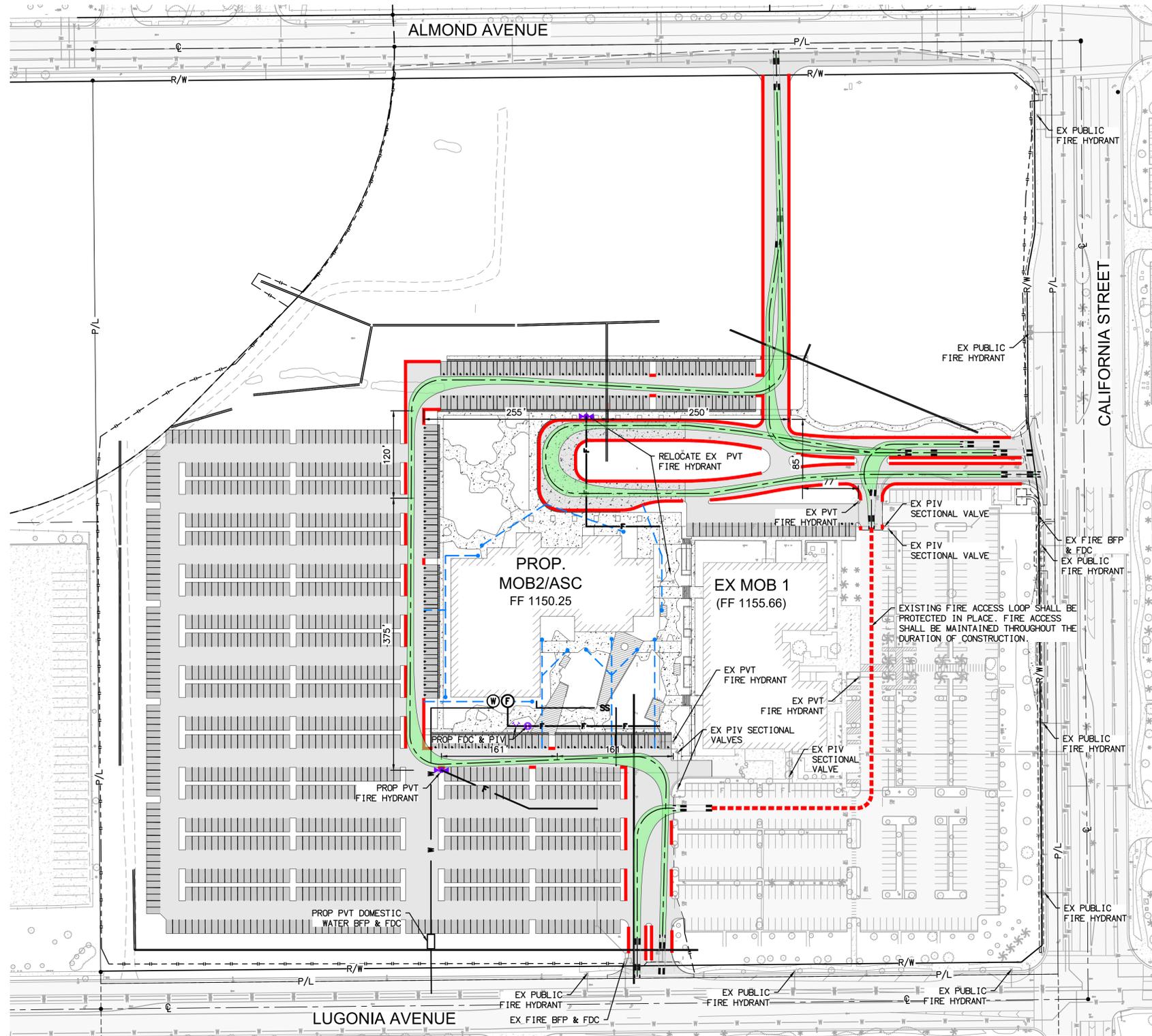


REDLANDS MEDICAL CENTER

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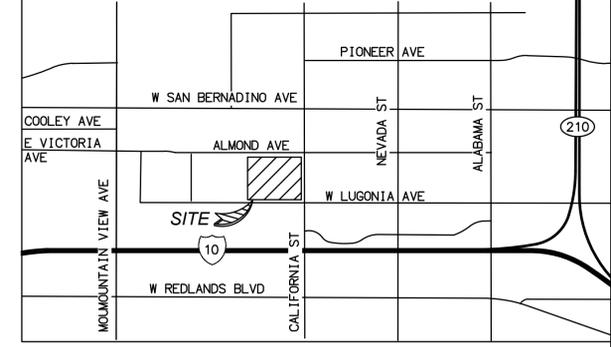
CITY OF REDLANDS

Site Development Plan Number:
 OWNER: Kaiser Foundation Hospitals PHONE: 626.405.6333
 ADDRESS: 393 E Walnut Street Pasadena, CA 91108
 ARCHITECT/ENGINEER/DESIGNER: CO Architects, Michael Baker Int'l, Ridge Landscape Architects PHONE: 323.525.0500 (Architect)
 ADDRESS: 5750 Wilshire Boulevard, Suite 550, Los Angeles CA 90036 (Architect) LOCATION: 1301 California Street, Redlands, CA 92374
 TYPE OF DEVELOPMENT: XXXXX ACCESSOR'S PARCEL NUMBER: 0167-441-07-0-000
 ZONE: CR ZONE



FIRE PROTECTION LEGEND

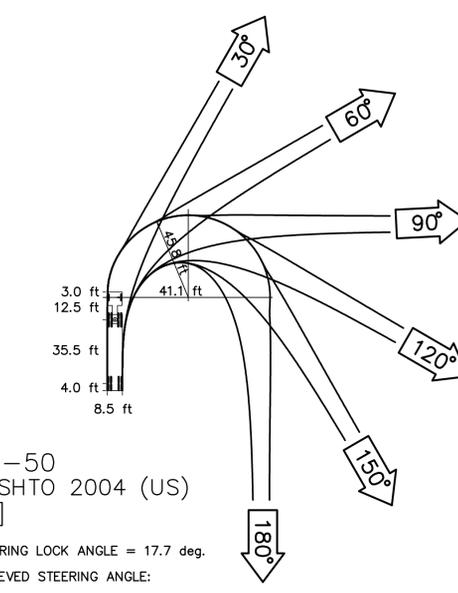
- PROPOSED FIRE HYDRANT
- PROPOSED PIV
- PROPOSED FDC
- PROPOSED FIRE MAIN
- HOSE PULL (150' MAX)
- RED PAINTED CURB
- FIRE TRUCK TURNING MOVEMENT
- EXISTING FIRE HYDRANT
- EXISTING PIV
- EXISTING FDC
- EXISTING FIRE MAIN
- EXISTING FIRE ROUTE



VICINITY MAP
N.T.S.

FIRE NOTES

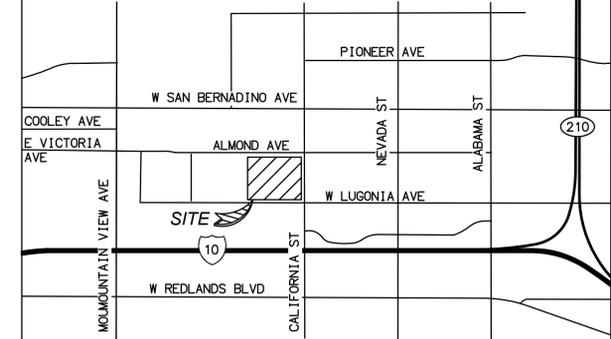
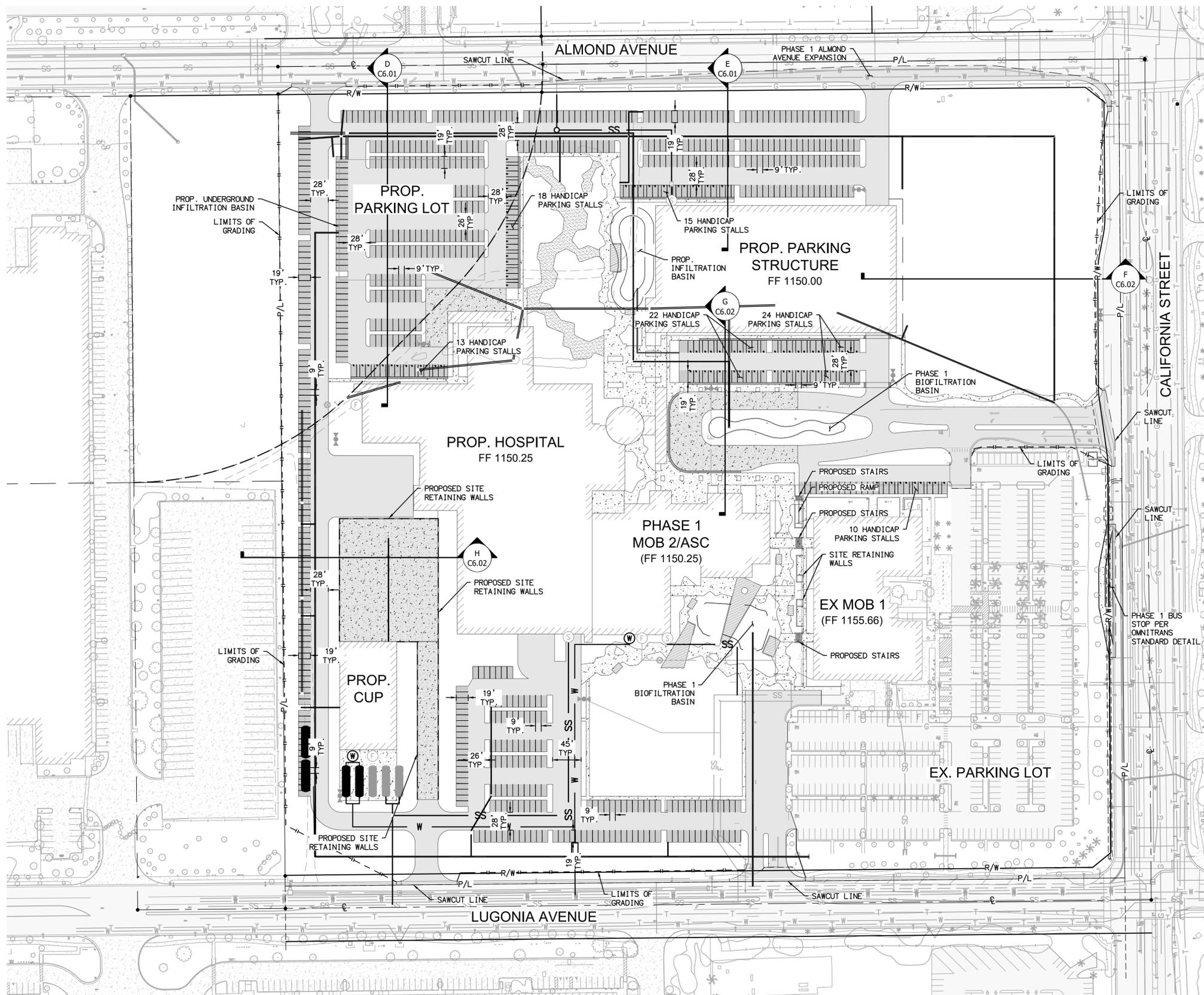
1. FIRE APPARATUS ACCESS ROADS AND WATER SUPPLIES FOR FIRE PROTECTION, SHALL BE INSTALLED AND MADE SERVICEABLE PRIOR TO AND DURING TIME OF CONSTRUCTION. CFC 501.4
2. STREET OR ROAD SIGNS - TEMPORARY SIGNS SHALL BE INSTALLED AT EACH STREET INTERSECTION WHEN CONSTRUCTION OF NEW ROADWAYS ALLOWS PASSAGE BY VEHICLES. SIGNS SHALL BE OF AN APPROVED SIZE, WEATHER RESISTANT AND BE MAINTAINED UNTIL REPLACED BY PERMANENT SIGNS. CFC 505.2
3. FIRE APPARATUS ACCESS ROADS SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS AND SHALL BE SURFACED SO AS TO PROVIDE ALL WEATHER DRIVING CAPABILITIES. CFC 503.2.3
4. POST INDICATOR VALVES, FIRE DEPARTMENT CONNECTIONS, AND ALARM BELL ARE TO BE LOCATED ON THE ADDRESS/ACCESS SIDE OF THE BUILDING.
5. CLEAR SPACE AROUND HYDRANTS - A THREE (3) FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS, EXCEPT AS OTHERWISE REQUIRED OR APPROVED. CFC 507.5.5
6. PHYSICAL PROTECTION - WHERE FIRE HYDRANTS ARE SUBJECT TO IMPACT BY A MOTOR VEHICLE, GUARD POSTS OR OTHER APPROVED MEANS SHALL COMPLY WITH SECTION 312. CFC 507.5.6
7. DEAD ENDS - DEAD END FIRE APPARATUS ACCESS ROADS IN EXCESS OF 150 FEET IN LENGTH SHALL BE PROVIDED WITH AN APPROVED AREA FOR TURNING AROUND FIRE APPARATUS. CFC 503.2.5
8. SECURITY GATES - WHERE SECURITY GATES ARE INSTALLED, THEY SHALL HAVE AN APPROVED MEANS OF EMERGENCY OPERATION. THE SECURITY GATES AND EMERGENCY OPERATION SHALL BE MAINTAINED OPERATIONAL AT ALL TIMES. ELECTRIC GATE OPERATORS, WHERE PROVIDED, SHALL BE LISTED IN ACCORDANCE WITH UL 325. GATES INTENDED FOR AUTOMATIC OPERATION SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED TO COMPLY WITH THE REQUIREMENTS OF ASTM G 2200.
9. VEGETATION SHALL BE SELECTED AND MAINTAINED IN SUCH A MANNER AS TO ALLOW IMMEDIATE ACCESS TO ALL HYDRANTS, VALVES, FIRE DEPARTMENT CONNECTIONS, PULL STATIONS, EXTINGUISHERS, SPRINKLER RISERS, ALARM CONTROL PANELS, RESCUE WINDOWS AND OTHER DEVICES OR AREAS USED FOR FIREFIGHTING PURPOSES. VEGETATION OF BUILDING FEATURES SHALL NO OBSTRUCT ADDRESS NUMBERS OR INHIBIT THE FUNCTIONING OF ALARM BELLS, HORNS OR STROBES.
10. APPROVED DOCUMENTS - CONSTRUCTION DOCUMENTS APPROVED BY THE FIRE CODE OFFICIAL ARE APPROVED WITH THE INTENT THAT SUCH CONSTRUCTION DOCUMENTS COMPLY IN ALL RESPECTS WITH THIS CODE. REVIEW AND APPROVAL BY THE FIRE CODE OFFICIAL SHALL NOT RELIEVE THE APPLICANT OF THE RESPONSIBILITY OF COMPLIANCE WITH THIS CODE. CFC 105.4.4



WB-50		feet	
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 17.7
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.50		

BUILDING	OCCUPANCY CLASS (CBC-CH.3)	CONSTRUCTION TYPE (CBC-CH.6)	SQUARE FOOTAGE CALC (SF)	AUTO SPRINKLER SYS. (Y/N/PART)	FIRE FLOW (GPM) (CFC-B105.2)	REDUCED FIRE FLOW (GPM) (CFC-B105.2)	FLOW DURATION @ REDUCED FLOW (HR) (CFC-B105.2)	MIN. NO. FIRE HYDRANTS (FH) (CFC-C102.1)	REQUIRED AVG. FH SPACING (FT) (CFC-C102.1)	PROPOSED AVG. FH SPACING (FT)	MAX SPACING ACCESS ROAD TO FH (FT) (CFC-C102.1)
PROP MOB	B	1A	165,000 *	Y	4,500 *	1,125 **	2	1	750 ***	357	375 ***

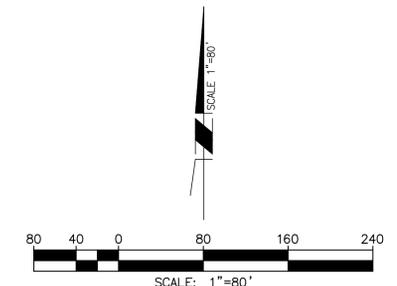
* - FOR TYPE 1A & 1B CONSTRUCTION, SQUARE FOOTAGE CALC FOR OPEN PARKING GARAGE SHALL BE DETERMINED BY AREA OF LARGEST FLOOR (CFC-B104.3)
 ** - REDUCED FIRE FLOW SHALL NOT BE LESS THAN 1,000 GPM (CFC-B105.2)
 *** - 50% SPACING INCREASE FOR BUILDINGS EQUIPPED THROUGHOUT WITH APPROVED AUTO SPRINKLER SYSTEM IN ACCORDANCE WITH CFC-903.3.1.1 (CFC-C102.1)



VICINITY MAP
N.T.S.

LEGEND

RIGHT OF WAY	---
PROPERTY LINE	---
CURB AND GUTTER	---
AC PAVEMENT	▨
HEAVY VEHICULAR AC PAVEMENT	▨
HEAVY VEHICULAR CONCRETE PAVEMENT	▨
PEDESTRIAN CONCRETE PAVEMENT	▨
DG PATH	▨
PROPOSED BUILDING	▨
TRUNCATED DOMES	▨
LIMITS OF WORK LINE	---



SITE PHASING - 2
SITE PLAN

SEPTEMBER 09, 2022

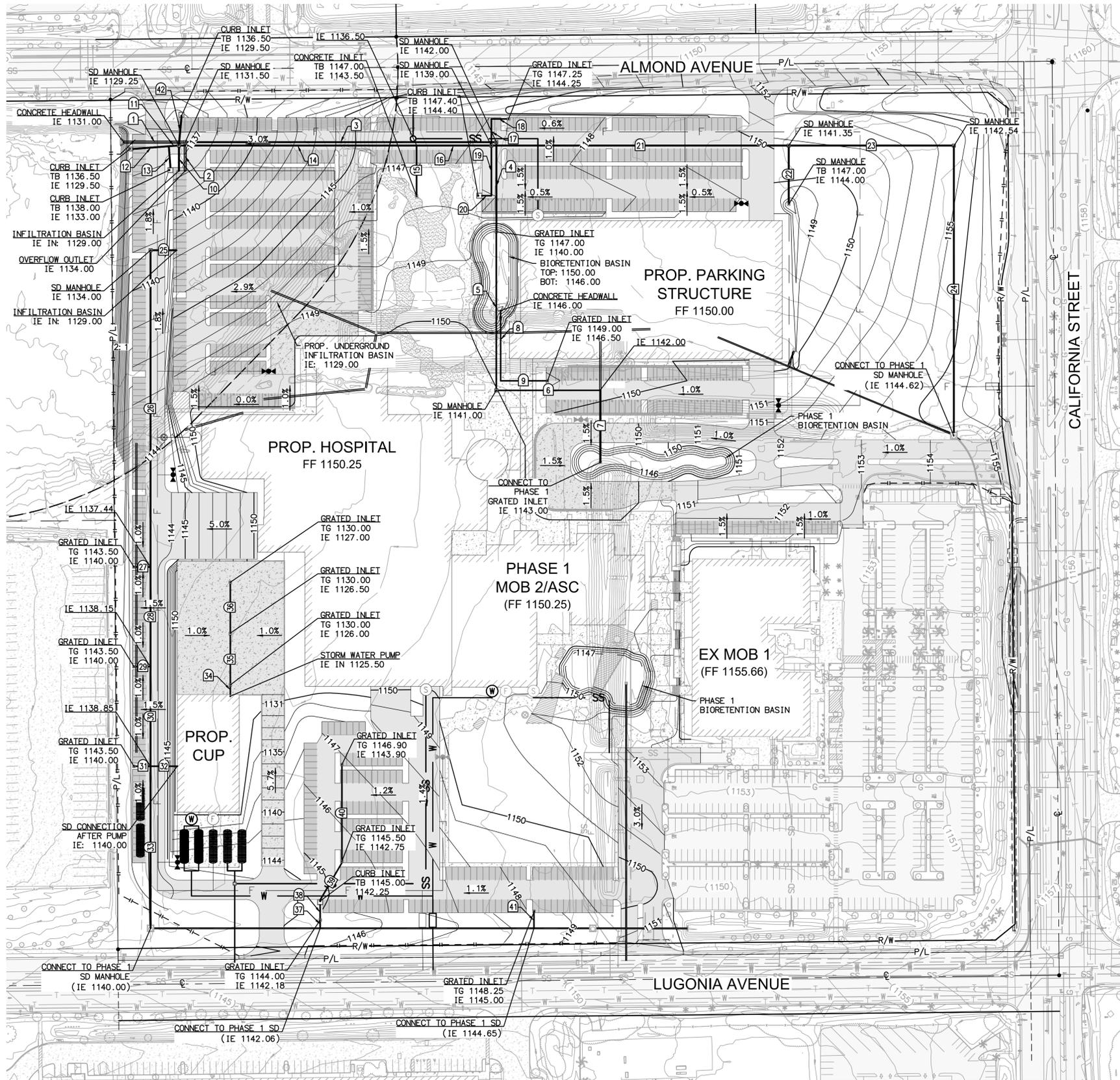


REDLANDS MEDICAL CENTER

Sheet: **C3.00**

CITY OF REDLANDS

Site Development Plan Number:	PHONE: 626.405.6333
OWNER: Kaiser Foundation Hospitals	ADDRESS: 303 E Walnut Street Pasadena, CA 91108
ARCHITECT/ENGINEER/DESIGNER: CO Architects, Michael Baker Intl., Ridge Landscape Architects	PHONE: 323.525.0500 (Architect)
ADDRESS: 5750 Wilshire Boulevard, Suite 550, Los Angeles CA 90036 (Architect)	LOCATION: 1301 California Street, Redlands, CA 92374
TYPE OF DEVELOPMENT: XXXXX	ACCESSOR'S PARCEL NUMBER: 0167-441-07-0-000
ZONE: CR ZONE	



LEGEND

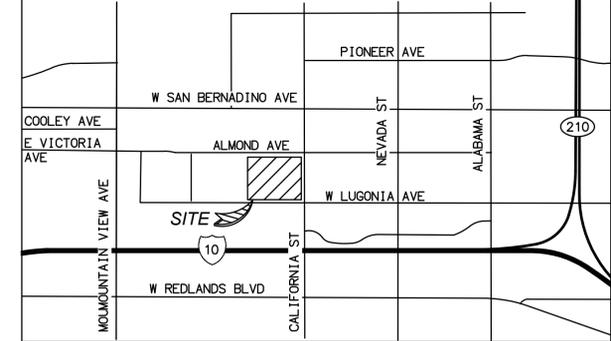
- MAJOR CONTOUR
- MINOR CONTOUR
- DAYLIGHT LINE
- STORM DRAIN
- CURB INLET
- STORM DRAIN MANHOLE
- CATCH BASIN INLET
- CONCRETE HEADWALL
- CONCRETE STRUCTURE INLET

EARTHWORK

CUT: 79,000 CY
 FILL: 105,000 CY
 NET: 26,000 CY FILL

GRADING GENERAL NOTES

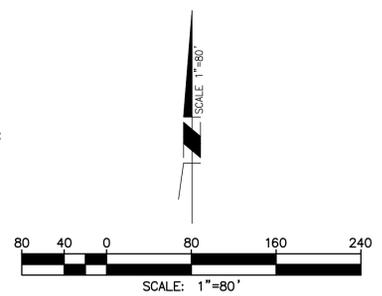
1. ALL GRADING AND ON-SITE CONSTRUCTION SHALL MEET THE MINIMUM REQUIREMENTS OF THE UNIFORM BUILDING CODE, LATEST EDITION, APPENDIX CHAPTER 33 AND THE CALIFORNIA BUILDING CODE, LATEST EDITION. THESE CODES ARE AMENDED IN THE CITY OF REDLANDS MUNICIPAL CODE. IF CONTRADICTIONS ARISE BETWEEN PROVISIONS IN THESE PLANS FROM THOSE IN THE VARIOUS CODES, THE MOST RESTRICTIVE PROVISIONS WILL GOVERN.
2. AFTER THE GRADING PERMIT HAS BEEN ISSUED, THE PROJECT MANAGER SHALL CONVENE AN ON-SITE PRECONSTRUCTION MEETING WITH THE CITY OF REDLANDS INSPECTOR, THE ENGINEER OF RECORD, THE GEOTECHNICAL ENGINEER AND THE GRADING CONTRACTOR. AT THIS MEETING, THE PROJECT SUPERINTENDENT SHALL BE IDENTIFIED AND AN EMERGENCY CONTACT PERSON SHALL BE IDENTIFIED TO THE INSPECTOR.
3. USE BEST MANAGEMENT PRACTICES (BMPs) TO PREVENT AND CONTAIN ILLEGAL DISCHARGES WITHIN THE PROJECT BOUNDARY. THIS WILL BE IN EFFECT FOR THE ENTIRE DURATION OF THE PROJECT CONSTRUCTION TO ITS COMPLETION.
4. BUILDING PERMITS SHALL NOT BE ISSUED UNTIL THE PROJECT SITE HAS BEEN GRADED AND THE ENGINEER OF RECORD HAS CERTIFIED TO THE SATISFACTION OF THE CITY ENGINEER THAT THE SITE HAS BEEN PREPARED ACCORDING TO THE RECOMMENDATIONS OF THE SOILS REPORT(S) AND TO THE SPECIFICATIONS OF THE APPROVED GRADING PLANS. IN ADDITION, A FINAL COMPACTION REPORT SHALL BE SUBMITTED TO BOTH THE INSPECTOR AND THE BUILDING OFFICIAL FOR APPROVAL.
5. A WRITTEN REPORT BY A GEOTECHNICAL ENGINEER IS TO BE FURNISHED TO BOTH THE CITY'S MUNICIPAL UTILITIES AND ENGINEERING DEPARTMENT AND BUILDING AND SAFETY DIVISION, TO CERTIFY THAT ALL FILL MATERIAL AND MATERIAL UPON WHICH FILL IS TO BE PLACED IS ADEQUATE TO SUPPORT THE LOADS OF THE PROPOSED DEVELOPMENT. THIS REPORT SHALL INCLUDE SOIL TEST DATA ON ALL FILLS OF TWO FEET OR MORE.
6. PREPARATION OF THE SITE SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE INSTRUCTIONS OF A GEOTECHNICAL ENGINEER AND ALL FILLS WILL BE MADE UNDER HIS DIRECTION.
7. IN NO CASE IS ANY SLOPE TO EXCEED A GRADIENT OF TWO HORIZONTAL TO ONE VERTICAL (2:1).
8. THE ENGINEER OF RECORD ASSUMES NO LIABILITY FOR THE EXISTENCE AND LOCATIONS OF UNDERGROUND UTILITY LINES, STRUCTURES OR IRRIGATION LINES. THE CONTRACTOR IS TO MAKE AN ON-SITE INSPECTION AND NOTIFY ALL UTILITY AND IRRIGATION COMPANIES PRIOR TO WORK OR EXCAVATION TO DETERMINE THE EXACT LOCATION OF ANY AND ALL UNDERGROUND FACILITIES.
9. THE CONTRACTOR SHALL BE FAMILIAR WITH AND RESPONSIBLE FOR CLEARING THE SITE IN PREPARATION FOR CONSTRUCTION.
10. THE ENGINEER'S ESTIMATE IS 79,000 CY OF EXCAVATION AND 105,000 CY OF EMBANKMENT FOR THE SITE GRADING. THESE ARE RAW QUANTITIES WITHOUT ALLOWANCES FOR LOSS, SHRINKAGE OR COMPACTION.
11. INSTALL FIRE HYDRANTS AS REQUIRED PRIOR TO THE DELIVERY OF ANY BUILDING MATERIAL TO THE SITE.
12. BENCHMARK: ENTER PROJECT SPECIFIC DATA HERE. ELEVATION:
13. ALL SLOPES THREE FEET OR GREATER MUST BE LANDSCAPED AND IRRIGATED PRIOR TO OCCUPANCY.
14. ACREAGE OF THE PROJECT IS: ACRE(S).
15. APPROVAL OF THIS PLAN DOES NOT CONSTITUTE APPROVAL FOR THE CONSTRUCTION OF ANY WALLS, SIDEWALKS, SLABS, PAVING, ETC. TO BE CONSTRUCTED ON-SITE AS SHOWN HEREON. A SEPARATE PERMIT IS REQUIRED FROM THE BUILDING AND SAFETY DIVISION FOR THE CONSTRUCTION OF THESE ON-SITE ITEMS.
16. ALL EARTHWORK SHALL CONFORM TO THE PRELIMINARY GEOTECHNICAL AND/OR GEOLOGIC INVESTIGATION REPORT FOR _____ PREPARED BY _____, DATED _____.
17. THE ENGINEER OF RECORD MUST SET GRADE STAKES FOR ALL DRAINAGE DEVICES.
18. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY INSPECTIONS PRIOR TO POURING ANY CONCRETE.



VICINITY MAP
N.T.S.

STORM DRAIN DATA TABLE

NO	BEARING/Delta	LENGTH	SLOPE (%)	SIZE/TYPE
1	N90°00'00"E	87.39'	0.5	36" HDPE
2	N00°00'00"E	41.44'	6.0	24" HDPE
3	N90°00'00"E	451.79'	1.7	24" HDPE
4	N00°00'00"E	127.48'	0.8	18" HDPE
5	N00°00'00"E	224.81'	0.5	18" HDPE
6	N89°58'41"E	151.13'	0.7	18" HDPE
7	N00°00'00"E	102.21'	1.0	18" HDPE
8	N00°00'00"E	101.20'	0.5	12" HDPE
9	N90°00'00"E	66.00'	0.5	12" HDPE
10	N00°00'00"E	34.43'	13.8	24" HDPE
11	N85°41'29"E	12.76'	0.5	18" HDPE
12	N85°41'29"E	52.85'	0.5	18" HDPE
13	N04°18'31"W	31.36'	0.5	18" HDPE
14	N90°00'00"E	345.19'	2.0	24" HDPE
15	N00°00'00"E	71.31'	9.9	12" HDPE
16	N90°00'00"E	106.62'	2.4	24" HDPE
17	N00°00'35"W	36.55'	3.8	12" HDPE
18	N89°59'12"E	22.84'	3.8	12" HDPE
19	N00°01'00"W	70.46'	6.4	18" HDPE
20	N89°59'01"E	14.37'	6.4	18" HDPE
21	N80°00'00"E	431.81'	0.5	18" HDPE
22	N00°00'00"E	82.75'	3.2	18" HDPE
23	N90°00'00"E	239.84'	0.5	18" HDPE
24	N00°00'00"W	415.13'	0.5	18" HDPE
25	N90°00'00"E	37.70'	13.3	24" HDPE
26	N00°00'02"E	457.85'	0.6	24" HDPE
27	N89°59'27"W	22.26'	0.5	12" HDPE
28	N00°00'48"W	144.03'	0.6	24" HDPE
29	N90°00'00"E	22.19'	0.5	12" HDPE
30	N00°00'48"W	144.00'	0.6	24" HDPE
31	N89°59'12"E	22.19'	0.5	12" HDPE
32	N90°00'00"E	38.86'	0.5	12" HDPE
33	N00°00'00"E	234.32'	0.6	18" HDPE
34	N00°00'00"W	11.90'	1.0	12" HDPE
35	N00°00'00"W	70.18'	1.0	12" HDPE
36	N00°00'00"W	72.18'	1.0	12" HDPE
37	N00°00'00"E	9.91'	1.0	12" HDPE
38	N00°00'00"E	20.59'	1.0	12" HDPE
39	N30°22'10"E	62.36'	0.8	12" HDPE
40	N00°00'48"W	136.05'	0.8	12" HDPE
41	N00°00'00"E	22.71'	1.5	18" HDPE
42	N05°16'30"E	38.73'	0.6	12" HDPE



**SITE PHASING - 2
GRADING PLAN**

SEPTEMBER 09, 2022

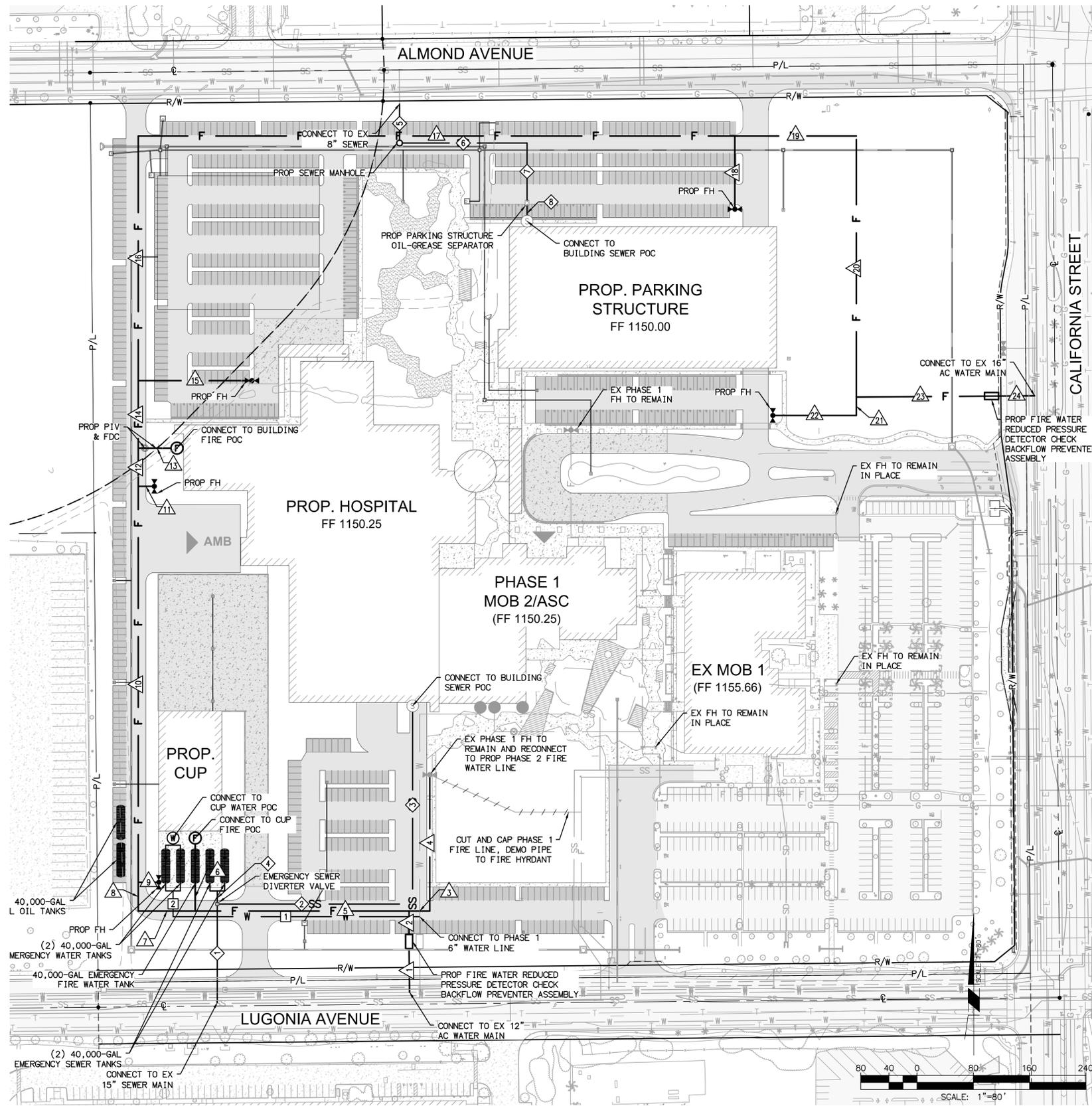


REDLANDS MEDICAL CENTER

Sheet: **C3.01**

CITY OF REDLANDS

Site Development Plan Number:	OWNER: Kaiser Foundation Hospitals	PHONE: 626.405.6333
ADDRESS: 383 E Walnut Street Pasadena, CA 91188	ARCHITECT, ENGINEER, DESIGNER: CO Architects, Michael Baker Int'l, Ridge Landscape Architects	PHONE: 323.525.0500 (Architect)
ADDRESS: 5750 Wilshire Boulevard, Suite 550, Los Angeles CA 90036 (Architect)	TYPE OF DEVELOPMENT: XXXXX	LOCATION: 1301 California Street, Redlands, CA 92374
		ACCESSOR'S PARCEL NUMBER: 0167-441-07-0-000



LEGEND

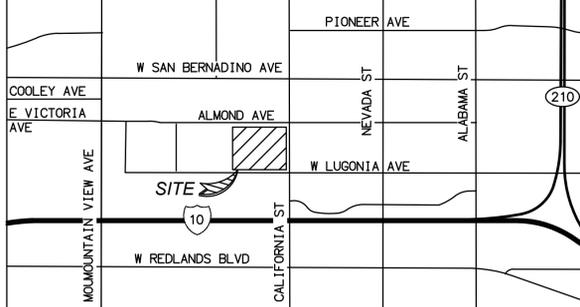
- WATER LINE — W —
- SEWER LINE — SS —
- FIRE LINE — F —
- PROP. FIRE HYDRANT
- EX. FIRE HYDRANT
- UTILITY POC
- UNDERGROUND EMERGENCY TANKS

WATER GENERAL NOTES

1. MATERIAL AND INSTALLATION SHALL CONFORM TO THE CITY OF REDLANDS MUNICIPAL WATER DIVISION STANDARD SPECIFICATION (LATEST REVISION THEREOF).
2. THE APPROXIMATE LOCATIONS OF EXISTING UNDERGROUND UTILITY LINES ARE SHOWN IN THESE PLANS. THE LINES ARE PLOTTED FROM A COMBINATION OF RECORD AND FIELD DATA, AND THE CITY HAS TRIED WITHIN ITS AVAILABLE RESOURCES TO LOCATE ALL SUCH FACILITIES WITH REASONABLE ACCURACY. BY ENTERING INTO A CONTRACT FOR THIS WORK, THE CONTRACTOR AGREES PRIOR TO EXCAVATION TO NOTIFY ALL UTILITY AND IRRIGATION COMPANIES OPERATING IN THE AREA OF THE WORK, AND TO DETERMINE WITH AS MUCH ACCURACY AS IS NEEDED TO PERFORM THIS WORK, THE EXACT LOCATIONS OF ALL UNDERGROUND MAIN OR TRUNKLINE UTILITY FACILITIES.
3. ALL SERVICE CONNECTIONS TO BE MINIMUM 1-INCH COPPER LATERALS.
4. STANDARD WATER MAIN LOCATION IS 7 FEET OFF CURB FACE.
5. THIS DRAWING IS SCHEMATIC ONLY, DO NOT SCALE.
6. THE CONTRACTOR SHALL MAKE ALL WATER MAIN CONNECTIONS TO EXISTING WATER MAINS, UNLESS OTHERWISE NOTED.
7. EXISTING UTILITIES ARE SHOWN ON DEVELOPMENT PLAN.
8. HYDRO TEST TO XXX P.S.I. MIN 2 HOUR DURATION AT THE LOWEST POINT IN THE WATER MAIN.
9. BUTTERFLY VALVES TO BE DRESSER 450 OR KENNEDY ADAP-TORQ, CLOW STYLE #2810.
10. CONTRACTOR SHALL USE DOUBLE STRAP SERVICE CLAMPS OR H.D. TAPPED COUPLINGS WHEN CONNECTING SERVICE LATERALS.
11. CONTRACTOR SHALL NOTIFY CITY 48 HOURS PRIOR TO SHUTDOWN OF WATER MAINS.
12. INSTALLATION SHALL CONFORM TO MANUFACTURERS SPECIFICATIONS AND LATEST CITY SPECIFICATIONS AND/OR AS DIRECTED BY THE ENGINEER.
13. METER BOXES IN THE SIDEWALK SHALL HAVE CAST IRON LIDS.
14. PROVIDE A MINIMUM OF 10 FOOT SEPARATION BETWEEN SEWER AND WATER LATERALS WHERE POSSIBLE.
15. BACKFILL COMPACTION AND RE-SURFACING IN EXISTING STREETS SHALL CONFORM TO STREET DIVISION SPECIFICATIONS (LATEST REVISION THEREOF).
16. ALL VALVES INSTALLED BY THE CONTRACTOR SHALL BE ACCESSIBLE FOR OPERATION WITH COMPLETE VALVE BOX TO GRADE DIRECTLY FOLLOWING CONNECTION TO EXISTING WATER SYSTEM.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE SIZING OF THRUST BLOCKS BASED ON FIELD CONDITIONS. THE SIZE SHOWN ON THE PLANS IS THE MINIMUM SIZE REQUIRED.
18. SAND BEDDING AND BACKFILL TO A DEPTH OF 12" ABOVE PIPE IS REQUIRED.
19. IF WATER MAINS ARE ABANDONED AS A RESULT OF THIS PROJECT THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RECONNECTION OR REPLACEMENT OF SERVICE LATERALS AS DIRECTED BY THE CITY INSPECTOR. SERVICE LATERALS THAT ARE REPLACED SHALL BE THE SAME SIZE AS EXISTING.
20. INTERIOR WATER SYSTEM INCLUDING FIRE HYDRANTS SHALL BE COMPLETE AND ACCEPTED BY THE CITY BEFORE ANY FRAMING PERMITS WILL BE ISSUED. CONTACT CITY FIRE MARSHALL FOR INTERIOR SYSTEM INSPECTIONS.
21. CONTACT THE MUNICIPAL WATER DIVISION 48 HOURS PRIOR TO ANY WATER SYSTEM CONSTRUCTION.
22. WHERE DESIGNATED ON THE PLANS, THE CONTRACTOR SHALL INSTALL POLY PIGS AND POLY PIG OUTLETS. THE CONTRACTOR SHALL NOTIFY THE CITY 48 HOURS IN ADVANCE TO REQUEST THE CITY TO FLUSH POLY PIGS THROUGH THE MAINS. THE FLUSHING PROCESS SHALL TAKE PLACE PRIOR TO HYDROSTATIC TESTING CHLORINATION AND FINAL FLUSHING OF THE MAIN BY THE CONTRACTOR. FINAL CONNECTIONS SHALL NOT BE MADE PRIOR TO BACTERIA TEST SAMPLES THAT MEET CITY REQUIREMENTS AND AUTHORIZATION FOR TIE-INS BY THE CITY INSPECTOR.
23. A COMPLETE SET OF AS BUILT DRAWINGS SHALL BE SUBMITTED TO THE MUNICIPAL UTILITIES DEPARTMENT PRIOR TO FINAL INSPECTION.
24. THE CONTRACTOR SHALL NOT OPERATE ANY EXISTING CITY WATER SYSTEM VALVES.
25. WATER VALVE CANS SHALL BE PER SPEC A-20514 (SLIP CAN TYPE).

SEWER GENERAL NOTES

1. SEWER INSTALLATION IS TO BE IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS AND DETAIL DRAWINGS OF THE CITY OF REDLANDS LATEST REVISION THEREOF.
2. ALL SEWER PIPE ELEVATIONS GIVEN REFER TO THE FLOW LINE INVERT ELEVATIONS.
3. THE APPROXIMATE LOCATIONS OF KNOWN EXISTING UNDERGROUND UTILITY LINES ARE SHOWN ON THESE PLANS. THE LINES ARE PLOTTED FROM A COMBINATION OF RECORD AND FIELD DATA. THE CITY HAS TRIED WITHIN ITS AVAILABLE RESOURCES TO LOCATE ALL SUCH FACILITIES WITH REASONABLE ACCURACY. BY ENTERING INTO A CONTRACT FOR THIS WORK THE CONTRACTOR AGREES, PRIOR TO ANY EXCAVATION TO NOTIFY ALL UTILITY AND IRRIGATION COMPANIES OPERATING IN THE AREA OF THE WORK AND TO DETERMINE WITH AS MUCH ACCURACY AS IS NEEDED TO PERFORM THIS WORK, THE EXACT LOCATIONS OF ALL UNDERGROUND MAIN OR SERVICE UTILITY FACILITIES.
4. SAND BEDDING AND BACKFILL TO A DEPTH OF 12" ABOVE PIPE IS REQUIRED FOR ALL SEWER PIPE MAY BE REQUIRED IF IN THE OPINION OF THE CITY, THE NATIVE BACKFILL MATERIAL IS DEEMED UNSUITABLE.
5. PVC SEWER IS NOT PERMITTED ON ANY HORIZONTAL OR VERTICAL CURVE.
6. THE CONTRACTOR SHALL AIR TEST THE SEWER SYSTEM IN ACCORDANCE WITH CITY STANDARDS AFTER ALL OTHER UTILITIES HAVE BEEN INSTALLED AND COMPLETED WITHIN THE TRACT OR DEVELOPMENT. IN ADDITION, AFTER FINAL AIR TEST, THE CONTRACTOR SHALL CONNECT THE SEWER LATERALS TO THE HOUSE LATERALS AT THE PROPERTY.
7. SEWER LATERALS SHALL BE CLEARLY MARKED WITH AN "L" CHISELED IN CURB FACE.
8. REQUIRED SEPARATION OF THE WATER AND SEWER MAINS AND LATERALS SHALL BE STRICTLY ADHERED TO. INSTALLATION SHALL COMPLY WITH THE STATE DEPARTMENT OF HEALTH REGULATIONS AND BE A MINIMUM OF 10 FEET SEPARATION.
9. SEWER LATERAL LOCATIONS SHALL NOT BE CHANGED MORE THAN 3 FEET (HORIZONTAL) WITHOUT AUTHORIZATION FROM THE CITY.
10. IF PLASTIC SEWER PIPE IS USED, A MANDREL TEST SHALL BE PERFORMED BY THE CONTRACTOR IN THE PRESENCE OF THE CITY INSPECTOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE MUNICIPAL UTILITIES DEPARTMENT. LATEST REVISIONS EXCEPT THE MANDREL SHALL BE SUPPLIED BY THE PIPE MANUFACTURER APPROVED BY CITY OF REDLANDS AND SHALL BE PULLED THROUGH THE PIPE BY HAND. PVC PIPE-MAXIMUM 15" DIAMETER ALLOWABLE.
11. PRIOR TO PAVING OF STREETS OVER A NEW SEWER MAIN ALL COMPACTION TESTS, AIR TESTS, BALLING AND MANDREL TESTS SHALL BE COMPLETED AND APPROVED BY THE CITY AND A COMPLETE SET OF AS-BUILT DRAWINGS SUBMITTED TO THE MUNICIPAL UTILITIES DEPARTMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION OF AS-BUILT DRAWINGS.
12. PRIOR TO ACCEPTANCE BY THE CITY, NEW SEWER LINE SHALL REMAIN PLUGGED AT OR PHYSICALLY SEPARATED FROM THE DOWNSTREAM MANHOLE AND STREETS SHALL BE PAVED.
13. THE CONTRACTOR SHALL REPLACE EXISTING STRIPING AS NECESSARY. THE CONTRACTOR SHALL OBTAIN AN ENCROACHMENT PERMIT FOR SEWER CONSTRUCTION FROM THE CITY OF REDLANDS PUBLIC WORKS DEPARTMENT PRIOR TO COMMENCEMENT OF WORK.
14. PVC SEWER PIPE AND FITTINGS SHALL CONFORM TO AMERICAN SOCIETY FOR TESTING AND MATERIALS (A.S.T.M.) DESIGNATION D-3034, 15" MAXIMUM SIZE, SDR 35 LATEST REVISION.
15. THE JOINTING OF PVC SEWER PIPE SHALL BE BY USING ELECTROMETRIC GASKET JOINTS. THE CRITICAL SEALING DIMENSIONS OF THE BELL, SPIGOT, AND GASKET SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S STANDARD DIMENSIONS AND TOLERANCES.
16. MANHOLE RIM ELEVATIONS INDICATED HEREON ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL RIMS TO FINAL FINISH GRADE, IN COORDINATION WITH STREET IMPROVEMENTS.
17. ALL SEWER STATIONS ARE CENTERLINE SEWER MAIN UNLESS OTHERWISE INDICATED.
18. DURING THE PERIOD OF CONSTRUCTION THE CONTRACTOR SHALL FURNISH, ERECT, AND MAINTAIN ALL WARNINGS, SIGNS, BARRICADES, AND OTHER SAFETY MEASURES IN CONFORMANCE WITH THE STATE MANUAL OF TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE WORK ZONES, LATEST EDITION. THE CONTRACTOR SHALL PROVIDE SAFE AND CONTINUOUS PASSAGE FOR PEDESTRIAN AND VEHICULAR TRAFFIC AT ALL TIMES.



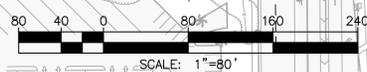
VICINITY MAP
N.T.S.

WATER DATA TABLE

NO	BEARING/DELTA	LENGTH	SIZE/TYPE
1	N 90°00'00" E	350.53'	6" PVC (C900 DR18)
2	N 00°00'00" E	36.48'	6" PVC (C900 DR18)

SEWER DATA TABLE

NO	BEARING/DELTA	RADIUS	LENGTH	SIZE/TYPE	NO	BEARING/DELTA	RADIUS	LENGTH	SIZE/TYPE
1	N 00°00'00" E	---	139.35'	6" PVC (SDR-35)	5	N 00°00'00" E	---	55.18'	6" PVC (SDR-35)
2	N 90°00'00" E	---	277.70'	6" PVC (SDR-35)	6	N 90°00'00" E	---	181.20'	6" PVC (SDR-35)
3	N 00°00'00" E	---	280.40'	6" PVC (SDR-35)	7	N 00°00'00" E	---	80.64'	6" PVC (SDR-35)
4	N 00°00'00" E	---	18.51'	6" PVC (SDR-35)	8	N 00°00'00" E	---	21.88'	6" PVC (SDR-35)



FIRE DATA TABLE

NO	BEARING/DELTA	RADIUS	LENGTH	SIZE/TYPE	NO	BEARING/DELTA	RADIUS	LENGTH	SIZE/TYPE
1	N 00°33'50" W	---	61.61'	10" PVC (C900 DR14)	13	N 90°00'00" E	---	54.87'	4" PVC (C900 DR14)
2	N 00°00'00" E	---	33.07'	10" PVC (C900 DR14)	14	N 00°00'00" E	---	95.54'	10" PVC (C900 DR14)
3	N 90°00'00" E	---	29.48'	6" PVC (C900 DR14)	15	N 90°00'00" E	---	161.59'	6" PVC (C900 DR14)
4	N 00°00'00" E	---	192.92'	6" PVC (C900 DR14)	16	N 00°00'00" E	---	346.23'	10" PVC (C900 DR14)
5	N 90°00'00" E	---	304.12'	10" PVC (C900 DR14)	17	N 90°00'00" E	---	848.04'	10" PVC (C900 DR14)
6	N 00°00'00" E	---	38.66'	10" PVC (C900 DR14)	18	N 00°00'00" E	---	103.69'	6" PVC (C900 DR14)
7	N 90°00'00" E	---	80.81'	10" PVC (C900 DR14)	19	N 90°00'00" E	---	172.71'	10" PVC (C900 DR14)
8	N 00°00'00" E	---	40.81'	10" PVC (C900 DR14)	20	N 00°00'00" E	---	364.56'	10" PVC (C900 DR14)
9	N 90°00'00" E	---	29.16'	6" PVC (C900 DR14)	21	N 00°00'00" E	---	25.92'	10" PVC (C900 DR14)
10	N 00°00'00" E	---	560.16'	10" PVC (C900 DR14)	22	N 90°00'00" E	---	118.72'	6" PVC (C900 DR14)
11	N 90°00'00" E	---	22.72'	6" PVC (C900 DR14)	23	N 89°33'08" E	---	182.22'	10" PVC (C900 DR14)
12	N 00°00'00" E	---	54.03'	10" PVC (C900 DR14)	24	N 89°33'08" E	---	51.22'	10" PVC (C900 DR14)

**SITE PHASING - 2
UTILITY PLAN**

SEPTEMBER 09, 2022

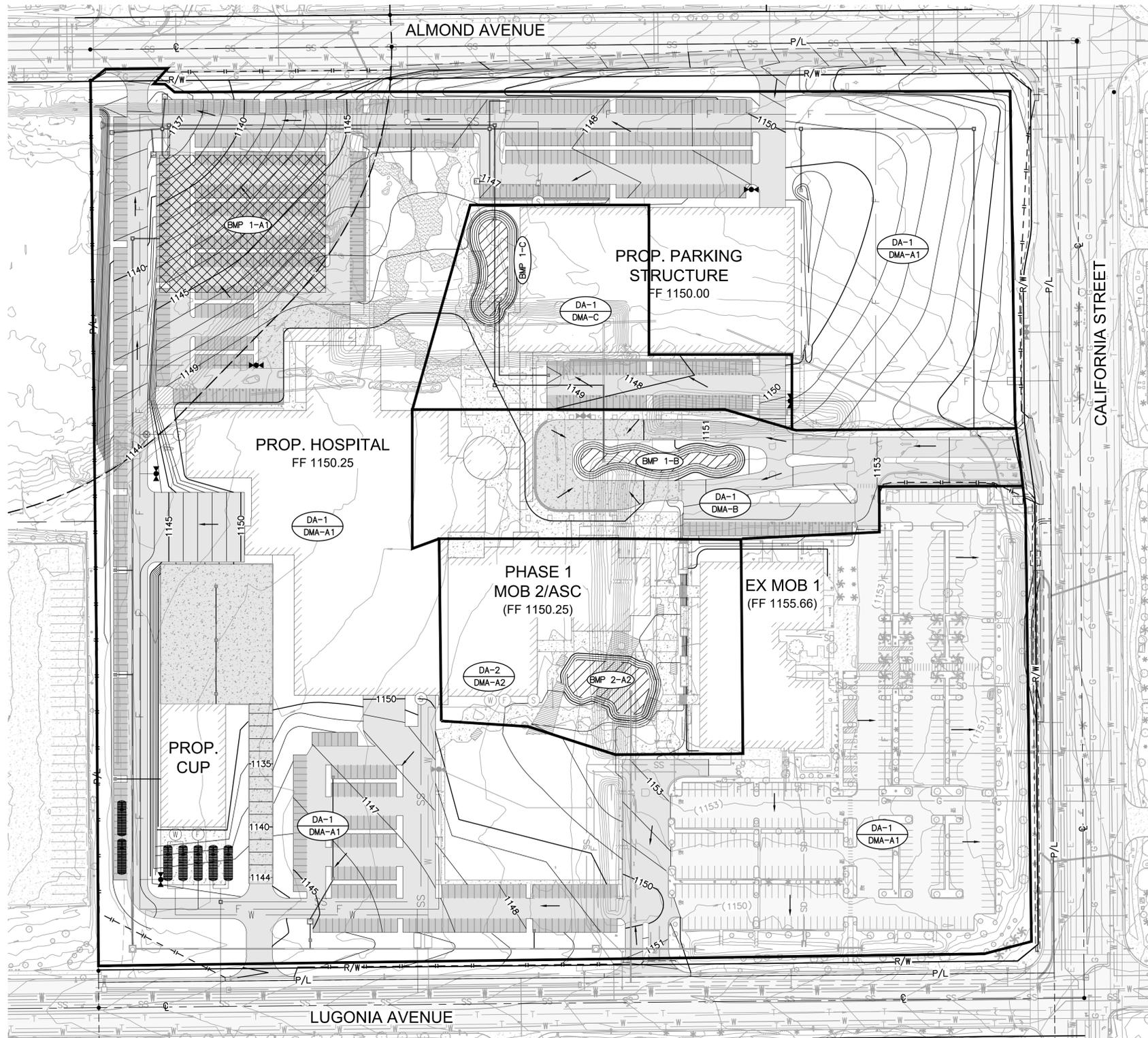


REDLANDS MEDICAL CENTER

Sheet: **C3.02**

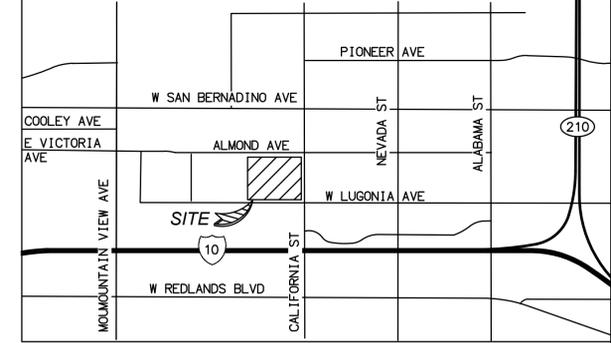
CITY OF REDLANDS

Site Development Plan Number:	PHONE: 626.405.6333
OWNER: Kaiser Foundation Hospitals	ADDRESS: 383 E Walnut Street Pasadena, CA 91188
ARCHITECT: ENGINEER: DESIGNER: CO Architects, Michael Baker Int'l, Ridge Landscape Architects	PHONE: 323.525.0500 (Architect)
ADDRESS: 5750 Wilshire Boulevard, Suite 550, Los Angeles CA 90036 (Architect)	LOCATION: 1301 California Street, Redlands, CA 92374
TYPE OF DEVELOPMENT: XXXXX	ACCESSORS PARCEL NUMBER: 0167-441-07-0-000
ZONE: CR ZONE	

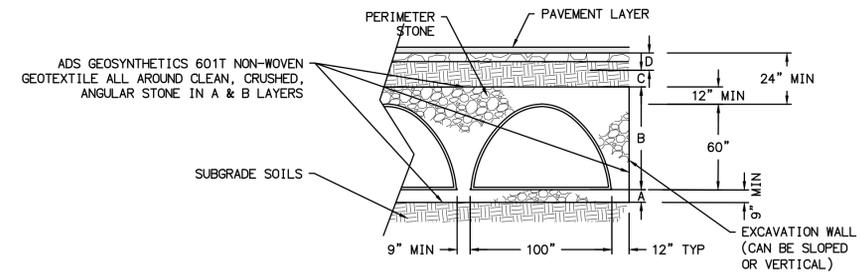


LEGEND

- STORM WATER BASIN
- UNDERGROUND INFILTRATION CHAMBERS
- DRAINAGE BOUNDARY
- FLOW ARROW
- FLOW DIRECTION
- DMA/DA ID
- BMP ID



VICINITY MAP
N.T.S.

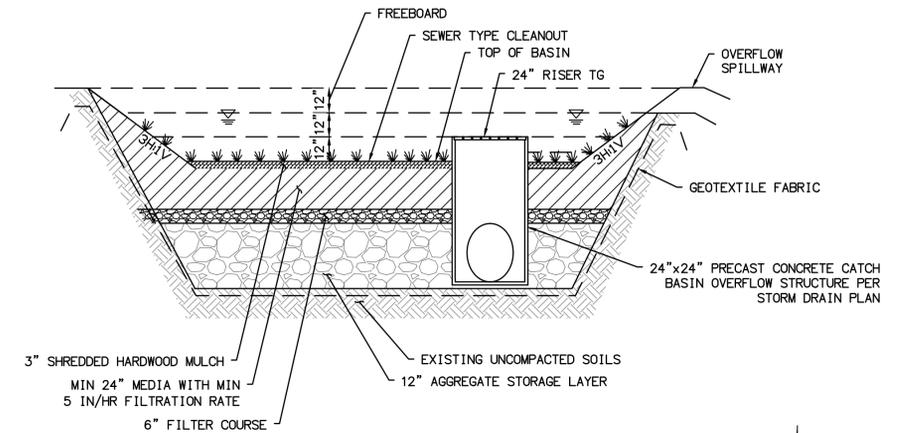


NOTES:

1. SECTION A - FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER
2. SECTION B - EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.
3. SECTION C - INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.
4. SECTION D - FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.

TYPICAL UNDERGROUND ADS STORMWATER CHAMBER INFILTRATION DETAIL

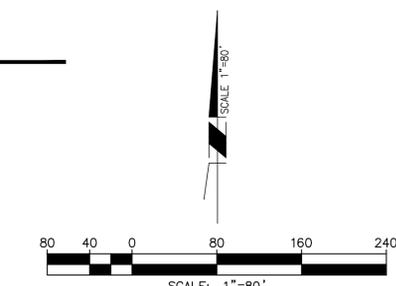
SCALE: NOT TO SCALE



TYPICAL BIO-RETENTION BASIN DETAIL

SCALE: NOT TO SCALE

DA	DMA	TOTAL AREA (SF)	IMPERVIOUS RATIO	DMA RUNOFF FACTOR	DESIGN CAPTURE VOLUME (CF)	BMP PROPOSED SURFACE AREA (SF)	VOLUME RETAINED BY BMP (CF)	BMP TYPE
1	A1	1,197,394	85%	0.66	91,866	43,500	92,438	UNDERGROUND INFILTRATION (SIZED FOR ULTIMATE PHASE 4)
1	B	126,200	85%	0.66	9,682	4,200	9,765	BIORETENTION WITH NO UNDERDRAIN (SIZED FOR ULTIMATE PHASE 4)
1	C	109,300	85%	0.66	8,386	4,000	9,300	BIORETENTION WITH NO UNDERDRAIN (SIZED FOR ULTIMATE PHASE 4)
2	A2	152,000	85%	0.66	11,662	6,035	14,031	BIORETENTION WITH NO UNDERDRAIN (SIZED FOR ULTIMATE PHASE 4)



**SITE PHASING - 2
BMP PLAN**

SEPTEMBER 09, 2022



REDLANDS MEDICAL CENTER

Sheet: **C3.03**

CITY OF REDLANDS

Site Development Plan Number:
 OWNER: Kaiser Foundation Hospitals PHONE: 626.405.6333
 ADDRESS: 383 E. Walnut Street Pasadena, CA 91108
 ARCHITECT/ENGINEER/DESIGNER: CO Architects, Michael Baker Intl., Ridge Landscape Architects PHONE: 323.525.0500 (Architect)
 ADDRESS: 5750 Wilshire Boulevard, Suite 550, Los Angeles CA 90036 (Architect) LOCATION: 1301 California Street, Redlands, CA 92374
 TYPE OF DEVELOPMENT: XXXXX ACCESSOR'S PARCEL NUMBER: 0167-441-07-0-000
 ZONE: CR ZONE