

Low Impact Development Stormwater Control Plan

Proposed 6-Lot Residential Subdivision
APN: 508-091-039
McKinleyville, California 95519

Prepared for:
Stephanie & David Ruffino
308 St. Michael Court #B
Chico, CA 95973

Prepared by:
Whitchurch Engineering, Inc.
610 9th Street
Fortuna, CA
12/20/2022

REV 1 ~ 7.10.23

Table of Contents

Existing Site Conditions	1
Proposed Site Conditions	1
Best Management Practices	2
Runoff Analysis	2
Conclusion	4
Appendix A: Low Impact Development Site Plan	A
Appendix B: Regulated Project SCP Worksheets.....	B

Existing Site Conditions

The project site consists of a single parcel located on Anderson Ave in McKinleyville, California (APN: 508-091-039). The existing parcel is proposed to be subdivided into 6 parcels. The existing site is a relatively flat, 4.1-acre lot. The western property line is located along the centerline of Anderson Avenue. There is approximately 705 ft² of asphalt paving on the project parcel. The remainder of the ground cover is grazed pasture and some small patches of brambles. There are no existing structures located on the project parcel.

The existing project site generally slopes to the north east corner of the lot at slopes of approximately 2%-10%. There are no drainage structures located on the project parcel and all runoff occurs as sheet flow. Runoff leaves the site at the northeast corner of the parcel and enters a vegetated swale located between the project parcel and Highway 101. This report will, therefore, consider the northeast property corner the point of stormwater discharge into the Caltrans Highway 101 Right-of-Way.

Proposed Site Conditions

The proposed (<P>) project consists of the subdivision of the existing parcel into 6 parcels with the same Single-Family Residential zoning. The proposed subdivision includes the construction of a 20 ft-wide asphalt paved access road, a 5 ft-wide concrete sidewalk, as well as the future residential development of each of the 6 parcels. For the purposes of this report, it is assumed that each parcel will result be developed to include a single 2,000 ft² single family home as well as 5,000 ft² of associated concrete and asphalt paving. The existing and proposed ground cover types and their respective areas are shown in Table 1.

Table 1: New and Replaced Impervious Area due to Proposed Development

New Impervious Surfaces	
New Buildings	12,000 ft ²
New Asphalt Paving	15,470 ft ²
New Concrete Sidewalks and driveways	33,675 ft ²
Total	61,145 ft²

The proposed development will include the installation of curb and gutter along the new access road, which will collect and convey runoff from the proposed access road as well as the individual lots. This curb and gutter will discharge runoff into a vegetated swale, which in turn directs runoff into a new retention pond located near the Northeastern property corner. This retention pond will be sized to retain any increase in runoff due to the development for a 100-year storm. Upon reaching storage capacity, additional runoff will overflow from this pond into the existing Caltrans drainage swale that flows north along the US 101 via storm drain. This storm drain will be sized to accommodate a 25-year storm.

Best Management Practices

Due to the proposed impervious areas for this development, LID Best Management Practice Features (BMP's) must be installed to meet County runoff requirements. The BMP's used in the runoff analysis include:

Retention Pond/Cistern:

A 2,160 ft², 3-foot deep detention pond will be installed. An overflow will be provided approximately 2.5 feet from the bottom of the pond, resulting in a total detention volume of approximately 3,000 ft³. All site runoff will be collected and routed to this pond.

Vegetated Swale:

Runoff will be routed to the above-mentioned pond by a vegetated swale. This vegetated swale will have side slopes of 3:1 and be approximately 12 inches deep.

Soil Quality Improvement Area:

A portion of the site landscaping will be amended such that a total depth of 12" of un-compacted soil will be provided.

Runoff Analysis

The site was analyzed as a single Drainage Management Area with the point of concentration being the northeastern corner of the parcel on by highway 101. Existing and proposed impervious areas were calculated and the net increase due to construction was determined (See Table 2).

Table 2: Existing and Proposed Impervious Area

DMA #1 Impervious Areas	
DMA #1 Area	177,906 ft ²
Total Existing Impervious Area	705 ft ²
Total Proposed Impervious Area	61,145 ft ²
Total Post Construction Impervious Area	61,850 ft ²
Percent Increase	8,773%

The site was analyzed for post-construction runoff using the proposed impervious area, Self-Retaining Areas, retention pond, soil quality improvement area and vegetated swale. Post-development runoff volumes, credits, and total runoff reduction percentage was determined using Regulated Projects Worksheet from the Humboldt Low Impact Development Stormwater Manual.

These areas and credits are shown in Table 3, below.

Table 3: Runoff Volume Capture Analysis

DMA #1 Volume Capture Analysis	
Total Post-Construction Impervious Area	61,850 ft ²
Retention Pond Area	2,160 ft ²
Retention Pond Volume	3,000 ft ³
Retention Pond Volume	22,440 gal
Retention Pond Credit	55,651 ft ²
Vegetated Swale Area	3,600 ft ²
Vegetated Swale Credit	3,600 ft ²
Soil Quality Improvement Area	8,200 ft ²
Soil Quality Improvement Credit	8,200 ft ²
Total BMP Credit	67,451 ft ²
Total Runoff Reduction	109.1%

This estimated volume capture exceeds the estimated Post-Construction runoff volume (See Table 3). The BMP design will capture 100% of the estimated runoff, therefore, Bio-Retention is not required under the Humboldt County Low Impact Development Standards.

Conclusion

In conclusion:

- This project will result in 61,850 ft² of impervious surface area and is subject to the requirement for a regulated project per Humboldt LID requirement.
- This project will be constructed in phases to limit the disturbed area to less than 1 acre during each phase.
- This site was analyzed as a single Drainage Management Area.
- A Retention Pond, Vegetated Swale, and Soil Quality Improvement Areas are used to reduce post-construction runoff for DMA #1.
- The BMP's are sized such that they will capture an estimated 109.1% of generated runoff.
- Due to 100% of the runoff being captured, Bio-Retention is not required.



Engineer of Record Signature

8/31/2023

Date



Whitchurch Engineering, Inc.
Stormwater Control Plan
RUF 2101.1
12/20/2022

Appendix A: Low Impact Development Site Plan



Whitchurch Engineering, Inc.
Stormwater Control Plan
RUF 2101.1
REV 1 ~ 7.10.23

Appendix B: Regulated Project SCP Worksheets