



THE CITY OF SAN DIEGO
Development Services Department
7650 Mission Valley Road, San Diego, CA 92108

Project Address 8332 Calle Del Cielo
San Diego, CA 92037

Project Type Discretionary Project

Primary Contact Chandra Slaven
chandra@coastalverite.co

Instructions

<p>The following issues require corrections to the documents submitted.</p>

Other

DSD-Engineering Review

Karen Vera
KVera@sandiego.gov

[Comment 00003 | Page | Open]

Project scope: Coastal Development Permit and Site Development Permit; demolish an existing one-story, 3,427-square-foot single dwelling unit and construct a new two-story, 3,945-square-foot single dwelling unit with an attached two-story, 3,391-square-foot guest house, including associated site improvements. The proposed project is located at 8332 Calle Del Cielo within the La Jolla Community Plan (Council District 1). (Information Only – No Action Required)

[Comment 00012 | Page | Open]

SWQMP: Attachment 1D: Infiltration category: Please provide documentation in accordance with Appendix C and D of the City's Storm Water Standards Manual to support infiltration category. Applicant cannot defer infiltration feasibility condition letter to final engineering.

[Comment 00024 | Page | Open]

Revise the Calle de Cielo cross section on sheet C-01 to show and callout proposed ROW dedication.

[Comment 00031 | Page | Open]

Development Permit Conditions will be determined on the next submittal when all requested information is provided. (Information Only – No Action Required)

[Comment 00032 | Page | Open]

Please provide a written response to all comments whether you agree or not and in case of disagreement, express your reasoning.

[Comment 00033 | Page | Open]



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Additional comments may be recommended pending further review of any redesign of this project. These comments are not exclusive. Should you have any questions or comments, please email Karen Vera at KVera@sanidiego.gov. (Information Only – No Action Required)

[Comment 00109 | Page | Open]

Please note that unchecked comments of previous reviews are still standing and need to be addressed.

[Comment 00110 | Page | Open]

SWQMP: Referring to previous cycle issue # 12: Applicant can determine infiltration feasibility via the following 2 methods:

- a. Infiltration feasibility condition letter in accordance with Appendix C and D of the City's Storm Water Standards Manual to support infiltration category.
- b. Infiltration can also be determined based on testing; in which case geology would need to review and approve infiltration prior to engineering verifying BMP sizing. Treatment calculations will be verified once proper infiltration documentation is provided. If applicant would like to use infiltration testing, please contact DPM and request Geology reviewer be added to the next cycle for infiltration feasibility approval.

[Comment 00111 | Page | Open]

Drainage report and calculations state outlet at Calle Del Cielo is a proposed curb outlet. Please revise plans, exhibits and details to show and call out a proposed curb outlet. There is a discrepancy on the following sheets stating a sidewalk underdrain is proposed, please revise: A101, C-02, C-03.

[Comment 00112 | Page | Open]

Revise proposed catch basin along Calle Del Cielo to be within proposed R/W property limits.

[Comment 00113 | Page | Open]

Referring to previous cycle issue #24: Revise the following sheets to show consistency for 4' ROW dedication along Calle Del Cielo and also call out existing and proposed R/W lines.

- a. A102 - Add a call out for existing and proposed linework in sections A and B. Dimension existing parkway, curb to curb, and PL to PL.
- b. C-01 - Revise cross section to state "ex R/W" and "Prop R/W". Revise site plan to call out existing and proposed R/W. Add dimensions for proposed dedicated area.
- c. C-02 - Revise site plan to call out existing and proposed R/W. Add dimensions for proposed dedicated area.
- d. C-03 - Revise site plan to call out existing and proposed R/W.

[Comment 00114 | Page | Open]

Revise site and grading plans to show and call out proposed from yard pedestrian gate and fence as called out in landscape plans. A portion of the proposed fence appears to be within the visibility triangle, revise for next submittal.



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DSD-Environmental

Marlene Watanabe
mwatanabe@sandiego.gov

[[Comment 00061](#) | [Page](#) | [Open](#)]

GENERAL:

These comments are draft and subject to change until presented by the City's assigned Development Project Manager in conjunction with the project Assessment Letter. Staff is unable to process formal, intermediate plan changes and updates outside the full submitted cycle. A formal response to these comments must be made through the resubmittal process in response to the full Assessment Letter. Your DSD Development Project Manager can assist with further questions.

RESUBMITTAL REQUIREMENTS:

Applicant written response to all staff comment is required with each resubmittal. Any technical report requiring revisions must be submitted in a WORD strikeout/underline (SOUL) format. The City's expectation is that the applicant/consultant respond to comments and text edits; revisions are carried through the technical report as necessary; a thorough quality control/assurance is provided (i.e. complete read through of document beyond specific edits/comments). Failure to resubmit a SOUL format or complete revisions may extend the review of the technical study.

[[Comment 00121](#) | [Page](#) | [Open](#)]

Project Scope (Updated):

The project proposes a Coastal Development Permit (CDP) and Site Development Permit (SDP) to demolish an existing one-story, 3,427-square-foot (sf) single dwelling unit and construct a new two-story, 5,015-sf single dwelling unit with an attached two-story, 1,438-sf guest house for a total of 6,463 sf, including associated site improvements, located at 8332 Calle Del Cielo. The 0.47-acre site is in the LJSPD-SF Base Zone, Coastal (Non-Appealable) Overlay Zone and is designated Very Low Density Residential (0-5 du/ac) within the La Jolla Community Plan Area.

[[Comment 00122](#) | [Page](#) | [Open](#)]

Geologic Conditions:

An Addendum to the Geotechnical Investigation ENGEO Incorporated, dated June 25, 2025, revised July 23, 2026 was received. EAS defers to DSD-Geology for technical analysis and review of this report. Please see their comments.

[[Comment 00123](#) | [Page](#) | [Open](#)]

Hydrology/Drainage:

A revised Drainage Study prepared by Omega Engineering Consultants dated June 23, 2026 was received for this project. For review of this report and technical analysis EAS defers to Engineering. Any comments made by LDR-Engineering on this issue area must be addressed before EAS can make an environmental determination on the project.

[[Comment 00124](#) | [Page](#) | [Open](#)]

Paleontological Resources:

Earthwork quantities on the site plans show the following: 1,102 cubic yards (cyds) of cut to a depth of 6.6 feet and 677 cyds of fill to a depth of 4.8 feet, export of 425 cyds. The grading quantities do not meet paleontological resource



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monitoring thresholds. EAS has no additional comment on this issue area. All pertinent information will be included in the required environmental document.

[Comment 00125 | Page | Open]

Water Quality:

A revised Priority Development Project Stormwater Quality Management Plan prepared by Omega Engineering Consultants dated June 23, 2026 was received for this project. For review of this report and technical analysis EAS defers to Engineering. Any comments made by LDR-Engineering on this issue area must be addressed before EAS can make an environmental determination on the project.

[Comment 00126 | Page | Open]

Other Review Disciplines:

Please address any remaining issues with other review disciplines. Any open comments must be addressed before EAS can make an environmental determination on the project. As such, the environmental timeline will be held in abeyance.

[Comment 00127 | Page | Open]

ENVIRONMENTAL DETERMINATION:

It appears the project may be exempt. However, until the requested information has been provided, staff is not able to complete the environmental review for the project and the environmental processing timeline will be held in abeyance. EAS will coordinate with the other reviewers as the review progresses regarding any additional potential environmental impacts.

Please be aware that the environmental review may change in response to any project changes and/or new information. Additionally, the new information may lead to the requirement of new and/or additional technical studies. A determination as to the appropriate environmental document will be made based on all reviewed and submitted information.

DSD-Geology

Michael Jensen
mdjensen@sanidiego.gov

[Comment 00056 | Page | Open]

SUBMITTED REFERENCES (Reviewed):

Site Development Plans, Coastal Development Permit, Race Residence, 8332 Calle Del Cielo, San Diego, CA 92037 dated March 30, 2026, by Martin Architecture, 29 pages

Geotechnical Report, Race Residence, 8332 Calle Del Cielo, San Diego, CA 92037, CA, Project No. 29999.000.001, dated February 24, 2026 by Engeo. 62 pages

Addendum Geotechnical Report, 8332 Calle Del Cielo, San Diego, CA 92037, CA, Project No. 29999.000.001, dated June 25, 2026 by Engeo.

[Comment 00059 | Page | Open]



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The geotechnical investigation report must contain an updated site-specific geologic/geotechnical map that shows the distribution of fill and geologic units, that depicts geologic structure (bedding, joints, structure, etc.), and proposed grading. Circumscribe the limits of recommended remedial grading on the geologic/geotechnical map to delineate the proposed footprint of the project.

DSD-Water and Sewer

Gary Nguyen
NguyenVH@sandiego.gov
(619) 446-5454

[Comment 00048 | Page | Open]

Please provide the approved permit for the sewer lateral connection to the 8" VC sewer main located in the sewer easement on the adjacent property.

[Comment 00049 | Page | Open]

What is the pipe diameter size of the existing sewer lateral?

[Comment 00116 | Page | Open]

Label the diameter size of the existing sewer lateral which connects to the sewer main in the easement.

[Comment 00117 | Page | Open]

Following up on Comment 48 and the email sent to the applicant on 7/22/26, is there an existing EMRA for the sewer lateral that connects to a sewer within an easement, or will an EMRA be required for this project? Please confirm.

[Comment 00118 | Page | Open]

Scaled measurement indicates a 2.5' separation distance between the proposed water service and the flare of the driveway. Maintain a 3ft (minimum) separation between the service and flare.

[Comment 00119 | Page | Open]

Per Section (3.5.2.6) "Water services must ... tapped not closer than 30 inches apart, measured edge to edge." Maintain 30in separation between all proposed, existing, and killed water services.

[Comment 00120 | Page | Open]

Label the water kill service at the main.

DSD-Landscape Review



THE CITY OF SAN DIEGO
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Miguel Vargas Penaloza
MVargasPenal@sandiego.gov
(619) 446-5110

[Comment 00100 | Sheet L-04 | Open]

Street Tree Regulations – §142.0409/§142.0610: Staff concurs with the provided response in the Applicant Response To Issues document dated July, 26, 2026. The total street frontage is 98.96', which is consistent with Subdivision Map 7957. Therefore, a total of three street trees will satisfy the requirements of Section 142.0409. However, street tree species shall be canopy-form trees consistent with the Street Tree Selection Guide, Community Plan, and the Landscape Standards of the Land Development Manual. [Information Only]

[Comment 00101 | Sheet L-04 | Open]

Street Tree – Species Selection: The following canopy-form trees have been cross-referenced with the City's Street Tree Selection Guide and District 3 tree plan. Please be aware that staff did not vet the entire District 3 tree list with the Street Tree Selection. However, any of the following may be used to satisfy the canopy-form tree requirement, in addition to any other approved species:

- Red Flowering Gum (*Eucalyptus ficifolia*)
- Coral Gum (*Eucalyptus torquata*)
- Jacaranda (*Jacaranda mimosi/olia*)
- Little Gem Magnolia (*Magnolia grandiflora* 'Little Gem')
- Cajeput Tree, Paperbark Tree (*Melaleuca quinquenervia*)
- Olive Tree (*Olea europaea*)

There is a large list of canopy-form trees that may be used; hence, staff will not allow palm species to satisfy this requirement. However, they may still be proposed as secondary/accent trees. When selecting a tree species, please ensure they are a canopy-form tree, are suitable for an 8'-0" parkway, and are listed on both the City's Street Tree Selection Guide and District 3 Tree Plan.

**[Comment 00102 | Sheet VAP
C-01 | Open]**

Street Frontage Dimensions – Civil Sheets: The civil sheets callout the street frontage dimension as 170.73'. However, this is not consistent with Map 7957. Please revise your street tree frontage dimensions to the correct 98'96'.

[Comment 00103 | Sheet L-1.2 | Open]

Roof Eave Boundary: Clearly label the roof eave overhang on the brush management plan. The roof eave shall be taken into account when establishing brush management zones per SDMC 142.0412(g)(2).

[Comment 00104 | Sheet L-1.2 | Open]

Zone Zero Boundary/Tree Canopy Boundary: Please scale text at 1/8" or greater for better readability for the Zone Zero Boundary and the 10' Tree Canopy Boundary notes.

[Comment 00105 | Sheet L-1.2 | Open]

Table 142-04H Note: It is unclear why the Table 142-04H was provided. Zone widths are not consistent with what is shown on the plan set or SDMC Table 142-04H. Please remove as non-standard zones apply for the project at hand.

[Comment 00106 | Sheet L-1.2 | Open]

Brush Management Irrigation Note: Please provide a note indicating that a permanent, below-grade irrigation system will be used per SDMC 142.0403(c) directly on the brush management plan.



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[Comment 00107 | Sheet L-1.2 | Open]

Brush Management Program Notes: Provide excerpts from the City's updated Brush Management Program notes of the Municipal Code and Landscape Standards directly within the plan set. These excerpts describe the procedures for creating and maintaining the brush management zones.

Link to Brush Management Program Notes: https://www.sandiego.gov/sites/default/files/brushmgmtnotes-l_sheet.pdf

[Comment 00108 | Sheet L-1.2 | Open]

Additional Brush Management Notes

Provide the following note on the Brush Management Plan: "The Owner/Permittee shall schedule a pre-construction meeting on site with the contractor and the Development Services Department to discuss and outline the implementation of the Brush Management Program."

Provide the following note: "Brush management activities are prohibited within coastal sage scrub, maritime succulent shrub, and chaparral habitats during the breeding season of federally protected species, from March 1 to August 15, except where documented to the satisfaction of the City of San Diego that the thinning would be consistent with the conditions of species coverage described in the City of San Diego's MSCP Subarea Plan."

Provide the following note on the Brush Management Plan on the Brush Management Plan: "Upon repair or replacement of all structures in Zone 1, upgrades shall be of noncombustible, one-hour fire-rated or Type IV or heavy timber construction."

Provide the following note: "Offsite brush management shall be the responsibility of adjacent property owners. For fuel-load maintenance issues, contact the Fire-Rescue Department's Fire Hazard Advisor – Brush/Weed Complaint line at: (619) 533-4444."

DSD-Planning Review

Adan Pacheco Palma
APachecoPalm@sandiego.gov

[Comment 00095 | Sheet CS1 | Open]

La Jolla Community Plan Association

19. After the Notice of Application and initial assessment letter have been distributed, the applicant is required to present the proposed project to the La Jolla Community Planning Association. Please contact Lisa Kriedeman, Chair, via email at LisaK.LJCPA@outlook.com or info@lajollacpa.org. Please provide the meeting minutes and any recommendations received from the association.

[Comment 00096 | Sheet CS1 | Open]

La Jolla Shores Advisory Board

20. The La Jolla Shores Advisory Board must review this project to provide input whether the project is consistent with the requirements of the planned district per section 1510.0201(d) of the SDMC. Please contact Senior Planner Melissa Garcia of the City Planning Department at MAGarcia@sandiego.gov to be placed on a future agenda of the La Jolla Shores Advisory Board.



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[Comment 00115 | Sheet CS1 | Open]

2nd Review Comments

1. Comment Nos. 00095 and 00096 will remain open pending review of the meeting minutes and recommendations from the La Jolla Community Plan Association and La Jolla Shores Advisory Board. Please submit the meeting minutes and recommendations as separate documents with the next resubmittal.



September 4, 2026

RE: 8332 Calle Del Cielo (PRJ No. 1154920)

RESPONSES TO ENGINEERING AND WATER & SEWER COMMENTS

Please refer to Review Letter dated August 27, 2026.

Engineering Comments

Comment 3
Informational. Noted.

Comment 12
Infiltration has been ruled out due to low infiltration rates. We will ensure the Geotechnical Report with the infiltration testing is routed to Geology department for review.

Comment 24
See sheet C-1. Additional label has been added.

Comment 31
Informational. Noted.

Comment 32
Informational. Noted.

Comment 33
Informational. Noted.

Comment 109
Informational. Noted.

Comment 110
Noted. We will take route B as per your comment. We will ensure the Geotechnical Report with the infiltration testing is routed to Geology department for review.

Comment 111
The Drainage Study and the Plans have been updated to show sidewalk underdrains. The reports and the plans are now consistent.

Comment 112
Catch basin has been removed. Storm drain forcemain now manifolds to sidewalk underdrains to produce gravity outflow.

Comment 113
Existing and proposed ROW labels have been added.

Comment 114
See sheet C-2. 3' high fence has been added and labeled.



Water and Sewer Comments

Comment 48

This was resolved directly with Gary on 7/27/26. A call for and EMRA in final engineering was added to sheet C-2.

Comment 49

Lateral is 4" diameter.

Comment 116

See sheet C-2. Lateral is labeled as 4".

Comment 117

Lateral will be added to a new EMRA, per our discussion.

Comment 118

New meter has been relocated to opposite side of driveway in order to achieve proper clearance from wing.

Comment 119

Noted. New meter and service has been relocated.

Comment 120

See sheet C-2. Kill is labeled.

Please contact us directly with any questions.

Nick Sorce, PE

858-634-8620 x14

	City of San Diego Development Services 1222 First Ave., MS-302 San Diego, CA 92101	Community Planning Committee Distribution Form	
Project Name: 8332 Calle Del Cielo		Project Number: PRJ-1154920	
Community: La Jolla			
For project scope and contact information (project manager and applicant), log into OpenDSD at https://aca.accela.com/SANDIEGO. Select "Search for Project Status" and input the Project Number to access project information.			
☒ Vote to Approve ☐ Vote to Approve with Conditions Listed Below ☐ Vote to Approve with Non-Binding Recommendations Listed Below ☐ Vote to Deny		Date of Vote: August 06, 2026	
# of Members Yes 12	# of Members No 0	# of Members Abstain 1	
Conditions or Recommendations:			
☐ No Action (Please specify, e.g., Need further information, Split vote, Lack of quorum, etc.)			
NAME: A Feral			
TITLE: SECRETARY		DATE: August 17, 2026	

Visit our web site at www.sandiego.gov/development-services.

Upon request, this information is available in alternative formats for persons with disabilities.

DS-5620 (08-18) ONLINE FORM



CARSON DOUGLAS LANDSCAPE ARCHITECTURE

Licensed Landscape Architect CA#5286

September 03, 2026

Miguel Vargas Penaloza

MVargasPenal@sandiego.gov

(619) 446-5110

THE CITY OF SAN DIEGO

Development Services Department

7650 Mission Valley Road, San Diego, CA 92108

Thank you for your review. Carson Douglas comment responses in red.

[Comment 00100 | Sheet L-04 | Open]

Street Tree Regulations - §142.0409/§142.0610: Staff concurs with the provided response in the Applicant Response To Issues document dated July 26, 2026. The total street frontage is 98.96', which is consistent with Subdivision Map 7957. Therefore, a total of three street trees will satisfy the requirements of Section 142.0409. However, street tree species shall be canopy-form trees consistent with the Street Tree Selection Guide, Community Plan, and the Landscape Standards of the Land Development Manual. **[Information Only]**

Noted. Thank you!

[Comment 00101 | Sheet L-04 | Open]

Street Tree – Species Selection: The following canopy-form trees have been cross-referenced with the City's Street Tree Selection Guide and District 3 tree plan. Please be aware that staff did not vet

the entire District 3 tree list with the Street Tree Selection. However, any of the following may be used to satisfy the canopy-form tree requirement, in addition to any other approved species:

- Red Flowering Gum (*Eucalyptus ficifolia*)
- Coral Gum (*Eucalyptus torquata*)
- Jacaranda (*Jacaranda mimosifolia*)
- Little Gem Magnolia (*Magnolia grandiflora* 'Little Gem')
- Cajeput Tree, Paperbark Tree (*Melaleuca quinquenervia*)
- Olive Tree (*Olea europaea*)

There is a large list of canopy-form trees that may be used; hence, staff will not allow palm species to satisfy this requirement. However, they may still be proposed as secondary/accent trees. When selecting a tree species, please ensure they are a canopy-form tree, are suitable for an 8'-0" parkway, and are listed on both the City's Street Tree Selection Guide and District 3 Tree Plan.

We have consulted the city documents listed and the La Jolla District 3 Approved tree list, and have selected the African Sumac, which is an acceptable canopy-form tree.

[Comment 00102 | Sheet VAP-C-01 | Open]

Street Frontage Dimensions – Civil Sheets: The civil sheets call out the street frontage dimension as 170.73'. However, this is not consistent with Map 7957. Please revise your street tree frontage dimensions to the correct 98.96'.

Civil Noted this comment.

[Comment 00103 | Sheet L-1.2 | Open]

Roof Eave Boundary: Clearly label the roof eave overhang on the brush management plan. The roof eave shall be taken into account when establishing brush management zones per SDMC 142.0412(g)(2).

Roof eave labeled on BMZ plan and the zone zero setback adjusted to reflect that extra space.

[Comment 00104 | Sheet L-1.2 | Open]

Zone Zero Boundary/Tree Canopy Boundary: Please scale text at 1/8" or greater for better readability for the Zone Zero Boundary and the 10' Tree Canopy Boundary notes.

Text scaled to 1/8".

[Comment 00105 | Sheet L-1.2 | Open]

Table 142-04H Note: It is unclear why Table 142-04H was provided. Zone widths are not consistent with what is shown on the plan set or SDMC Table 142-04H. Please remove, as non-standard zones apply for the project at hand.

Table Removed.

[Comment 00106 | Sheet L-1.2 | Open]

Brush Management Irrigation Note: Please provide a note indicating that a permanent, below-grade irrigation system will be used per SDMC 142.0403(c) directly on the brush management plan.

Note added.

[Comment 00107 | Sheet L-1.2 | Open]

Brush Management Program Notes: Provide excerpts from the City's updated Brush Management Program notes of the Municipal Code and Landscape Standards directly within the plan set. These excerpts describe the procedures for creating and maintaining the brush management zones.

Link to Brush Management Program Notes:

https://www.sandiego.gov/sites/default/files/brushmgmtnotes-l_sheet.pdf

Relevant Excerpts included on BMZ sheet.

[Comment 00108 | Sheet L-1.2 | Open]

Additional Brush Management Notes

Provide the following note on the Brush Management Plan:

"The Owner/Permittee shall schedule a pre-construction meeting on site with the contractor and the Development Services Department to discuss and outline the implementation of the Brush Management Program."

Provide the following note:

"Brush management activities are prohibited within coastal sage scrub, maritime succulent shrub, and chaparral habitats during the breeding season of federally protected species, from March 1 to August 15, except where documented to the satisfaction of the City of San Diego that the thinning would be consistent with the conditions of species coverage described in the City of San Diego's MSCP Subarea Plan."

Provide the following note on the Brush Management Plan:

"Upon repair or replacement of all structures in Zone 1, upgrades shall be of noncombustible, one-hour fire-rated or Type IV or heavy timber construction."

Provide the following note:

"Offsite brush management shall be the responsibility of adjacent property owners. For fuel load maintenance issues, contact the Fire-Rescue Department's Fire Hazard Advisor – Brush/Weed Complaint line at (619) 533-4444."

Notes added.

Race Residence Drainage Study

8332 Calle Del Cielo

La Jolla, CA 92037

APN(s): 346-180-23-00

Project #: PRJ-1154920

Date Prepared:

September 4, 2026

Prepared for:

8332 Calle Del Cielo, LLC

8350 Calle Del Cielo,

La Jolla, CA 92037

Prepared By:



4320 Viewridge Ave, Suite C

San Diego, CA 92123

Ph: (858) 634-8620

Declaration of Responsible Charge:

I hereby declare that I am the engineer of work for this project, that I have exercised responsible charge over the design of the project as defined in section 6703 of the business and professions code, and that the design is consistent with current standards. I understand that the check of the project drawings and specifications by the City of San Diego is confined to a review only and does not relieve me, as an engineer of work, of my responsibilities for project design.

FOR PLAN CHECK REVIEW ONLY

Patric T. de Boer

Registration Expires

RCE 83583

3-31-2027

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Site & Project Description

This drainage study has been prepared for the proposed residential development at 8332 Calle del Cielo, La Jolla, CA 92037. The project site currently has a single-family house along with a driveway and walkways. The site is located approximately 0.35 miles east of the Pacific Ocean and 1.20 mile west of Interstate 5. See figure No. 1 for Vicinity Map.

The project will involve the demo of the existing single-family house and construct a two-story residence along with its corresponding surface improvements. The proposed project will include the installation of an onsite storm drain system, a spa, and various hardscape improvements. The project will also install a Modular Wetland Unit for treatment purposes and a pump vault along the northwesterly corner of the property that will pump the treated runoff while still allowing runoff from high intensity storms to flow to the existing discharge point to the storm drain system on the westerly neighboring site. The treatment properties of the system are detailed in a separate SWQMP report.

Methodology

This drainage report has been prepared in accordance with the current 2017 edition City of San Diego Drainage Design Manual regulations and procedures. The Rational Method was used per Appendix A of the City of San Diego Drainage Design Manual to determine the peak flowrates generated by the previously developed and proposed site conditions.

The proposed storm drain pipes and channels were sized using Manning's Equation.

The site is underlain by Type D soil per the June 2003 edition San Diego County Hydrology Manual Soil Hydrologic Groups Map (included in Appendix 1).

The 100-yr, 6-hr storm depth (P_6) was determined using the San Diego County Hydrology Manual Rainfall Isopleth map included as Appendix 2 of this report. The 100-yr, 24-hr storm depth (P_{24}) was determined using the San Diego County Hydrology Manual Rainfall Isopleth map included as Appendix 3 of this report. The obtained precipitation values were verified using the Intensity Duration Design Chart, included as Appendix 4 of this report.

The calculations of the C-values were performed using the County of San Diego method rather than City of San Diego method. The reason for doing this is that the city method assumes a value of 0.55 for single-family homes. The existing and proposed values would be identical and would not account for the significant increase in impervious area proposed by the project. This strategy of using the county method of calculating the weighted C-value has been used and approved on previous reports prepared by Omega Engineering Consultants because it was done to make the design more conservative than what is required by the city Drainage Design Manual. This method is used for both the existing and proposed conditions. The C-value of each basin was determined by taking the area weighted average of a value of 0.35 for natural D type soil, and 0.9 for impervious surfaces. See table 3-1 of the County Hydrology Manual, included as Appendix 5 of this report.

The total time of concentration was determined by adding the T_i value to the travel time (T_t).

$$T_c = T_i + T_t$$

The T_c and the P₆ values were entered into the peak intensity formula from Figure B-2 of the drainage design manual to determine the intensity of the rainfall during the peak of the 100-year, 6-hr storm.

$$I = 7.44 \times P_6 \times T_c^{-0.645}$$

The City of San Diego Drainage Design Manual Intensity-Duration-Frequency chart (Figure A-1) gave a much smaller Intensity than the San Diego County Hydrology Manual does, so the San Diego County Hydrology Manual formula was used instead.

Rational Method

$$Q = CIA$$

Where:

Q=peak discharge, in cubic feet per second (cfs)

C=weighted runoff coefficient, Table A-1 City of San Diego Drainage Design Manual

I =average rainfall intensity for a duration equal to the T_c for the area, (in/hr)

$$= 7.44 \times P_6 \times T_c^{-0.645}$$

A = drainage area contributing to the design location, in acres

$$T_i = \frac{1.8 (1.1 - C) (L)^{0.5}}{S^{0.33}}$$

S= Slope of drainage course

The velocity within the gutter on Callen Del Cielo was determined using Figure 3-2 of the City of San Diego Drainage Design Manual (See Appendix 7).

See the attached calculations for particulars. The following references have been used in preparation of this report:

- (1) Handbook of Hydraulics, E.F. Brater & H.W. King, 6th Ed., 1976.
- (2) City of San Diego Drainage Design Manual, January 2017 Edition
- (3) Modern Sewer Design, American Iron & Steel Institute, 1st Ed., 1980

Existing Conditions

The existing site consists of a single-family residence, landscape areas, walkways and driveway.

The surface improvements drain via overland flow to the west and onto an existing drainage ditch along the westerly downstream property. The entire building roof drains via existing 4" pipes to the northwesterly corner where it outlets via a riser pipe and flows directly to a concrete drainage ditch running along the east property line on the west neighbor. This system conveys runoff through the neighboring site and to the City MS4 system. The point at which runoff outfalls to the surface and enters the neighboring concrete ditch is referred to as Discharge Point # 1 in this report.

Proposed Conditions

The project proposes to demo the existing residential development and construct a new two-story residence along with the associated surface improvements. The proposed improvements include a driveway, walkways, sports court, landscape areas, onsite storm drain system and a pump vault.

The proposed site will drain via a private storm drain system to a modular wetland biofilter at the northwest corner of the site. Flow that is treated by the Modular Wetland will drain to a duplex system with 2 Liberty FL100 pumps. The pump system will convey runoff via a 3" force main to a the northeast corner of the site. The 3" force main will split the flow into 4 separate 3" pipes that will drain to the curb face via sidewalk underdrains along Calle Del Cielo. During high intensity storms above the 85th percentile, the pump system will overflow to a bypass pipe that drains to a surface outlet. Flow discharged through the surface outlet flows to the concrete drainage ditch on the neighbor's site and follows the same offsite flow path as on the existing conditions. The flow discharged to the neighboring site is determined by using EPA SWMM to route the hydrograph of the proposed storm through the proposed pump system.

In case of pump failure, the pump system will drain out to the northwesterly corner of the site. The northwesterly corner of the site is the same discharge location as the existing conditions.

Existing Rational Analysis

The existing site is modeled as a single drainage basin. The existing basin is referred to as E-1 in this report. Below is a summary of the input data and the resulting flowrates for the 100-year, 6-hour storm.

Existing Rational Calculation Summary

Basin	Area (ac)	Impervious %	C	Tc (mins)	I ₁₀₀ (in/hr)	Total Q ₁₀₀ (cfs)
E-1	0.46	31	0.52	5.00	5.27	1.28

The peak flowrate at Discharge Point #1 for the existing conditions is 1.28 cfs

Proposed Rational Analysis

The proposed site is modeled as a single drainage basin. The proposed basin is referred to as P-1 in this report. Below is a summary of the input data and the resulting flowrates for the 100-year, 6-hour storm.

Proposed Rational Calculation Summary

Basin	Area (ac)	Impervious %	C	Tc (mins)	I ₁₀₀ (in/hr)	Total Q ₁₀₀ (cfs)
P-1	0.46	56	0.66	5.00	5.27	1.61

The peak flowrate generated by the proposed development is 1.61 cfs. This results in a total flowrate increase of 0.33 cfs.

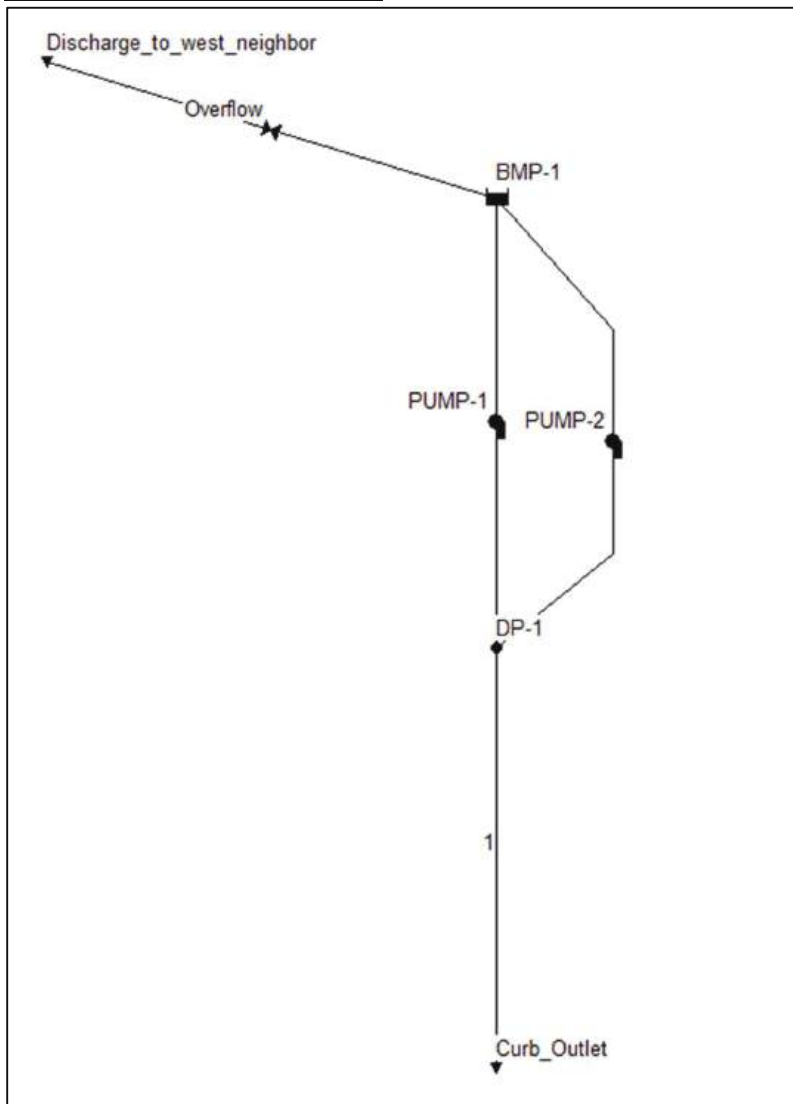
The proposed pump system has been modelled using SWMM to demonstrate that the flow discharging to Discharge Point # 1 will be less than the existing conditions.

Pump Vault SWMM Model

To calculate the required storage volume for the basin, a hydrograph of the runoff produced by Basin P-1 was required. RatHydro, a hydrograph generating program, was used to produce a hydrograph based on tributary flow to each basin. Please see Appendix 8 for the RatHydro values generated for P-1.

The hydrograph generated by RatHydro was input manually into SWMM 5.1 as a time series. The hydrograph time series was then routed through a detention node, orifice link, two pump links and a conduit link. The detention node represents the storage within the pump vault.

Schematic of SWMM model



Two outfall points were provided on the model to verify the flow that will be pumped to the gutter on Calle del Cielo and how much will drain via the overflow pipe. The overflow pipe has been modelled using an orifice link that represents a 6" pipe. The two pumps are modelled using pump links that include the pump curve provided by the manufacturer. The pump links were then routed

to a junction point that discharges via an conduit link. The conduit link represents the force main that ultimately drains to the outfall point representing the gutter on Calle del Cielo.

SWMM Summary Tables

Topic: Node Inflow Click a column header to sort the column.								
Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Day of Maximum Inflow	Hour of Maximum Inflow	Lateral Inflow Volume 10 ⁶ gal	Total Inflow Volume 10 ⁶ gal	Flow Balance Error Percent
DP-1	JUNCTION	0.00	0.40	0	04:05	0	0.0137	-2.300
Curb_Outlet	OUTFALL	0.00	0.40	0	04:05	0	0.014	0.000
Discharge_to_west_neig	OUTFALL	0.00	1.13	0	04:05	0	0.00219	0.000
BMP-1	STORAGE	1.61	1.61	0	04:05	0.016	0.016	0.196

Topic: Pumping Click a column header to sort the column.									
Pump	Percent Utilized	Number of Start-Ups	Minimum Flow CFS	Average Flow CFS	Maximum Flow CFS	Total Volume 10 ⁶ gal	Power Usage Kw-hr	% Time Below Pump Curve	% Time Above Pump Curve
PUMP-1	35.37	46	0.00	0.21	0.22	0.012	0.97	0.0	0.0
PUMP-2	6.02	1	0.00	0.20	0.20	0.002	0.20	0.0	0.0

Topic: Link Flow Click a column header to sort the column.							
Link	Type	Maximum [Flow] CFS	Day of Maximum Flow	Hour of Maximum Flow	Maximum [Velocity] ft/sec	Max / Full Flow	Max / Full Depth
1	CONDUIT	0.40	0	04:05	8.15	10.08	1.00
PUMP-1	PUMP	0.22	0	01:35	0.90		
PUMP-2	PUMP	0.20	0	04:05	0.83		
Overflow	ORIFICE	1.13	0	04:05	1.00		

The SWMM model resulted in 0.40 cfs being pumped to the gutter on Calle del Cielo and 1.13 cfs draining through the overflow pipe to the west. See Appendix 8 of this report for the SWMM input file and SWMM Output Summary.

An offsite analysis for the area tributary to the gutter on Calle del Cielo has been included in Appendix 9 of the Drainage Study. The analysis includes gutter capacity calculations for the existing conditions and the proposed conditions. The proposed conditions includes the addition of the pumped low flow of 0.40 cfs. The analysis concludes that the gutter on Calle del Cielo has enough capacity to handle the added 0.40 cfs from the site without overtopping the curb and gutters.

Results and Conclusions

The proposed improvements result in a decrease of 100-year flowrate to the westerly neighboring property and proposing a new discharge point along the gutter on Calle Del Cielo.

	Area (ac)	Imp. %	C	Tc (mins)	I ₁₀₀ (in/hr)	Total Q ₁₀₀ (cfs)	Discharge Point #	DP-# Q ₁₀₀ (cfs)
Existing Conditions	0.46	31	0.52	5.00	5.27	1.28	Discharge Point # 1	1.28
Proposed Conditions	0.46	56	0.66	5.00	5.27	1.61	Discharge Point # 1	* 1.13
							Discharge Point # 2	*0.40

*Note: The DP Q100 were calculated using the SWMM.

The project will change the onsite drainage patterns and add a discharge location. The project will drain the low flow generated by the project to Calle del Cielo while also keeping the existing discharge point to the west. The 100-year flow of the project will drain at the same location as the existing conditions of the project while also reducing the flow.

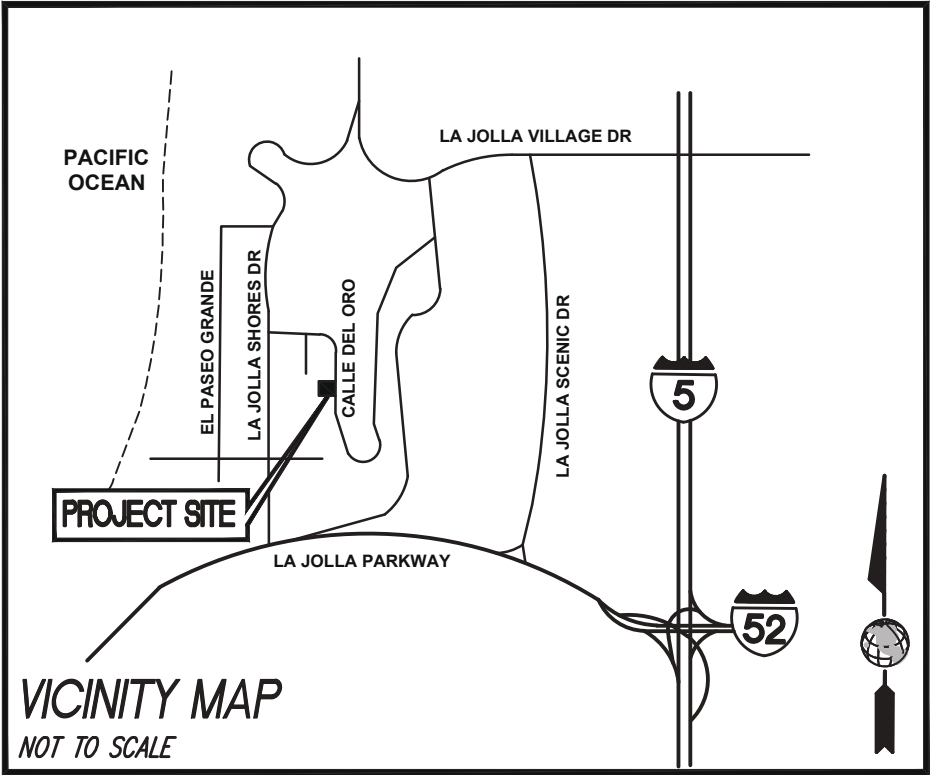
The project is not anticipated to contribute runoff that will exceed the capacity of the existing or planned drainage system.

The redevelopment of the site is not anticipated to create the risk of substantial erosion on or offsite.

The project is located in an ASBS area. The project does not propose onsite stormwater storage. The proposed pump system will pump in small cycles and will not discharge in dry weather conditions.

Project does not propose to discharge fill or dredged materials to the Waters of the State and will not involve construction near or over waters of the state, therefore no CWA 401 or 404 permit is required.

It is the opinion of Omega Engineering Consultants that the project will not cause new adverse effects to the downstream facilities or receiving waters as a result of modified peak flowrate during the 100-yr, 6-hr storm.



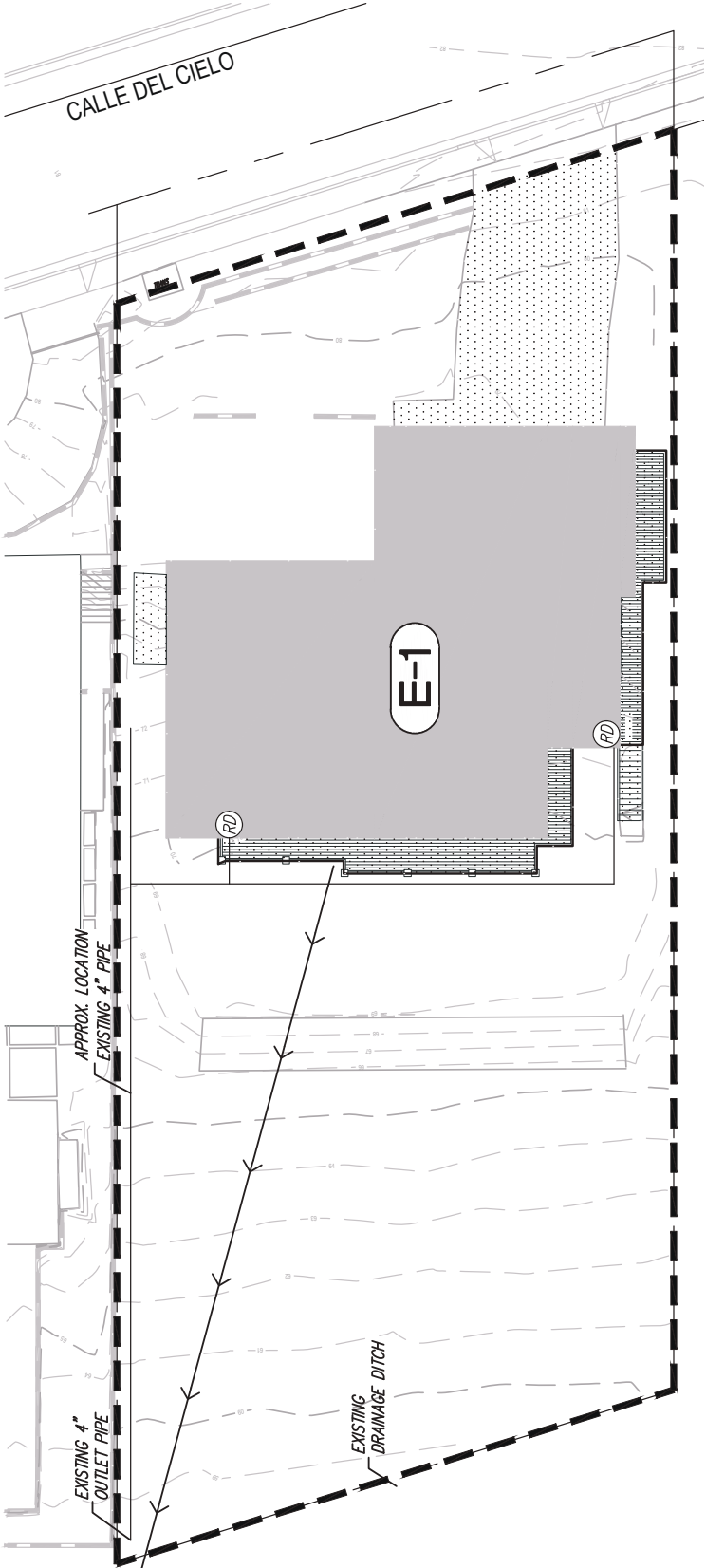
LEGEND

DRAINAGE BASIN DATA					
BASIN #	AREA (AC)	C-VALUE	T _c (MINS)	I ₁₀₀ (IN/HR)	Q ₁₀₀ (CFS)
E-1	0.46	0.52	5.00	5.27	1.28

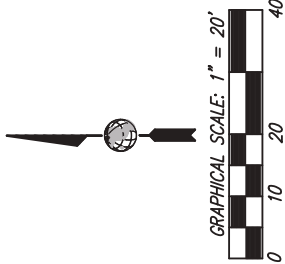
- E-#

BASIN NUMBER
- AREA LIMITS
- DRAINAGE FLOW PATH
- BUILDING AREA
- PAVEMENT AREA
- PERVIOUS AREA
- Ⓡ

ROOF DRAIN LOCATION



DISCHARGE POINT #1
Q₁₀₀ = 1.28 CFS
V₁₀₀ = 8.33 CFS



RACE RESIDENCE
EXISTING HYDROLOGY EXHIBIT

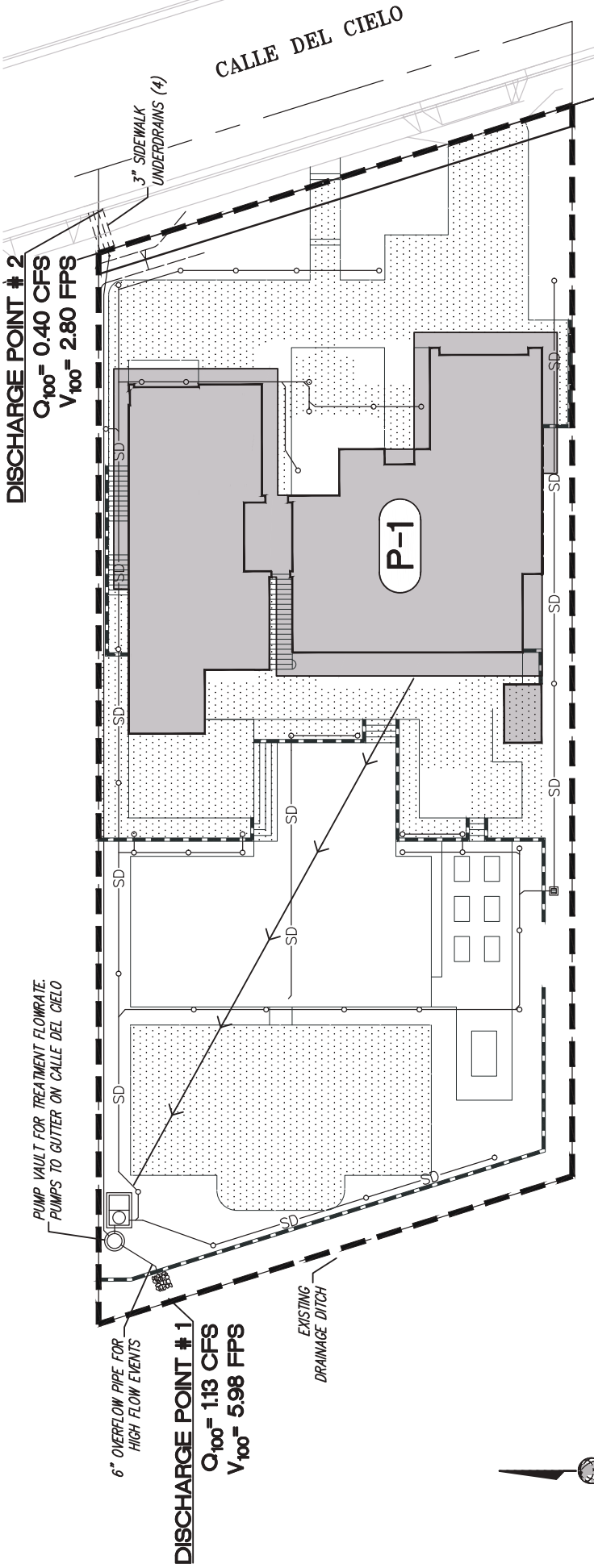


LEGEND

DRAINAGE BASIN DATA					
BASIN #	AREA (AC)	C-VALUE	T _c (MINS)	i ₁₀₀ (IN/HR)	Q ₁₀₀ (CFS)
P-1	0.46	0.66	5.00	5.27	1.61

NOTE: THE Q100 SHOWN ON DISCHARGE POINTS # 1 AND 2 HAVE BEEN DETERMINED USING A SWMM MODEL ANALYSIS. PLEASE REFER TO APPENDIX B FOR MORE DETAILS.

P-#	BASIN NUMBER	AREA LIMITS	DRAINAGE FLOW PATH	BUILDING AREA	PAVEMENT AREA	PERVIOUS AREA	ROOF DRAIN LOCATION
							(RD)



**RACE RESIDENCE
PROPOSED HYDROLOGY EXHIBIT**



RACE RESIDENCE
HYDROLOGY AND HYDRAULICS CALCS

1/27/2026

Sub-Basin	AREA Ac.	"C"	Total Flow Length, (ft)	S(%) (avg.)	T _c mins	I in/hr	Q cfs	NOTES 100-year, 6 hr storm
								P(6) 2.0
E-1	0.46	0.52	100.0	12%	5.00	5.27	1.28	
5.00 5.27 1.28 Discharge Point # 1								
P-1	0.46	0.66	100.0	12%	5.00	5.27	1.61	
5.00 5.27 1.61								
1.13 Discharge Point # 1								* Per SWMM Analysis
0.40 Discharge Point # 1								* Per SWMM Analysis
<u>Composite Runoff Coefficient Calculations</u>								
Basin	Total Area (sf)	Imp. Area (sf)	Pervious	Imper	Pervio	Imp.	Runoff Coefficient Calculations	
E-1	20191	6329	13862	0.90	0.35	31%	C = (0.90 * 0.31) + 0.35 * (1-0.31) = 0.52	
P-1	20191	11346	8845	0.90	0.35	56%	C = (0.90 * 0.56) + 0.35 * (1-0.56) = 0.66	
$C = 0.90 \times (\% \text{ Impervious}) + C_p \times (1 - \% \text{ Impervious})$								
Where: C _p = Pervious Coefficient Runoff Value for the soil type (shown in Table 3-1 as Undisturbed Natural Terrain/Permanent Open Space, 0% Impervious). Soil type can be determined from the soil type map provided in Appendix A.								

Appendix 1

County of San Diego Hydrology Manual



Soil Hydrologic Groups

Legend

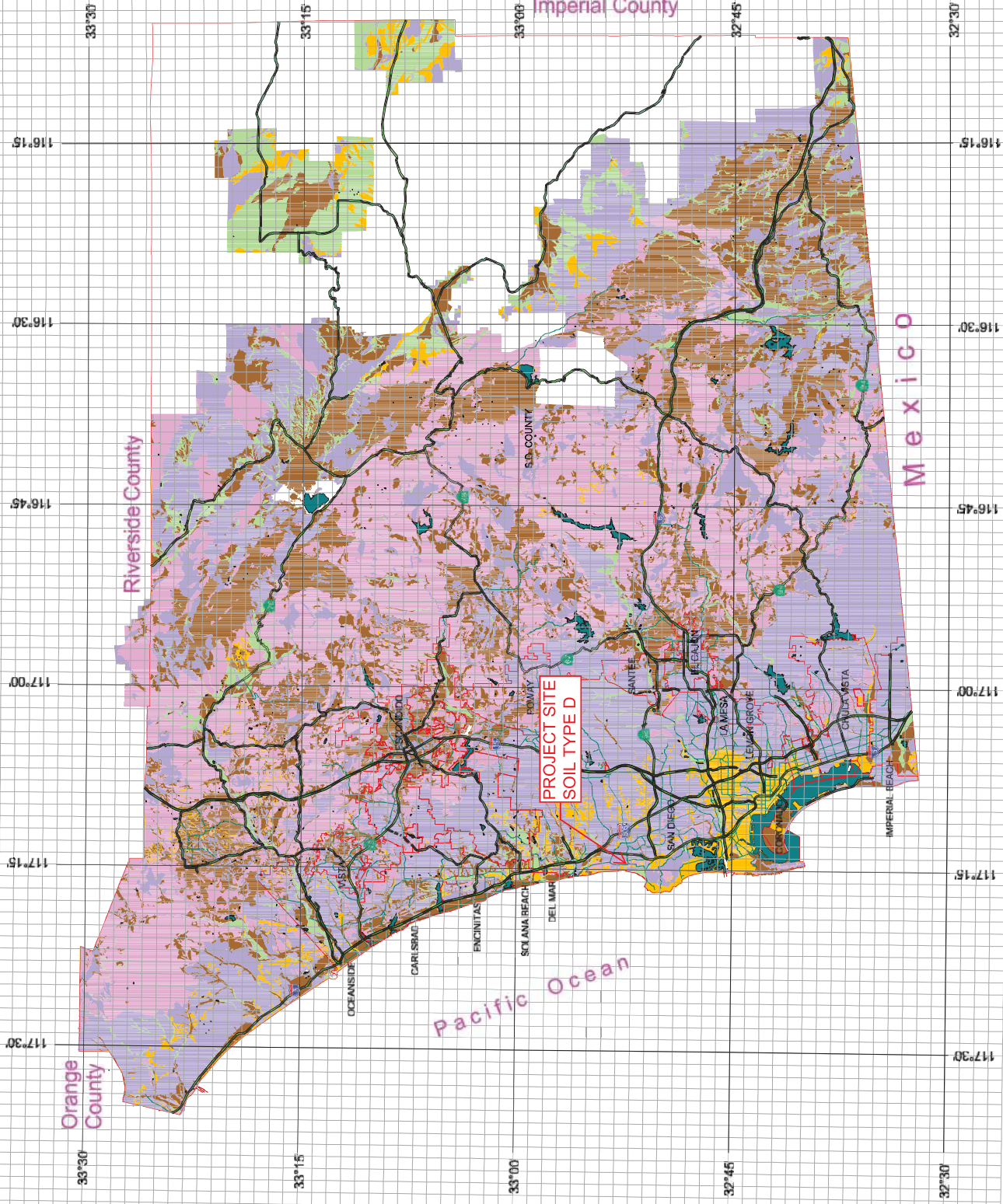
Soil Groups

- Group A
- Group B
- Group C
- Group D
- Undetermined
- Data Unavailable



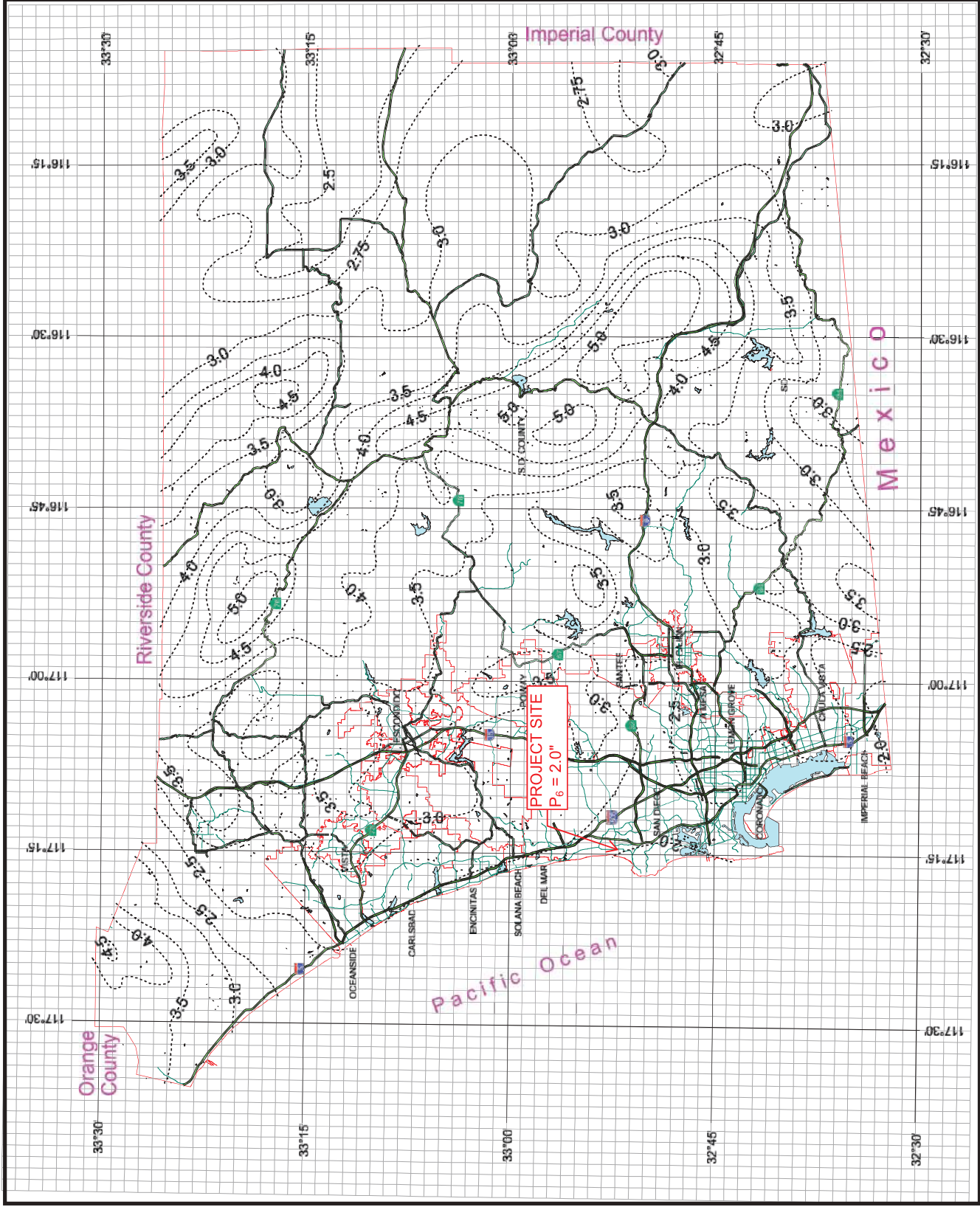
3 0 3 Miles

APPENDIX 1.0



THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND. THE USER ASSUMES ALL LIABILITY FOR THE USE OF THIS MAP. THE COUNTY OF SAN DIEGO DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, AND THE USER ASSUMES ALL LIABILITY FOR THE USE OF THIS MAP. THE COUNTY OF SAN DIEGO DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, AND THE USER ASSUMES ALL LIABILITY FOR THE USE OF THIS MAP.

Appendix 2



Appendix 3

County of San Diego Hydrology Manual



Rainfall Isoplethals

100 Year Rainfall Event - 24 Hours

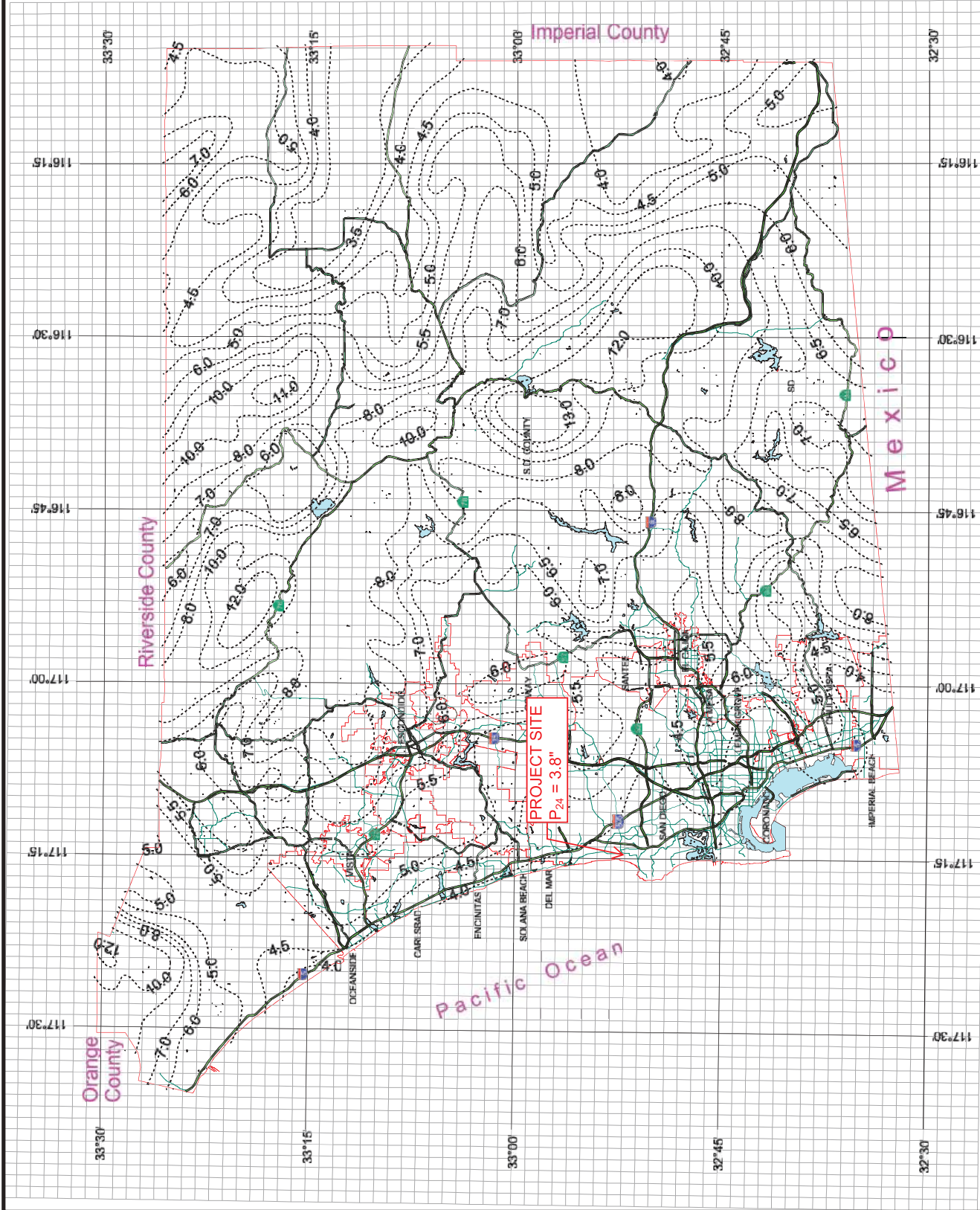
Isopleth (inches)

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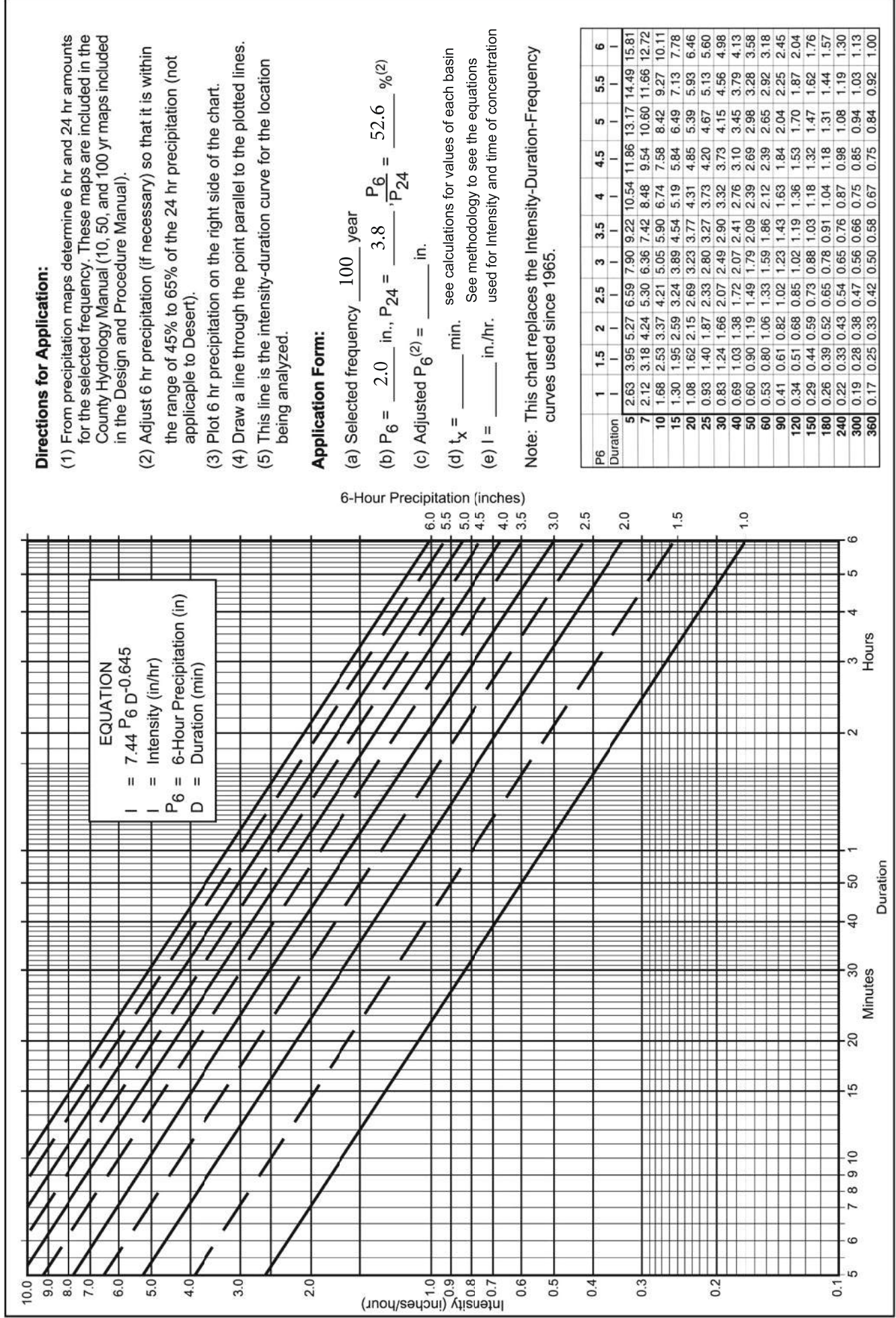


3 0 3 Miles

APPENDIX 3.0



Appendix 4



Directions for Application:

- (1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).
- (2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicable to Desert).
- (3) Plot 6 hr precipitation on the right side of the chart.
- (4) Draw a line through the point parallel to the plotted lines.
- (5) This line is the intensity-duration curve for the location being analyzed.

Application Form:

- (a) Selected frequency 100 year
- (b) $P_6 = 2.0$ in., $P_{24} = 3.8$, $\frac{P_6}{P_{24}} = 52.6$ %⁽²⁾
- (c) Adjusted $P_6^{(2)} =$ in.
- (d) $t_x =$ min. see calculations for values of each basin
- (e) $I =$ in./hr. See methodology to see the equations used for Intensity and time of concentration

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

P6	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Duration	I	I	I	I	I	I	I	I	I	I	I
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Template

Appendix 5

**Table 3-1
RUNOFF COEFFICIENTS FOR URBAN AREAS**

Land Use		Runoff Coefficient "C"			
NRCS Elements	County Elements	% IMPER.	Soil Type		
			A	B	C
Undisturbed Natural Terrain (Natural)	Permanent Open Space	0*	0.20	0.25	0.30
Low Density Residential (LDR)	Residential, 1.0 DU/A or less	10	0.27	0.32	0.36
Low Density Residential (LDR)	Residential, 2.0 DU/A or less	20	0.34	0.38	0.42
Low Density Residential (LDR)	Residential, 2.9 DU/A or less	25	0.38	0.41	0.45
Medium Density Residential (MDR)	Residential, 4.3 DU/A or less	30	0.41	0.45	0.48
Medium Density Residential (MDR)	Residential, 7.3 DU/A or less	40	0.48	0.51	0.54
Medium Density Residential (MDR)	Residential, 10.9 DU/A or less	45	0.52	0.54	0.57
Medium Density Residential (MDR)	Residential, 14.5 DU/A or less	50	0.55	0.58	0.60
High Density Residential (HDR)	Residential, 24.0 DU/A or less	65	0.66	0.67	0.69
High Density Residential (HDR)	Residential, 43.0 DU/A or less	80	0.76	0.77	0.78
Commercial/Industrial (N. Com)	Neighborhood Commercial	80	0.76	0.77	0.78
Commercial/Industrial (G. Com)	General Commercial	85	0.80	0.80	0.81
Commercial/Industrial (O.P. Com)	Office Professional/Commercial	90	0.83	0.84	0.84
Commercial/Industrial (Limited I.)	Limited Industrial	90	0.83	0.84	0.84
Commercial/Industrial (General I.)	General Industrial	95	0.87	0.87	0.87

*The values associated with 0% impervious may be used for direct calculation of the runoff coefficient as described in Section 3.1.2 (representing the pervious runoff coefficient, C_p , for the soil type), or for areas that will remain undisturbed in perpetuity. Justification must be given that the area will remain natural forever (e.g., the area is located in Cleveland National Forest).

DU/A = dwelling units per acre

NRCS = National Resources Conservation Service

Appendix 6

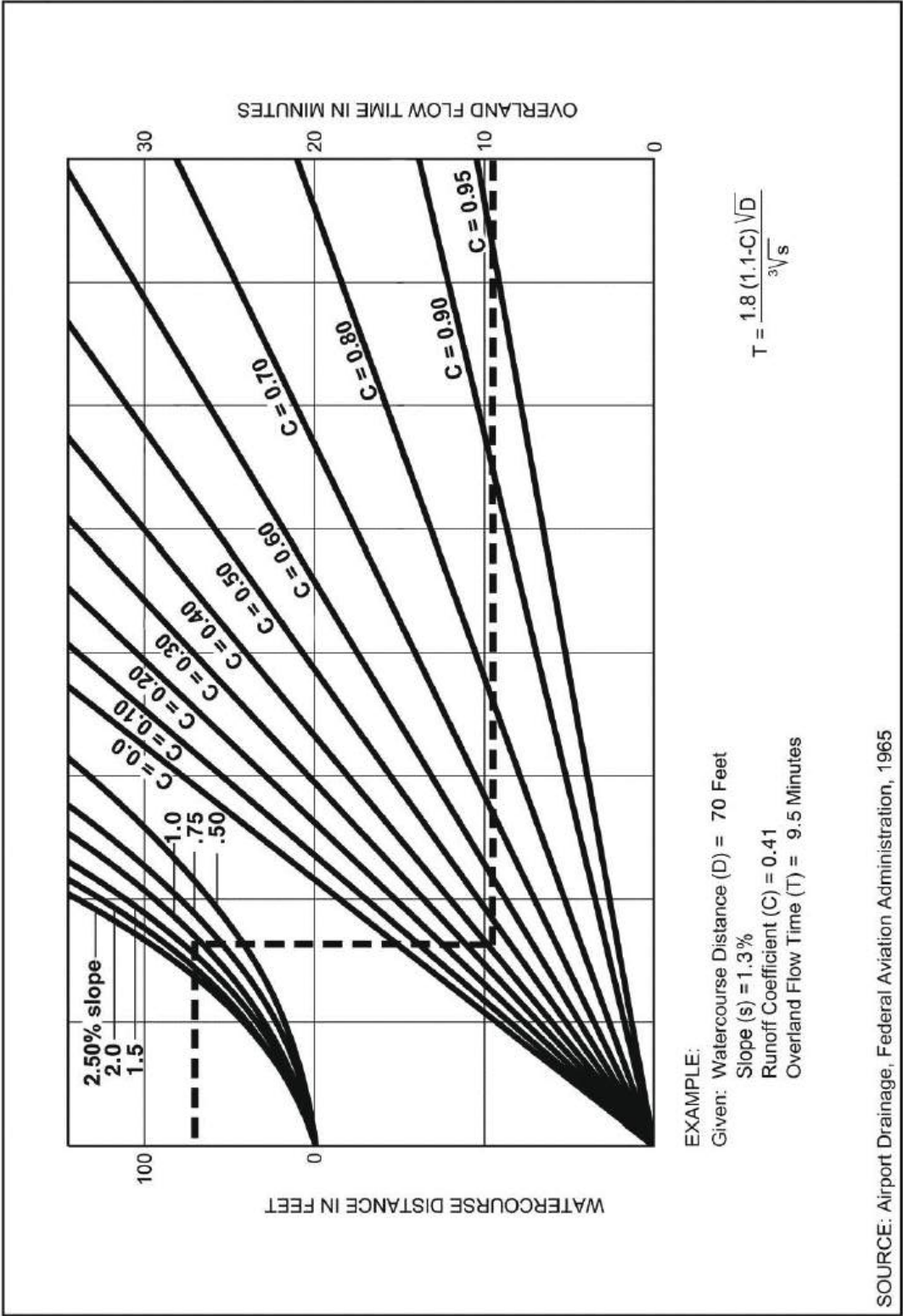


Figure A-4. Rational Formula - Overland Time of Flow Nomograph

Note: Use formula for watercourse distances in excess of 100 feet.

Appendix 7

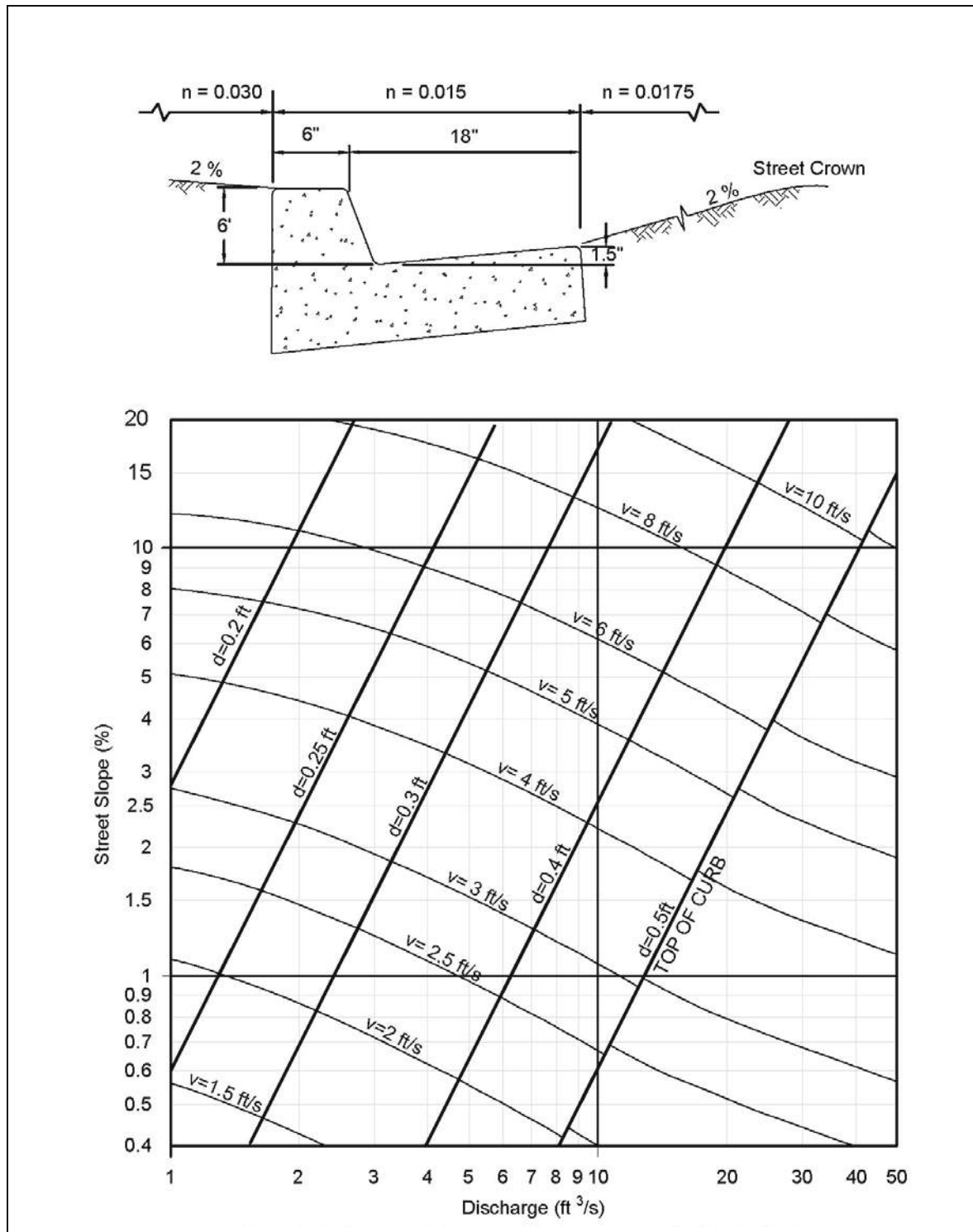


Figure 3-2: Gutter and Roadway Discharge-Velocity Chart (6" Curb)

Appendix 8

RUN DATE 1/22/2026
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 5 MIN.
6 HOUR RAINFALL 2 INCHES
BASIN AREA 0.46 ACRES
RUNOFF COEFFICIENT 0.66
PEAK DISCHARGE 1.61 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 5	DISCHARGE (CFS) = 0
TIME (MIN) = 10	DISCHARGE (CFS) = 0
TIME (MIN) = 15	DISCHARGE (CFS) = 0
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;;Project Title/Notes

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INFILTRATION GREEN_AMPT
FLOW_ROUTING DYNWAVE
LINK_OFFSETS DEPTH
MIN_SLOPE 0
ALLOW_PONDING NO
SKIP_STEADY_STATE NO

START_DATE 12/22/2025
START_TIME 00:00:00
REPORT_START_DATE 12/22/2025
REPORT_START_TIME 00:00:00
END_DATE 12/22/2025
END_TIME 06:00:00
SWEEP_START 01/01
SWEEP_END 12/31
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REPORT_STEP 00:00:01
WET_STEP 00:00:01
DRY_STEP 00:00:01
ROUTING_STEP 0:00:01
RULE_STEP 00:00:00

INERTIAL_DAMPING PARTIAL
NORMAL_FLOW_LIMITED BOTH
FORCE_MAIN_EQUATION H-W
VARIABLE_STEP 0.75
LENGTHENING_STEP 0
MIN_SURFAREA 12.566
MAX_TRIALS 8
HEAD_TOLERANCE 0.005
SYS_FLOW_TOL 5
LAT_FLOW_TOL 5
MINIMUM_STEP 0.5
THREADS 1

[EVAPORATION]
;;Data Source Parameters
;;-----
CONSTANT 0.0
DRY_ONLY NO

[JUNCTIONS]
;;Name Elevation MaxDepth InitDepth SurDepth Aponded
;;-----
DP-1 81.19 0 0 100 0

[OUTFALLS]

```
;;Name      Elevation  Type      Stage Data      Gated      Route To
;;-----
Curb_Outlet 81      FREE      FREE      NO      NO
Discharge_to_west_neighbor 0

[STORAGE]
;;Name      Elev.      MaxDepth  InitDepth  Shape      Curve Name/Params      N/A      Fevap      Psi      Ksat      IMD
;;-----
BMP-1      60      8      0      TABULAR      PRECAST_BOX      0      0      0

[CONDUITS]
;;Name      From Node      To Node      Length      Roughness  InOffset  OutOffset  InitFlow  MaxFlow
;;-----
1      DP-1      Curb_Outlet  200      0.01      0      0      0      0

[PUMPS]
;;Name      From Node      To Node      Pump Curve      Status      Sartup Shutoff
;;-----
PUMP-1      BMP-1      DP-1      FL100      ON      1.5      0.5
PUMP-2      BMP-1      DP-1      FL100      ON      2.0      0.5

[ORIFICES]
;;Name      From Node      To Node      Type      Offset      Qcoeff      Gated      CloseTime
;;-----
Overflow      BMP-1      Discharge_to_west_neighbor SIDE      6.0      0.6      NO      0

[XSECTIONS]
;;link      Shape      Geom1      Geom2      Geom3      Geom4      Barrels      Culvert
;;-----
1      FORCE_MAIN  0.25      135      0      0      1
Overflow      CIRCULAR  0.5      0      0      0

[INFLOWS]
;;Node      Constituent      Time Series      Type      Mfactor      Sfactor      Baseline Pattern
;;-----
BMP-1      FLOW      P-1      FLOW      1.0      1.0

[CURVES]
;;Name      Type      X-Value      Y-Value
;;-----
LEI100      Pump3      0      0.42
LEI100      4      0.40
LEI100      11      0.36
LEI100      17      0.31
LEI100      23      0.27
LEI100      25      0.22
LEI100      28      0.18
LEI100      31      0.13
LEI100      34      0.09
LEI100      36      0.04
LEI100      40      0
;
FL100      Pump3      0      0.240641711
```

FL100	10	0.231729055
FL100	20	0.216131907
FL100	30	0.200534759
FL100	40	0.184937611
FL100	50	0.169427807
FL100	60	0.138146168
FL100	70	0.106951872
FL100	80	0.06684492
FL100	90	0

;		
PRECAST_BOX	Storage	7.07
PRECAST_BOX	10	7.07

[TIMESERIES]		
;	Name	Date
;		Time
;		Value
P-1		0:00
P-1		0:05
P-1		0:10
P-1		0:15
P-1		0:20
P-1		0:25
P-1		0:30
P-1		0:35
P-1		0:40
P-1		0:45
P-1		0:50
P-1		0:55
P-1		1:00
P-1		1:05
P-1		1:10
P-1		1:15
P-1		1:20
P-1		1:25
P-1		1:30
P-1		1:35
P-1		1:40
P-1		1:45
P-1		1:50
P-1		1:55
P-1		2:00
P-1		2:05
P-1		2:10
P-1		2:15
P-1		2:20
P-1		2:25
P-1		2:30
P-1		2:35
P-1		2:40
P-1		2:45
P-1		2:50
P-1		2:55
P-1		3:00

P-1	3:05	0.1
P-1	3:10	0.1
P-1	3:15	0.1
P-1	3:20	0.1
P-1	3:25	0.1
P-1	3:30	0.1
P-1	3:35	0.1
P-1	3:40	0.2
P-1	3:45	0.2
P-1	3:50	0.2
P-1	3:55	0.3
P-1	4:00	0.4
P-1	4:05	1.61
P-1	4:10	0.3
P-1	4:15	0.2
P-1	4:20	0.1
P-1	4:25	0.1
P-1	4:30	0.1
P-1	4:35	0.1
P-1	4:40	0.1
P-1	4:45	0.1
P-1	4:50	0.1
P-1	4:55	0.1
P-1	5:00	0.1
P-1	5:05	0.1
P-1	5:10	0.1
P-1	5:15	0.1
P-1	5:20	0
P-1	5:25	0
P-1	5:30	0
P-1	5:35	0
P-1	5:40	0
P-1	5:45	0
P-1	5:50	0
P-1	5:55	0
P-1	6:00	0

[REPORT]
;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units None

[COORDINATES]	
;Node	X-Coord Y-Coord
; ;	-----
DP-1	1238.870 3744.823

Curb_Outlet	1242.862	1476.662	6903.974
Discharge_to_west_neighbor	-1183.775		
BMP-1	1241.322	6175.707	

[VERTICES]		
;;Link	X-Coord	Y-Coord
;;	-----	-----
PUMP-2	1870.642	5461.964
PUMP-2	1870.642	4256.853

NOTE: The summary statistics displayed in this report are based on results found at every computational time step, not just on results from each reporting time step.

Analysis Options

Flow Units CFS

Process Models:

Rainfall/Runoff NO

RDII NO

Snowmelt NO

Groundwater NO

Flow Routing YES

Ponding Allowed NO

Water Quality NO

Flow Routing Method DYNWAVE

Surcharge Method EXTRAN

Starting Date 12/22/2025 00:00:00

Ending Date 12/22/2025 06:00:00

Antecedent Dry Days 0.0

Report Time Step 00:00:01

Routing Time Step 1.00 sec

Variable Time Step YES

Maximum Trials 8

Number of Threads 1

Head Tolerance 0.005000 ft

Flow Routing Continuity

	Volume acre-feet	Volume 10^6 gal
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.049	0.016
Flooding Loss	0.050	0.016
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	-1.828	

DP-1 JUNCTION 0.00 0.40 0 04:05 0 0.0137 -2.300
Curb Outlet OUTFALL 0.00 0.40 0 04:05 0 0.014 0.000 0.000
Discharge_to_west_neighbor OUTFALL 0.00 1.13 0 04:05 0 0.00219 0.000
BMP-1 STORAGE 1.61 1.61 0 04:05 0.016 0.016 0.196

Node Surge Summary

Surcharging occurs when water rises above the top of the highest conduit.

Node Type Hours Max. Height Min. Depth
Above Crown Below Rim
Feet Feet

DP-1 JUNCTION 2.04 27.690 0.000

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Storage Unit Average Volume 1000 ft3 Avg Pcnt Full Evap Pcnt Loss Exfil Pcnt Loss Max Volume 1000 ft3 Max Pcnt Full Time of Max Occurrence days hr:min Maximum Outflow CFS

BMP-1 0.006 11 0 0 0.054 96 0 04:05 1.53

Outfall Loading Summary

Outfall Node Flow Freq Pcnt Avg Flow CFS Max Flow CFS Total Volume 10^6 gal

Curb Outlet 64.45
Discharge_to_west_neighbor 2.00 0.13 0.40 1.13 0.014

System 33.22 0.81 1.13 0.016

Link Flow Summary

Link	Type	Maximum		Time of Max Occurrence days hr:min	Maximum Veloc ft/sec	Max/ Full Flow		Max/ Full Depth
		Flow CFS	Flow			Flow	Flow	
1	CONDUIT	0.40	0	04:05	8.15	10.08	1.00	
PUMP-1	PUMP	0.22	0	01:35		0.90		
PUMP-2	PUMP	0.20	0	04:05		0.83		
Overflow	ORIFICE	1.13	0	04:05			1.00	

Flow Classification Summary

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class									
		Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl		
1	1.00	0.27	0.00	0.00	0.73	0.00	0.00	0.00	0.00	0.00	0.00

Conduit Surge Summary

Conduit	Hours				Hours			
	Both Ends	Hours Full	Upstream	Downstream	Above Full	Normal Flow	Capacity Limited	
1	1.93	1.94	1.93	2.21			1.93	

Pumping Summary

Pump	Percent Utilized	Number of Start-Ups	Min Flow CFS	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal	Power Usage Kw-hr		% Time Off Pump Curve	
							Low	High	Low	High
PUMP-1	35.37	46	0.00	0.21	0.22	0.012	0.97	0.0	0.0	0.0
PUMP-2	6.02	1	0.00	0.20	0.20	0.002	0.20	0.0	0.0	0.0

Analysis begun on: Thu Jan 22 09:53:33 2026
Analysis ended on: Thu Jan 22 09:53:33 2026
Total elapsed time: < 1 sec

Appendix 9

Legend

 Offsite Area

 Project Site

Impervious % Approx. = 60%

$T_c = 5$ minutes

$$Q_{100} = C * I * A = 0.68 * 5.27 \text{ in/hr} * 3.20 \text{ acres} = 11.45 \text{ cfs}$$

Q100 with added low flow (0.40 cfs) from project site = 11.85 cfs



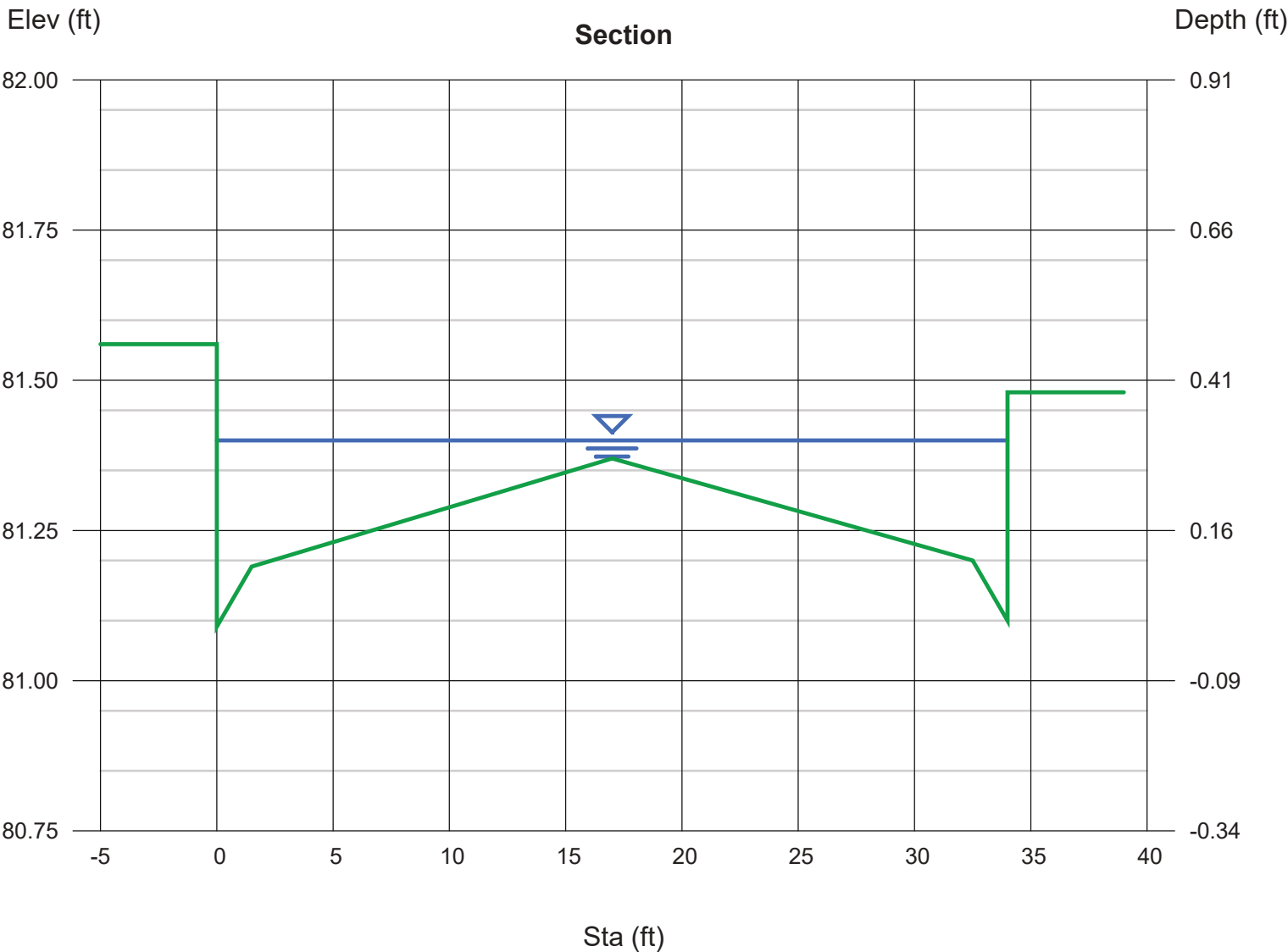
Channel Report

Gutter Capacity Existing Conditions - Calle del Cielo

User-defined		Highlighted	
Invert Elev (ft)	= 81.09	Depth (ft)	= 0.31
Slope (%)	= 0.90	Q (cfs)	= 11.45
N-Value	= 0.013	Area (sqft)	= 4.41
Calculations Compute by: Known Q Known Q (cfs) = 11.45		Velocity (ft/s)	= 2.60
		Wetted Perim (ft)	= 34.62
		Crit Depth, Yc (ft)	= 0.34
		Top Width (ft)	= 34.00
		EGL (ft)	= 0.41

(Sta, El, n)-(Sta, El, n)...

(0.00, 81.56)-(0.00, 81.09, 0.013)-(1.50, 81.19, 0.013)-(17.00, 81.37, 0.013)-(32.50, 81.20, 0.013)-(34.00, 81.10, 0.013)-(34.00, 81.48, 0.013)



Channel Report

Gutter Capacity Proposed Conditions - Calle del Cielo

User-defined

Invert Elev (ft) = 81.09
Slope (%) = 0.90
N-Value = 0.013

Highlighted

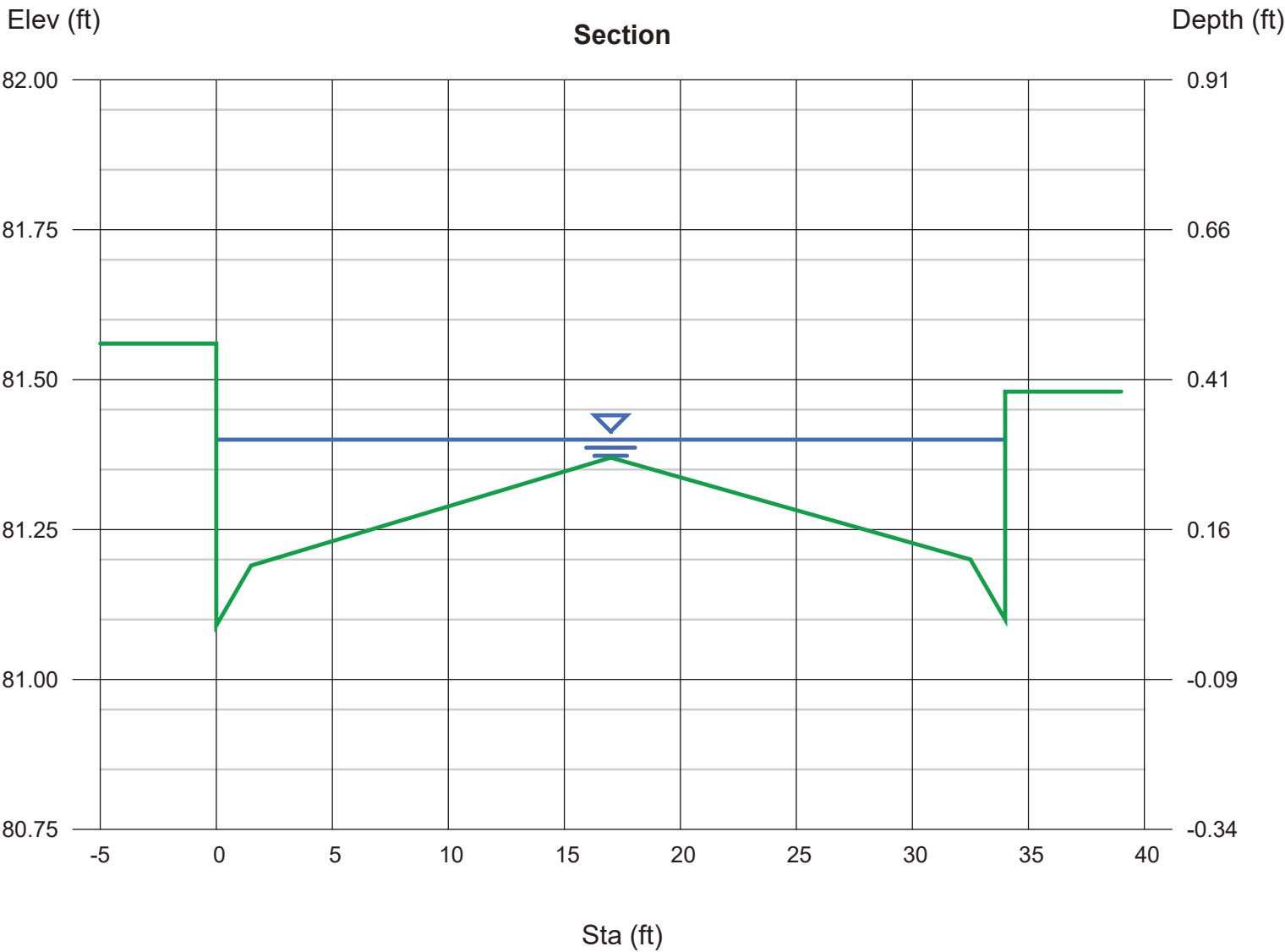
Depth (ft) = 0.31
Q (cfs) = 11.85
Area (sqft) = 4.41
Velocity (ft/s) = 2.69
Wetted Perim (ft) = 34.62
Crit Depth, Yc (ft) = 0.34
Top Width (ft) = 34.00
EGL (ft) = 0.42

Calculations

Compute by: Known Q
Known Q (cfs) = 11.85

(Sta, El, n)-(Sta, El, n)...

(0.00, 81.56)-(0.00, 81.09, 0.013)-(1.50, 81.19, 0.013)-(17.00, 81.37, 0.013)-(32.50, 81.20, 0.013)-(34.00, 81.10, 0.013)-(34.00, 81.48, 0.013)



FORM
DS-564
October 2024

Stormwater Quality Management Plan Submittal Checklist

The checklist identifies key project information and page number locations within the Stormwater Quality Management Plan (SWQMP) document. The checklist provides information on the level of completeness of the SWQMP document at the time of submittal/review and is required for a Priority Development Project (PDP).

Project Information

Project Number: PRJ-1154920	APN: 346-180-23-00
Applicant/Contact Name: 8332 Calle del Cielo, LLC	Applicant/Contact Phone Number
Applicant Email Address:	
1 st Submittal Date 01/30/2026	2 nd Submittal Date 06/29/2026
3 rd Submittal Date 09/04/2026	

Instructions: In the table below, indicate if the description item has been addressed or check the “N/A” box if it is not applicable under Column 1. Additional notes can be added to the Notes Table on pages 5, 6 and 7.

Item No.	Description	Applicant Use		City Use	
		PDF Page #	N/A	Incomplete	Accepted
1.0	Title Page	1	☐	☐	☐
1.1	Utilize City of San Diego’s current SWQMP Template (2018).	1	☐	☐	☐
1.2	Reference Project Name, ID, .DWG*, Permit Number* (*Note: If applicable).	1	☐	☐	☐
1.3	Signed and stamped by Civil Engineer		☒	☐	☐
1.4	Prepared For information (Applicant’s name, address, and phone number.)	1	☐	☐	☐
1.5	Prepared By information (Engineer’s company name, address, and phone number.)	1	☐	☐	☐
2.0	Table of Contents that Matches Content of Report	3	☐	☐	☐
3.0	Certification Page- Signed and Stamped by the Engineer of Responsible Charge.		☒	☐	☐
4.0	Submittal Record	7	☐	☐	☐

Item No.	Description	Applicant Use		City Use	
		PDF Page #	N/A	Incomplete	Accepted
5.0	Project Vicinity Map	8	☐	☐	☐
5.1	Project Name	8	☐	☐	☐
5.2	Permit Number (PRJ number)	8	☐	☐	☐
6.0	Storm Water Requirements Applicability Checklist (Form DS 560)	10	☐	☐	☐
6.1	Form must be signed and dated.	13	☐	☐	☐
7.0	Applicability of Permanent, Post-Construction Stormwater BMP Requirements (Form I-1)	15	☐	☐	☐
7.1	Designated a Standard Project, PDP, or PDP Exempt.	15	☐	☐	☐
7.2	Hydromodification control requirements apply.	16	☐	☐	☐
7.3	Protection of critical coarse sediment yield areas applies.	16	☐	☐	☐
7.4	HMP Exempt: HMP Exemption Exhibit included.	18	☐	☐	☐
8.0	Site Information Checklist for PDPs (Form I-3B)	20	☐	☐	☐
8.1	Project Name	20	☐	☐	☐
8.2	Project Address	20	☐	☐	☐
8.3	APN	20	☐	☐	☐
8.4	Permit Application Number (PRJ Number)	20	☐	☐	☐
8.5	Project Watershed	20	☐	☐	☐
8.6	Hydrologic Sub-Area Name with Numeric ID	20	☐	☐	☐
8.7	Project Area	20	☐	☐	☐
8.8	Area to be disturbed by the Project	20	☐	☐	☐
8.9	Project Proposed Pervious Area	20	☐	☐	☐
8.10	Proposed increase/decrease in impervious area as compared to the pre-project condition	20	☐	☐	☐
8.11	Description of Existing Site Condition and Drainage Patterns	21	☐	☐	☐
8.11.1	Current Status of the Site	21	☐	☐	☐
8.11.2	Existing Land Cover	21	☐	☐	☐
8.11.3	Underlying Soil, Hydrologic Soil Group Type (Refer to NRCS Web Soil Survey.)	21	☐	☐	☐
8.11.4	Groundwater Depth.	21	☐	☐	☐
8.11.5	Existing Natural Hydrologic Features.	21	☐	☐	☐
8.11.6	Description of Existing Site Topography and Drainage.	22	☐	☐	☐
8.11.7	Description of Proposed Site Development and Drainage Patterns	23	☐	☐	☐
8.11.7.1	Description of the proposed impervious features.	23	☐	☐	☐
8.11.7.2	Description of proposed pervious features.	23	☐	☐	☐
8.11.8	Identification and Narrative of Receiving Water	27	☐	☐	☐
8.11.8.1	Listed all 303(d) water bodies, Pollutant Stressors, and TMDLs	27	☐	☐	☐
8.11.8.2	Selected Project anticipated site pollutants.	28	☐	☐	☐
8.11.8.3	Hydromodification management requirements.	28	☐	☐	☐
8.11.8.4	Critical Coarse Sediment Yield Area requirements	28	☐	☐	☐
8.11.8.5	Description of POCs for flow control for hydromodification management. (POC ID correlating to the Project's HMP Exhibit).		☒	☐	☐
9.0	Source Control BMP Checklist for PDPs (Form I-4B)	31	☐	☐	☐
10.0	Site Design BMP Checklist for PDPs (Form I-5B)	33	☐	☐	☐
10.1	BMP Site Map.	46	☐	☐	☐

Item No.	Description	Applicant Use		City Use	
		PDF Page #	N/A	Incomplete	Accepted
11.0	Summary of PDP Structural BMPs (Form I-6)	37	☐	☐	☐
11.1	Structural BMP Summary Information included for each BMP.	39	☐	☐	☐
11.1.1	Structural BMP ID Number provided and consistent with all exhibits/plans.	39	☐	☐	☐
11.1.2	Provided the Construction Plan Sheet No. for each BMP.	39	☐	☐	☐
11.1.3	Selection of Type of Structural BMP.	39	☐	☐	☐
11.1.4	Selection of the BMP Purpose.	39	☐	☐	☐
11.1.5	Provided name and contact information for the party responsible for signing the BMP verification form DS-563.	39	☐	☐	☐
11.1.6	Listed the final owner of the BMP(s).	39	☐	☐	☐
11.1.7	Listed the party to maintain the BMP(s) into perpetuity.	39	☐	☐	☐
11.1.8	Identified the funding mechanism for maintenance.	39	☐	☐	☐
12.0	Attachment 1. Backup for PDP Pollutant Control BMPs	42	☐	☐	☐
12.1	Completed Attachment 1 Checklist. Including Project Name.	44	☐	☐	☐
12.2	Attachment 1a DMA Exhibit included.	47	☐	☐	☐
12.2.1	Attachment 1a DMA Exhibit Checklist.	45	☐	☐	☐
12.3	Attachment 1b (Tabular Summary of DMAs showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required). Either shown on DMA Exhibit, Attachment 1a, or included as separate Worksheet B-1.	47	☐	☐	☐
12.4	Attachment 1c. Form I-7, Harvest and Use Feasibility Screening Checklist submitted. (Required unless the entire project will use infiltration BMPs.)	48	☐	☐	☐
12.5	Attachment 1d. Infiltration Feasibility Information is included. (Contents of Attachment 1d dependent on the infiltration condition.)		☒	☐	☐
12.5.1	No Infiltration Condition.	54	☐	☐	☐
12.5.1.1	No Infiltration Feasibility Condition Letter (Refer to Section C.1.1 of the SWS Design Manual for requirements.). Letter stamped and signed by a licensed geotechnical engineer.		☒	☐	☐
12.5.1.2	Form I-8A and/or Form I-8B submitted.	54	☐	☐	☐
12.5.2	Partial Infiltration Condition.		☒	☐	☐
12.5.2.1	No Infiltration Feasibility Condition Letter (Refer to Section C.1.1 of the SWS Design Manual for requirements.). Letter stamped and signed by a licensed geotechnical engineer.		☒	☐	☐
12.5.2.2	Form I-8A and/or Form I-8B submitted.		☒	☐	☐
12.5.3	Full Infiltration Condition.		☒	☐	☐
12.5.3.1	Form I-8A and/or Form I-8B submitted.		☒	☐	☐
12.5.3.2	Worksheet C.4-3 submitted.		☒	☐	☐
12.5.3.3	Form I-9 submitted.		☒	☐	☐
12.5.4	Attachment 1e. Pollutant Control BMP Design/Worksheets included.	66	☐	☐	☐
12.5.4.1	Standard Biofiltration Sizing for Partial Infiltration Condition.		☒	☐	☐
12.5.4.2	Standard Biofiltration Sizing in No Infiltration Condition.		☒	☐	☐
12.5.4.3	Non-Standard and Non-Propriety and/or Compact Biofiltration BMP Sizing	67	☐	☐	☐
12.5.4.3.1	Included Worksheet B.5-1: Sizing Method for Pollutant Removal Criteria		☒	☐	☐
12.5.4.3.2	Included Worksheet B.5-2: Sizing Method for Volume Retention Criteria	50	☐	☐	☐
12.5.4.3.3	Included Worksheet B.5-3: Volume Retention from Biofiltration with Partial Retention BMPs		☒	☐	☐

Item No.	Description	Applicant Use		City Use	
		PDF Page #	N/A	Incomplete	Accepted
12.5.4.3.4	Included Worksheet B.5-4 : Alternative Minimum Footprint Sizing Factor for Non-Standard Biofiltration.		☒	☐	☐
12.5.4.3.5	Included Worksheet B.5-5 : Optimized Biofiltration BMP Footprint when Downstream of a Storage Unit.		☒	☐	☐
12.5.4.3.6	Included Worksheet B.5-6 : Volume Retention for No Infiltration Condition	51	☐	☐	☐
12.5.4.3.7	Included Worksheet B.5-7 : Volume Retention from Amended Soils.	52	☐	☐	☐
12.5.4.3.8	Included Worksheet B.6-1 : Flow-thru Sizing Calculation.		☒	☐	☐
12.5.4.3.9	Included Worksheet B.2-1 : DCV Calculations.	49	☐	☐	☐
12.5.4.3.10	Included Form I-10 : Compact Biofiltration Checklist.	63	☐	☐	☐
12.5.4.3.11	Included TAPE certification for Compact Biofiltration BMPs.	67	☐	☐	☐
13.0	Attachment 2. Backup for PDP Hydromodification Control Measures	75	☐	☐	☐
13.1	Completed Attachment 2 Checklist. Including Project Name.		☒	☐	☐
13.2	Attachment 2a HMP Exhibit included.		☒	☐	☐
13.3.1	Attachment 2a HMP Exhibit Checklist.		☒	☐	☐
13.4	Attachment 2b. Critical Coarse Sediment Yield Areas documentation included.		☒	☐	☐
13.5	Attachment 2c. Geomorphic Assessment of Receiving Channels (Optional) included.		☒	☐	☐
13.6	Attachment 2d. Flow Control Facility Design (HMP analysis) and Structural BMP Drawdown Calculations included.		☒	☐	☐
14.0	Attachment 3. Structural BMP Maintenance Information	79	☐	☐	☐
14.1	Maintenance Agreement (Form DS-3247) included.		☒	☐	☐
14.2	DS-Form DS-3247 Checklist completed.		☒	☐	☐
15.0	Attachment 4. Copy of Plan Sheets Showing Permanent Stormwater BMPs	83	☐	☐	☐
15.1	Grading/Building Improvement Plan Sheets included.	85	☐	☐	☐
15.2	Attachment 3 Checklist completed.	84	☐	☐	☐
16.0	Attachment 5. Drainage Report included.	89	☐	☐	☐
17.0	Attachment 6. Geotechnical and Groundwater Investigation Report included.	133	☐	☐	☐

Instructions: Provide an explanation for items marked as “Not Applicable” in the table above.

Item No.	Notes
1.3	Report will be signed and stamped after all comments have been addressed.
3.0	Certification page will be signed and stamped after all comments have been addressed.
12.5	Worksheet C.4-1 is included.
12.5.1.1	Worksheet C.4-1 is included.
12.5.2	Site is "No Infiltration Conditions." This does not apply.
12.5.2.1	Site is "No Infiltration Conditions." This does not apply.
12.5.2.2	Site is "No Infiltration Conditions." This does not apply.
12.5.3	Site is "No Infiltration Conditions." This does not apply.
12.5.3.1	Site is "No Infiltration Conditions." This does not apply.
12.5.3.2	Site is "No Infiltration Conditions." This does not apply.
12.5.3.3	Site is "No Infiltration Conditions." This does not apply.
12.5.4.1	Project is proposing proprietary biofiltration basin. This does not apply.
12.5.4.2	Project is proposing proprietary biofiltration basin. This does not apply.
12.5.4.3.1	Project is proposing proprietary biofiltration basin. This does not apply.
12.5.4.3.3	Project is proposing proprietary biofiltration basin. This does not apply.
12.5.4.3.4	Minimum sizing factor is not used for sizing proposed BMP. This does not apply.
12.5.4.3.5	Proposed BMP is not Downstream of a Storage Unit. This does not apply.
12.5.4.3.8	Per staff comments, worksheet B.6-1 no longer allowed for flow-thru sizing. Worksheet -10A provided.
13.1	Project is HMP exempt. This does not apply.
13.2	Project is HMP exempt. This does not apply.

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DS-564 (10-24)

[illegible]

[illegible]

References

- [Appendix B.5 Worksheets](#)
- [Appendix I Forms](#)
- [Caltrans Water Quality Planning Tool](#)
- [FEMA's National Flood Hazard Layer \(NFHL\) Viewer](#)
- [Green Street Exemption Forms](#)
- [Natural Resources Conservation Service \(NRCS\) Web Soil Survey](#)
- [Priority Development Project \(PDP\) Stormwater Quality Management Plan \(SWQMP\) Template](#)
- [San Diego Basin Plan Map](#)
- [Sizing and Feasibility Worksheets](#)
- [Standard Project Forms](#)
- [Stormwater Standards Manual 2018 \(Updated 2024\)](#)
- [Weathered Triggered Action Plan Template](#)

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DS-564 (10-24)

**Priority Development Project (PDP)
Storm Water Quality Management Plan (SWQMP)**

Race Residence

PRJ-1154920

Drawing No.: TBD

☐ **Check if electing for offsite alternative compliance**

Engineer of Work:

Patric de Boer, R.C.E. 83583
Provide Wet Signature and Stamp Above Line

Prepared For:

8332 Calle Del Cielo, LLC

8350 Calle Del Cielo

La Jolla, CA 92037

Phone:

Prepared By:

Omega Engineering Consultants
4320 Viewridge Avenue, Suite C
San Diego, CA 92113
(858) 634-8620

Date:

09/04/2026

Approved by: City of San Diego

Date



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Project Name: Race Residence

- Attachment 3: Structural BMP Maintenance Plan
 - Maintenance Agreement (Form DS-3247) (when applicable)
- Attachment 4: Copy of Plan Sheets Showing Permanent Storm Water BMPs
- Attachment 5: Project's Drainage Report
- Attachment 6: Project's Geotechnical and Groundwater Investigation Report

Acronyms

APN	Assessor's Parcel Number
ASBS	Area of Special Biological Significance
BMP	Best Management Practice
CEQA	California Environmental Quality Act
CGP	Construction General Permit
DCV	Design Capture Volume
DMA	Drainage Management Areas
ESA	Environmentally Sensitive Area
GLU	Geomorphic Landscape Unit
GW	Ground Water
HMP	Hydromodification Management Plan
HSG	Hydrologic Soil Group
HU	Harvest and Use
INF	Infiltration
LID	Low Impact Development
LUP	Linear Underground/Overhead Projects
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
PDP	Priority Development Project
PE	Professional Engineer
POC	Pollutant of Concern
SC	Source Control
SD	Site Design
SDRWQCB	San Diego Regional Water Quality Control Board
SIC	Standard Industrial Classification
SWPPP	Stormwater Pollutant Protection Plan
SWQMP	Storm Water Quality Management Plan
TMDL	Total Maximum Daily Load
WMAA	Watershed Management Area Analysis
WPCP	Water Pollution Control Program
WQIP	Water Quality Improvement Plan

Project Name: Race Residence

Certification Page

Project Name: Race Residence
Permit Application PRJ-1154920

I hereby declare that I am the Engineer in Responsible Charge of design of storm water BMPs for this project, and that I have exercised responsible charge over the design of the project as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the requirements of the Storm Water Standards, which is based on the requirements of SDRWQCB Order No. R9-2013-0001 as amended by R9-2015-0001 and R9-2015-0100 (MS4 Permit).

I have read and understand that the City Engineer has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the Storm Water Standards. I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable source control and site design BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP SWQMP by the City Engineer is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

Engineer of Work's Signature

83583

03/31/2027

PE#

Expiration Date

Patric T. De Boer

Print Name

Omega Engineering Consultants

Company

09/04/2026

Date

Engineer's Stamp

Submittal Record

Use this Table to keep a record of submittals of this PDP SWQMP. Each time the PDP SWQMP is re-submitted, provide the date and status of the project. In last column indicate changes that have been made or indicate if response to plancheck comments is included. When applicable, insert response to plancheck comments.

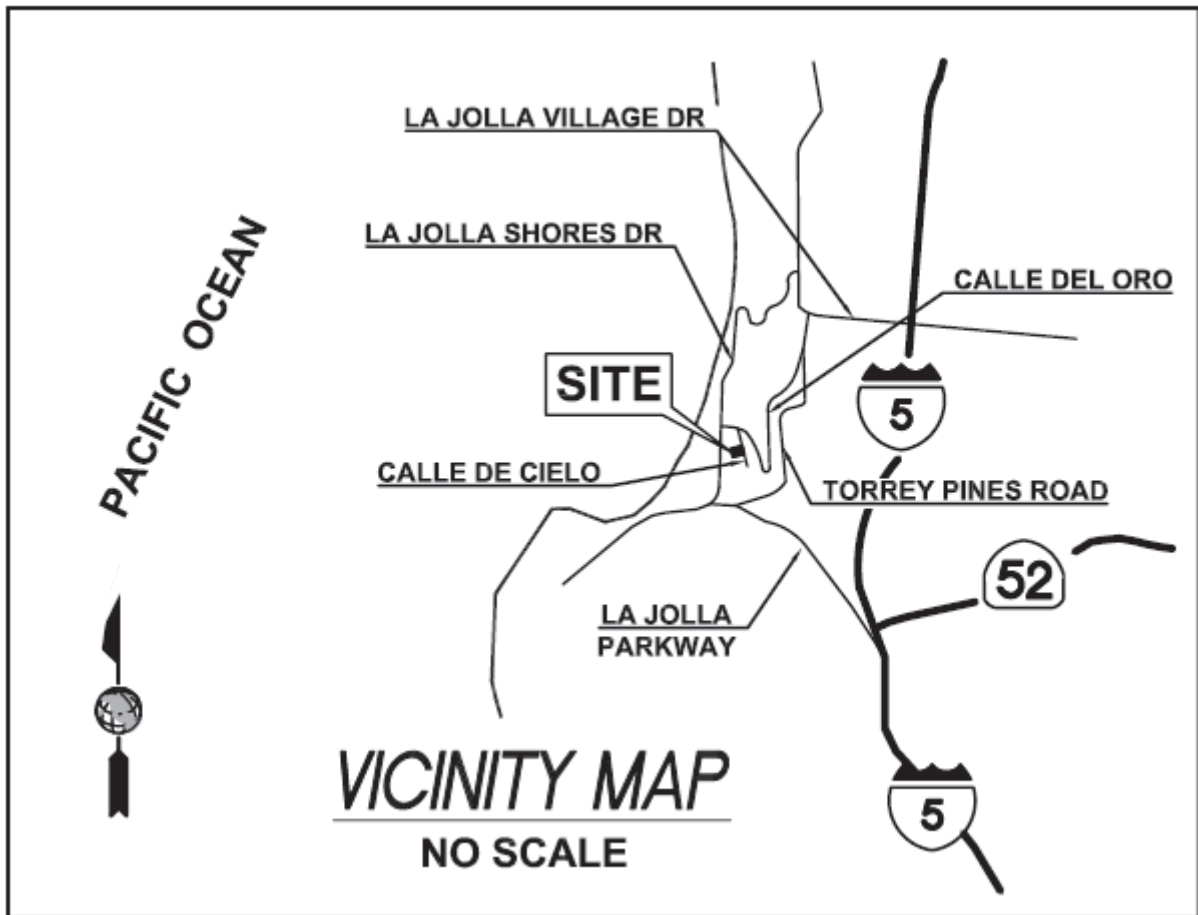
Submittal Number	Date	Project Status	Changes
1	1/30/2026	☒ Preliminary Design/Planning/CEQA ☐ Final Design	Initial Submittal
2	06/23/2026	☒ Preliminary Design/Planning/CEQA ☐ Final Design	2nd Submittal
3	09/04/2026	☒ Preliminary Design/Planning/CEQA ☐ Final Design	3rd Submittal
4		☐ Preliminary Design/Planning/CEQA ☐ Final Design	

Project Name: Race Residence

Project Vicinity Map

Project Name: Race Residence

Permit Application PRJ-1154920



Project Name: Race Residence

City of San Diego Form DS-560 Storm Water Requirements Applicability Checklist

Attach DS-560 form.

FORM
DS-560
October 2024

Stormwater Requirements Applicability Checklist

Project Address:

8332 Calle del Cielo, La Jolla, CA 92037

Project Number:

PRJ-1154920

SECTION 1: Construction Stormwater Best Management Practices (BMP) Requirements

All construction sites are required to implement construction BMPs per the performance standards in the [Stormwater Standards Manual](#). Some sites are also required to obtain coverage under the State Construction General Permit (CGP)¹, administered by the [California State Water Resources Control Board](#).

For all projects, complete Part A - If the project is required to submit a Stormwater Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan (WPCP), continue to Part B.

PART A – Determine Construction Phase Stormwater Requirements

1. Is the project subject to California's statewide General National Pollutant Discharge Elimination System (NPDES) permit for Stormwater Discharges Associated with Construction Activities, also known as the State Construction General Permit (CGP)? (Typically projects with land disturbance greater than or equal to 1 acre.)

☐ Yes, SWPPP is required; skip questions 2-4.
☒ No; proceed to the next question.
2. Does the project propose construction or demolition activity, including but not limited to, clearing, grading, grubbing, excavation, or any other activity resulting in ground disturbance and/or contact with stormwater?

☒ Yes, WPCP is required; skip questions 3-4.
☐ No; proceed to the next question.
3. Does the project propose routine maintenance to maintain the original line and grade, hydraulic capacity, or original purpose of the facility? (Projects such as pipeline/utility replacement)

☐ Yes, WPCP is required; skip question 4.
☒ No; proceed to the next question.
4. Does the project only include the following Permit types listed below?
 - Electrical Permit, Fire Alarm Permit, Fire Sprinkler Permit, Plumbing Permit, Sign Permit, Mechanical Permit, Spa Permit.
 - Individual Right-of-Way Permits that exclusively include only ONE of the following activities: water service, sewer lateral, or utility service.
 - Right-of-Way Permits with a project footprint of less than 150 linear feet that exclusively include only ONE of the following activities: curb ramp, sidewalk and driveway apron replacement, potholing, curb and gutter replacement, and retaining wall encroachments.

☐ Yes, no document is required.

Check one of the boxes below and continue to Part B

- ☐ If you checked "Yes" for question 1, an SWPPP is REQUIRED – continue to Part B

☒ If you checked "No" for question 1 and checked "Yes" for question 2 or 3, a WPCP is REQUIRED. If the project proposes less than 5,000 square feet of ground disturbance AND has less than a 5-foot elevation change over the entire project area, a Minor WPCP may be required instead. **Continue to Part B**

☐ If you check "No" for all questions 1-3 and checked "Yes" for question 4, Part B does not apply, and no document is required. **Continue to Section 2.**

¹ More information on the City's construction BMP requirements as well as CGP requirements can be found at www.sandiego.gov/stormwater/regulations/index.shtml

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PART B – Determine Construction Site Priority

This prioritization must be completed within this form, noted on the plans, and included in the SWPPP or WPCP. The city reserves the right to adjust the priority of projects both before and after construction. Construction projects are assigned an inspection frequency based on if the project has a “high threat to water quality.” The City has aligned the local definition of “high threat to water quality” to the risk determination approach of the State CGP. The CGP determines risk level based on project-specific sediment risk and receiving water risk. Additional inspection is required for projects within the Areas of Special Biological Significance (ASBS) watershed. **NOTE:** The construction priority does **NOT** change construction BMP requirements that apply to projects; rather, it determines the frequency of inspections that will be conducted by city staff.

Complete Part B and continue to Section 2☒ **1. ASBS**

- A. Projects located in the ASBS watershed.

☐ **2. High Priority**

- A. Projects that qualify as Risk Level 2 or Risk Level 3 per the Construction General Permit (CGP) and are not located in the ASBS watershed.
B. Projects that qualify as LUP Type 2 or LUP Type 3 per the CGP and are not located in the ASBS watershed.

☐ **3. Medium Priority**

- A. Projects that are not located in an ASBS watershed or designated as a High-priority site.
B. Projects that qualify as Risk Level 1 or LUP Type 1 per the CGP and are not located in an ASBS watershed.
C. WPCP projects (>5,000 square feet of ground disturbance) located within the Los Peñasquitos watershed management area.

☐ **4. Low Priority**

- A. Projects not subject to a Medium or High site priority designation and are not located in an ASBS watershed.

Section 2: Construction Stormwater BMP Requirements

Additional information for determining the requirements is found in the [Stormwater Standards Manual](#).

PART C – Determine if Not Subject to Permanent Stormwater Requirements

Projects that are considered maintenance or otherwise not categorized as “new development projects” or “redevelopment projects” according to the [Stormwater Standards Manual](#) are not subject to Permanent Stormwater BMPs.

- If “yes” is checked for any number in Part C: Proceed to Part F and check “Not Subject to Permanent Stormwater BMP Requirements.”
- If “no” is checked for all the numbers in Part C: Continue to Part D.

1. Does the project only include interior remodels and/or is the project entirely within an existing enclosed structure and does not have the potential to contact stormwater?
☐ Yes ☒ No
2. Does the project only include the construction of overhead or underground utilities without creating new impervious surfaces?
☐ Yes ☒ No
3. Does the project fall under routine maintenance? Examples include but are not limited to roof or exterior structure surface replacement, resurfacing or reconfiguring surface parking lots or existing roadways without expanding the impervious footprint, and routine replacement of damaged pavement (grinding, overlay and pothole repair).
☐ Yes ☒ No

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DS-560 (10-24)

PART D – PDP Exempt Requirements

PDP Exempt projects are required to implement site design and source control BMPs.

- If “yes” is checked for any questions in Part D, continue to Part F and check the box labeled “PDP Exempt.”
- If “no” is checked for all questions in Part D, continue to Part E.

1. Does the project ONLY include new or retrofit sidewalks, bicycle lanes, or trails that:

- Are designed and constructed to direct stormwater runoff to adjacent vegetated areas, or other non-erodible permeable areas? Or;
- Are designed and constructed to be hydraulically disconnected from paved streets and roads? Or;
- Are designed and constructed with permeable pavements or surfaces in accordance with the Green Streets guidance in the City's Stormwater Standards manual?

☐ Yes, PDP exempt requirements apply ☒ No, proceed to the next question

2. Does the project ONLY include retrofitting or redeveloping existing paved alleys, streets or roads designed and constructed in accordance with the Green Streets guidance in the [City's Stormwater Standards Manual](#)?

☐ Yes, PDP exempt requirements apply ☒ No, proceed to the next question

PART E – Determine if the Project is a Priority Development Project (PDP)

Projects that match one of the definitions below are subject to additional requirements, including the preparation of a Stormwater Quality Management Plan (SWQMP).

- If “yes” is checked for any number in Part E, continue to Part F and check the box labeled “Priority Development Project.”
- If “no” is checked for every number in Part E, continue to Part F and check the box labeled “Standard Development Project.”

1. **New development that creates 10,000 square feet or more of impervious surfaces collectively over the project site.** This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land. ☐ Yes ☒ No
2. **Redevelopment project that creates and/or replaces 5,000 square feet or more of impervious surfaces on an existing site of 10,000 square feet or more of impervious surfaces.** This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land. ☒ Yes ☐ No
3. **New development or redevelopment of a restaurant.** Facilities that sell prepared foods and beverages for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) 5812), and where the land development creates and/or replaces 5,000 square feet or more of impervious surface. ☐ Yes ☒ No
4. **New development or redevelopment on a hillside.** The project creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site) and where the development will grade on any natural slope that is 25% or greater. ☐ Yes ☒ No
5. **New development or redevelopment of a parking lot that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site).** ☐ Yes ☒ No
6. **New development or redevelopment of streets, roads, highways, freeways, and driveways.** The project creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site). ☐ Yes ☒ No

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DS-560 (10-24)

7. **New development or redevelopment discharging directly to an environmentally sensitive area.** The project creates and/or replaces 2,500 square feet of impervious surface (collectively over the project site), and discharges directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e., not commingled with flows from adjacent lands). ☐ Yes ☒ No
8. **New development or redevelopment projects of retail gasoline outlets (RGO) that create and/or replace 5,000 square feet of impervious surface.** The development project meets the following criteria: (a) 5,000 square feet or more or (b) has a projected Average Daily Traffic (ADT) of 100 or more vehicles per day. ☐ Yes ☒ No
9. **New development or redevelopment projects of an automotive repair shop that creates and/or replaces 5,000 square feet or more of impervious surfaces.** Development projects categorized in any one of Standard Industrial Classification (SIC) codes [5013](#), [5014](#), [5541](#), [7532-7534](#) or [7536-7539](#). ☐ Yes ☒ No
10. **Other Pollutant Generating Project.** These projects are not covered in any of the categories above but involve the disturbance of one or more acres of land and are expected to generate post-construction phase pollutants, including fertilizers and pesticides. This category does not include projects creating less than 5,000 square feet of impervious area and projects containing landscaping without a requirement for the regular use of fertilizers and pesticides (such as a slope stabilization project using native plants). Impervious area calculations need not include linear pathways for infrequent vehicle use, such as emergency maintenance access or bicycle and pedestrian paths if the linear pathways are built with pervious surfaces or if runoff from the pathway sheet flows to adjacent pervious areas. ☐ Yes ☒ No

PART F – Select the appropriate category based on the outcomes of Part C through Part E

1. The project is **NOT SUBJECT TO PERMANENT STORMWATER REQUIREMENTS** ☐ Yes ☒ No
2. The project is a **STANDARD DEVELOPMENT PROJECT**. Site design and source control BMP requirements apply. See the [Stormwater Standards Manual](#) for guidance. ☐ Yes ☒ No
3. The Project is **PDP EXEMPT**. Site design and source control BMP requirements apply. Refer to the [Stormwater Standards Manual](#) for guidance. ☐ Yes ☒ No
4. The project is a **PRIORITY DEVELOPMENT PROJECT**. Site design, source control and structural pollutant control BMP requirements apply. Refer to the [Stormwater Standards Manual](#) for guidance on determining if the project requires hydromodification plan management. If yes to this question, submit a [Form DS-564 "Stormwater Quality Management Plan Submittal Checklist"](#) with your SWQMP. ☒ Yes ☐ No

Name of Owner or Agent

Rogelio Ruiz

Signature

Rogelio Ruiz

Title

Staff Engineer

Date

June 16, 2026

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DS-560 (10-24)

Project Name: Race Residence

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Applicability of Permanent, Post-Construction Storm Water BMP Requirements		Form I-1
Project Identification		
Project Name: Race Residence		
Permit Application Number: PRJ-1154920		Date: 09/03/2026
Determination of Requirements		
The purpose of this form is to identify permanent, post-construction requirements that apply to the project. This form serves as a short <u>summary</u> of applicable requirements, in some cases referencing separate forms that will serve as the backup for the determination of requirements. Answer each step below, starting with Step 1 and progressing through each step until reaching "Stop". Refer to the manual sections and/or separate forms referenced in each step below.		
Step	Answer	Progression
Step 1: Is the project a "development project"? See Section 1.3 of the manual (Part 1 of Storm Water Standards) for guidance.	☒ Yes	Go to Step 2 .
	☐ No	Stop. Permanent BMP requirements do not apply. No SWQMP will be required. Provide discussion below.
Discussion / justification if the project is <u>not</u> a "development project" (e.g., the project includes <i>only</i> interior remodels within an existing building):		
Step 2: Is the project a Standard Project, PDP, or PDP Exempt? To answer this item, see Section 1.4 of the manual in its entirety for guidance AND complete Form DS-560, Storm Water Requirements Applicability Checklist.	☐ Standard Project	Stop. Standard Project requirements apply
	☒ PDP	PDP requirements apply, including PDP SWQMP. Go to Step 3 .
	☐ PDP Exempt	Stop. Standard Project requirements apply. Provide discussion and list any additional requirements below.
Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:		

Form I-1 Page 2 of 2

Step	Answer	Progression
Step 3. Is the project subject to earlier PDP requirements due to a prior lawful approval? See Section 1.10 of the manual (Part 1 of Storm Water Standards) for guidance.	☐ Yes	Consult the City Engineer to determine requirements. Provide discussion and identify requirements below. Go to Step 4.
	☒ No	BMP Design Manual PDP requirements apply. Go to Step 4.
Discussion / justification of prior lawful approval, and identify requirements (<u>not required if prior lawful approval does not apply</u>):		
Step 4. Do hydromodification control requirements apply? See Section 1.6 of the manual (Part 1 of Storm Water Standards) for guidance.	☐ Yes	PDP structural BMPs required for pollutant control (Chapter 5) and hydromodification control (Chapter 6). Go to Step 5.
	☒ No	Stop. PDP structural BMPs required for pollutant control (Chapter 5) only. Provide brief discussion of exemption to hydromodification control below.
Discussion / justification if hydromodification control requirements do <u>not</u> apply: The project site drains to an HMP exempt storm drain system. Please see the HMP Exempt Exhibit for more details.		
Step 5. Does protection of critical coarse sediment yield areas apply? See Section 6.2 of the manual (Part 1 of Storm Water Standards) for guidance.	☐ Yes	Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2). Stop.
	☒ No	Management measures not required for protection of critical coarse sediment yield areas. Provide brief discussion below. Stop.
Discussion / justification if protection of critical coarse sediment yield areas does <u>not</u> apply: There are no CCSYA areas onsite. No CCSYA areas drain to the site.		

HMP Exemption Exhibit

Attach a HMP Exemption Exhibit that shows direct storm water runoff discharge from the project site to HMP exempt area. Include project area, applicable underground storm drain line and/or concrete lined channels, outfall information and exempt waterbody.
Reference applicable drawing number(s).

Exhibit must be provided on 11"x17" or larger paper.

HMP Exempt Exhibit

The project drains to an HMP exempt storm drain system prior to discharging to the Pacific Ocean.

Legend

- 8332 Calle Del Cielo
- Pacific Ocean

HMP exempt storm drain system drains to Pacific Ocean 24" RCP per As-Built # 7775-D

Existing Storm drain inlet 18" RCP per As-Built # 7775-D

Pumped runoff flows along Calle Del Cielo to a curb inlet connected to an exempt system

Site

Runoff flows along the gutter of La Jolla Shores Drive until it is intercepted by an existing curb inlet that is part of an exempt system

Runoff that overflows the pump system drains to an existing bypass storm drain on the westerly neighbors on the property and thence to a curb outlet on Calle De La Garza

Existing Storm drain inlet 18" RCP per As-Built 4599-D

HMP exempt storm drain system drains to Pacific Ocean 24" x 48" Box Culvert per As-Built # 1382-D

Project Name: Race Residence

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Site Information Checklist For PDPs		Form I-3B
Project Summary Information		
Project Name	Race Residence	
Project Address	8332 Calle del Cielo, La Jolla, CA 92037	
Assessor's Parcel Number(s) (APN(s))	346-180-23-00	
Permit Application Number	PRJ-1154920	
Project Watershed	Select One: ☐ San Dieguito River ☒ Penasquitos ☐ Mission Bay ☐ San Diego River ☐ San Diego Bay ☐ Tijuana River	
Hydrologic subarea name with Numeric Identifier up to two decimal places (9XX.XX)	Undefined, 906.30	
Project Area (total area of Assessor's Parcel(s) associated with the project or total area of the right-of-way)	0.47 Acres (20,533 Square Feet)	
Area to be disturbed by the project (Project Footprint)	0.46 Acres (20,191 Square Feet)	
Project Proposed Impervious Area (subset of Project Footprint)	0.26 Acres (11,346 Square Feet)	
Project Proposed Pervious Area (subset of Project Footprint)	0.20 Acres (8,845 Square Feet)	
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Project Area.		
The proposed increase or decrease in impervious area in the proposed condition as compared to the pre-project condition	+32 %	

Description of Existing Site Condition and Drainage Patterns

Current Status of the Site (select all that apply):

- ☒ Existing development
☐ Previously graded but not built out
☐ Agricultural or other non-impervious use
☐ Vacant, undeveloped/natural

Description / Additional Information:

The existing development includes a single-family house, landscape areas, walkways and a driveway. There is no existing storm drain system.

Existing Land Cover Includes (select all that apply):

- ☒ Vegetative Cover
☐ Non-Vegetated Pervious Areas
☒ Impervious Areas

Description / Additional Information:

The vegetative cover of the site includes landscape areas. The impervious areas includes building roof, walkways and driveway.

Underlying Soil belongs to Hydrologic Soil Group (select all that apply):

- ☐ NRCS Type A
☐ NRCS Type B
☐ NRCS Type C
☒ NRCS Type D

Approximate Depth to Groundwater:

- ☐ Groundwater Depth < 5 feet
☐ 5 feet < Groundwater Depth < 10 feet
☐ 10 feet < Groundwater Depth < 20 feet
☒ Groundwater Depth > 20 feet

Existing Natural Hydrologic Features (select all that apply):

- ☐ Watercourses
☐ Seeps
☐ Springs
☐ Wetlands
☒ None

Description / Additional Information:

There are no existing natural hydrologic features onsite.

Description of Existing Site Topography and Drainage

How is storm water runoff conveyed from the site? At a minimum, this description should answer:

1. Whether existing drainage conveyance is natural or urban;
2. If runoff from offsite is conveyed through the site? If yes, quantification of all offsite drainage areas, design flows, and locations where offsite flows enter the project site and summarize how such flows are conveyed through the site;
3. Provide details regarding existing project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, and natural and constructed channels;
4. Identify all discharge locations from the existing project along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations.

Descriptions/Additional Information

1. The existing drainage conveyance is urban.
2. The site does not convey offsite areas through the site.
3. The existing site has a private storm drain system comprised of several 4" pipes that outlet to the surface at the northwest corner of the site, where runoff flows across the property line and is immediately intercepted by a concrete browditch on the westerly neighboring parcel.
4. The existing project has a single discharge point, being the westerly neighboring property, where it is intercepted by a concrete browditch running along the property line.

Existing Drainage Area = 0.46 acres

Q100 = 1.28 cfs

Description of Proposed Site Development and Drainage Patterns

Project Description / Proposed Land Use and/or Activities:

The project will remove all onsite improvements and construct a new single family residence. The project will include a private storm drain system to intercept runoff and convey it to a modular wetland treatment BMP located at the northwest corner of the site.

In the proposed conditions, A pump system will pump treated flow from the 85th percentile storm to the curb face east of the site. Runoff from high intensity storms will continue to drain to the west neighbor as it does in the existing conditions. The proposed peak flow rate discharged to the west neighboring lot will not exceed the existing condition peak flow rate.

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):

The impervious features of the site includes building roof, walkways and driveways.

List/describe proposed pervious features of the project (e.g., landscape areas):

The pervious features of the site include landscape areas throughout the property.

Does the project include grading and changes to site topography?

☒ Yes

☐ No

Description / Additional Information:

The project proposes grading and changes in the site topography, the general slope of the site and main discharge point will remain unchanged.

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

☒ Yes

☐ No

If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural and constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.

Description / Additional Information:

Project will regrade the entirety of the site. The existing discharge point to the westerly neighbor will be used for high intensity storm events. Runoff from the 85th Percentile storm will be pumped to the curb face east of the site.

The proposed peak flowrate discharged to the neighboring site will not exceed the flowrate of the existing conditions.

Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply):

- ☒ Onsite storm drain inlets
- ☒ Interior floor drains and elevator shaft sump pumps
- ☒ Interior parking garages
- ☒ Need for future indoor & structural pest control
- ☒ Landscape/outdoor pesticide use
- ☒ Pools, spas, ponds, decorative fountains, and other water features
- ☒ Food service
- ☐ Refuse areas
- ☐ Industrial processes
- ☒ Outdoor storage of equipment or materials
- ☐ Vehicle and equipment cleaning
- ☐ Vehicle/equipment repair and maintenance
- ☐ Fuel dispensing areas
- ☐ Loading docks
- ☐ Fire sprinkler test water
- ☐ Miscellaneous drain or wash water
- ☒ Plazas, sidewalks, and parking lots

Description/Additional Information:

The features, activities and pollutant source areas not selected do not apply to project.

Identification and Narrative of Receiving Water

Narrative describing flow path from discharge location(s), through urban storm conveyance system, to receiving creeks, rivers, and lagoons and ultimate discharge location to Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable)

The site will pump treated flow from the 85th percentile storm to the gutter along Calle del Cielo, where it will flow north until it is intercepted by an existing curb inlet and conveyed to an outfall to the Pacific Ocean near La Jolla Shores.

Flows in excess of the 85th percentile storm will overflow the pump system and drain across the property line to the west neighbor where it is intercepted by a concrete browditch. The west neighbor's storm drain system conveys the runoff through the lot to a curb outlet along Calle De La Garza. Runoff thence flows along the gutter until it is intercepted by an existing curb inlet and thence conveyed to an outfall to the Pacific Ocean.

Provide a summary of all beneficial uses of receiving waters downstream of the project discharge locations

Pacific Ocean: AQUA, BIOL, COMM, IND, MAR, MIGR, NAV, RARE, REC1, REC2, SHELL, SPWN, WILD

Identify all ASBS (areas of special biological significance) receiving waters downstream of the project discharge locations

The site is located upstream from the La Jollas ASBS area approximately 0.50 miles east. The site drains to this ASBS area.

Provide distance from project outfall location to impaired or sensitive receiving waters

The site is located approximately 0.50 miles from the Pacific Ocean.

Summarize information regarding the proximity of the permanent, post-construction storm water BMPs to the City's Multi-Habitat Planning Area and environmentally sensitive lands

The site is located approximately 3000 feet east and 4500 south of the closest MHPA areas. The project does not drain to MHPA areas.

Form I-3B Page 8 of 11

Identification of Receiving Water Pollutants of Concern

List any 303(d) impaired water bodies within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

303(d) Impaired Water Body (Refer to Appendix K)	Pollutant(s)/Stressor(s) (Refer to Appendix K)	TMDLs/WQIP Highest Priority Pollutant (Refer to Table 1-4 in Chapter 1)
Pacific Ocean	Indicator Bacteria	TMDL Required

Identification of Project Site Pollutants*

*Identification of project site pollutants is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs (note the project must also participate in an alternative compliance program unless prior lawful approval to meet earlier PDP requirements is demonstrated)

Identify pollutants anticipated from the project site based on all proposed use(s) of the site (see Appendix B.6):

Pollutant	Not Applicable to the Project Site	Anticipated from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment	☐	☒	☒
Nutrients	☐	☒	☒
Heavy Metals	☐	☐	☒
Organic Compounds	☒	☐	☐
Trash & Debris	☐	☒	☐
Oxygen Demanding Substances	☐	☒	☐
Oil & Grease	☐	☒	☐
Bacteria & Viruses	☐	☒	☒
Pesticides	☐	☒	☐

Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6)?

- ☐ Yes, hydromodification management flow control structural BMPs required.
- ☐ No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.
- ☐ No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.
- ☒ No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA for the watershed in which the project resides.

Description / Additional Information (to be provided if a 'No' answer has been selected above):

The site drains to an HMP exempt storm drain system as depicted in the WMAA mapping documents.

Note: If "No" answer has been selected the SWQMP must include an exhibit that shows the storm water conveyance system from the project site to an exempt water body. The exhibit should include details about the conveyance system and the outfall to the exempt water body.

Critical Coarse Sediment Yield Areas*

***This Section only required if hydromodification management requirements apply**

Based on Section 6.2 and Appendix H does CCSYA exist on the project footprint or in the upstream area draining through the project footprint?

- ☐ Yes
- ☒ No

Discussion / Additional Information:

N/A

Form I-3B Page 10 of 11

Flow Control for Post-Project Runoff*

***This Section only required if hydromodification management requirements apply**

List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit.

N/A

Has a geomorphic assessment been performed for the receiving channel(s)?

☐ No, the low flow threshold is $0.1Q_2$ (default low flow threshold)

☐ Yes, the result is the low flow threshold is $0.1Q_2$

☐ Yes, the result is the low flow threshold is $0.3Q_2$

☐ Yes, the result is the low flow threshold is $0.5Q_2$

If a geomorphic assessment has been performed, provide title, date, and preparer:

N/A

Discussion / Additional Information: (optional)

N/A

Other Site Requirements and Constraints

When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements.

N/A

Optional Additional Information or Continuation of Previous Sections As Needed

This space provided for additional information or continuation of information from previous sections as needed.

N/A

Source Control BMP Checklist for PDPs		Form I-4B	
Source Control BMPs			
All development projects must implement source control BMPs where applicable and feasible. See Chapter 4 and Appendix E of the BMP Design Manual (Part 1 of the Storm Water Standards) for information to implement source control BMPs shown in this checklist.			
Answer each category below pursuant to the following.			
• "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the BMP Design Manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification may be provided.			
Source Control Requirement		Applied?	
4.2.1 Prevention of Illicit Discharges into the MS4	☒ Yes	☐ No	☐ N/A
Discussion / justification if 4.2.1 not implemented:			
4.2.2 Storm Drain Stenciling or Signage	☒ Yes	☐ No	☐ N/A
Discussion / justification if 4.2.2 not implemented:			
4.2.3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if 4.2.3 not implemented: No outdoor material storage areas proposed by the project.			
4.2.4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if 4.2.4 not implemented: No outdoor work areas proposed by the project.			
4.2.5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if 4.2.5 not implemented: There are no trash enclosures proposed.			

Form I-4B Page 2 of 2

Source Control Requirement	Applied?		
4.2.6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
On-site storm drain inlets	☒ Yes	☐ No	☐ N/A
Interior floor drains and elevator shaft sump pumps	☒ Yes	☐ No	☐ N/A
Interior parking garages	☒ Yes	☐ No	☐ N/A
Need for future indoor & structural pest control	☒ Yes	☐ No	☐ N/A
Landscape/Outdoor Pesticide Use	☒ Yes	☐ No	☐ N/A
Pools, spas, ponds, decorative fountains, and other water features	☒ Yes	☐ No	☐ N/A
Food service	☐ Yes	☐ No	☒ N/A
Refuse areas	☐ Yes	☐ No	☒ N/A
Industrial processes	☐ Yes	☐ No	☒ N/A
Outdoor storage of equipment or materials	☐ Yes	☐ No	☒ N/A
Vehicle/Equipment Repair and Maintenance	☐ Yes	☐ No	☒ N/A
Fuel Dispensing Areas	☐ Yes	☐ No	☒ N/A
Loading Docks	☐ Yes	☐ No	☒ N/A
Fire Sprinkler Test Water	☐ Yes	☐ No	☒ N/A
Miscellaneous Drain or Wash Water	☒ Yes	☐ No	☐ N/A
Plazas, sidewalks, and parking lots	☒ Yes	☐ No	☐ N/A
SC-6A: Large Trash Generating Facilities	☐ Yes	☐ No	☒ N/A
SC-6B: Animal Facilities	☐ Yes	☐ No	☒ N/A
SC-6C: Plant Nurseries and Garden Centers	☐ Yes	☐ No	☒ N/A
SC-6D: Automotive Facilities	☐ Yes	☐ No	☒ N/A
Discussion / justification if 4.2.6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for <u>all</u> "No" answers shown above. The source control BMP's selected as "N/A" are not proposed by the project.			

Site Design BMP Checklist for PDPs		Form I-5B	
Site Design BMPs			
All development projects must implement site design BMPs where applicable and feasible. See Chapter 4 and Appendix E of the BMP Design Manual (Part 1 of Storm Water Standards) for information to implement site design BMPs shown in this checklist. Answer each category below pursuant to the following. • "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the BMP Design Manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification may be provided. A site map with implemented site design BMPs must be included at the end of this checklist.			
Site Design Requirement		Applied?	
4.3.1 Maintain Natural Drainage Pathways and Hydrologic Features		☐ Yes	☐ No ☒ N/A
Discussion / justification if 4.3.1 not implemented: There are no natural drainage pathways or hydrologic features onsite.			
1-1 Are existing natural drainage pathways and hydrologic features mapped on the site map?		☐ Yes	☐ No ☒ N/A
1-2 Are trees implemented? If yes, are they shown on the site map?		☐ Yes	☐ No ☒ N/A
1-3 Implemented trees meet the design criteria in 4.3.1 Fact Sheet (e.g. soil volume, maximum credit, etc.)?		☐ Yes	☐ No ☒ N/A
1-4 Is tree credit volume calculated using Appendix B.2.2.1 and SD-1 Fact Sheet in Appendix E?		☐ Yes	☐ No ☒ N/A
4.3.2 Have natural areas, soils and vegetation been conserved?		☐ Yes	☐ No ☒ N/A
Discussion / justification if 4.3.2 not implemented: There are no natural areas, soils or vegetation to conserve.			

Form I-5B Page 2 of 4

Site Design Requirement	Applied?		
4.3.3 Minimize Impervious Area	☐ Yes	☒ No	☐ N/A
Discussion / justification if 4.3.3 not implemented: The proposed residence will occupy the majority of the site.			
4.3.4 Minimize Soil Compaction	☐ Yes	☐ No	☒ N/A
Discussion / justification if 4.3.4 not implemented: The proposed new residence will occupy the majority of the site. Soil compaction will only be minimized on new landscape areas.			
4.3.5 Impervious Area Dispersion	☐ Yes	☒ No	☐ N/A
Discussion / justification if 4.3.5 not implemented: There is not enough long runs of landscape areas on the site to allow impervious area dispersion.			
5-1 Is the pervious area receiving runoff from impervious area identified on the site map?	☐ Yes	☐ No	☒ N/A
5-2 Does the pervious area satisfy the design criteria in 4.3.5 Fact Sheet in Appendix E (e.g. maximum slope, minimum length, etc.)	☐ Yes	☐ No	☒ N/A
5-3 Is impervious area dispersion credit volume calculated using Appendix B.2.1.1 and 4.3.5 Fact Sheet in Appendix E?	☐ Yes	☐ No	☒ N/A

Form I-5B Page 3 of 4

Site Design Requirement	Applied?		
4.3.6 Runoff Collection	☐ Yes	☒ No	☐ N/A
Discussion / justification if 4.3.6 not implemented: There is no sufficient pervious areas to implement Runoff Collection.			
6a-1 Are green roofs implemented in accordance with design criteria in 4.3.6A Fact Sheet? If yes, are they shown on the site map?	☐ Yes	☐ No	☒ N/A
6a-2 Is the green roof credit volume calculated using Appendix B.2.1.2 and 4.3.6A Fact Sheet in Appendix E?	☐ Yes	☐ No	☒ N/A
6b-1 Are permeable pavements implemented in accordance with design criteria in 4.3.6B Fact Sheet? If yes, are they shown on the site map?	☐ Yes	☐ No	☒ N/A
6b-2 Is the permeable pavement credit volume calculated using Appendix B.2.1.3 and 4.3.6B Fact Sheet in Appendix E?	☐ Yes	☐ No	☒ N/A
4.3.7 Landscaping with Native or Drought Tolerant Species	☒ Yes	☐ No	☐ N/A
Discussion / justification if 4.3.7 not implemented:			
4.3.8 Harvest and Use Precipitation	☐ Yes	☒ No	☐ N/A
Discussion / justification if 4.3.8 not implemented: The irrigation and landscape areas will be performed by a 'smart' system which will not irrigate in the period following a rainfall event. There is no demand for reuse of stormwater for irrigation. However, demand does exist for harvest and reuse for toilet flushing. The proposed single-family house does not have enough demand to use harvest and use precipitation.			
8-1 Are rain barrels implemented in accordance with design criteria in 4.3.8 Fact Sheet? If yes, are they shown on the site map?	☐ Yes	☐ No	☒ N/A
8-2 Is the rain barrel credit volume calculated using Appendix B.2.2.2 and 4.3.8 Fact Sheet in Appendix E?	☐ Yes	☐ No	☒ N/A

Insert Site Map with all site design BMPs identified:

Please see the DMA Map in Attachment 1a
for all site design BMPs.

Summary of PDP Structural BMPs	Form I-6
PDP Structural BMPs	
All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the BMP Design Manual, Part 1 of Storm Water Standards). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the BMP Design Manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s). PDP structural BMPs must be verified by the City at the completion of construction. This includes requiring the project owner or project owner's representative to certify construction of the structural BMPs (complete Form DS-563). PDP structural BMPs must be maintained into perpetuity (see Chapter 7 of the BMP Design Manual). Use this form to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (page 3 of this form) for each structural BMP within the project (copy the BMP summary information page as many times as needed to provide summary information for each individual structural BMP). Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the BMP Design Manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate. The DMAs were delineated based on the proposed site design resulting in a single area that require calculations of flow thru design flows. The flow thru design flow was calculated using the method in Appendix B of the BMP Design Manual. The first consideration was feasibility of Harvest and Reuse. Using the City of San Diego Worksheet B.3-1, harvest and reuse was considered infeasible due to the demand being less than the required DCV. The second consideration is the feasibility of infiltration. Infiltration testing at the site was performed at two locations within the project site by excavating a 5 ft deep boring and converting to infiltration test boreholes. The infiltration rates were 0.04 and 0.15 in/hr. This results in an average infiltration rate of 0.09 in/hr. With a safety factor of 2, the infiltration rate results to 0.045 in/hr. This results in infiltration to be infeasible. Additionally, the site is located in a steep hillside area. The downhill neighboring property has a retaining wall that would be negatively impacted by lateral water movement if infiltration were used. (Continue on page 2 as necessary.)	

(Continued from page 1)

Form I-6 Page of (Copy as many as needed)	
Structural BMP Summary Information	
Structural BMP ID No. BMP-1	
Construction Plan Sheet No. Sheet C-3	
Type of Structural BMP: ☐ Retention by harvest and use (e.g. HU-1, cistern) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention (INF-2) ☐ Retention by permeable pavement (INF-3) ☐ Partial retention by biofiltration with partial retention (PR-1) ☐ Biofiltration (BF-1) ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐ Detention pond or vault for hydromodification management ☒ Other (describe in discussion section below) Contech Modular Wetland Unit	
Purpose: ☒ Pollutant control only ☐ Hydromodification control only ☐ Combined pollutant control and hydromodification control ☐ Pre-treatment/forebay for another structural BMP ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification form DS-563	Andrew J. Kann Omega Engineering Consultants (858) 634-8620
Who will be the final owner of this BMP?	8332 Calle Del Cielo, LLC
Who will maintain this BMP into perpetuity?	8332 Calle Del Cielo, LLC
What is the funding mechanism for maintenance?	Funding to be provided by residents & included as part of ongoing landscape maintenance

Form I-6 Page of (Copy as many as needed)
Structural BMP ID No. BMP-1
Construction Plan Sheet No. Sheet C-3
Discussion (as needed; must include worksheets showing BMP sizing calculations in the SWQMPs):



Project Name: Race Residence

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Attachment 1

Backup For PDP Pollutant Control BMPs

This is the cover sheet for Attachment 1.

Project Name: Race Residence

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Project Name: Race Residence

Indicate which Items are Included:

Attachment Sequence	Contents	Checklist
Attachment 1a	DMA Exhibit (Required) See DMA Exhibit Checklist.	☒ Included
Attachment 1b	Tabular Summary of DMAs Showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required)* *Provide table in this Attachment OR on DMA Exhibit in Attachment 1a	☒ Included on DMA Exhibit in Attachment 1a ☐ Included as Attachment 1b, separate from DMA Exhibit
Attachment 1c	Form I-7, Harvest and Use Feasibility Screening Checklist (Required unless the entire project will use infiltration BMPs) Refer to Appendix B.3-1 of the BMP Design Manual to complete Form I-7.	☒ Included ☐ Not included because the entire project will use infiltration BMPs
Attachment 1d	Infiltration Feasibility Information. Contents of Attachment 1d depend on the infiltration condition: • No Infiltration Condition: ◦ Infiltration Feasibility Condition Letter (<i>Note: must be stamped and signed by licensed geotechnical engineer</i>) ◦ Form I-8A (optional) ◦ Form I-8B (optional) • Partial Infiltration Condition: ◦ Infiltration Feasibility Condition Letter (<i>Note: must be stamped and signed by licensed geotechnical engineer</i>) ◦ Form I-8A ◦ Form I-8B • Full Infiltration Condition: ◦ Form I-8A ◦ Form I-8B ◦ Worksheet C.4-3 ◦ Form I-9 Refer to Appendices C and D of the BMP Design Manual for guidance.	☒ Included ☐ Not included because the entire project will use harvest and use BMPs
Attachment 1e	Pollutant Control BMP Design Worksheets / Calculations (Required) Refer to Appendices B and E of the BMP Design Manual for structural pollutant control BMP design guidelines and site design credit calculations	☒ Included

Use this checklist to ensure the required information has been included on the DMA Exhibit:

The DMA Exhibit must identify:

- ☒ Underlying hydrologic soil group
- ☒ Approximate depth to groundwater
- ☐ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
- ☐ Critical coarse sediment yield areas to be protected
- ☒ Existing topography and impervious areas
- ☐ Existing and proposed site drainage network and connections to drainage offsite
- ☒ Proposed grading
- ☐ Proposed impervious features
- ☐ Proposed design features and surface treatments used to minimize imperviousness
- ☒ Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
- ☐ Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Form I-3B)
- ☒ Structural BMPs (identify location, type of BMP, size/detail, and include cross-section)

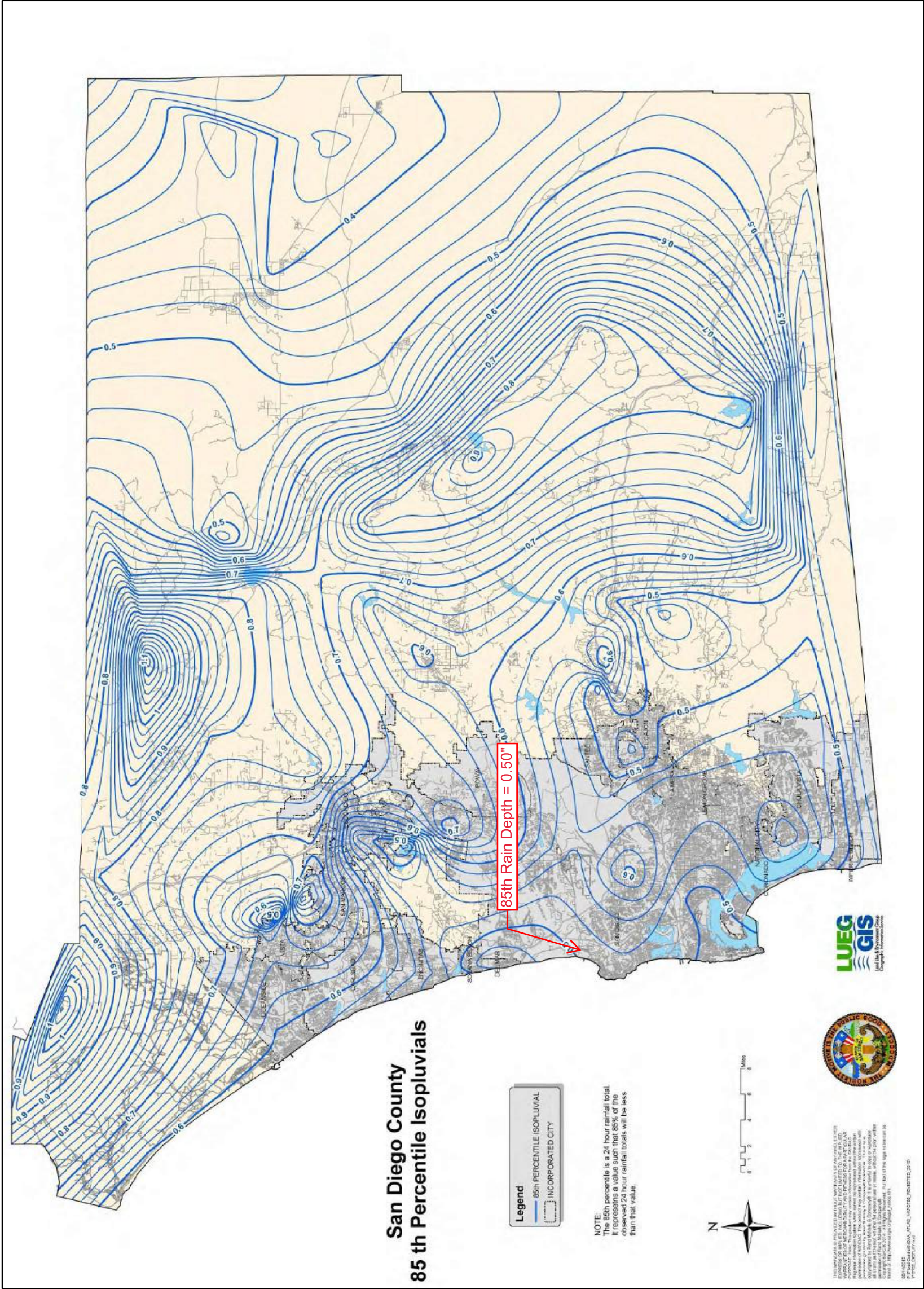
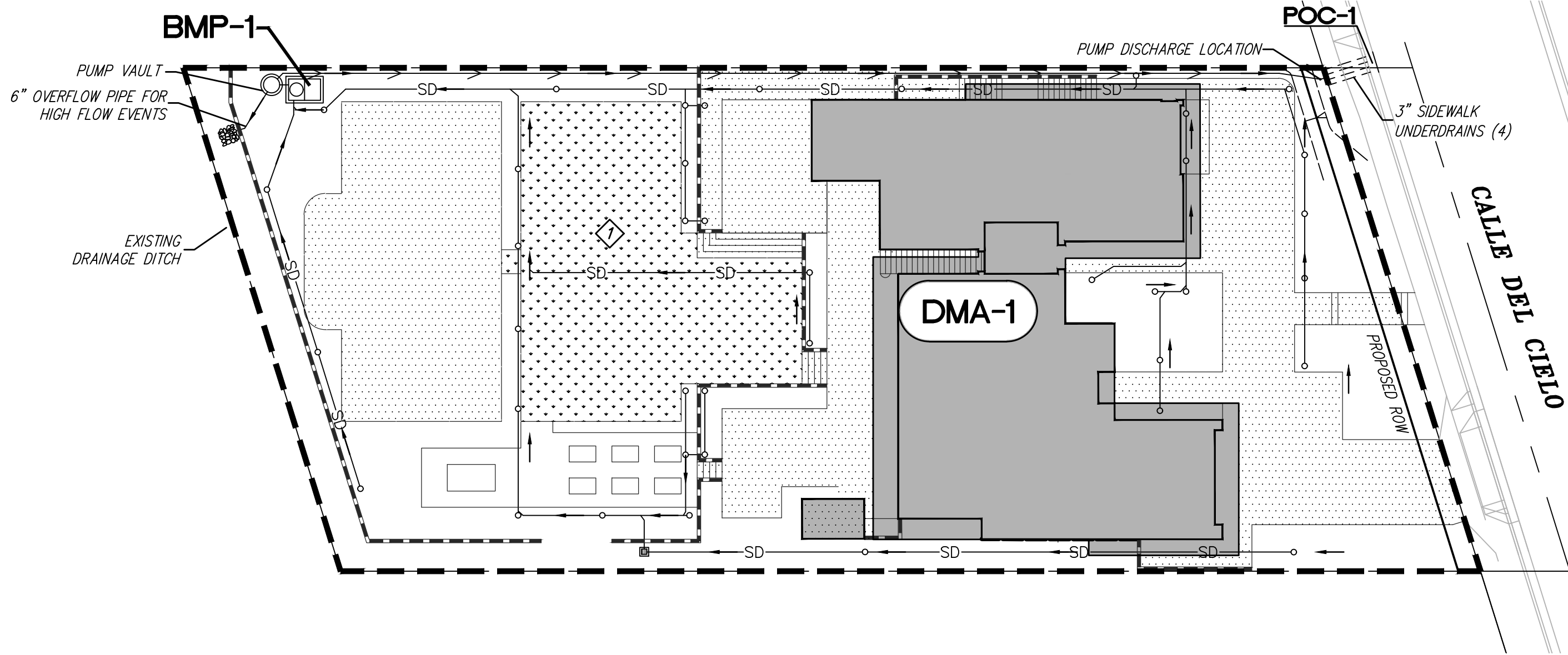


Figure B.1-1: 85th Percentile 24-hour Isopluvial Map



DMA PLAN

NOTE: THIS PROJECT IS LOCATED WITHIN THE ASBS WATERSHED. NO DRY WEATHER RUNOFF IS PERMITTED. PROJECT WILL BE SUBJECT TO INCREASED INSPECTIONS, SATISFACTION TO THE CITY ENGINEER.



MAINTENANCE NOTES

MODULAR WETLAND SYSTEM.
MAINTENANCE THRESHOLD:
- REMOVE TRASH FROM SCREENING DEVICE - AVERAGE MAINTENANCE INTERVAL 6 TO 12 MONTHS.
- REMOVE SEDIMENT FROM SEPARATION CHAMBER - AVERAGE MAINTENANCE INTERVAL IS 12 TO 24 MONTHS.
- REPLACE CARTRIDGE FILTER MEDIA - AVERAGE MAINTENANCE INTERVAL IS 12 TO 14 MONTHS.
- REPLACE DRAIN DOWN FILTER MEDIA - AVERAGE MAINTENANCE INTERVAL IS 12 TO 24 MONTHS.
- TRIM VEGETATION - AVERAGE MAINTENANCE INTERVAL IS 6 TO 12 MONTHS.
ACCESS TO STRUCTURAL BMP:
- MANHOLE ON MWS UNIT

DMA DATA TABLE

DMA-NO.	TOT. AREA (SF)	IMP. AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS (%)	TYPE/TREATED BY
DMA-1	20,191	11,346	8,845	56	BMP-1

TREATMENT BMP DATA TABLE

BMP-#	TREATING	Q _{TREATMENT} (CFS)	1.5 * Q _{TREATMENT} (CFS)	PROVIDED FLOWRATE (CFS)	DESCRIPTION
BMP-1	DMA-1	0.051	0.076	0.076	MWS-L-4-6-V MODULAR WETLAND BIOFILTER BMP

IMPERVIOUS AREA DISPERSION TABLE

LANDSCAPE AREA (SF)	IMP. AREA DRAINING TO LANDSCAPE AREA (SF)	IMP. TO PERVIOUS AREA RATIO	TARGET VOLUME RETENTION (CF)	VOLUME RETENTION REQUIREMENTS MET?
2369	1970	0.83	11	YES

SOURCE CONTROL BMPs

STORM DRAIN STENCILING

SITE DESIGN BMPs

IMPERVIOUS AREA DISPERSION

LEGEND:

- DMA BOUNDARY **DMA-#**
- DRAINAGE ARROWS **BMP-#**
- DRAINAGE MANAGEMENT AREA.....
- STRUCTURAL BEST MANAGEMENT PRACTICE.....
- IMPERVIOUS AREA
- ROOF AREA
- LANDSCAPED AREAS
- AMENDED/RETILLED SOIL AREAS.....
- ROOF DRAIN LOCATION

GENERAL NOTES

- THE UNDERLYING HYDROLOGIC SOIL GROUP FOR THE SITE IS TYPE D
- GROUNDWATER DEPTH HAS NOT YET BEEN DETERMINED.
- NO EXISTING NATURAL HYDROLOGIC FEATURES EXIST ON SITE.
- NO CRITICAL COARSE SEDIMENT YIELD AREAS ON SITE OR UPSTREAM OF SITE.
- ALL APPLICABLE SOURCE CONTROL BMPs SHALL BE IMPLEMENTED.

SOURCE CONTROL BMP NOTES

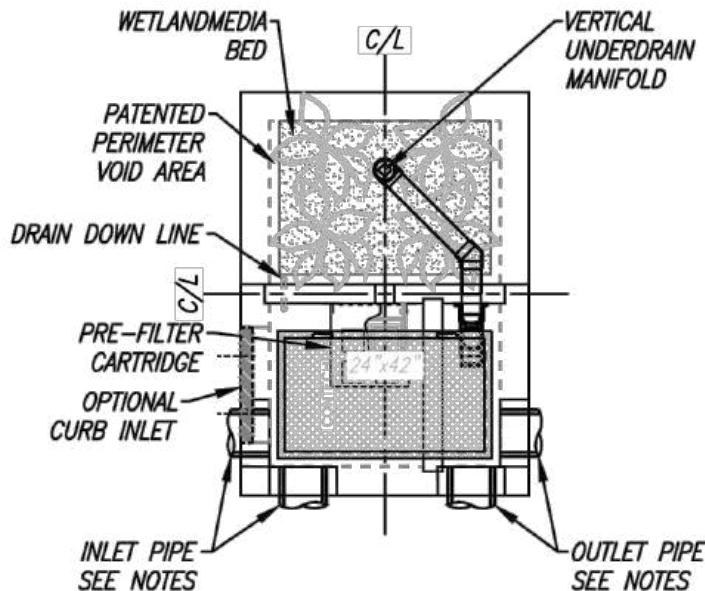
- ALL APPLICABLE SOURCE CONTROL BMPs SHALL BE UTILIZED
- 4.2.1 PREVENT ILLICIT DISCHARGE INTO THE MSA
- 4.2.2 ALL ONSITE INLETS TO BE MARKED "NO DUMPING" OR SIMILAR AND ALL OPERATIONAL PRECAUTIONS TO AVOID NON STORM WATER DISCHARGE SHALL BE FOLLOWED PER THE CITY'S BMP DESIGN MANUAL.
- 4.2.6 SC-A ONSITE STORM DRAIN INLETS
SC-D1 NEED FOR FUTURE INDOOR & STRUCTURAL PEST CONTROL
SC-D2 LANDSCAPE/OUTDOOR PESTICIDE USE
SC-P PLAZAS, SIDEWALKS, AND PARKING LOTS

SITE SPECIFIC DATA				
PROJECT NUMBER		0931		
PROJECT NAME		Race Residence		
PROJECT LOCATION		La Jolla, CA		
STRUCTURE ID		BMP-1		
TREATMENT REQUIRED				
TREATMENT FLOW (CFS)		0.076		
PRETREATMENT LOADING RATE (GPM/SF)		2.1 GPM/SF		
WETLAND MEDIA LOADING RATE (GPM/SF)		1.0		
PEAK BYPASS REQUIRED (CFS) - IF APPLICABLE		(CFS)		
PIPE DATA		I.E.	MATERIAL	DIAMETER
INLET PIPE 1				
INLET PIPE 2				
OUTLET PIPE				
RIM ELEVATION		PRETREATMENT	BIOFILTRATION	DISCHARGE
SURFACE LOAD		PEDESTRIAN		
NOTES:				

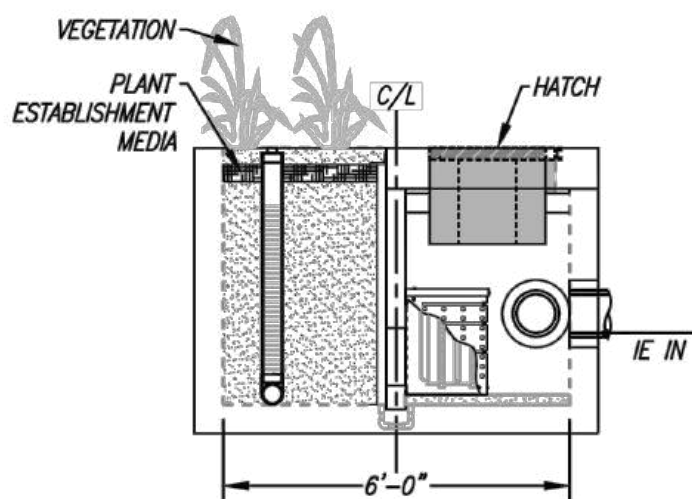
* PRELIMINARY ONLY - NOT FOR CONSTRUCTION

INSTALLATION NOTES

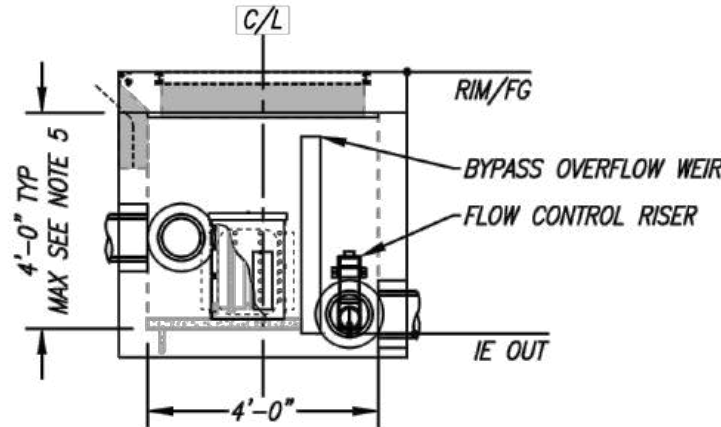
- CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
- UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING PROJECT ENGINEER'S RECOMMENDED BASE SPECIFICATIONS.
- CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATERIGHT PER MANUFACTURER'S STANDARD CONNECTION DETAIL.
- CONTRACTOR RESPONSIBLE FOR CONTACTING CONTECH FOR ACTIVATION OF UNIT. MANUFACTURER'S WARRANTY IS VOID WITHOUT PROPER ACTIVATION BY A CONTECH REPRESENTATIVE.
- VERTICAL HEIGHT VARIES BASED ON SITE SPECIFIC REQUIREMENTS.



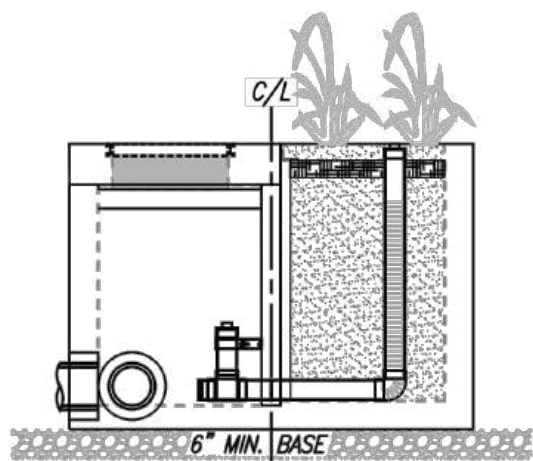
PLAN VIEW



LEFT END VIEW



ELEVATION VIEW



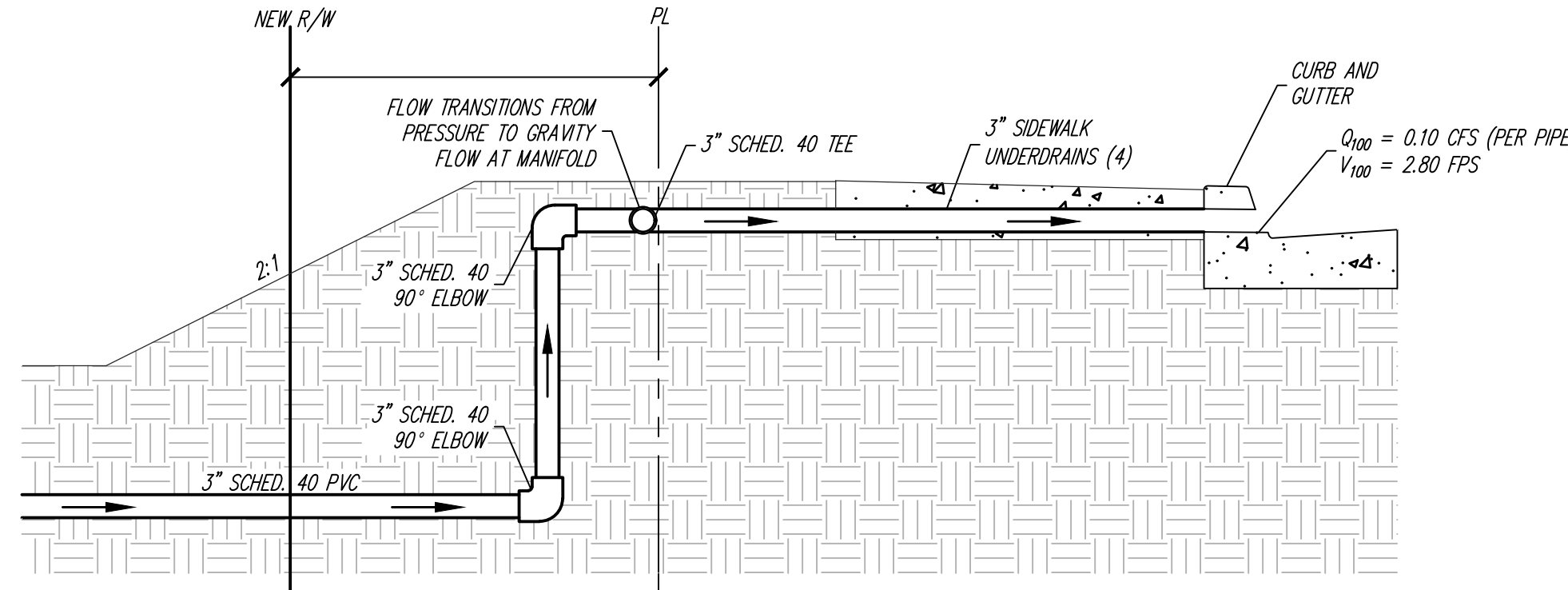
RIGHT END VIEW



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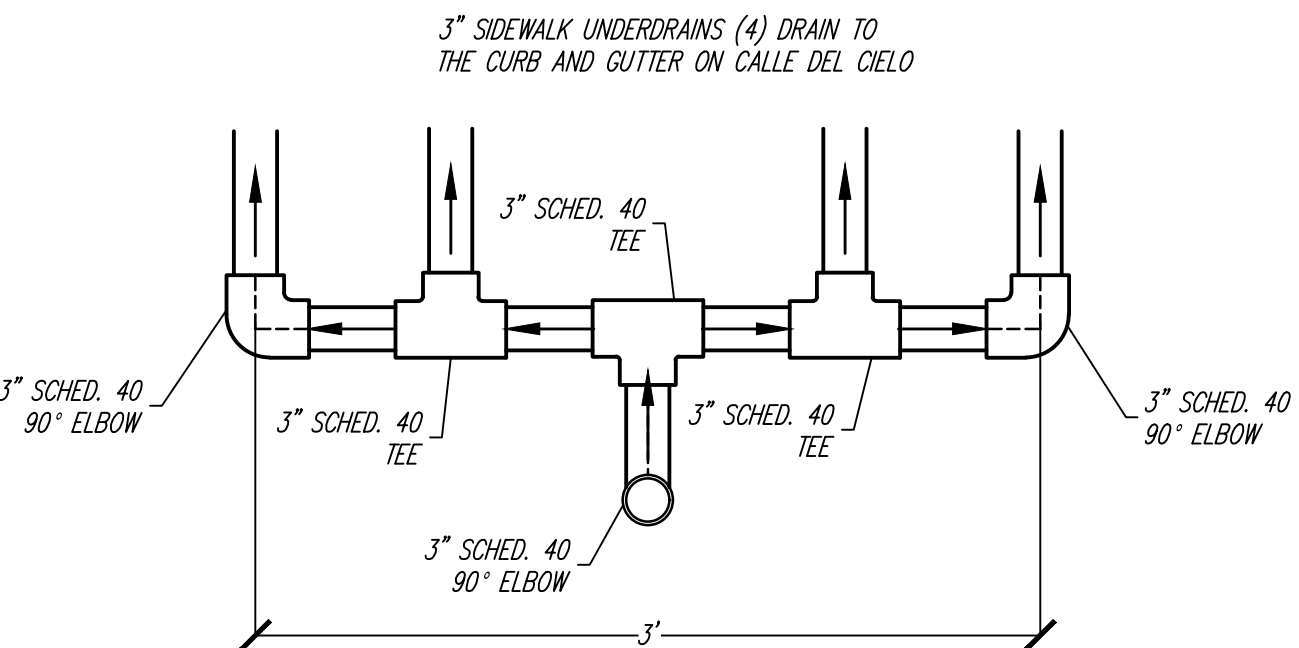


MWS-L-4-6-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL



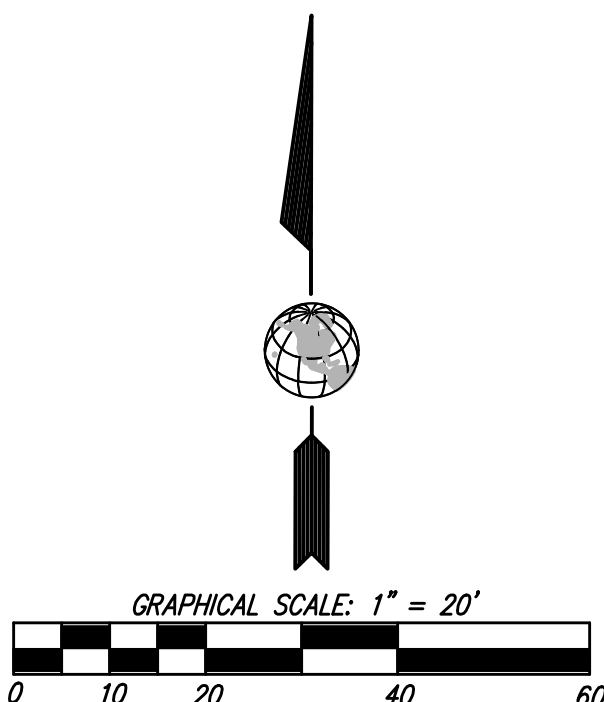
PUMP DISCHARGE DETAIL

NOT TO SCALE

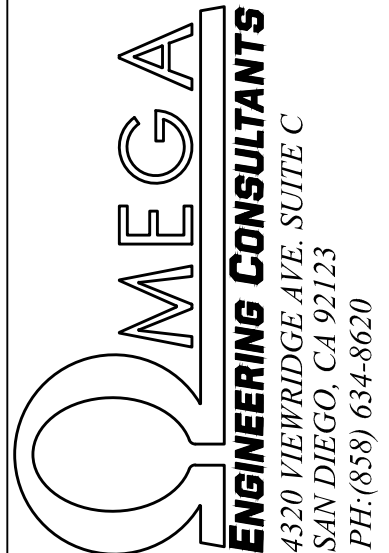


SIDEWALK UNDERDRAIN SCHEMATIC

NOT TO SCALE



1.	-



THIS DRAWING, AS INSTRUMENT OF SERVICE, IS AND SHALL REMAIN THE PROPERTY OF THE ARCHITECT AND SHALL NOT BE REPRODUCED, PUBLISHED OR USED IN ANY WAY WITHOUT THE PERMISSION OF THE ENGINEER.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AT THE SITE BEFORE PROCEEDING WITH EACH PHASE OF HIS WORK.

DRAWN BY	CHECKED BY
JC	NS
DATE	JOB NO.
9/4/26	0931

DMA PLAN
C-03

Harvest and Use Feasibility Checklist		Worksheet B.3-1 : Form I-7
1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season? ☒ Toilet and urinal flushing ☒ Landscape irrigation ☐ Other: _____		
2. If there is a demand; estimate the anticipated average wet season demand over a period of 36 hours. Guidance for planning level demand calculations for toilet/urinal flushing and landscape irrigation is provided in Section B.3.2. [Provide a summary of calculations here] Residence: 9.3 gallons per day * 8 residents * 1.5 days per 36 hours Demand = 112 Gal/36 hours Landscaping: 390 Gal/36 hours * 0.20 acres Demand = 78 Gal/36 hours Total Demand (Gal): 190 Gal/36 hours Total Demand (cf): 25 cf		
3. Calculate the DCV using worksheet B-2.1. DCV = <u>462</u> (cubic feet) [Provide a summary of calculations here] DCV = $360 * C * d * A$ = $3630 * 0.55 * 0.50 * 0.46$ = 462 cf		
3a. Is the 36-hour demand greater than or equal to the DCV? ☐ Yes ↓ / ☒ No ⇒	3b. Is the 36-hour demand greater than 0.25DCV but less than the full DCV? ☐ Yes ↓ / ☒ No ⇒	3c. Is the 36-hour demand less than 0.25DCV? ☒ Yes ↓
Harvest and use appears to be feasible. Conduct more detailed evaluation and sizing calculations to confirm that DCV can be used at an adequate rate to meet drawdown criteria.	Harvest and use may be feasible. Conduct more detailed evaluation and sizing calculations to determine feasibility. Harvest and use may only be able to be used for a portion of the site, or (optionally) the storage may need to be upsized to meet long term capture targets while draining in longer than 36 hours.	Harvest and use is considered to be infeasible.
Is harvest and use feasible based on further evaluation? ☐ Yes, refer to Appendix E to select and size harvest and use BMPs. ☒ No, select alternate BMPs.		

Design Capture Volume		Worksheet B.2-1		
1	85 th percentile 24-hr storm depth from Figure B.1-1	d=	0.50	inches
2	Area tributary to BMP (s)	A=	0.46	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.55	unitless
4	Trees Credit Volume Note: In the SWQMP list the number of trees, size of each tree, amount of soil volume installed for each tree, contributing area to each tree and the inlet opening dimension for each tree.	TCV=	0	cubic-feet
5	Rain barrels Credit Volume Note: In the SWQMP list the number of rain barrels, size of each rain barrel and the use of the captured storm water runoff.	RCV=	0	cubic-feet
6	Calculate DCV = $(3630 \times C \times d \times A) - TCV - RCV$	DCV=	462	cubic-feet

		Project Name		Race Residence	
		BMP ID		BMP-1	
Sizing Method for Volume Retention Criteria					
1	Area draining to the BMP			20191	sq. ft.
2	Adjusted runoff factor for drainage area (Refer to Appendix B.1 and B.2)			0.55	
3	85 th percentile 24 -hour rainfall depth			0.5	inches
4	Design capture volume [Line 1 x Line 2 x (Line 3/12)]			463	cu. ft.
Volume Retention Requirement					
	Measured infiltration rate in the DMA			0	in/hr.
5	Note: When mapped hydrologic soil groups are used enter 0.10 for NRCS Type D soils and for NRCS Type C soils enter 0.30 When in no infiltration condition and the actual measured infiltration rate is unknown enter 0.0 if there are geotechnical and/or groundwater hazards identified in Appendix C or				
6	Factor of safety				
7	Reliable infiltration rate, for biofiltration BMP sizing [Line 5 / Line 6]			0	in/hr.
8	Average annual volume reduction target (Figure B.5-2) When Line 7 > 0.01 in/hr. = Minimum (40, 166.9 x Line 7 +6.62) When Line 7 ≤ 0.01 in/hr. = 3.5%			3.5	%
9	Fraction of DCV to be retained (Figure B.5-3) When Line 8 > 8% = 0.0000013 x Line 8³ - 0.000057 x Line 8² + 0.0086 x Line 8 - 0.014 When Line 8 ≤ 8% = 0.023			0.023	
10	Target volume retention [Line 9 x Line 4.]			11	cu. ft.

The City of SAN DIEGO		Project Name		Race Residence	
		BMP ID		BMP-1	
Volume Retention for No Infiltration Condition				Worksheet B.5-6	
1	Area draining to the biofiltration BMP			20191	sq. ft.
2	Adjusted runoff factor for drainage area (Refer to Appendix B.1 and B.2)			0.55	
3	Effective impervious area draining to the BMP [Line 1 x Line 2]			11105	sq. ft.
4	Required area for Evapotranspiration [Line 3 x 0.03]			333	sq. ft.
5	Biofiltration BMP Footprint			24	sq. ft.
Landscape Area (must be identified on DS-3247)					
		Identification	1	2	3
6	Landscape area that meet the requirements in SD-B and SD F Fact Sheet (sq. ft.)		2369		4
7	Impervious area draining to the landscape area (sq. ft.)		1970		5
8	Impervious to Pervious Area ratio [Line 7/Line 6]		0.83	0.00	0.00
9	Effective Credit Area If (Line 8 >1.5, Line 6, Line 7/1.5]		1313	0	0
10	Sum of Landscape area [sum of Line 9 Id's 1 to 5]				
11	Provided footprint for evapotranspiration [Line 5 + Line 10]				
Volume Retention Performance Standard					
12	Is Line 11 ≥ Line 4?		Volume Retention Performance Standard is Met		
13	Fraction of the performance standard met through the BMP footprint and/or landscaping [Line 11/Line 4]		4.01		
14	Target Volume Retention [Line 10 from Worksheet B.5.2]		11		
15	Volume retention required from other site design BMPs [(1-Line 13) x Line 14]		-33.11		
Site Design BMP					
	Identification	Site Design Type		Credit	
16	1				
	2				
	3				
	4				
	5				
Sum of volume retention benefits from other site design BMPs (e.g. trees; rain barrels etc.). [sum of Line 16 Credits for Id's 1 to 5]				0	
Provide documentation of how the site design credit is calculated in the PDP SWQMP.					
17	Is Line 16 ≥ Line 15?				Volume Retention Performance Standard is Met

		Project Name	Race Residence	
Volume Retention From Amended Soils		BMP ID	BMP-1	
Worksheet B.5-7				
1	Impervious area draining to the pervious area		1970	sq. ft.
2	Pervious area (must meet the requirements in SD-B and SD-F Fact Sheets)		2369	sq. ft.
3	Dispersion Ratio [Line 1/Line 2] Note: This worksheet is not applicable when Line 3 > 50 or Line 3 < 0.25		0.83	
4	Adjusted runoff factor [(Line 1 * 0.9 + Line 2 * 0.1) / (Line 1 + Line 2)]		0.46	
5	85th percentile 24-hour rainfall depth		0.5	inches
6	Design capture volume [(Line 1 + Line 2) x Line 4 x (Line 5/12)]		83	cu. ft.
7	Amendment Depth (Choose from 3", 6", 9", 12", 15" and 18")		3	inches
8	Storage [(porosity - field capacity) + 0.5 * (field capacity - wilting point)]		0.25	in./in.
9	Pervious Storage [Line 2 * (Line 7/12) * Line 8]		148	cu. ft.
10	Fraction of DCV [Line 9 / Line 6]		1.78	
11	Measured Infiltration Rate When mapped hydrologic soil groups are used enter 0.10 for NRCS Type D soils and for NRCS Type C soils enter 0.30 When in no infiltration condition and the actual measured infiltration rate is unknown enter 0.0 if there are geotechnical and/or groundwater hazards identified in Appendix C or enter 0.05		0	in/hr.
12	Factor of Safety		2	
13	Reliable Infiltration Rate [Line 11/Line 12]		0	in/hr.
14	Dispersion Credit (Based on Figures B.5.6 to B.5.11; Line 10 and Line 13)		0.246	
15	Volume retention due to amendment [Line 1 * (Line 5/12) * Line 14]		20	cu. ft.

MWS LINEAR 2.0 HGL SIZING CALCULATIONS																																
			HGL HEIGHT																													
MWS MODEL SIZE	WETLAND PERMITTER LENGTH	LOADING RATE GPM/SF	SHALLOW MODELS																	STANDARD HEIGHT MODEL	HIGH CAPACITY MODELS											
			1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0		3.1	3.2	3.3	3.4	3.5	3.6	3.65	3.70	3.75	3.80	3.85	3.90
MWS-L-4-4	6.70	1.0	0.022	0.023	0.025	0.026	0.028	0.029	0.031	0.032	0.034	0.035	0.037	0.038	0.040	0.042	0.043	0.045	0.046	0.048	Q _{Provided} = 0.076 cfs			0.054	0.055	0.056	0.057	0.058	0.059	0.060	0.061	
MWS-L-3-6	10.06	1.0	0.032	0.035	0.037	0.039	0.042	0.044	0.046	0.048	0.051	0.053	0.055	0.058	0.060	0.062	0.065	0.067	0.069	0.072	0.074	0.076	0.078	0.081	0.083	0.084	0.085	0.088	0.089	0.090	0.091	
MWS-L-4-6	9.30	1.0	0.030	0.032	0.034	0.036	0.038	0.041	0.043	0.045	0.047	0.049	0.051	0.053	0.055	0.058	0.060	0.062	0.064	0.066	0.068	0.070	0.073	0.075	0.077	0.078	0.079	0.080	0.081	0.082	0.083	0.084
MWS-L-4-8	14.80	1.0	0.048	0.051	0.054	0.058	0.061	0.065	0.068	0.071	0.075	0.078	0.082	0.085	0.088	0.092	0.095	0.099	0.102	0.105	0.109	0.112	0.115	0.119	0.122	0.124	0.126	0.127	0.129	0.131	0.132	0.134
MWS-L-4-13	18.40	1.0	0.059	0.063	0.068	0.072	0.076	0.080	0.084	0.089	0.093	0.097	0.101	0.106	0.110	0.114	0.118	0.122	0.127	0.131	0.135	0.139	0.144	0.148	0.152	0.154	0.156	0.158	0.160	0.163	0.165	0.167
MWS-L-4-15	22.40	1.0	0.072	0.077	0.082	0.087	0.093	0.098	0.103	0.108	0.113	0.118	0.123	0.129	0.134	0.139	0.144	0.149	0.154	0.159	0.165	0.170	0.175	0.180	0.185	0.188	0.190	0.193	0.195	0.198	0.200	0.203
MWS-L-4-17	26.40	1.0	0.085	0.091	0.097	0.103	0.109	0.115	0.121	0.127	0.133	0.139	0.145	0.151	0.158	0.164	0.170	0.176	0.182	0.188	0.194	0.200	0.206	0.212	0.218	0.221	0.224	0.227	0.230	0.233	0.236	0.239
MWS-L-4-19	30.40	1.0	0.098	0.105	0.112	0.119	0.126	0.133	0.140	0.147	0.153	0.160	0.167	0.174	0.181	0.188	0.195	0.202	0.209	0.216	0.223	0.230	0.237	0.244	0.251	0.255	0.258	0.262	0.265	0.269	0.272	0.276
MWS-L-4-21	34.40	1.0	0.111	0.118	0.126	0.134	0.142	0.150	0.158	0.166	0.174	0.182	0.189	0.197	0.205	0.213	0.221	0.229	0.237	0.245	0.253	0.261	0.268	0.276	0.284	0.288	0.292	0.296	0.300	0.304	0.308	0.312
MWS-L-6-8	18.80	1.0	0.060	0.065	0.069	0.073	0.078	0.082	0.086	0.091	0.095	0.099	0.104	0.108	0.112	0.116	0.121	0.125	0.129	0.134	0.138	0.142	0.147	0.151	0.155	0.157	0.160	0.162	0.164	0.166	0.168	0.170
MWS-L-8-8	29.60	1.0	0.095	0.102	0.109	0.115	0.122	0.129	0.136	0.143	0.149	0.156	0.163	0.170	0.177	0.183	0.190	0.197	0.204	0.211	0.217	0.224	0.231	0.238	0.245	0.248	0.251	0.255	0.258	0.262	0.265	0.268
MWS-L-8-12	44.40	1.0	0.143	0.153	0.163	0.173	0.183	0.194	0.204	0.214	0.224	0.234	0.245	0.255	0.265	0.275	0.285	0.296	0.306	0.316	0.326	0.336	0.346	0.357	0.367	0.372	0.377	0.382	0.387	0.392	0.397	0.402
MWS-L-8-16	59.20	1.0	0.190	0.204	0.217	0.231	0.245	0.258	0.272	0.285	0.299	0.312	0.326	0.340	0.353	0.367	0.380	0.394	0.408	0.421	0.435	0.448	0.462	0.476	0.489	0.496	0.503	0.509	0.516	0.523	0.530	0.537
MWS-L-8-20	74.00	1.0	0.238	0.255	0.272	0.289	0.306	0.323	0.340	0.357	0.374	0.391	0.408	0.425	0.442	0.459	0.476	0.493	0.509	0.526	0.543	0.560	0.577	0.594	0.611	0.620	0.628	0.637	0.645	0.654	0.662	0.671
MWS-L-10-20 or MWS-L-8-24	88.80	1.0	0.285	0.306	0.326	0.346	0.367	0.387	0.408	0.428	0.448	0.469	0.489	0.509	0.530	0.550	0.571	0.591	0.611	0.632	0.652	0.673	0.693	0.713	0.734	0.744	0.754	0.764	0.774	0.785	0.795	0.805
4'x4 media cage	14.80	1.0	0.048	0.051	0.054	0.058	0.061	0.065	0.068	0.071	0.075	0.078	0.082	0.085	0.088	0.092	0.095	0.099	0.102	0.105	0.109	0.112	0.115	0.119	0.122	0.124						

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions ¹		Worksheet C.4-1: Form I-8A ²
Part 1 - Full Infiltration Feasibility Screening Criteria		
DMA(s) Being Analyzed:		Project Phase:
DMA-1		Preliminary
Criteria 1: Infiltration Rate Screening		
1A	Is the mapped hydrologic soil group according to the NRCS Web Soil Survey or UC Davis Soil Web Mapper Type A or B and corroborated by available site soil data³? ☐ Yes; the DMA may feasibly support full infiltration. Answer "Yes" to Criteria 1 Result or continue to Step 1B if the applicant elects to perform infiltration testing. ☐ No; the mapped soil types are A or B but is not corroborated by available site soil data (continue to Step 1B). ☐ No; the mapped soil types are C, D, or "urban/unclassified" and is corroborated by available site soil data. Answer "No" to Criteria 1 Result. ☐ No; the mapped soil types are C, D, or "urban/unclassified" but is not corroborated by available site soil data (continue to Step 1B).	
1B	Is the reliable infiltration rate calculated using planning phase methods from Table D.3-1? ☐ Yes; Continue to Step 1C. ☐ No; Skip to Step 1D.	
1C	Is the reliable infiltration rate calculated using planning phase methods from Table D.3-1 greater than 0.5 inches per hour? ☐ Yes; the DMA may feasibly support full infiltration. Answer "Yes" to Criteria 1 Result. ☐ No; full infiltration is not required. Answer "No" to Criteria 1 Result.	
1D	Infiltration Testing Method. Is the selected infiltration testing method suitable during the design phase (see Appendix D.3)? Note: Alternative testing standards may be allowed with appropriate rationales and documentation. ☐ Yes; continue to Step 1E. ☐ No; select an appropriate infiltration testing method.	

¹ Note that it is not required to investigate each and every criterion in the worksheet, a single "no" answer in Part 1, Part 2, Part 3, or Part 4 determines a full, partial, or no infiltration condition.

² This form must be completed each time there is a change to the site layout that would affect the infiltration feasibility condition. Previously completed forms shall be retained to document the evolution of the site storm water design.

³ Available data includes site-specific sampling or observation of soil types or texture classes, such as obtained from borings or test pits necessary to support other design elements.

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ²
1E	Number of Percolation/Infiltration Tests. Does the infiltration testing method performed satisfy the minimum number of tests specified in Table D.3-2? ☐ Yes; continue to Step 1F. ☐ No; conduct appropriate number of tests.	
1F	Factor of Safety. Is the suitable Factor of Safety selected for full infiltration design? See guidance in D.5; Tables D.5-1 and D.5-2; and Worksheet D.5-1 (Form I-9). ☐ Yes; continue to Step 1G. ☐ No; select appropriate factor of safety.	
1G	Full Infiltration Feasibility. Is the average measured infiltration rate divided by the Factor of Safety greater than 0.5 inches per hour? ☐ Yes; answer "Yes" to Criteria 1 Result. ☐ No; answer "No" to Criteria 1 Result.	
Criteria 1 Result	Is the estimated reliable infiltration rate greater than 0.5 inches per hour within the DMA where runoff can reasonably be routed to a BMP? ☐ Yes; the DMA may feasibly support full infiltration. Continue to Criteria 2. ☐ No; full infiltration is not required. Skip to Part 1 Result.	
Summarize infiltration testing methods, testing locations, replicates, and results and summarize estimates of reliable infiltration rates according to procedures outlined in D.5. Documentation should be included in project geotechnical report. Infiltration testing at the site was performed at two locations within the project site by excavating a 5 ft deep boring and converting to infiltration test boreholes. The infiltration rates are 0.04 and 0.15 in/hr. This results in an average infiltration rate of 0.09 in/hr. With a safety factor of 2, the infiltration rate results to 0.045 in/hr.		

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ²	
Criteria 2: Geologic/Geotechnical Screening			
2A	If all questions in Step 2A are answered “Yes,” continue to Step 2B. For any “No” answer in Step 2A answer “No” to Criteria 2, and submit an “Infiltration Feasibility Condition Letter” that meets the requirements in Appendix C.1.1. The geologic/geotechnical analyses listed in Appendix C.2.1 do not apply to the DMA because one of the following setbacks cannot be avoided and therefore result in the DMA being in a no infiltration condition. The setbacks must be the closest horizontal radial distance from the surface edge (at the overflow elevation) of the BMP.		
2A-1	Can the proposed full infiltration BMP(s) avoid areas with existing fill materials greater than 5 feet thick below the infiltrating surface?	☐ Yes	☒ No
2A-2	Can the proposed full infiltration BMP(s) avoid placement within 10 feet of existing underground utilities, structures, or retaining walls?	☐ Yes	☒ No
2A-3	Can the proposed full infiltration BMP(s) avoid placement within 50 feet of a natural slope (>25%) or within a distance of 1.5H from fill slopes where H is the height of the fill slope?	☐ Yes	☒ No
2B	When full infiltration is determined to be feasible, a geotechnical investigation report must be prepared that considers the relevant factors identified in Appendix C.2.1. If all questions in Step 2B are answered “Yes,” then answer “Yes” to Criteria 2 Result. If there are “No” answers continue to Step 2C.		
2B-1	Hydroconsolidation. Analyze hydroconsolidation potential per approved ASTM standard due to a proposed full infiltration BMP. Can full infiltration BMPs be proposed within the DMA without increasing hydroconsolidation risks?	☐ Yes	☒ No
2B-2	Expansive Soils. Identify expansive soils (soils with an expansion index greater than 20) and the extent of such soils due to proposed full infiltration BMPs. Can full infiltration BMPs be proposed within the DMA without increasing expansive soil risks?	☒ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ²	
2B-3	Liquefaction. If applicable, identify mapped liquefaction areas. Evaluate liquefaction hazards in accordance with Section 6.4.2 of the City of San Diego's Guidelines for Geotechnical Reports (2011 or most recent edition). Liquefaction hazard assessment shall take into account any increase in groundwater elevation or groundwater mounding that could occur as a result of proposed infiltration or percolation facilities. Can full infiltration BMPs be proposed within the DMA without increasing liquefaction risks?	☒ Yes	☐ No
2B-4	Slope Stability. If applicable, perform a slope stability analysis in accordance with the ASCE and Southern California Earthquake Center (2002) Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Landslide Hazards in California to determine minimum slope setbacks for full infiltration BMPs. See the City of San Diego's Guidelines for Geotechnical Reports (2011) to determine which type of slope stability analysis is required. Can full infiltration BMPs be proposed within the DMA without increasing slope stability risks?	☒ Yes	☐ No
2B-5	Other Geotechnical Hazards. Identify site-specific geotechnical hazards not already mentioned (refer to Appendix C.2.1). Can full infiltration BMPs be proposed within the DMA without increasing risk of geologic or geotechnical hazards not already mentioned?	☒ Yes	☐ No
2B-6	Setbacks. Establish setbacks from underground utilities, structures, and/or retaining walls. Reference applicable ASTM or other recognized standard in the geotechnical report. Can full infiltration BMPs be proposed within the DMA using established setbacks from underground utilities, structures, and/or retaining walls?	☒ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ²	
2C	Mitigation Measures. Propose mitigation measures for each geologic/geotechnical hazard identified in Step 2B. Provide a discussion of geologic/geotechnical hazards that would prevent full infiltration BMPs that cannot be reasonably mitigated in the geotechnical report. See Appendix C.2.1.8 for a list of typically reasonable and typically unreasonable mitigation measures. Can mitigation measures be proposed to allow for full infiltration BMPs? If the question in Step 2 is answered “Yes,” then answer “Yes” to Criteria 2 Result. If the question in Step 2C is answered “No,” then answer “No” to Criteria 2 Result.	☐ Yes	☒ No
Criteria 2 Result	Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geologic or geotechnical hazards that cannot be reasonably mitigated to an acceptable level?	☐ Yes	☒ No
Summarize findings and basis; provide references to related reports or exhibits. The site is underlain by undocumented artificial fill material.			
Part 1 Result – Full Infiltration Geotechnical Screening ⁴		Result	
If answers to both Criteria 1 and Criteria 2 are “Yes”, a full infiltration design is potentially feasible based on Geotechnical conditions only. If either answer to Criteria 1 or Criteria 2 is “No”, a full infiltration design is not required.		☐ Full infiltration Condition ☒ Complete Part 2	

⁴ To be completed using gathered site information and best professional judgement considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate findings.

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ²
Part 2 – Partial vs. No Infiltration Feasibility Screening Criteria		
DMA(s) Being Analyzed:		Project Phase:
DMA-1		Preliminary
Criteria 3 : Infiltration Rate Screening		
3A	NRCS Type C, D, or “urban/unclassified”: Is the mapped hydrologic soil group according to the NRCS Web Soil Survey or UC Davis Soil Web Mapper is Type C, D, or “urban/unclassified” and corroborated by available site soil data? ☐ Yes; the site is mapped as C soils and a reliable infiltration rate of 0.15 in/hr. is used to size partial infiltration BMPS. Answer “Yes” to Criteria 3 Result. ☐ Yes; the site is mapped as D soils or “urban/unclassified” and a reliable infiltration rate of 0.05 in/hr. is used to size partial infiltration BMPS. Answer “Yes” to Criteria 3 Result. ☒ No; infiltration testing is conducted (refer to Table D.3-1), continue to Step 3B.	
3B	Infiltration Testing Result: Is the reliable infiltration rate (i.e. average measured infiltration rate/2) greater than 0.05 in/hr. and less than or equal to 0.5 in/hr? ☐ Yes; the site may support partial infiltration. Answer “Yes” to Criteria 3 Result. ☒ No; the reliable infiltration rate (i.e. average measured rate/2) is less than 0.05 in/hr., partial infiltration is not required. Answer “No” to Criteria 3 Result.	
Criteria 3 Result	Is the estimated reliable infiltration rate (i.e., average measured infiltration rate/2) greater than or equal to 0.05 inches/hour and less than or equal to 0.5 inches/hour at any location within each DMA where runoff can reasonably be routed to a BMP? ☐ Yes; Continue to Criteria 4. ☒ No: Skip to Part 2 Result.	
Summarize infiltration testing and/or mapping results (i.e. soil maps and series description used for infiltration rate). Infiltration testing at the site was performed at two locations within the project site by excavating a 5 ft deep boring and converting to infiltration test boreholes. The infiltration rates are 0.04 and 0.15 in/hr. This results in an average infiltration rate of 0.09 in/hr. With a safety of factor of 2, the infiltration rate results to 0.045 in/hr.		

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ²	
Criteria 4: Geologic/Geotechnical Screening			
4A	If all questions in Step 4A are answered “Yes,” continue to Step 2B. For any “No” answer in Step 4A answer “No” to Criteria 4 Result, and submit an “Infiltration Feasibility Condition Letter” that meets the requirements in Appendix C.1.1. The geologic/geotechnical analyses listed in Appendix C.2.1 do not apply to the DMA because one of the following setbacks cannot be avoided and therefore result in the DMA being in a no infiltration condition. The setbacks must be the closest horizontal radial distance from the surface edge (at the overflow elevation) of the BMP.		
4A-1	Can the proposed partial infiltration BMP(s) avoid areas with existing fill materials greater than 5 feet thick?	☐ Yes	☒ No
4A-2	Can the proposed partial infiltration BMP(s) avoid placement within 10 feet of existing underground utilities, structures, or retaining walls?	☒ Yes	☐ No
4A-3	Can the proposed partial infiltration BMP(s) avoid placement within 50 feet of a natural slope (>25%) or within a distance of 1.5H from fill slopes where H is the height of the fill slope?	☒ Yes	☐ No
4B	When full infiltration is determined to be feasible, a geotechnical investigation report must be prepared that considers the relevant factors identified in Appendix C.2.1. If all questions in Step 4B are answered “Yes,” then answer “Yes” to Criteria 4 Result. If there are any “No” answers continue to Step 4C.		
4B-1	Hydroconsolidation. Analyze hydroconsolidation potential per approved ASTM standard due to a proposed full infiltration BMP. Can partial infiltration BMPs be proposed within the DMA without increasing hydroconsolidation risks?	☒ Yes	☐ No
4B-2	Expansive Soils. Identify expansive soils (soils with an expansion index greater than 20) and the extent of such soils due to proposed full infiltration BMPs. Can partial infiltration BMPs be proposed within the DMA without increasing expansive soil risks?	☒ Yes	☐ No
4B-3	Liquefaction. If applicable, identify mapped liquefaction areas. Evaluate liquefaction hazards in accordance with Section 6.4.2 of the City of San Diego's Guidelines for Geotechnical Reports (2011). Liquefaction hazard assessment shall take into account any increase in groundwater elevation or groundwater mounding that could occur as a result of proposed infiltration or percolation facilities. Can partial infiltration BMPs be proposed within the DMA without increasing liquefaction risks?	☒ Yes	☐ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ²	
4B-4	Slope Stability. If applicable, perform a slope stability analysis in accordance with the ASCE and Southern California Earthquake Center (2002) Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Landslide Hazards in California to determine minimum slope setbacks for full infiltration BMPs. See the City of San Diego's Guidelines for Geotechnical Reports (2011) to determine which type of slope stability analysis is required. Can partial infiltration BMPs be proposed within the DMA without increasing slope stability risks?	☒ Yes	☐ No
4B-5	Other Geotechnical Hazards. Identify site-specific geotechnical hazards not already mentioned (refer to Appendix C.2.1). Can partial infiltration BMPs be proposed within the DMA without increasing risk of geologic or geotechnical hazards not already mentioned?	☒ Yes	☐ No
4B-6	Setbacks. Establish setbacks from underground utilities, structures, and/or retaining walls. Reference applicable ASTM or other recognized standard in the geotechnical report. Can partial infiltration BMPs be proposed within the DMA using recommended setbacks from underground utilities, structures, and/or retaining walls?	☒ Yes	☐ No
4C	Mitigation Measures. Propose mitigation measures for each geologic/geotechnical hazard identified in Step 4B. Provide a discussion on geologic/geotechnical hazards that would prevent partial infiltration BMPs that cannot be reasonably mitigated in the geotechnical report. See Appendix C.2.1.8 for a list of typically reasonable and typically unreasonable mitigation measures. Can mitigation measures be proposed to allow for partial infiltration BMPs? If the question in Step 4C is answered "Yes," then answer "Yes" to Criteria 4 Result. If the question in Step 4C is answered "No," then answer "No" to Criteria 4 Result.	☐ Yes	☒ No
Criteria 4 Result	Can infiltration of greater than or equal to 0.05 inches/hour and less than or equal to 0.5 inches/hour be allowed without increasing the risk of geologic or geotechnical hazards that cannot be reasonably mitigated to an acceptable level?	☐ Yes	☒ No

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions	Worksheet C.4-1: Form I-8A ²
Summarize findings and basis; provide references to related reports or exhibits. The site is underlain by undocumented artificial fill material. In addition, the infiltration rate is lower than the minimum allowed for full and partial infiltration.	
Part 2 – Partial Infiltration Geotechnical Screening Result ⁵	Result
If answers to both Criteria 3 and Criteria 4 are “Yes”, a partial infiltration design is potentially feasible based on geotechnical conditions only. If answers to either Criteria 3 or Criteria 4 is “No”, then infiltration of any volume is considered to be infeasible within the site.	☐ Partial Infiltration Condition ☒ No Infiltration Condition

⁵ To be completed using gathered site information and best professional judgement considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate findings.

Compact (High Rate) Biofiltration BMP Checklist			Form I-10
Structural BMP ID No.	BMP-1	Tributary DMA(s)	DMA-1
Manufacturer and Model No.	Contech MWS-L-4-6-V		
Compact (high rate) biofiltration BMPs have a media filtration rate greater than 5 in/hr and a media surface area smaller than 3% of contributing area multiplied by the adjusted runoff factor. Compact biofiltration BMPs are typically proprietary BMPs that may qualify as biofiltration. Required documentation to support answers to questions in the steps below is listed in the "Required Documentation" column. This completed form and all required documentation must be included in the PDP SWQMP. <u>A separate copy of Form I-10 must be completed for each compact biofiltration BMP.</u> Supplemental site design features or retention BMPs are required in addition to the compact biofiltration BMP to meet the volume retention performance standard per Table B.5-1 in Appendix B.5. The applicable worksheets listed in the "Required Documentation" column in Step 1 are used to demonstrate how the proposed project will meet this standard. Part 1 of the Storm Water Standards may be referenced when completing this form; specific references are included in the steps and questions below as applicable. The criteria referenced in each step below are taken from Appendix F of Part 1 of the Storm Water Standards.			
Step 1: Infiltration and Retention Feasibility (Appendix F Criteria 1 and 3)			
Step	Question	Answer	Required Documentation
1	What is the infiltration condition of the DMA?	☒ No Infiltration Go to Step 2.	- Infiltration Feasibility Condition Letter <u>OR</u> Worksheet C.4-1: Form I-8A <u>AND</u> Worksheet C.4-2: Form I-8B - Worksheets B.5-6 <u>AND/OR</u> B.5-7. If Worksheet B.5-6 is used, and Line 12 is "No", then also include Worksheet B.5-2. See Table B.5-1 for additional guidance.
	Refer to Section 5.4.2 and Appendix C of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance. See Appendix B and Table B.5-1 for guidance on meeting the retention standard.	☐ Partial Infiltration Go to Step 2.	- Worksheet C.4-1: Form I-8A <u>AND</u> Worksheet C.4-2: Form I-8B - Worksheet B.5-2 - Worksheet B.5-7 <u>AND/OR</u> calculations for credit from other site design BMPs (rain barrels, trees, etc.). See Table B.5-1 for additional guidance.
		☐ Full Infiltration Stop. Compact biofiltration not allowed.	N/A

Compact (High Rate) Biofiltration BMP Checklist			Form I-10
Structural BMP ID No.	BMP-1	Tributary DMA(s)	DMA-1
Step 2: Treatment Performance (Appendix F Criterion 4)			
Step	Question	Answer	Required Documentation
2	Does the compact biofiltration BMP have Washington Department of Ecology Technology Acceptance Protocol-Ecology (TAPE) certification for basic, phosphorus, and enhanced (metals) treatment <u>AND</u> include filtration in the treatment mechanism? BMPs in which water passes through an engineered soil media layer for treatment include filtration as a treatment mechanism.	☒ Yes Go to Step 3.	- TAPE General Use Level Designation report showing the BMP is certified for basic, phosphorus, and enhanced (metals) treatment. Reports can be downloaded from Washington Department of Ecology TAPE website. - Material that demonstrates the BMP includes filtration as a treatment mechanism
		☐ No Stop. Contact City to request BMP evaluation.	Package of BMP information, including performance documentation, that demonstrates the proposed BMP is equally effective to a BMP with TAPE certification. The package must provide all information described in item 3 in Appendix F.1. Based on review of the submitted package, the City will then inform the applicant in writing whether the BMP is approved for use. This evaluation involves specialized review and may take a month or more to complete.
Step 3: BMP Sizing and Hydraulic Loading (Appendix F Criteria 2 and 6)			
Step	Question	Answer	Required Documentation
3	Is the compact biofiltration BMP sized to meet the performance standard from the MS4 Permit? Refer to Appendix B.5 and Appendix F.2 of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance.	☒ Yes Go to Step 4.	- Worksheet I-10.A (sizing calculations) - Information from manufacturer to show BMP proposed use is consistent with manufacturer guidelines and conditions of TAPE certification (e.g., a BMP certified at a loading rate of 1 gpm/sq. ft. cannot be designed using a loading rate of 1.5 gpm/sq. ft.)
		☐ No Stop. Compact biofiltration not allowed.	N/A

Compact (High Rate) Biofiltration BMP Checklist			Form I-10
Structural BMP ID No.	BMP-1	Tributary DMA(s)	DMA-1
Step 4: Biological Activity (Appendix F Criterion 5)			
Step	Question	Answer	Required Documentation
4	Have plants in the compact biofiltration BMP been selected to meet all of the following criteria? 1. Tolerant of project climate, design ponding depths, and the treatment media composition. 2. Minimize irrigation requirements. 3. Plant location and growth will not impede expected long-term media filtration rates and will enhance long-term infiltration rates to the extent possible. Refer to Appendices E.26 and F of the BMP Design Manual (Part 1 of Storm Water Standards) for guidance.	☒ Yes Go to Step 5.	Documentation justifying plant selection (typically provided by compact biofiltration BMP manufacturer)
		☐ No Stop. Compact biofiltration not allowed.	N/A
Step 5: BMP Maintenance (Appendix F Criterion 7)			
Step	Question	Answer	Required Documentation
5	Is the compact biofiltration BMP maintenance plan consistent with manufacturer guidelines and conditions of the BMP's TAPE certification or other approved equivalent guidance on BMP use (maintenance activities, frequencies, etc.)?	☒ Yes Complete. Attach completed Form I-10 and supporting documents to PDP SWQMP.	<u>Private projects</u>: maintenance agreement (Form DS-3247) that includes a maintenance plan demonstrating that the BMP will be maintained in accordance with manufacturer guidelines and the conditions of the device's TAPE certification AND Plan sheets or BMP exhibit showing BMP location <u>CIPs and private projects for which the City has agreed to maintain the BMP</u>: maintenance plan demonstrating that the BMP will be maintained in accordance with manufacturer guidelines and the conditions of the device's TAPE certification
		☐ No Stop. Compact biofiltration not allowed.	N/A

Flow-Based Sizing for Compact Biofiltration <i>Complete one separate worksheet for each compact biofiltration BMP</i>			Worksheet I-10.A		
Structural BMP ID No.		BMP-1	Tributary DMA(s)	DMA-1	
1	Area draining to the BMP		20,191	square ft.	
2	Adjusted runoff factor for drainage area (Refer to Appendix B.1 and B.2). Attach supporting calculations.		0.55	(unitless)	
3	Design rainfall intensity		0.20	in/hr	
4	Design flow rate for biofiltration $[1.5 \times (\text{Line 1} / 43,560) \times \text{Line 2} \times \text{Line 3}]^1$		0.076	cfs	
5	Proprietary biofiltration flow rate treatment capacity (provided by manufacturer; attach supporting documentation)		0.076	cfs	
6	Outlet outflow rate, if the biofiltration unit is outlet controlled (e.g., there is orifice cap that controls the outflow flow rate). Enter N/A if not outlet controlled.		N/A	cfs	
7	Treatment flow rate: enter the flow rate from Line 5 or Line 6, whichever is smaller. If Line 6 is N/A, enter the value on Line 5.		0.076	cfs	
8	Is Line 7 $\geq$ Line 4? If Yes, then sizing requirements are met. If No, then - Revise the design and corresponding inputs to this worksheet until Line 7 $\geq$ Line 4 <u>OR</u> - Complete continuous simulation modeling to show 80% of average annual runoff is treated as described in Appendix F.2, following continuous simulation guidance in Appendix G, and attach results <u>OR</u> - Propose a different treatment method instead of compact biofiltration.		☒ Yes Sizing requirements met. ☐ No, but can show meet alternative standard via modeling (see item 2 in the box to the left) Sizing requirements met. ☐ No Stop. Compact biofiltration not allowed.		

1. If using a storage unit upstream of compact biofiltration, use the flow rate from Line 14 of Worksheet B.5-5 instead. Attach a copy of Worksheet B.5-5 with the following lines completed: 1-4, 9-14. The other lines on Worksheet B.5-5 are generally not applicable for compact biofiltration.



March 2025

**GENERAL USE LEVEL DESIGNATION FOR BASIC (TSS)
METALS AND PHOSPHORUS TREATMENT**

For

**Contech Engineered Solutions, LLC (Contech) Modular Wetlands
Linear**

Ecology's Decision

Based on Modular Wetland Systems, Inc, application submissions, including the Technical Evaluation Report, dated April 1, 2014, Ecology hereby issues the following use level designation:

1. General Use Level Designation (GULD) for the Modular Wetlands Linear Stormwater Treatment System for Basic, Phosphorus, and Metals treatment
 - Sized at a hydraulic loading rate of:
 - 1 gallon per minute (gpm) per square foot (sq ft) of Wetland Cell Surface Area
 - Prefilter box (approved at either 22 inches or 33 inches tall)
 - 3.0 gpm/sq ft of prefilter box surface area for moderate pollutant loading rates (low to medium density residential basins).
 - 2.1 gpm/sq ft of prefilter box surface area for high pollutant loading rates (commercial and industrial basins).
2. Maintenance data collected during the initial TAPE GULD testing and the post GULD maintenance assessment demonstrated the system as able to treat the following percentage of a water year before needing maintenance:

	Site Location	Land Use	Average TSS (mg/L)	D ₅₀ PSD (µm)	Maintenance Cycle ¹ (% water year)
GULD Testing	Portland, OR	Commercial	87	<62.5 ²	21
Maintenance ³ Assessment					

¹ Ecology recommends considering maintenance cycle information when sizing the system. Sizing may need to be

increased to meet the project, permit, or jurisdiction maintenance cycle.

² D₅₀ PSD was not reported. PSD samples were analyzed by two different labs using two different size categories. On average 67.8% of the particles were less than 62.5 µm and 59.4% of the particles were less than 50 µm. A D₅₀ of less than 62.5 µm (meaning greater than 50% of particles are less than 62.5 µm) is considered representative of Pacific Northwest stormwater.

³ Maintenance assessment data are collected after issuing of the GULD. Maintenance assessment must be completed by February 28, 2028.

3. Ecology approves the Modular Wetlands Linear Stormwater Treatment System units for Basic, Phosphorus, and Metals treatment at the hydraulic loading rate listed above. Designers shall calculate the water quality design flow rates using the following procedures:
 - Western Washington: For treatment installed upstream of detention or retention, the water quality design flow rate is the peak 15-minute water quality treatment design flow rate as calculated using the latest version of the Western Washington Hydrology Model or other Ecology- approved continuous runoff model and as described in Chapter III-2.6 of the 2024 Stormwater Management Manual for Western Washington (SWMMWW).
 - Eastern Washington: For treatment installed upstream of detention or retention, the water quality design flow rate is the peak 15-minute water quality treatment design flow rate as calculated using one of the three methods described in Chapter 6.5.1 of the 2024 Stormwater Management Manual for Eastern Washington (SWMMEW) or local manual.
 - Entire State: For treatment installed downstream of detention, the water quality treatment design flow rate is the full 2-year release rate of the detention facility.
4. These use level designations have no expiration date but may be amended or revoked by Ecology, and are subject to the conditions specified below.

Ecology's Conditions of Use

Applicants shall comply with the following conditions:

- 1) Design, assemble, install, operate, and maintain the Modular Wetlands Linear Stormwater Treatment System units, in accordance with Contech's applicable manuals and documents and the Ecology Decision.
- 2) Each site plan must undergo Contech review and approval before site installation. This ensures that site grading and slope are appropriate for use of a Modular Wetlands Linear Stormwater Treatment System unit.
- 3) Modular Wetlands Linear Stormwater Treatment System media shall conform to the specifications submitted to and approved by Ecology.
- 4) The applicant tested the Modular Wetlands Linear Stormwater Treatment System with an external bypass weir. This weir limited the depth of water flowing through the media, and therefore the active treatment area, to below the root zone of the plants. This GULD applies to Modular Wetlands Linear Stormwater Treatment Systems whether plants are included in

the final product or not.

- 5) Maintenance: The required maintenance interval for stormwater treatment devices is often dependent upon the degree of pollutant loading from a particular drainage basin. Therefore, Ecology does not endorse or recommend a “one size fits all” maintenance cycle for a particular model/size of stormwater treatment technology.
- Typically, Contech designs Modular Wetland systems for a target prefilter media life of 6 to 12 months.
 - Indications of the need for maintenance include effluent flow decreasing to below the design flow rate or decrease in treatment below required levels.
 - Owners/operators must inspect Modular Wetland systems for a minimum of twelve months from the start of post-construction operation to determine site-specific maintenance schedules and requirements. You must conduct inspections monthly during the wet season, and every other month during the dry season (According to the SWMMWW, the wet season in western Washington is October 1 to April 30. According to the SWMMEW, the wet season in eastern Washington is October 1 to June 30). After the first year of operation, owners/operators must conduct inspections based on the findings during the first year of inspections.
 - Conduct inspections by qualified personnel, follow manufacturer’s guidelines, and use methods capable of determining either a decrease in treated effluent flowrate and/or a decrease in pollutant removal ability.
 - When inspections are performed, the following findings typically serve as maintenance triggers:
 - Standing water remains in the vault between rain events, or
 - Bypass occurs during storms smaller than the design storm.
 - If excessive floatables (trash and debris) are present (but no standing water or excessive sedimentation), perform a minor maintenance consisting of gross solids removal, not prefilter media replacement.
 - Additional data collection will be used to create a correlation between pretreatment chamber sediment depth and pre-filter clogging (see *Issues to be Addressed by the Company* section below)
- 6) Discharges from the Modular Wetlands Linear Stormwater Treatment System units shall not cause or contribute to water quality standards violations in receiving waters.

Applicant:

Contech Engineered Solutions, LLC

Applicant’s Address:

11815 NE Glenn Widing Dr.
Portland, OR 97220

Application Documents:

Original Application for Conditional Use Level Designation, Modular Wetland System, Linear Stormwater Filtration System Modular Wetland Systems, Inc., January 2011

Quality Assurance Project Plan: Modular Wetland System – Linear Treatment System Performance Monitoring Project, draft, January 2011

Revised Application for Conditional Use Level Designation, Modular Wetland System, Linear Stormwater Filtration System Modular Wetland Systems, Inc., May 2011

Memorandum: Modular Wetland System-Linear GULD Application Supplementary Data, April 2014

Technical Evaluation Report: Modular Wetland System Stormwater Treatment System Performance Monitoring, April 2014

Applicant's Use Level Request:

- General Use Level Designation as a Basic, Metals, and Phosphorus treatment device in accordance with Ecology's Guidance for Evaluating Emerging Stormwater Treatment Technologies Technology Assessment Protocol – Ecology (TAPE) January 2011 Revision.

Applicant's Performance Claims:

- The Modular Wetlands Linear is capable of removing a minimum of 80-percent of TSS from stormwater with influent concentrations between 100 and 200 mg/L.
- The Modular Wetlands Linear is capable of removing a minimum of 50-percent of total phosphorus from stormwater with influent concentrations between 0.1 and 0.5 mg/L.
- The Modular Wetlands Linear is capable of removing a minimum 30-percent of dissolved copper from stormwater with influent concentrations between 0.005 and 0.020 mg/L.
- The Modular Wetlands Linear is capable of removing a minimum 60-percent of dissolved zinc from stormwater with influent concentrations between 0.02 and 0.30 mg/L.

Ecology's Recommendations:

- Contech has shown Ecology, through laboratory and field-testing, that the Modular Wetlands Linear Stormwater Treatment System filter system is capable of attaining Ecology's Basic, Phosphorus, and Metals treatment goals.

Findings of Fact:

Laboratory Testing

The Modular Wetlands Linear Stormwater Treatment System has the:

- Capability to remove 99 percent of total suspended solids (using Sil-Co-Sil 106) in a quarter-scale model with influent concentrations of 270 mg/L.
- Capability to remove 91 percent of total suspended solids (using Sil-Co-Sil 106) in laboratory conditions with influent concentrations of 84.6 mg/L at a flow rate of 3.0 gpm per square foot of media.
- Capability to remove 93 percent of dissolved Copper in a quarter-scale model with influent concentrations of 0.757 mg/L.
- Capability to remove 79 percent of dissolved Copper in laboratory conditions with influent concentrations of 0.567 mg/L at a flow rate of 3.0 gpm per square foot of media.
- Capability to remove 80.5-percent of dissolved Zinc in a quarter-scale model with influent concentrations of 0.95 mg/L at a flow rate of 3.0 gpm per square foot of media.
- Capability to remove 78-percent of dissolved Zinc in laboratory conditions with influent concentrations of 0.75 mg/L at a flow rate of 3.0 gpm per square foot of media.

Field Testing

- Modular Wetland Systems, Inc. conducted monitoring of an MWS-Linear (Model # MWS-L-4-13) from April 2012 through May 2013, at a transportation maintenance facility in Portland, Oregon. The manufacturer collected flow-weighted composite samples of the system's influent and effluent during 28 separate storm events. The system treated approximately 75 percent of the runoff from 53.5 inches of rainfall during the monitoring period. The applicant sized the system at 1 gpm/sq ft. (wetland media) and 3gpm/sq ft. (prefilter).
- Influent TSS concentrations for qualifying sampled storm events ranged from 20 to 339 mg/L. Average TSS removal for influent concentrations greater than 100 mg/L (n=7) averaged 85 percent. For influent concentrations in the range of 20-100 mg/L (n=18), the upper 95 percent confidence interval about the mean effluent concentration was 12.8 mg/L.
- Total phosphorus removal for 17 events with influent TP concentrations in the range of 0.1 to 0.5 mg/L averaged 65 percent. A bootstrap estimate of the lower 95 percent confidence limit (LCL95) of the mean total phosphorus reduction was 58 percent.
- The lower 95 percent confidence limit of the mean percent removal was 60.5 percent for dissolved zinc for influent concentrations in the range of 0.02 to 0.3 mg/L (n=11). The lower 95 percent confidence limit of the mean percent removal was 32.5 percent for dissolved copper for influent concentrations in the range of 0.005 to 0.02 mg/L (n=14) at flow rates up to 28 gpm (design flow rate 41 gpm). Laboratory test data augmented the

data set, showing dissolved copper removal at the design flow rate of 41 gpm (93 percent reduction in influent dissolved copper of 0.757 mg/L).

- Several configurations of the BioMediaGREEN pre-filter were tested during the monitoring period. The final approved configuration is the cubed BioMediaGREEN Pre-Filter.
- On average during the monitoring period the system treated 21 percent of a water year before being maintained. When looking at only the monitoring that occurred while using the cubed BioMediaGREEN Pre-Filter on average the system treated 35 percent of a water year before being maintained.
- Required maintenance included vactoring and power washing the pre-treatment chamber and replacing the BioMediaGREEN in the media cartridge pre-filters.

Issues to be addressed by the Company:

1. Conduct hydraulic testing at three sites as outlined in the 2024 TAPE Guidance Document to obtain information about the maintenance longevity and requirements. Complete testing by February 28, 2028.

2.

Technology Description:

Download at <https://www.conteches.com/modular-wetlands>

Contact Information:

Applicant: Jeremiah Lehman
Contech Engineered Solutions, LLC
11815 NE Glenn Widing Dr.
Portland, OR 97220
Jeremiah.Lehman@ContechES.com

Applicant website: <http://www.conteches.com>

Ecology web link: <http://www.ecy.wa.gov/programs/wg/stormwater/newtech/index.html>

Ecology: Douglas C. Howie, P.E.
Department of Ecology
Water Quality Program
(360) 870-0983
douglas.howie@ecy.wa.gov

Revision History

Date	Revision
June 2011	Original use-level-designation document
September 2012	Revised dates for TER and expiration
January 2013	Modified Design Storm Description, added Revision Table, added maintenance discussion, modified format in accordance with Ecology standard

December 2013	Updated name of Applicant
April 2014	Approved GULD designation for Basic, Phosphorus, and Enhanced treatment
December 2015	Updated GULD to document the acceptance of MWS – Linear Modular Wetland installations with or without the inclusion of plants
July 2017	Revised Manufacturer Contact Information (name, address, and email)
December 2019	Revised Manufacturer Contact Address
July 2021	Added additional prefilter sized at 33 inches
August 2021	Changed “Prefilter” to “Prefilter box”
November 2022	Changed Contacts to Contech ES
January 2024	Revised Dissolved Metals (Enhanced) to Metals
March 2025	Added requirement for maintenance assessment

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Attachment 2

Backup for PDP Hydromodification Control Measures

This is the cover sheet for Attachment 2.

☒ Mark this box if this attachment is empty because the project is exempt from PDP hydromodification management requirements.

Project Name: Race Residence

Indicate which Items are Included:

Attachment Sequence	Contents	Checklist
Attachment 2a	Hydromodification Management Exhibit (Required)	☐ Included See Hydromodification Management Exhibit Checklist.
Attachment 2b	Management of Critical Coarse Sediment Yield Areas (WMAA Exhibit is required, additional analyses are optional) See Section 6.2 of the BMP Design Manual.	☐ Exhibit showing project drainage boundaries marked on WMAA Critical Coarse Sediment Yield Area Map (Required) Optional analyses for Critical Coarse Sediment Yield Area Determination ☐ 6.2.1 Verification of Geomorphic Landscape Units Onsite ☐ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment ☐ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite
Attachment 2c	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the BMP Design Manual.	☐ Not Performed ☐ Included ☐ Submitted as separate stand-alone document
Attachment 2d	Flow Control Facility Design and Structural BMP Drawdown Calculations (Required) Overflow Design Summary for each structural BMP See Chapter 6 and Appendix G of the BMP Design Manual	☐ Included ☐ Submitted as separate stand-alone document

Project Name: Race Residence

**Use this checklist to ensure the required information has been included on the
Hydromodification Management Exhibit:**

The Hydromodification Management Exhibit must identify:

- ☐ Underlying hydrologic soil group
- ☐ Approximate depth to groundwater
- ☐ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
- ☐ Critical coarse sediment yield areas to be protected OR provide a separate map showing that the project site is outside of any critical coarse sediment yield areas
- ☐ Existing topography
- ☐ Existing and proposed site drainage network and connections to drainage offsite
- ☐ Proposed grading
- ☐ Proposed impervious features
- ☐ Proposed design features and surface treatments used to minimize imperviousness
- ☐ Point(s) of Compliance (POC) for Hydromodification Management
Existing and proposed drainage boundary and drainage area to each POC (when necessary, create separate exhibits for pre-development and post-project conditions)
- ☐ Structural BMPs for hydromodification management (identify location, type of BMP, and size/detail).

Project Name: Race Residence

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Attachment 3 Structural BMP Maintenance Information

This is the cover sheet for Attachment 3.

Project Name: Race Residence

THIS PAGE INTENTIONALLY LEFT BLANK FOR DOUBLE-SIDED PRINTING

Project Name: Race Residence

Indicate which Items are Included:

Attachment Sequence	Contents	Checklist
Attachment 3	Maintenance Agreement (Form DS-3247) (when applicable)	☐ Included ☐ Not applicable

Will be provided in ministerial review.

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Information Attachment:

Attachment 3: For private entity operation and maintenance, Attachment 3 must include a Storm Water Management and Discharge Control Maintenance Agreement (Form DS-3247). The following information must be included in the exhibits attached to the maintenance agreement:

- ☐ Vicinity map
- ☐ Site design BMPs for which DCV reduction is claimed for meeting the pollutant control obligations.
- ☐ BMP and HMP location and dimensions
- ☐ BMP and HMP specifications/cross section/model
- ☐ Maintenance recommendations and frequency
- ☐ LID features such as (permeable paver and LS location, dim, SF).

Attachment 4

Copy of Plan Sheets Showing Permanent Storm Water BMPs

This is the cover sheet for Attachment 4.

Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

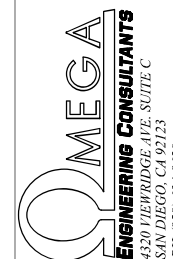
- ☒ Structural BMP(s) with ID numbers matching Form I-6 Summary of PDP Structural BMPs
- ☒ The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
- ☒ Details and specifications for construction of structural BMP(s)
- ☒ Signage indicating the location and boundary of structural BMP(s) as required by the City Engineer
- ☐ How to access the structural BMP(s) to inspect and perform maintenance
- ☐ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- ☒ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- ☐ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- ☐ Recommended equipment to perform maintenance
- ☐ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
- ☐ Include landscaping plan sheets showing vegetation requirements for vegetated structural BMP(s)
- ☒ All BMPs must be fully dimensioned on the plans
- ☒ When proprietary BMPs are used, site specific cross section with outflow, inflow and model number shall be provided. Broucher photocopies are not allowed.

CONSTRAINTS MAP



RACE RESIDENCE
88332 CALLE DEL CIELO
LA JOLLA, CA 92037

1.	-
	-

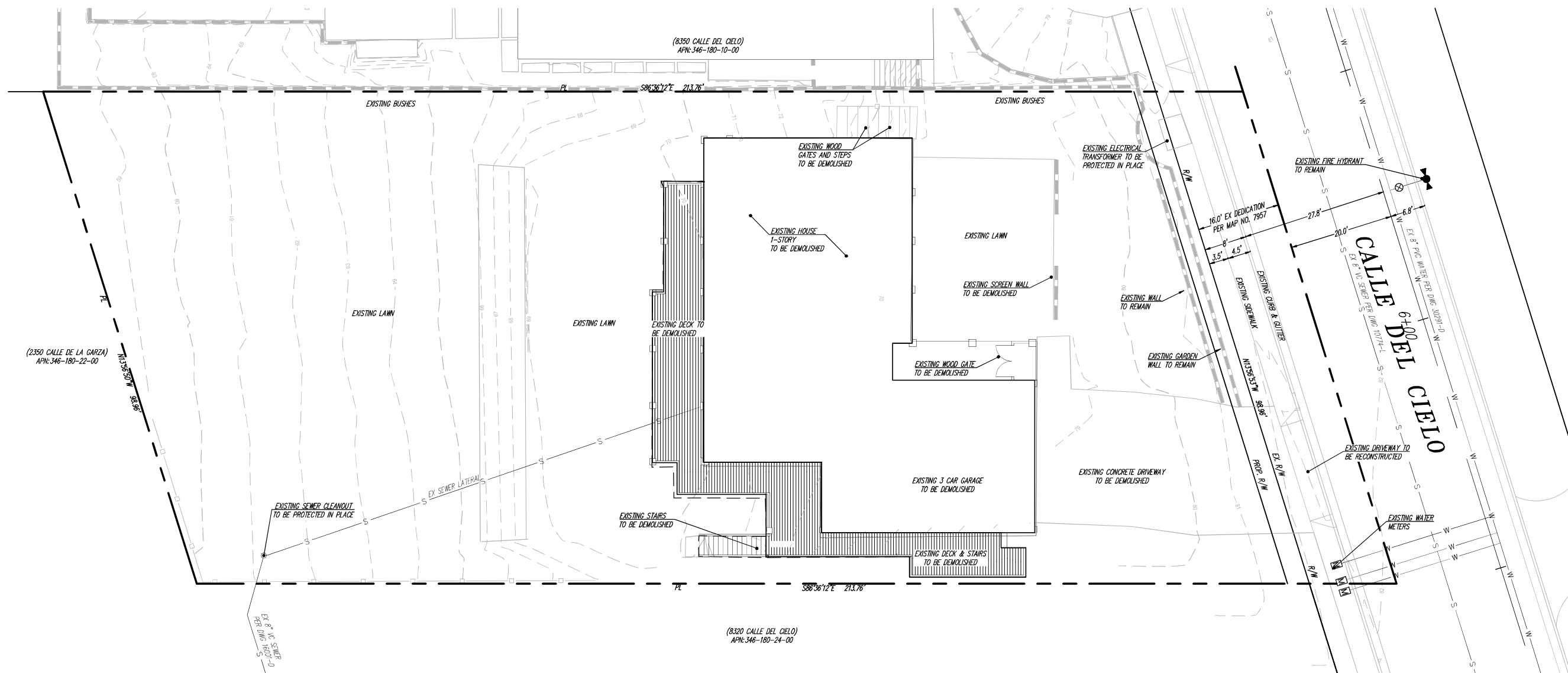


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THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AT THE SITE BEFORE PROCEEDING WITH EACH PHASE OF THE WORK.

DRAWN BY JC	CHECKED BY NS
DATE 9/4/26	JOB NO. 0931

CONSTRAINTS
MAP
C-01



SITE ADDRESS:

8332 CALLE DEL CIELO
LA JOLLA, CA 92037

ASSESSOR'S PARCEL NUMBER:

346-180-23-00

OWNER INFO:

8332 CALLE DEL CIELO, LLC
8350 CALLE DEL CIELO
LA JOLLA, CA 92037

LEGAL DESCRIPTION:

LOT 10 OF CERCA DE LA PLAYA, IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 7957, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY ON JUNE 5, 1974.

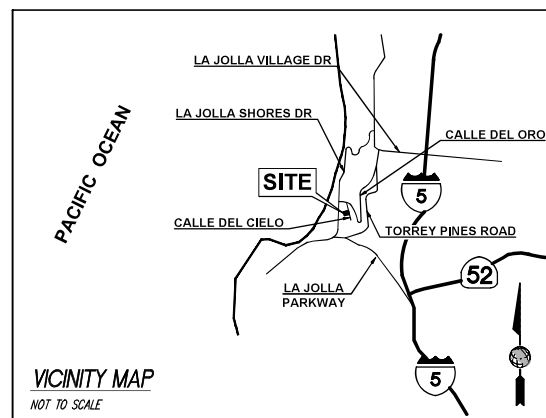
VERTICAL BENCHMARK:

DESCRIPTION:
BRASS PLUG ON THE SOUTHEAST CORNER OF THE INTERSECTION OF CALLE DEL ORO & LA
JOLLA SHORE AS PUBLISHED IN THE CITY OF SAN DIEGO VERTICAL CONTROL BOOK, FD BM
@ CALLE DE ORO & LA JOLLA SHORE SEBP EL 35. 787

ELEVATION:
35.78' (NAVD 88)

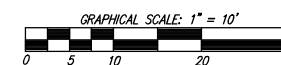
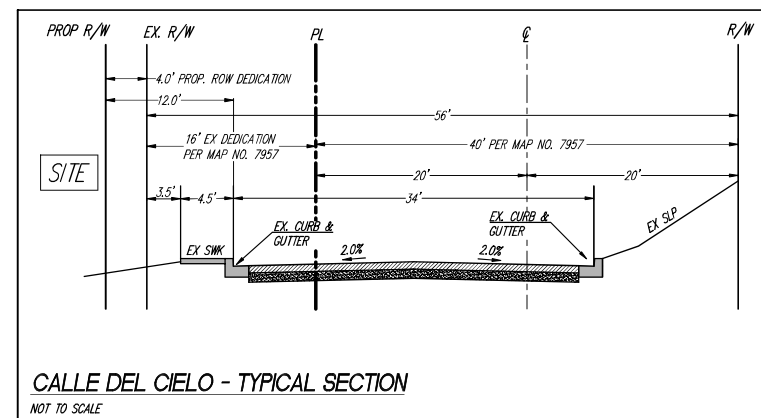
SOURCE OF TOPOGRAPHY:

FIELD SURVEY COMPLETED BY RWE ENGINEERING

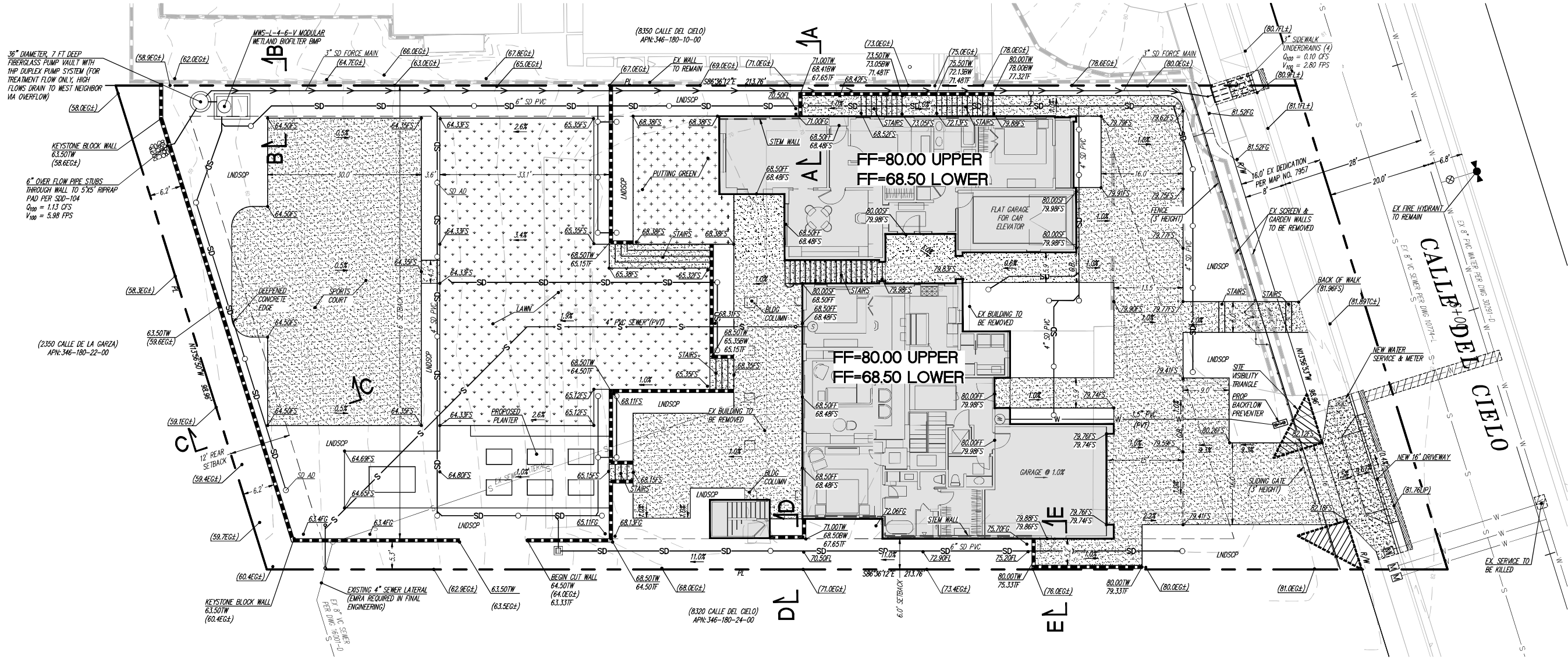


EXISTING LEGEND:

ITEM	SYMBOL
PROPERTY LINE.....	_____
CENTERLINE.....	_____
RIGHT-OF-WAY.....	_____ R/W _____
EX CONTOUR.....	_____ 589 _____
EX EASEMENT.....	_____
SETBACK LIMITS.....	_____



CONCEPTUAL GRADING & UTILITY PLAN



GRADING LEGEND:

ITEM	SYMBOL
PROPERTY LINE.....	---
CENTERLINE.....	---
RIGHT-OF-WAY.....	---
EX CONTOUR.....	---
EX CURB & GUTTER.....	---
PROPOSED FINISH FLOOR ELEVATION.....	FF-80.00
PROPOSED GRADIENT.....	---
PROPOSED CURB & GUTTER.....	---
PROPOSED PCC FLATWORK.....	---
PROPOSED LAWN.....	---
PROPOSED SPORTS COURT.....	---
PROPOSED PUTTING GREEN.....	---
PROPOSED RETAINING WALL.....	---
PROPOSED PVC STORM DRAIN W/AREA DRAINS.....	---
PROPOSED GRAVITY SEWER.....	---
PROPOSED WATER SERVICE.....	---
PROPOSED BACKFLOW.....	---
PROPOSED 12" DRIVEWAY.....	---

PRELIMINARY EARTHWORK QUANTITIES:

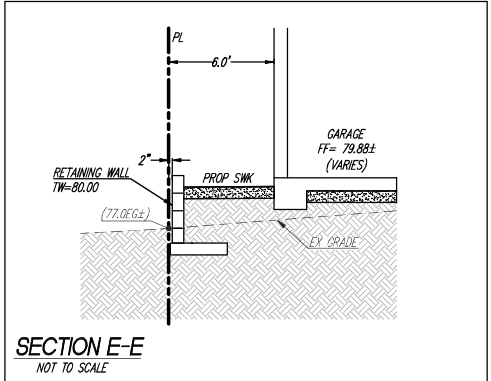
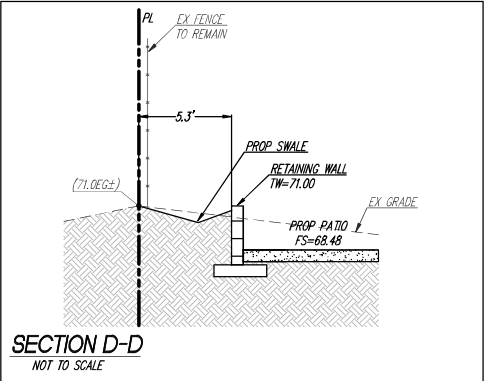
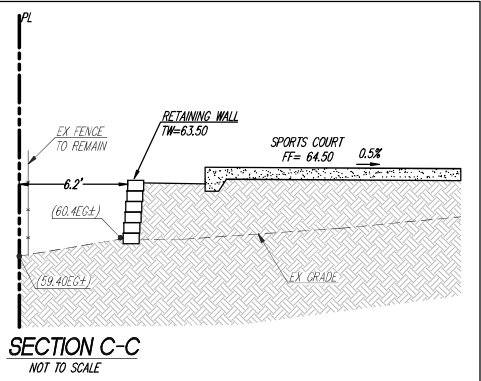
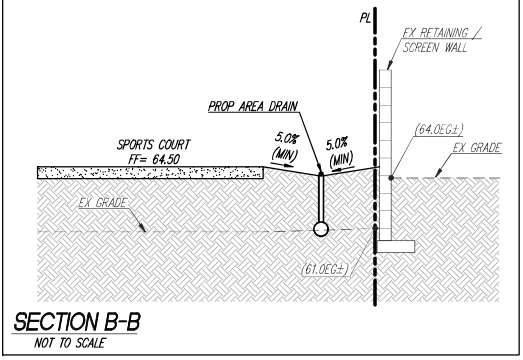
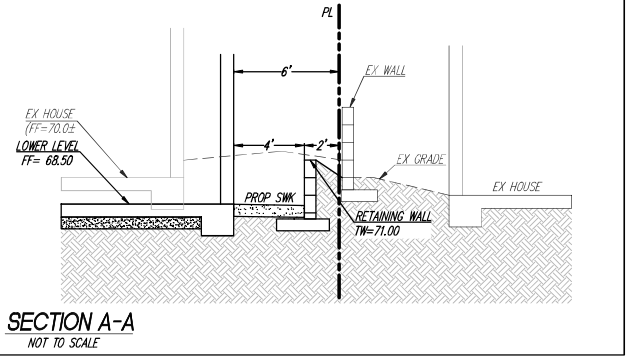
ADJUSTED CUT: 1,102 CY
(INCLUDES 297 CY FOR UNDERCUTS)
ADJUSTED FILL: 677 CY
(INCLUDES 122 CY FOR DEBRIS HAUL OFF)
EXPORT: 425 CY
MAX CUT/FILL:
OUTSIDE BUILDING FOOTPRINT: 4.8' (FILL)
INSIDE BUILDING FOOTPRINT: 6.6' (CUT)
MAX FILL OUTSIDE OF BUILDING DOES NOT EXCEED 5.0'
(NO GRADING PERMIT IS REQUIRED)

NOTES:

WPCP NOTE:
PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT THE OWNER/PERMITEE SHALL SUBMIT A WATER POLLUTION CONTROL PLAN (WPCP). THE WPCP SHALL BE PREPARED IN ACCORDANCE WITH THE GUIDELINES IN PART 2 CONSTRUCTION BMP STANDARDS CHAPTER 4 OF THE CITY'S STORM WATER STANDARDS.
STORMWATER NOTE:
THE PROPOSED PROJECT WILL COMPLY WITH ALL THE REQUIREMENTS OF THE CURRENT CITY OF SAN DIEGO STORM WATER STANDARDS MANUAL BEFORE A GRADING OR BUILDING PERMIT IS ISSUED. IT IS THE RESPONSIBILITY OF THE OWNER/DESIGNER/APPLICANT TO ENSURE THE AT THE CURRENT STORM WATER PERMANENT BMP DESIGN STANDARDS ARE INCORPORATED INTO THE PROJECT.
BMP NOTE:
PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT, THE OWNER/PERMITEE SHALL INCORPORATE ANY CONSTRUCTION BMP'S NECESSARY TO COMPLY WITH CHAPTER 14, ARTICLE 2, DIVISION 1 (GRADING REGULATIONS) OF THE SAN DIEGO MUNICIPAL CODE, INTO THE CONSTRUCTION PLANS OR SPECIFICATIONS.
VERTICAL OBSTRUCTIONS NOTE:
NO OBSTRUCTION INCLUDING SOLID WALLS IN VISIBILITY AREA SHALL EXCEED 3 FEET IN HEIGHT PER SDMG SECTION 142.0408(1)(2). PLANT MATERIAL OTHER THAN TREES, LOCATED WITHIN VISIBILITY AREAS OR THE ADJACENT PUBLIC ROW SHALL NOT EXCEED 36 INCHES IN HEIGHT, MEASURED FROM THE LOWEST GRADE ABUTTING THE PLANT MATERIAL TO THE TOP OF THE PLANT MATERIAL.

SITE AREA SUMMARY

TOTAL SITE	20,533 SF
BUILDING FOOTPRINT (IMPERVIOUS)	4,845 SF
PROPOSED IMPERVIOUS	11,346 SF
PROPOSED PERVIOUS	8,845 SF
DISTURBED AREA	20,533 SF



RACE RESIDENCE
8332 CALLE DEL CIELO
LA JOLLA, CA 92037

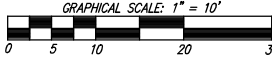
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4320 TIENHEDGE AVE., SUITE C
SAN DIEGO, CA 92123
PH: (619) 634-8620

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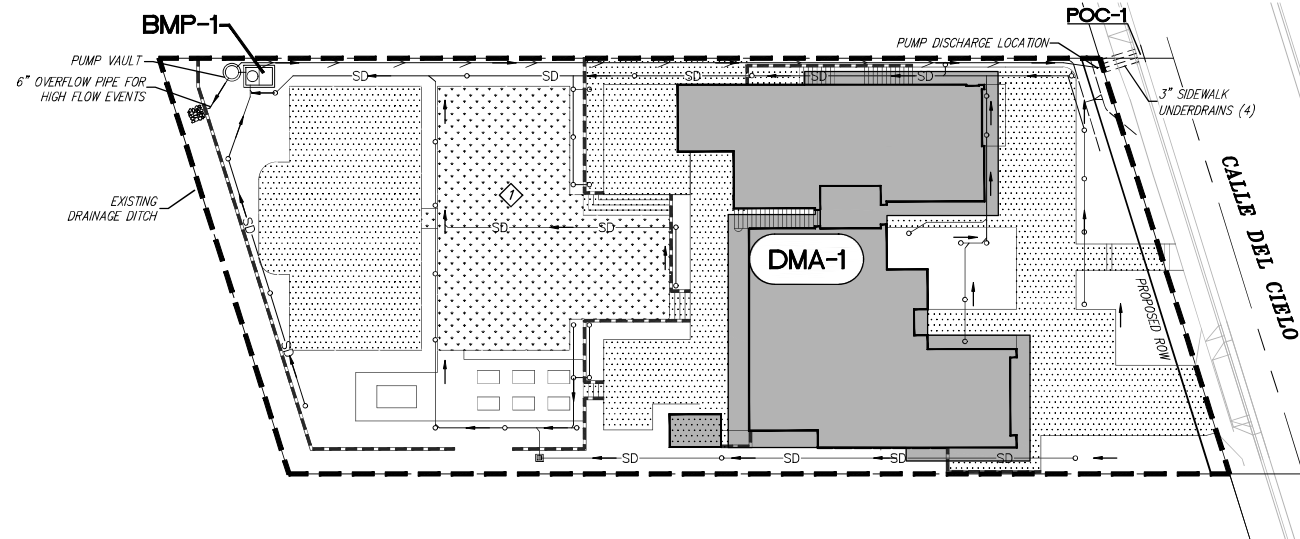
DRAWN BY	CHECKED BY
JC	NS
DATE	JOB NO.
9/4/26	0931

CONCEPTUAL
GRADING PLAN
C-02



DMA PLAN

NOTE: THIS PROJECT IS LOCATED WITHIN THE ASBS WATERSHED. NO DRY WEATHER RUNOFF IS PERMITTED, PROJECT WILL BE SUBJECT TO INCREASED INSPECTIONS, SATISFACTION TO THE CITY ENGINEER.



MAINTENANCE NOTES

MODULAR WETLAND SYSTEM
MAINTENANCE THRESHOLD:
- REMOVE TRASH FROM SCREENING DEVICE - AVERAGE MAINTENANCE INTERVAL 6 TO 12 MONTHS.
- REMOVE SEDIMENT FROM SEPARATION CHAMBER - AVERAGE MAINTENANCE INTERVAL IS 12 TO 24 MONTHS.
- REPLACE CARTRIDGE FILTER MEDIA - AVERAGE MAINTENANCE INTERVAL IS 12 TO 14 MONTHS.
- REPLACE BROWN DOWNY MEDIA - AVERAGE MAINTENANCE INTERVAL 12 TO 24 MONTHS.
- TRIM VEGETATION - AVERAGE MAINTENANCE INTERVAL IS 6 TO 12 MONTHS.
ACCESS TO STRUCTURAL BMP:
- MANHOLE ON MINS UNIT

DMA DATA TABLE					
DMA-NO.	TOT. AREA (SF)	IMP. AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS (%)	TYPE/TREATED BY
DMA-1	20,191	11,346	8,845	56	BMP-1

TREATMENT BMP DATA TABLE					
BMP-#	TREATING	$Q_{TREATMENT}$ (CFS)	$1.5 * Q_{TREATMENT}$ (CFS)	PROVIDED FLOWRATE (CFS)	DESCRIPTION
BMP-1	DMA-1	0.051	0.076	0.076	MWS-L-4-6-V MODULAR WETLAND BIOFILTER BMP

IMPERVIOUS AREA DISPERSION TABLE				
LANDSCAPE AREA (SF)	IMP. AREA DRAINING TO LANDSCAPE AREA (SF)	IMP. TO PERVIOUS AREA RATIO	TARGET VOLUME RETENTION (%)	VOLUME RETENTION REQUIREMENTS MET?
2369	1970	0.83	11	YES

SOURCE CONTROL BMPs	SITE DESIGN BMPs
----------------------------	-------------------------

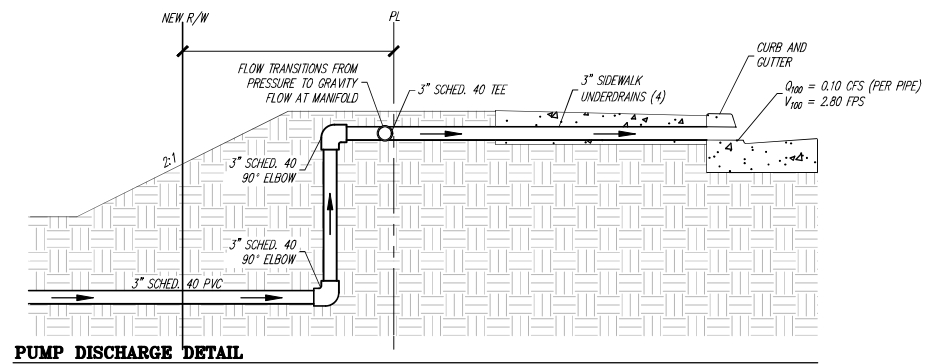
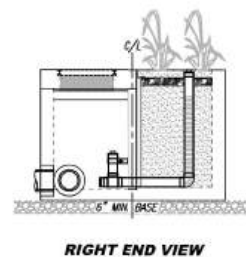
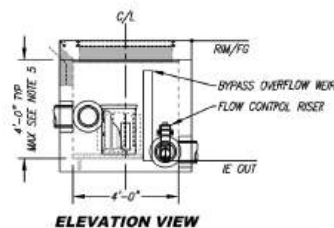
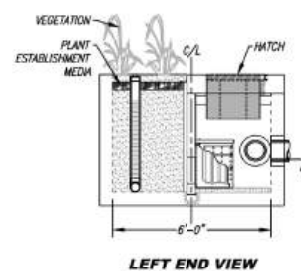
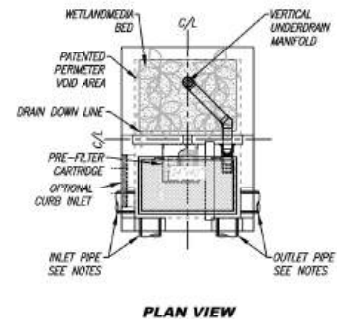
STORM DRAIN STENCILING

SITE DESIGN BMPs

IMPERVIOUS AREA DISPERSION

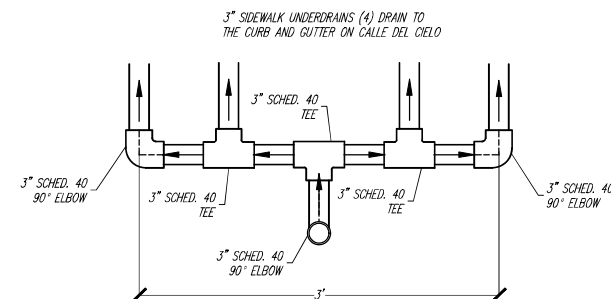
SITE SPECIFIC DATA			
PROJECT NUMBER		0931	
PROJECT NAME		Raze Residence	
PROJECT LOCATION		La Jolla, CA	
STRUCTURE ID		BMP-1	
TREATMENT REQUIRED			
TREATMENT FLOW (CFS)			0.076
PRETREATMENT LOADING RATE (GPM/SF)			2.1 GPM/SF
WETLAND MEDIA LOADING RATE (GPM/SF)			1.0
PEAK BYPASS REQUIRED (CFS) - IF APPLICABLE			(CFS)
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN		
NOTES:			

* PRELIMINARY ONLY - NOT FOR CONSTRUCTION



PUMP DISCHARGE DETAIL

NOT TO SCALE



SIDEWALK UNDERDRAIN SCHEMATIC

NOT TO SCALE

BMP-1, MWS-L-4-6-V BIOFILTER BMP

NOT TO SCALE

A

RACE RESIDENCE
8332 CALLE DEL CIELO
LA JOLLA, CA 92037

1.	-
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AWN BY JC	CHECKED BY NS
--------------	------------------

DATE	JOB NO.
4/26	0931

DMA PLAN

C-03

FORM
DS-560
October 2024
Stormwater Requirements
Applicability ChecklistProject Address: 8332 Calle del Cielo, La Jolla, CA 92037
Project Number: PRJ-1154920

SECTION 1: Construction Stormwater Best Management Practices (BMP) Requirements

All construction sites are required to implement construction BMPs per the performance standards in the [Stormwater Standards Manual](#). Some sites are also required to obtain coverage under the State Construction General Permit (CGP), administered by the [California State Water Resources Control Board](#).

For all projects, complete Part A - If the project is required to submit a Stormwater Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan (WPCP), continue to Part B.

PART A – Determine Construction Phase Stormwater Requirements

- Is the project subject to California's statewide General National Pollutant Discharge Elimination System (NPDES) permit for Stormwater Discharges Associated with Construction Activities, also known as the State Construction General Permit (CGP)? (Typically projects with land disturbance greater than or equal to 1 acre.)
☐ Yes, SWPPP is required; skip questions 2-4. ☒ No; proceed to the next question.
- Does the project propose construction or demolition activity, including but not limited to, clearing, grading, grubbing, excavation, or any other activity resulting in ground disturbance and/or contact with stormwater?
☒ Yes, WPCP is required; skip questions 3-4. ☐ No; proceed to the next question.
- Does the project propose routine maintenance to maintain the original line and grade, hydraulic capacity, or original purpose of the facility? (Projects such as pipeline/utility replacement)
☐ Yes, WPCP is required; skip question 4. ☒ No; proceed to the next question.
- Does the project only include the following Permit types listed below?
 - Electrical Permit, Fire Alarm Permit, Fire Sprinkler Permit, Plumbing Permit, Sign Permit, Mechanical Permit, Spa Permit.
 - Individual Right-of-Way Permits that exclusively include only ONE of the following activities: water service, sewer lateral, or utility service.
 - Right-of-Way Permits with a project footprint of less than 150 linear feet that exclusively include only ONE of the following activities: curb ramp, sidewalk and driveway apron replacement, potholing, curb and gutter replacement, and retaining wall encroachments.☐ Yes, no document is required.

Check one of the boxes below and continue to Part B

☐ If you checked "Yes" for question 1, an SWPPP is REQUIRED – continue to Part B☒ If you checked "No" for question 1 and checked "Yes" for question 2 or 3, a WPCP is REQUIRED. If the project proposes less than 5,000 square feet of ground disturbance AND has less than a 5-foot elevation change over the entire project area, a Minor WPCP may be required instead. Continue to Part B☐ If you check "No" for all questions 1-3 and checked "Yes" for question 4, Part B does not apply, and no document is required. Continue to Section 2.

¹ More information on the City's construction BMP requirements as well as CGP requirements can be found at www.sandiego.gov/cswr/cswrmanual/index.aspx

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DS-560 (10-24)

PART B – Determine Construction Site Priority

This prioritization must be completed within this form, noted on the plans, and included in the SWPPP or WPCP. The city reserves the right to adjust the priority of projects both before and after construction. Construction projects are assigned an inspection frequency based on if the project has a "high threat to water quality." The City has aligned the local definition of "high threat to water quality" to the risk determination approach of the State CGP. The CGP determines risk level based on project-specific sediment risk and receiving water risk. Additional inspection is required for projects within the Areas of Special Biological Significance (ASBS) watershed. **NOTE:** The construction priority does **NOT** change construction BMP requirements that apply to projects; rather, it determines the frequency of inspections that will be conducted by city staff.

Complete Part B and continue to Section 2

- ☒ 1. ASBS
- A. Projects located in the ASBS watershed.
- ☐ 2. High Priority
- A. Projects that qualify as Risk Level 2 or Risk Level 3 per the Construction General Permit (CGP) and are not located in the ASBS watershed.
- B. Projects that qualify as LUP Type 2 or LUP Type 3 per the CGP and are not located in the ASBS watershed.
- ☐ 3. Medium Priority
- A. Projects that are not located in an ASBS watershed or designated as a High-priority site.
- B. Projects that qualify as Risk Level 1 or LUP Type 1 per the CGP and are not located in an ASBS watershed.
- C. WPCP projects (≥5,000 square feet of ground disturbance) located within the Los Peñasquitos watershed management area.
- ☐ 4. Low Priority
- A. Projects not subject to a Medium or High site priority designation and are not located in an ASBS watershed.

Section 2: Construction Stormwater BMP Requirements

Additional information for determining the requirements is found in the [Stormwater Standards Manual](#).

PART C – Determine if Not Subject to Permanent Stormwater Requirements

Projects that are considered maintenance or otherwise not categorized as "new development projects" or "redevelopment projects" according to the [Stormwater Standards Manual](#) are not subject to Permanent Stormwater BMPs.

- If "yes" is checked for any number in Part C: Proceed to Part F and check "Not Subject to Permanent Stormwater BMP Requirements."
- If "no" is checked for all the numbers in Part C: Continue to Part D.

- Does the project only include interior remodels and/or is the project entirely within an existing enclosed structure and does not have the potential to contact stormwater?
☐ Yes ☒ No
- Does the project only include the construction of overhead or underground utilities without creating new impervious surfaces?
☐ Yes ☒ No
- Does the project fall under routine maintenance? Examples include but are not limited to roof or exterior structure surface replacement, resurfacing or reconfiguring surface parking lots or existing roadways without expanding the impervious footprint, and routine replacement of damaged pavement (grinding, overlay and pothole repair).
☐ Yes ☒ No

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PART D – PDP Exempt Requirements

PDP Exempt projects are required to implement site design and source control BMPs.

- If "yes" is checked for any questions in Part D, continue to Part F and check the box labeled "PDP Exempt."
- If "no" is checked for all questions in Part D, continue to Part E.

- Does the project ONLY include new or retrofit sidewalks, bicycle lanes, or trails that:
 - Are designed and constructed to direct stormwater runoff to adjacent vegetated areas, or other non-erodible permeable areas? Or,
 - Are designed and constructed to be hydraulically disconnected from paved streets and roads? Or,
 - Are designed and constructed with permeable pavements or surfaces in accordance with the Green Streets guidance in the City's Stormwater Standards manual?☐ Yes, PDP exempt requirements apply. ☒ No, proceed to the next question.
- Does the project ONLY include retrofitting or redeveloping existing paved alleys, streets or roads designed and constructed in accordance with the Green Streets guidance in the City's Stormwater Standards Manual?
☐ Yes, PDP exempt requirements apply. ☒ No, proceed to the next question.

PART E – Determine if the Project is a Priority Development Project (PDP)

Projects that match one of the definitions below are subject to additional requirements, including the preparation of a Stormwater Quality Management Plan (SWQMP).

- If "yes" is checked for any number in Part E, continue to Part F and check the box labeled "Priority Development Project."
- If "no" is checked for every number in Part E, continue to Part F and check the box labeled "Standard Development Project."

- New development that creates 10,000 square feet or more of impervious surfaces collectively over the project site. This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land. ☐ Yes ☒ No
- Redevelopment project that creates and/or replaces 5,000 square feet or more of impervious surfaces on an existing site or 10,000 square feet or more of impervious surfaces. This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land. ☒ Yes ☐ No
- New development or redevelopment of a restaurant. Facilities that sell prepared foods and beverages for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) 5812), and where the land development creates and/or replaces 5,000 square feet or more of impervious surface. ☐ Yes ☒ No
- New development or redevelopment on a hillside. The project creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site) and where the development will grade on any natural slope that is 25% or greater. ☐ Yes ☒ No
- New development or redevelopment of a parking lot that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site). ☐ Yes ☒ No
- New development or redevelopment of streets, roads, highways, freeways, and driveways. The project creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site). ☐ Yes ☒ No

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Upon request, this information is available in alternative formats for persons with disabilities.
DS-560 (10-24)

- New development or redevelopment discharging directly to an environmentally sensitive area. The project creates and/or replaces 2,500 square feet of impervious surface (collectively over the project site), and discharges directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed over and a distance of 200 feet or less from the project to the ESA or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e., not commingled with flow from adjacent lands). ☐ Yes ☒ No
- New development or redevelopment projects of retail gasoline outlets (RGO) that create and/or replace 5,000 square feet of impervious surface. The development project meets the following criteria: (a) 5,000 square feet or more or (b) has a projected Average Daily Traffic (ADT) of 100 or more vehicles per day. ☐ Yes ☒ No
- New development or redevelopment projects of an automotive repair shop that creates and/or replaces 5,000 square feet or more of impervious surfaces. Development projects categorized in any one of Standard Industrial Classification (SIC) codes 9013, 9014, 9041, 7532, 7534 or 7538-7539. ☐ Yes ☒ No
- Other Pollutant Generating Project. These projects are not covered in any of the categories above but involve the disturbance of one or more acres of land and are expected to generate post-construction phase pollutants, including fertilizers and pesticides. This category does not include projects creating less than 5,000 square feet of impervious area and projects containing landscaping without a requirement for the regular use of fertilizers and pesticides (such as a slope stabilization project using native plants). Impervious area calculations need not include linear pathways for infrequent vehicle use, such as emergency maintenance access or bicycle and pedestrian paths if the linear pathways are built with pervious surfaces or if runoff from the pathway sheet flows to adjacent pervious areas. ☐ Yes ☒ No

PART F – Select the appropriate category based on the outcomes of Part C through Part E

- The project is **NOT SUBJECT TO PERMANENT STORMWATER REQUIREMENTS**. ☐ Yes ☒ No
- The project is a **STANDARD DEVELOPMENT PROJECT**. Site design and source control BMP requirements apply. See the [Stormwater Standards Manual](#) for guidance. ☐ Yes ☒ No
- The Project is **PDP EXEMPT**. Site design and source control BMP requirements apply. Refer to the [Stormwater Standards Manual](#) for guidance. ☐ Yes ☒ No
- The project is a **PRIORITY DEVELOPMENT PROJECT**. Site design, source control and structural pollutant control BMP requirements apply. Refer to the [Stormwater Standards Manual](#) for guidance on determining if the project requires hydromodification plan management. If yes to this question, submit a [Form DS-568 "Stormwater Quality Management Plan Submitted Checklist"](#) with your SWQMP. ☒ Yes ☐ No

Name of Owner or Agent

Rogelio Ruiz

Signature

Rogelio Ruiz

Title

Staff Engineer

Date

June 16, 2026

CLEAR FORM

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DS-560 (10-24)

RACE RESIDENCE
8332 CALLE DEL CIELO
LA JOLLA, CA 92037

1.	-
	-

OMEGA
ENGINEERING CONSULTANTS
4320 TIEMBRIDGE AVE., SUITE C
SAN DIEGO, CA 92123
PH: (619) 634-8620

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OF HIS WORK.

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DATE	JOB NO.
9/4/26	0931

DS-560

C-04

Attachment 5

Drainage Report

Attach project's drainage report. Refer to Drainage Design Manual to determine the reporting requirements.

Race Residence Drainage Study

8332 Calle Del Cielo

La Jolla, CA 92037

APN(s): 346-180-23-00

Project #: PRJ-1154920

Date Prepared:

September 4, 2026

Prepared for:

8332 Calle Del Cielo, LLC

8350 Calle Del Cielo,

La Jolla, CA 92037

Prepared By:



4320 Viewridge Ave, Suite C

San Diego, CA 92123

Ph: (858) 634-8620

Declaration of Responsible Charge:

I hereby declare that I am the engineer of work for this project, that I have exercised responsible charge over the design of the project as defined in section 6703 of the business and professions code, and that the design is consistent with current standards. I understand that the check of the project drawings and specifications by the City of San Diego is confined to a review only and does not relieve me, as an engineer of work, of my responsibilities for project design.

FOR PLAN CHECK REVIEW ONLY

Patric T. de Boer

Registration Expires

RCE 83583

3-31-2027

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Site & Project Description

This drainage study has been prepared for the proposed residential development at 8332 Calle del Cielo, La Jolla, CA 92037. The project site currently has a single-family house along with a driveway and walkways. The site is located approximately 0.35 miles east of the Pacific Ocean and 1.20 mile west of Interstate 5. See figure No. 1 for Vicinity Map.

The project will involve the demo of the existing single-family house and construct a two-story residence along with its corresponding surface improvements. The proposed project will include the installation of an onsite storm drain system, a spa, and various hardscape improvements. The project will also install a Modular Wetland Unit for treatment purposes and a pump vault along the northwesterly corner of the property that will pump the treated runoff while still allowing runoff from high intensity storms to flow to the existing discharge point to the storm drain system on the westerly neighboring site. The treatment properties of the system are detailed in a separate SWQMP report.

Methodology

This drainage report has been prepared in accordance with the current 2017 edition City of San Diego Drainage Design Manual regulations and procedures. The Rational Method was used per Appendix A of the City of San Diego Drainage Design Manual to determine the peak flowrates generated by the previously developed and proposed site conditions.

The proposed storm drain pipes and channels were sized using Manning's Equation.

The site is underlain by Type D soil per the June 2003 edition San Diego County Hydrology Manual Soil Hydrologic Groups Map (included in Appendix 1).

The 100-yr, 6-hr storm depth (P_6) was determined using the San Diego County Hydrology Manual Rainfall Isopleth map included as Appendix 2 of this report. The 100-yr, 24-hr storm depth (P_{24}) was determined using the San Diego County Hydrology Manual Rainfall Isopleth map included as Appendix 3 of this report. The obtained precipitation values were verified using the Intensity Duration Design Chart, included as Appendix 4 of this report.

The calculations of the C-values were performed using the County of San Diego method rather than City of San Diego method. The reason for doing this is that the city method assumes a value of 0.55 for single-family homes. The existing and proposed values would be identical and would not account for the significant increase in impervious area proposed by the project. This strategy of using the county method of calculating the weighted C-value has been used and approved on previous reports prepared by Omega Engineering Consultants because it was done to make the design more conservative than what is required by the city Drainage Design Manual. This method is used for both the existing and proposed conditions. The C-value of each basin was determined by taking the area weighted average of a value of 0.35 for natural D type soil, and 0.9 for impervious surfaces. See table 3-1 of the County Hydrology Manual, included as Appendix 5 of this report.

The total time of concentration was determined by adding the T_i value to the travel time (T_t).

$$T_c = T_i + T_t$$

The T_c and the P₆ values were entered into the peak intensity formula from Figure B-2 of the drainage design manual to determine the intensity of the rainfall during the peak of the 100-year, 6-hr storm.

$$I = 7.44 \times P_6 \times T_c^{-0.645}$$

The City of San Diego Drainage Design Manual Intensity-Duration-Frequency chart (Figure A-1) gave a much smaller Intensity than the San Diego County Hydrology Manual does, so the San Diego County Hydrology Manual formula was used instead.

Rational Method

$$Q = CIA$$

Where:

Q=peak discharge, in cubic feet per second (cfs)

C=weighted runoff coefficient, Table A-1 City of San Diego Drainage Design Manual

I =average rainfall intensity for a duration equal to the T_c for the area, (in/hr)

$$= 7.44 \times P_6 \times T_c^{-0.645}$$

A = drainage area contributing to the design location, in acres

$$T_i = \frac{1.8 (1.1 - C) (L)^{0.5}}{S^{0.33}}$$

S= Slope of drainage course

The velocity within the gutter on Callen Del Cielo was determined using Figure 3-2 of the City of San Diego Drainage Design Manual (See Appendix 7).

See the attached calculations for particulars. The following references have been used in preparation of this report:

- (1) Handbook of Hydraulics, E.F. Brater & H.W. King, 6th Ed., 1976.
- (2) City of San Diego Drainage Design Manual, January 2017 Edition
- (3) Modern Sewer Design, American Iron & Steel Institute, 1st Ed., 1980

Existing Conditions

The existing site consists of a single-family residence, landscape areas, walkways and driveway.

The surface improvements drain via overland flow to the west and onto an existing drainage ditch along the westerly downstream property. The entire building roof drains via existing 4" pipes to the northwesterly corner where it outlets via a riser pipe and flows directly to a concrete drainage ditch running along the east property line on the west neighbor. This system conveys runoff through the neighboring site and to the City MS4 system. The point at which runoff outfalls to the surface and enters the neighboring concrete ditch is referred to as Discharge Point # 1 in this report.

Proposed Conditions

The project proposes to demo the existing residential development and construct a new two-story residence along with the associated surface improvements. The proposed improvements include a driveway, walkways, sports court, landscape areas, onsite storm drain system and a pump vault.

The proposed site will drain via a private storm drain system to a modular wetland biofilter at the northwest corner of the site. Flow that is treated by the Modular Wetland will drain to a duplex system with 2 Liberty FL100 pumps. The pump system will convey runoff via a 3" force main to a the northeast corner of the site. The 3" force main will split the flow into 4 separate 3" pipes that will drain to the curb face via sidewalk underdrains along Calle Del Cielo. During high intensity storms above the 85th percentile, the pump system will overflow to a bypass pipe that drains to a surface outlet. Flow discharged through the surface outlet flows to the concrete drainage ditch on the neighbor's site and follows the same offsite flow path as on the existing conditions. The flow discharged to the neighboring site is determined by using EPA SWMM to route the hydrograph of the proposed storm through the proposed pump system.

In case of pump failure, the pump system will drain out to the northwesterly corner of the site. The northwesterly corner of the site is the same discharge location as the existing conditions.

Existing Rational Analysis

The existing site is modeled as a single drainage basin. The existing basin is referred to as E-1 in this report. Below is a summary of the input data and the resulting flowrates for the 100-year, 6-hour storm.

Existing Rational Calculation Summary

Basin	Area (ac)	Impervious %	C	Tc (mins)	I ₁₀₀ (in/hr)	Total Q ₁₀₀ (cfs)
E-1	0.46	31	0.52	5.00	5.27	1.28

The peak flowrate at Discharge Point #1 for the existing conditions is 1.28 cfs

Proposed Rational Analysis

The proposed site is modeled as a single drainage basin. The proposed basin is referred to as P-1 in this report. Below is a summary of the input data and the resulting flowrates for the 100-year, 6-hour storm.

Proposed Rational Calculation Summary

Basin	Area (ac)	Impervious %	C	Tc (mins)	I ₁₀₀ (in/hr)	Total Q ₁₀₀ (cfs)
P-1	0.46	56	0.66	5.00	5.27	1.61

The peak flowrate generated by the proposed development is 1.61 cfs. This results in a total flowrate increase of 0.33 cfs.

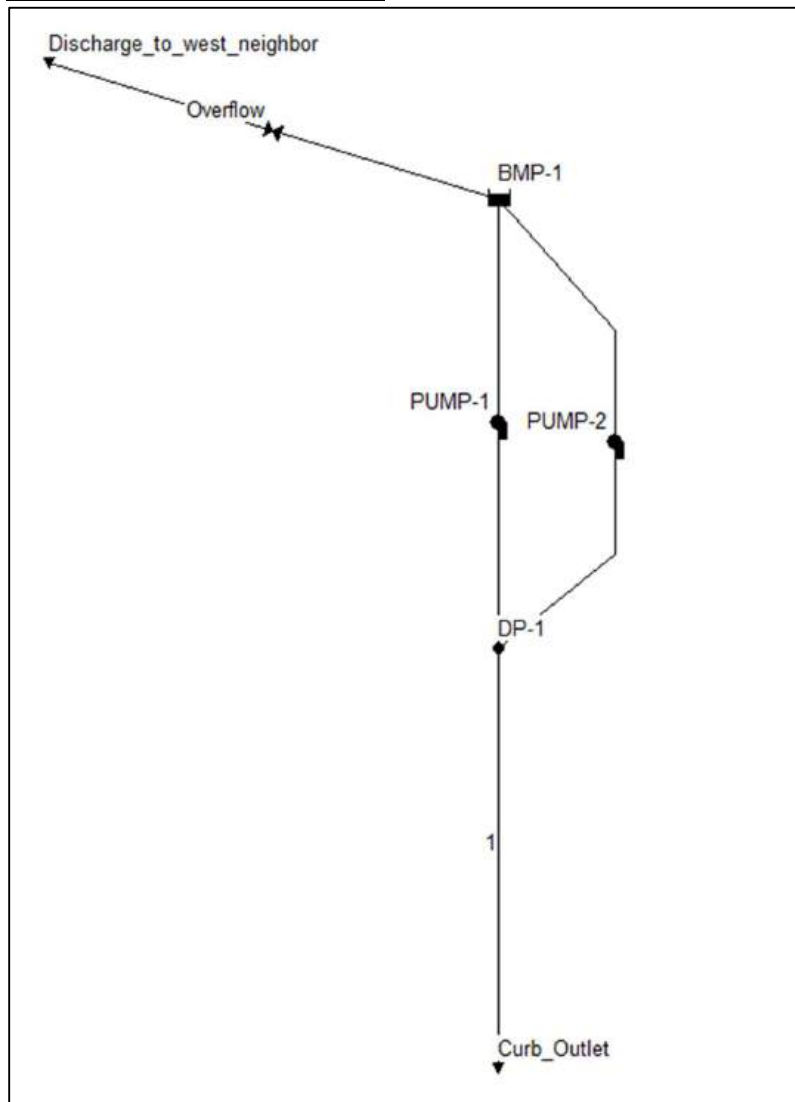
The proposed pump system has been modelled using SWMM to demonstrate that the flow discharging to Discharge Point # 1 will be less than the existing conditions.

Pump Vault SWMM Model

To calculate the required storage volume for the basin, a hydrograph of the runoff produced by Basin P-1 was required. RatHydro, a hydrograph generating program, was used to produce a hydrograph based on tributary flow to each basin. Please see Appendix 8 for the RatHydro values generated for P-1.

The hydrograph generated by RatHydro was input manually into SWMM 5.1 as a time series. The hydrograph time series was then routed through a detention node, orifice link, two pump links and a conduit link. The detention node represents the storage within the pump vault.

Schematic of SWMM model



Two outfall points were provided on the model to verify the flow that will be pumped to the gutter on Calle del Cielo and how much will drain via the overflow pipe. The overflow pipe has been modelled using an orifice link that represents a 6" pipe. The two pumps are modelled using pump links that include the pump curve provided by the manufacturer. The pump links were then routed

to a junction point that discharges via an conduit link. The conduit link represents the force main that ultimately drains to the outfall point representing the gutter on Calle del Cielo.

SWMM Summary Tables

Topic: Node Inflow Click a column header to sort the column.								
Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Day of Maximum Inflow	Hour of Maximum Inflow	Lateral Inflow Volume 10 ⁶ gal	Total Inflow Volume 10 ⁶ gal	Flow Balance Error Percent
DP-1	JUNCTION	0.00	0.40	0	04:05	0	0.0137	-2.300
Curb_Outlet	OUTFALL	0.00	0.40	0	04:05	0	0.014	0.000
Discharge_to_west_neig	OUTFALL	0.00	1.13	0	04:05	0	0.00219	0.000
BMP-1	STORAGE	1.61	1.61	0	04:05	0.016	0.016	0.196

Topic: Pumping Click a column header to sort the column.									
Pump	Percent Utilized	Number of Start-Ups	Minimum Flow CFS	Average Flow CFS	Maximum Flow CFS	Total Volume 10 ⁶ gal	Power Usage Kw-hr	% Time Below Pump Curve	% Time Above Pump Curve
PUMP-1	35.37	46	0.00	0.21	0.22	0.012	0.97	0.0	0.0
PUMP-2	6.02	1	0.00	0.20	0.20	0.002	0.20	0.0	0.0

Topic: Link Flow Click a column header to sort the column.							
Link	Type	Maximum [Flow] CFS	Day of Maximum Flow	Hour of Maximum Flow	Maximum [Velocity] ft/sec	Max / Full Flow	Max / Full Depth
1	CONDUIT	0.40	0	04:05	8.15	10.08	1.00
PUMP-1	PUMP	0.22	0	01:35	0.90		
PUMP-2	PUMP	0.20	0	04:05	0.83		
Overflow	ORIFICE	1.13	0	04:05	1.00		

The SWMM model resulted in 0.40 cfs being pumped to the gutter on Calle del Cielo and 1.13 cfs draining through the overflow pipe to the west. See Appendix 8 of this report for the SWMM input file and SWMM Output Summary.

An offsite analysis for the area tributary to the gutter on Calle del Cielo has been included in Appendix 9 of the Drainage Study. The analysis includes gutter capacity calculations for the existing conditions and the proposed conditions. The proposed conditions includes the addition of the pumped low flow of 0.40 cfs. The analysis concludes that the gutter on Calle del Cielo has enough capacity to handle the added 0.40 cfs from the site without overtopping the curb and gutters.

Results and Conclusions

The proposed improvements result in a decrease of 100-year flowrate to the westerly neighboring property and proposing a new discharge point along the gutter on Calle Del Cielo.

	Area (ac)	Imp. %	C	Tc (mins)	I ₁₀₀ (in/hr)	Total Q ₁₀₀ (cfs)	Discharge Point #	DP-# Q ₁₀₀ (cfs)
Existing Conditions	0.46	31	0.52	5.00	5.27	1.28	Discharge Point # 1	1.28
Proposed Conditions	0.46	56	0.66	5.00	5.27	1.61	Discharge Point # 1	* 1.13
							Discharge Point # 2	*0.40

*Note: The DP Q100 were calculated using the SWMM.

The project will change the onsite drainage patterns and add a discharge location. The project will drain the low flow generated by the project to Calle del Cielo while also keeping the existing discharge point to the west. The 100-year flow of the project will drain at the same location as the existing conditions of the project while also reducing the flow.

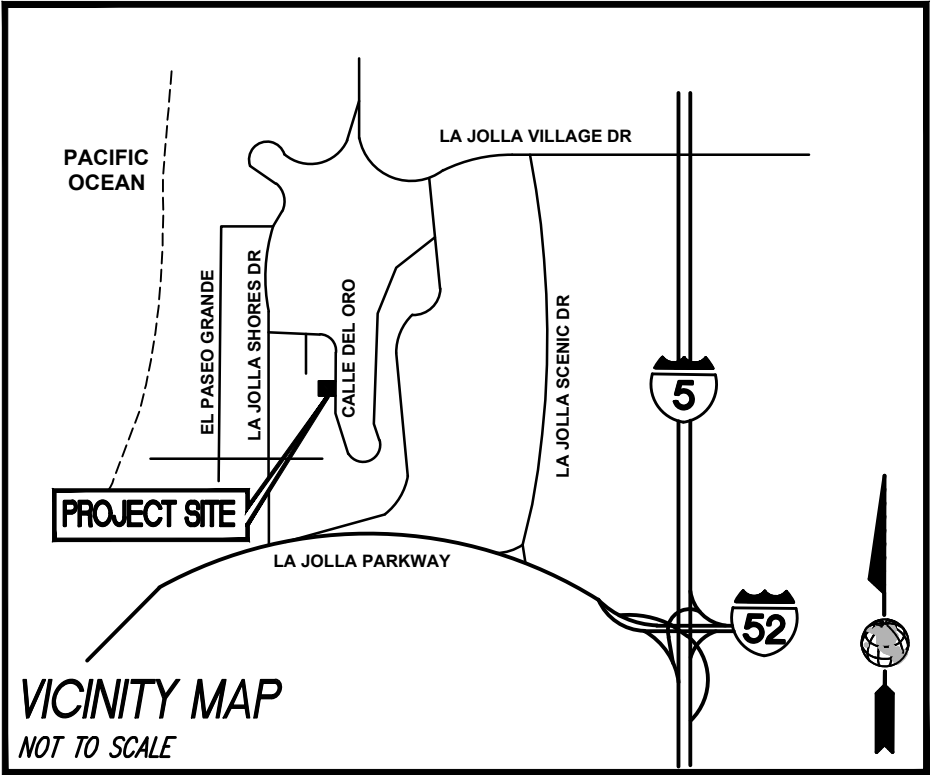
The project is not anticipated to contribute runoff that will exceed the capacity of the existing or planned drainage system.

The redevelopment of the site is not anticipated to create the risk of substantial erosion on or offsite.

The project is located in an ASBS area. The project does not propose onsite stormwater storage. The proposed pump system will pump in small cycles and will not discharge in dry weather conditions.

Project does not propose to discharge fill or dredged materials to the Waters of the State and will not involve construction near or over waters of the state, therefore no CWA 401 or 404 permit is required.

It is the opinion of Omega Engineering Consultants that the project will not cause new adverse effects to the downstream facilities or receiving waters as a result of modified peak flowrate during the 100-yr, 6-hr storm.



DRAINAGE BASIN DATA					
BASIN #	AREA (AC)	C-VALUE	T _c (MINS)	I ₁₀₀ (IN/HR)	Q ₁₀₀ (CFS)
E-1	0.46	0.52	5.00	5.27	1.28

LEGEND

BASIN NUMBER

E-#

AREA LIMITS

- - - - -

DRAINAGE FLOW PATH

→

BUILDING AREA

[Solid Grey Box]

PAVEMENT AREA

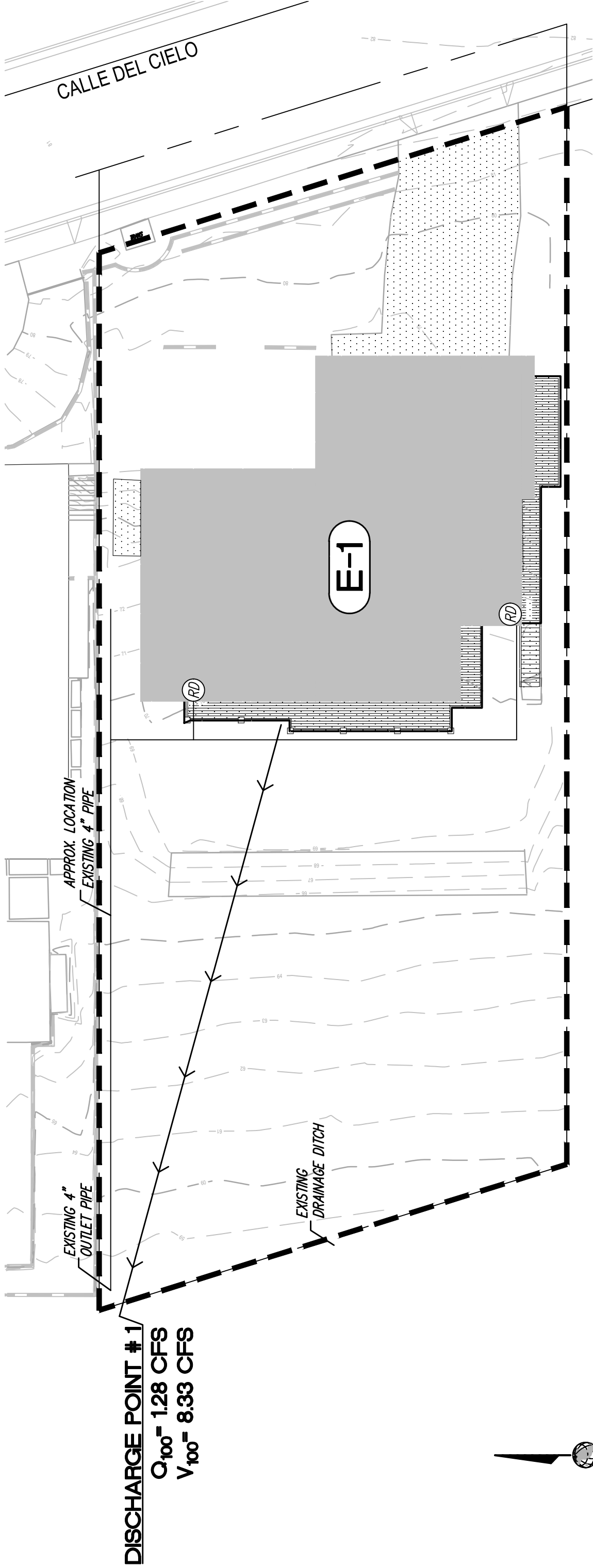
[Dotted Box]

PERVIOUS AREA

[White Box]

ROOF DRAIN LOCATION

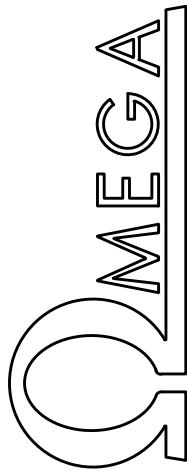
ⓂRD



DISCHARGE POINT #1
Q₁₀₀= 1.28 CFS
V₁₀₀= 8.33 CFS



RACE RESIDENCE
EXISTING HYDROLOGY EXHIBIT



DRAINAGE BASIN DATA				
BASIN #	AREA (AC)	C-VALUE	T _c (MINS)	I ₁₀₀ (IN/HR)
P-1	0.46	0.66	5.00	5.27
				Q ₁₀₀ (CFS)
				1.61

NOTE: THE Q100 SHOWN ON DISCHARGE POINTS # 1 AND 2 HAVE BEEN DETERMINED USING A SWMM MODEL ANALYSIS. PLEASE REFER TO APPENDIX 8 FOR MORE DETAILS.

LEGEND

BASIN NUMBER

AREA LIMITS

DRAINAGE FLOW PATH

BUILDING AREA

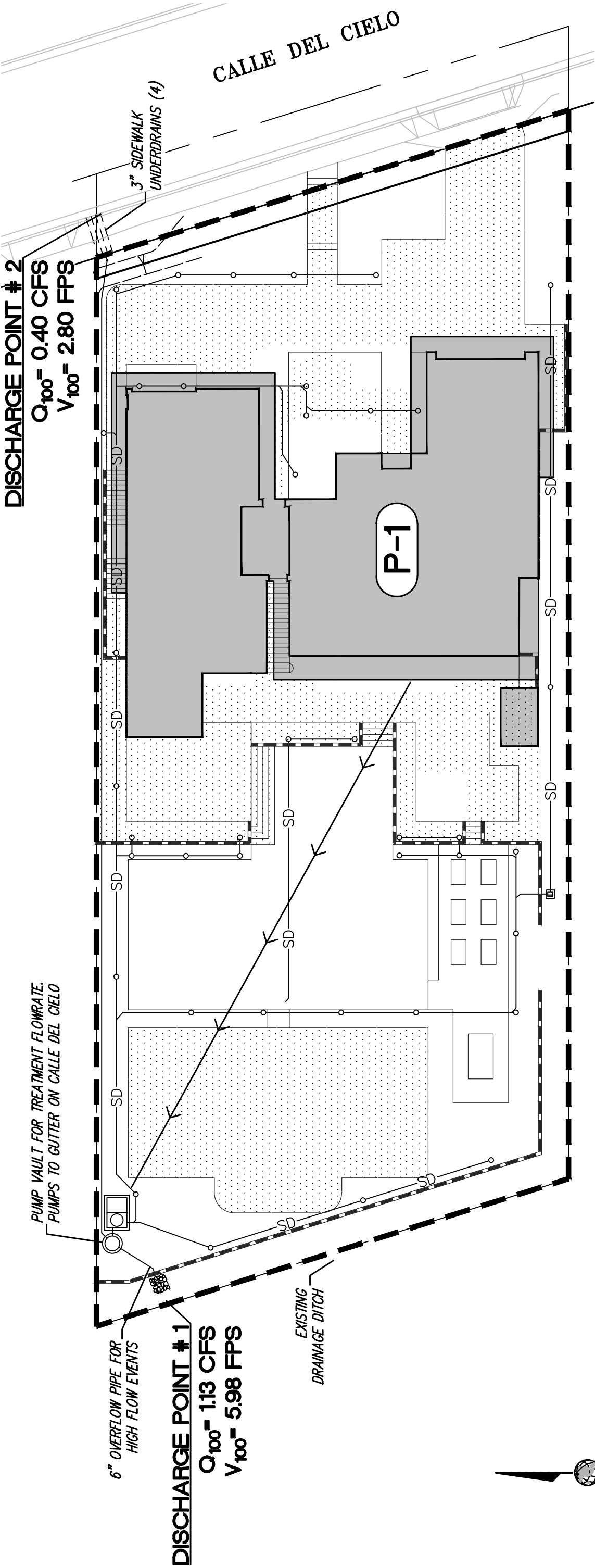
PAVEMENT AREA

PERVIOUS AREA

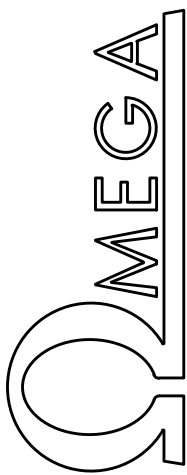
ROOF DRAIN LOCATION

P-#

RD



RACE RESIDENCE
PROPOSED HYDROLOGY EXHIBIT



RACE RESIDENCE
HYDROLOGY AND HYDRAULICS CALCS

1/27/2026

Sub-Basin	AREA Ac.	"C"	Total Flow Length, (ft)	S(%) (avg.)	T _c mins	I in/hr	Q cfs	NOTES 100-year, 6 hr storm
								P(6) 2.0
E-1	0.46	0.52	100.0	12%	5.00	5.27	1.28	

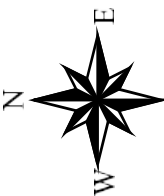
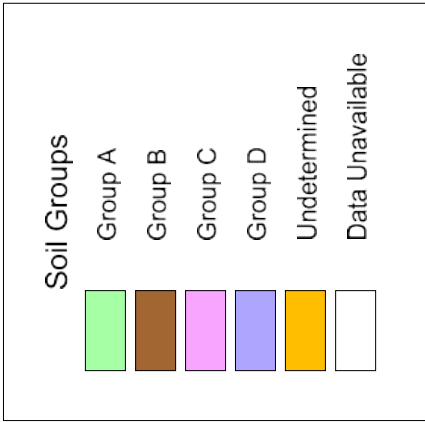
Appendix 1

County of San Diego Hydrology Manual



Soil Hydrologic Groups

Legend



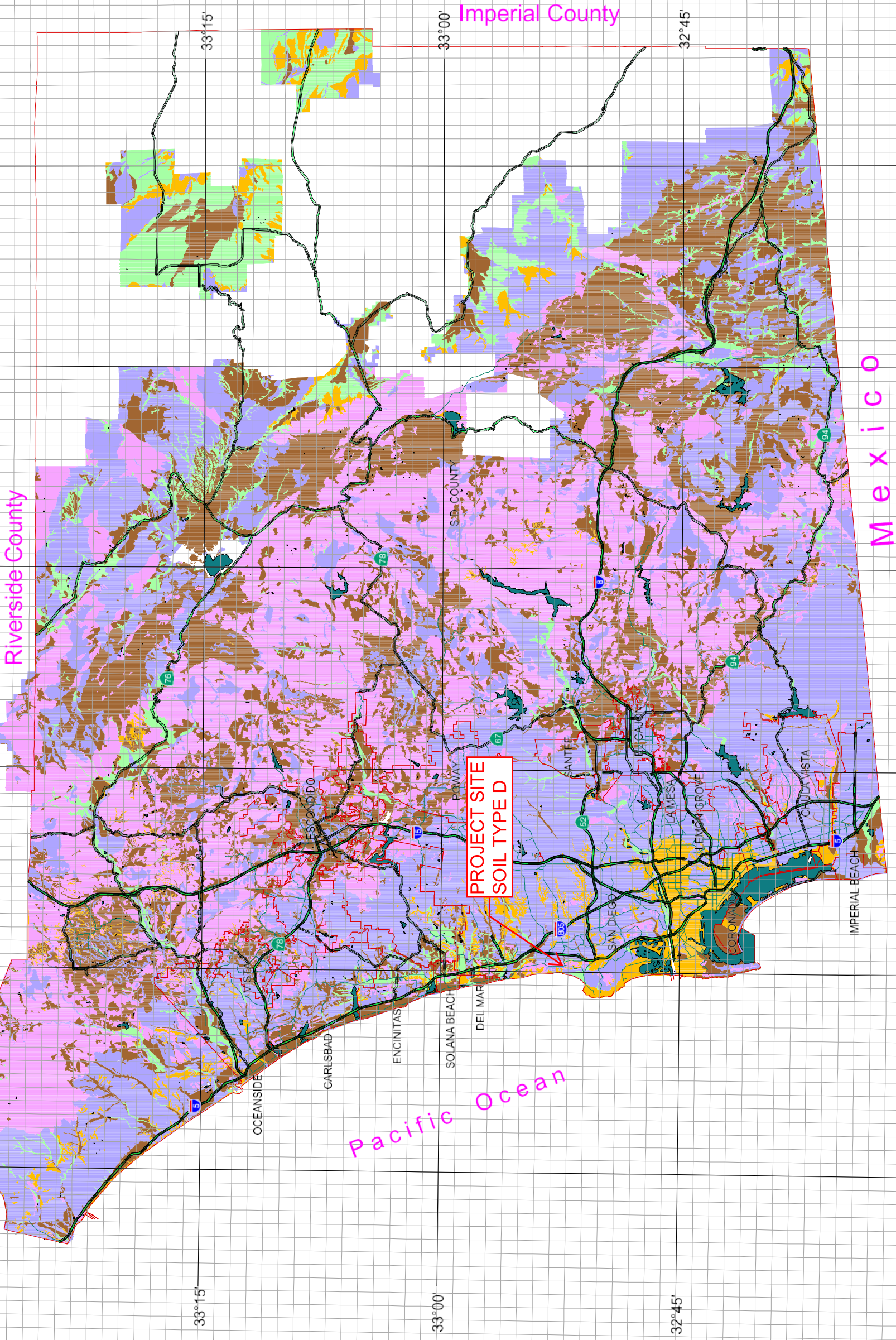
3 0 3 Miles

APPENDIX 1.0

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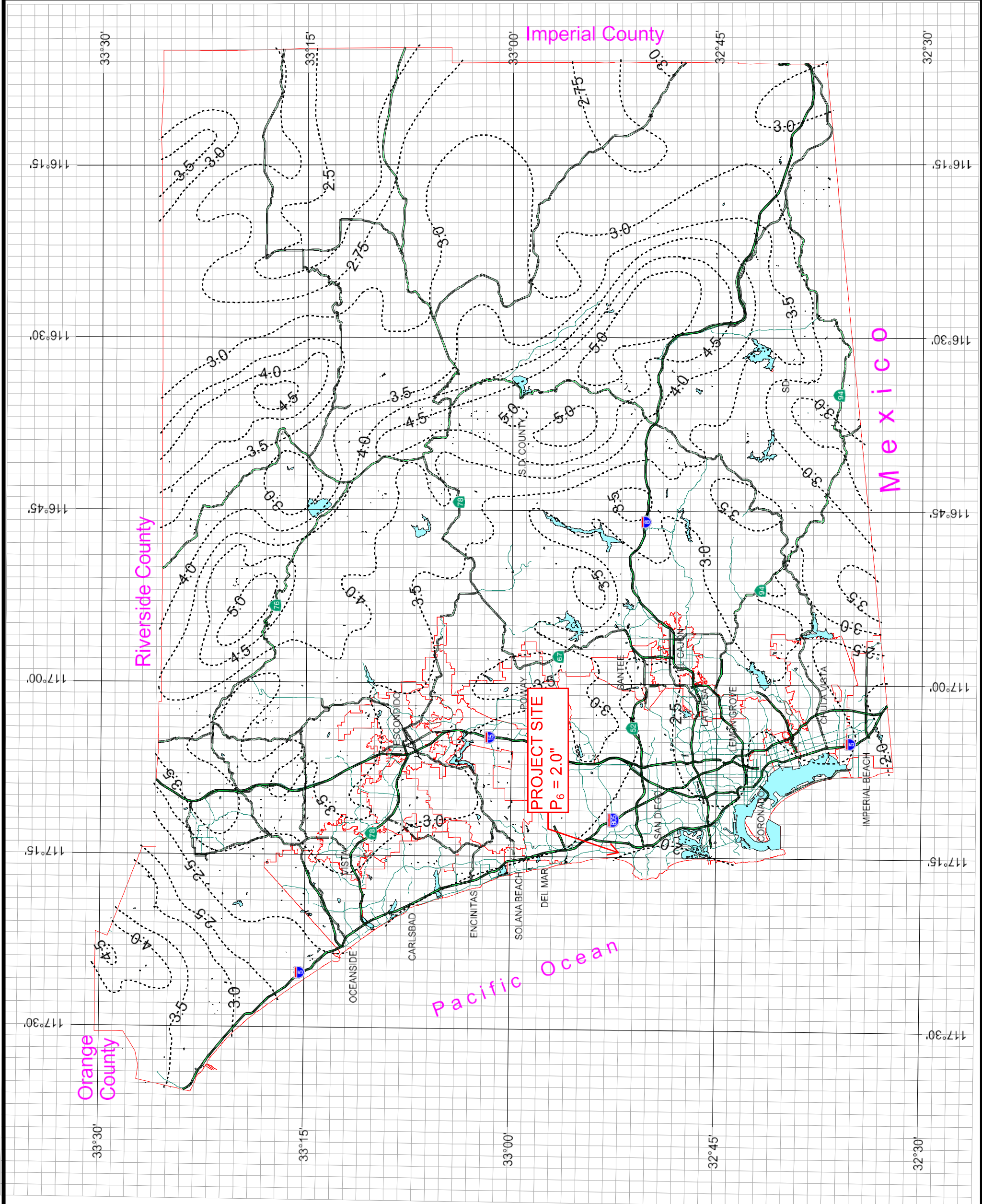


Appendix 2



Rainfall Isopluvials

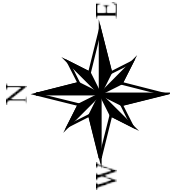
100 Year Rainfall Event - 6 Hours



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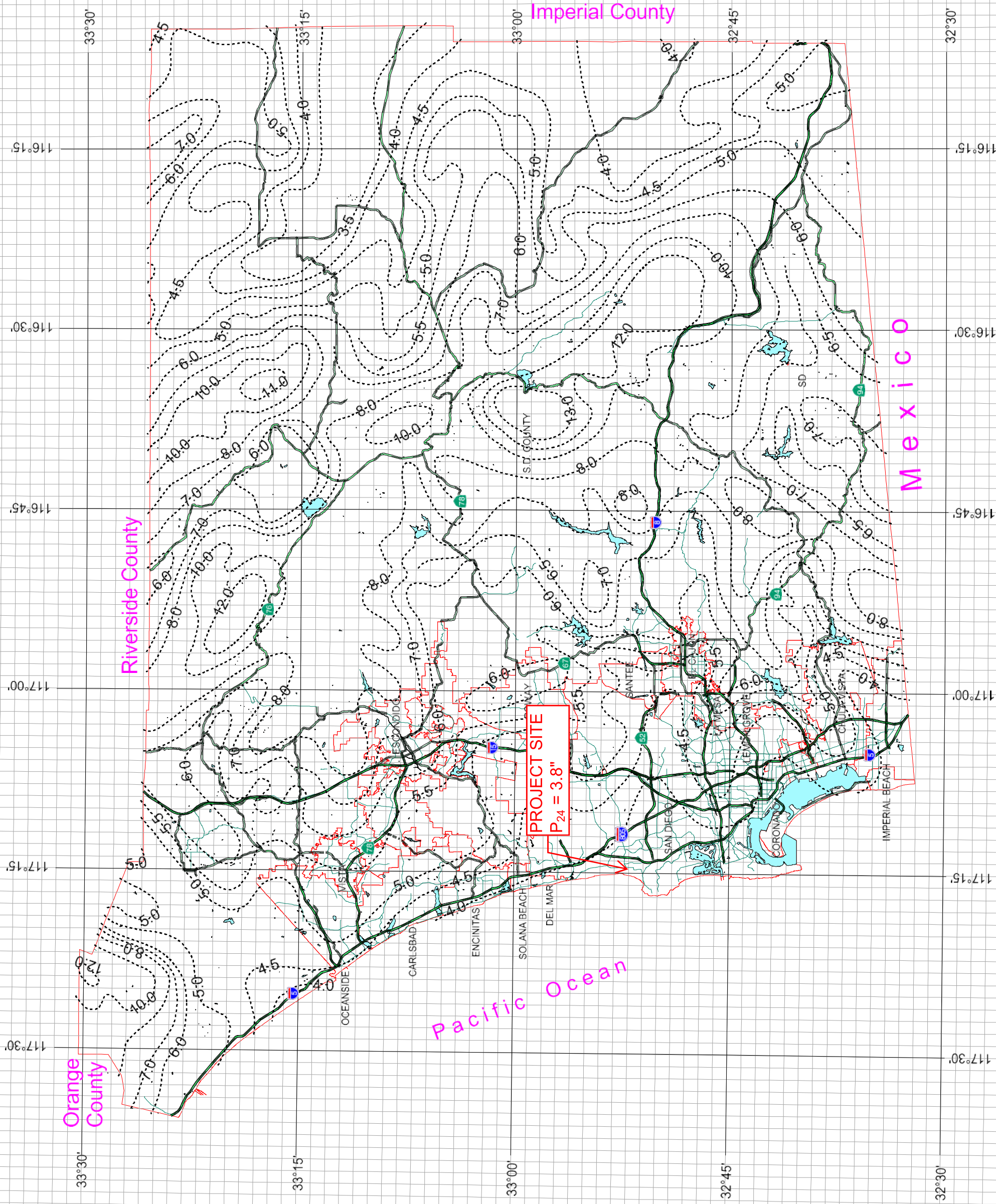
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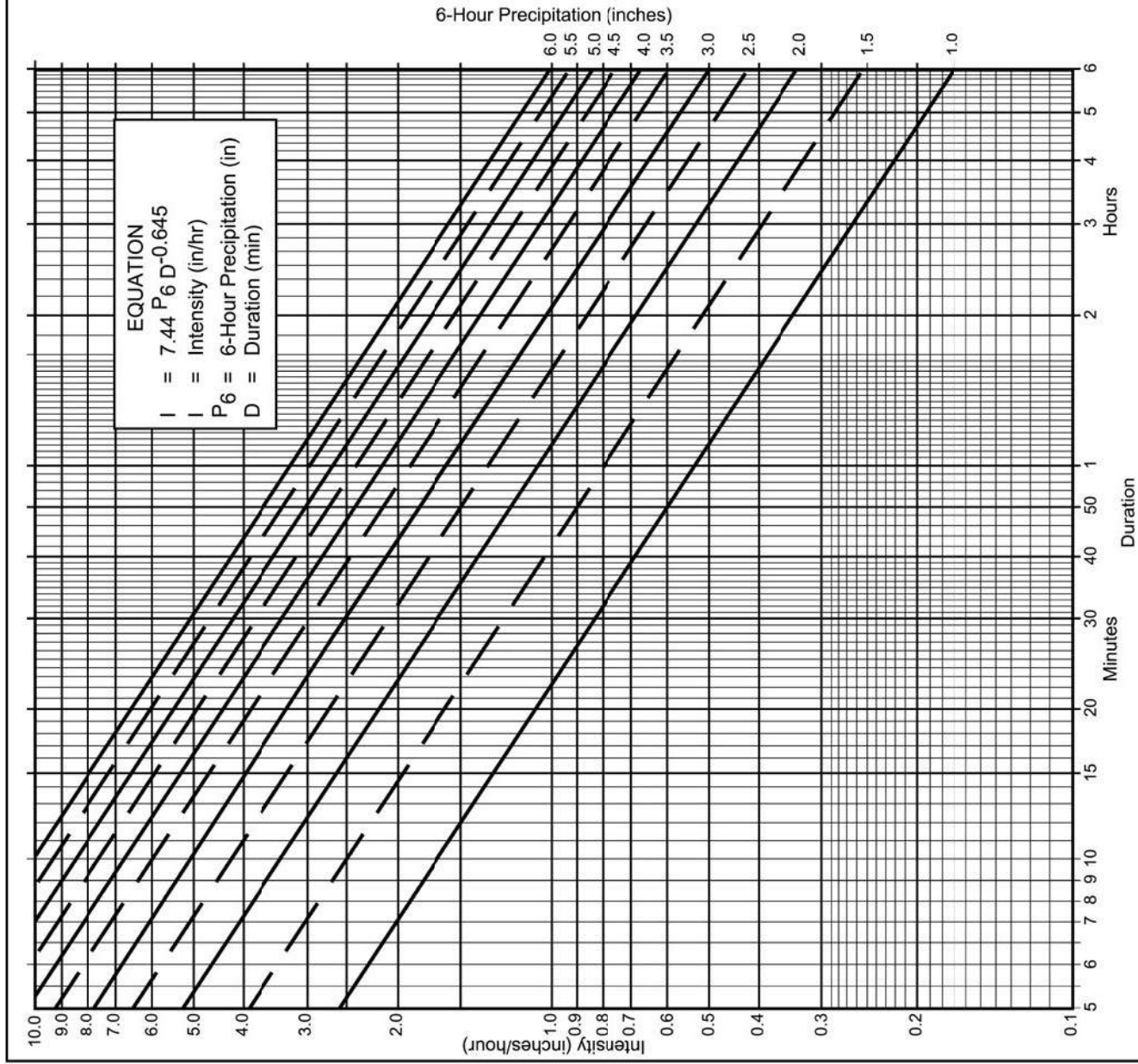
3 0 3 Miles

Appendix 3

APPENDIX 3.0



Appendix 4



Directions for Application:

- (1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).
- (2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicable to Desert).
- (3) Plot 6 hr precipitation on the right side of the chart.
- (4) Draw a line through the point parallel to the plotted lines.
- (5) This line is the intensity-duration curve for the location being analyzed.

Application Form:

- Selected frequency 100 year
- $P_6 = 2.0$ in., $P_{24} = 3.8$, $\frac{P_6}{P_{24}} = 52.6$ %⁽²⁾
- Adjusted $P_6^{(2)} =$ in.
- $t_x =$ min. see calculations for values of each basin
- $I =$ in./hr. See methodology to see the equations used for Intensity and time of concentration

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

P6	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Duration	I	I	I	I	I	I	I	I	I	I	I
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Template

FIGURE

Appendix 5

**Table 3-1
RUNOFF COEFFICIENTS FOR URBAN AREAS**

Land Use		Runoff Coefficient "C"			
NRCS Elements	County Elements	% IMPER.	Soil Type		
			A	B	C
Undisturbed Natural Terrain (Natural)	Permanent Open Space	0*	0.20	0.25	0.30
Low Density Residential (LDR)	Residential, 1.0 DU/A or less	10	0.27	0.32	0.36
Low Density Residential (LDR)	Residential, 2.0 DU/A or less	20	0.34	0.38	0.42
Low Density Residential (LDR)	Residential, 2.9 DU/A or less	25	0.38	0.41	0.45
Medium Density Residential (MDR)	Residential, 4.3 DU/A or less	30	0.41	0.45	0.48
Medium Density Residential (MDR)	Residential, 7.3 DU/A or less	40	0.48	0.51	0.54
Medium Density Residential (MDR)	Residential, 10.9 DU/A or less	45	0.52	0.54	0.57
Medium Density Residential (MDR)	Residential, 14.5 DU/A or less	50	0.55	0.58	0.60
High Density Residential (HDR)	Residential, 24.0 DU/A or less	65	0.66	0.67	0.69
High Density Residential (HDR)	Residential, 43.0 DU/A or less	80	0.76	0.77	0.78
Commercial/Industrial (N. Com)	Neighborhood Commercial	80	0.76	0.77	0.78
Commercial/Industrial (G. Com)	General Commercial	85	0.80	0.80	0.81
Commercial/Industrial (O.P. Com)	Office Professional/Commercial	90	0.83	0.84	0.84
Commercial/Industrial (Limited I.)	Limited Industrial	90	0.83	0.84	0.84
Commercial/Industrial (General I.)	General Industrial	95	0.87	0.87	0.87

*The values associated with 0% impervious may be used for direct calculation of the runoff coefficient as described in Section 3.1.2 (representing the pervious runoff coefficient, C_p , for the soil type), or for areas that will remain undisturbed in perpetuity. Justification must be given that the area will remain natural forever (e.g., the area is located in Cleveland National Forest).

DU/A = dwelling units per acre

NRCS = National Resources Conservation Service

Appendix 6

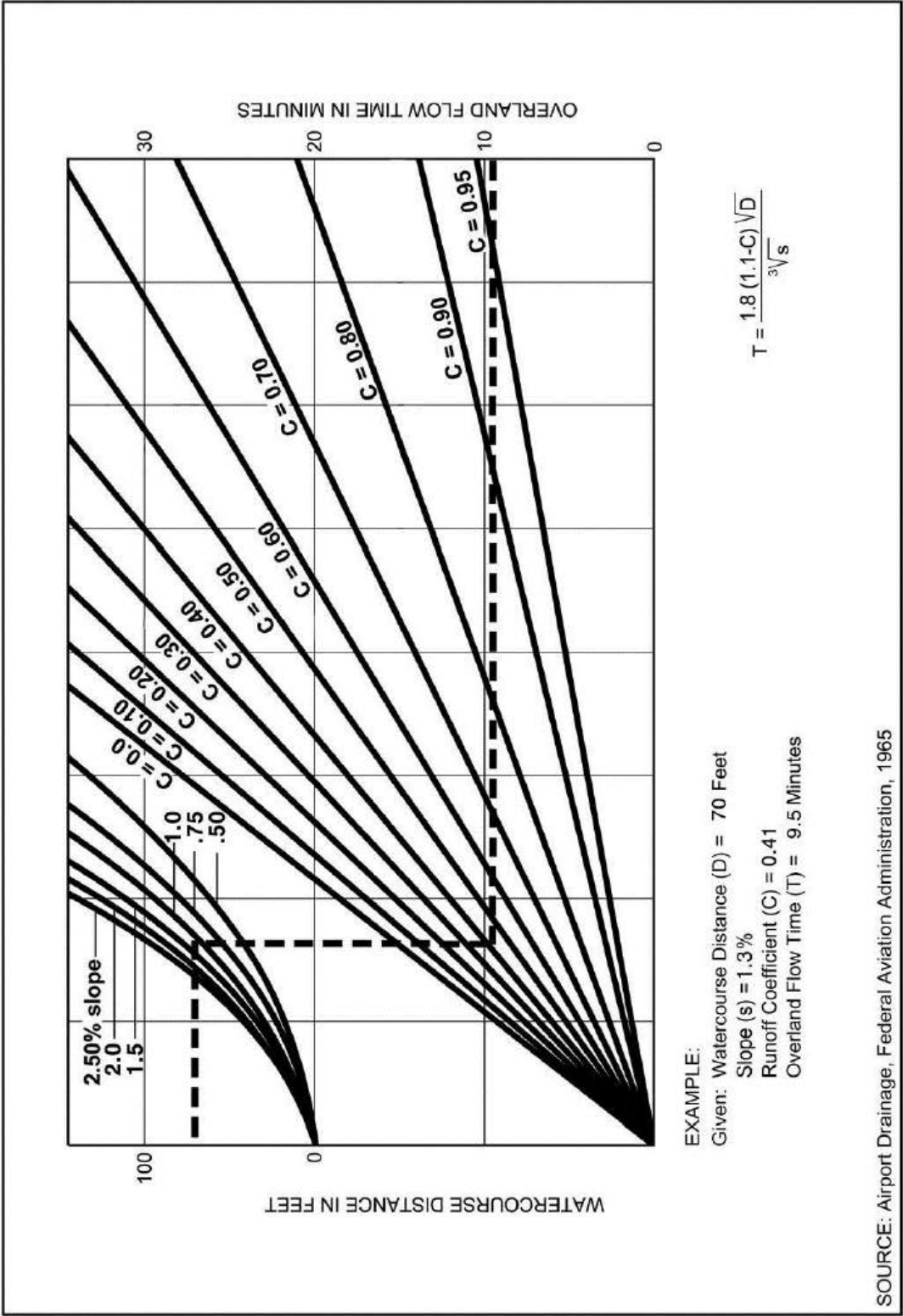


Figure A-4. Rational Formula - Overland Time of Flow Nomograph

Note: Use formula for watercourse distances in excess of 100 feet.

Appendix 7

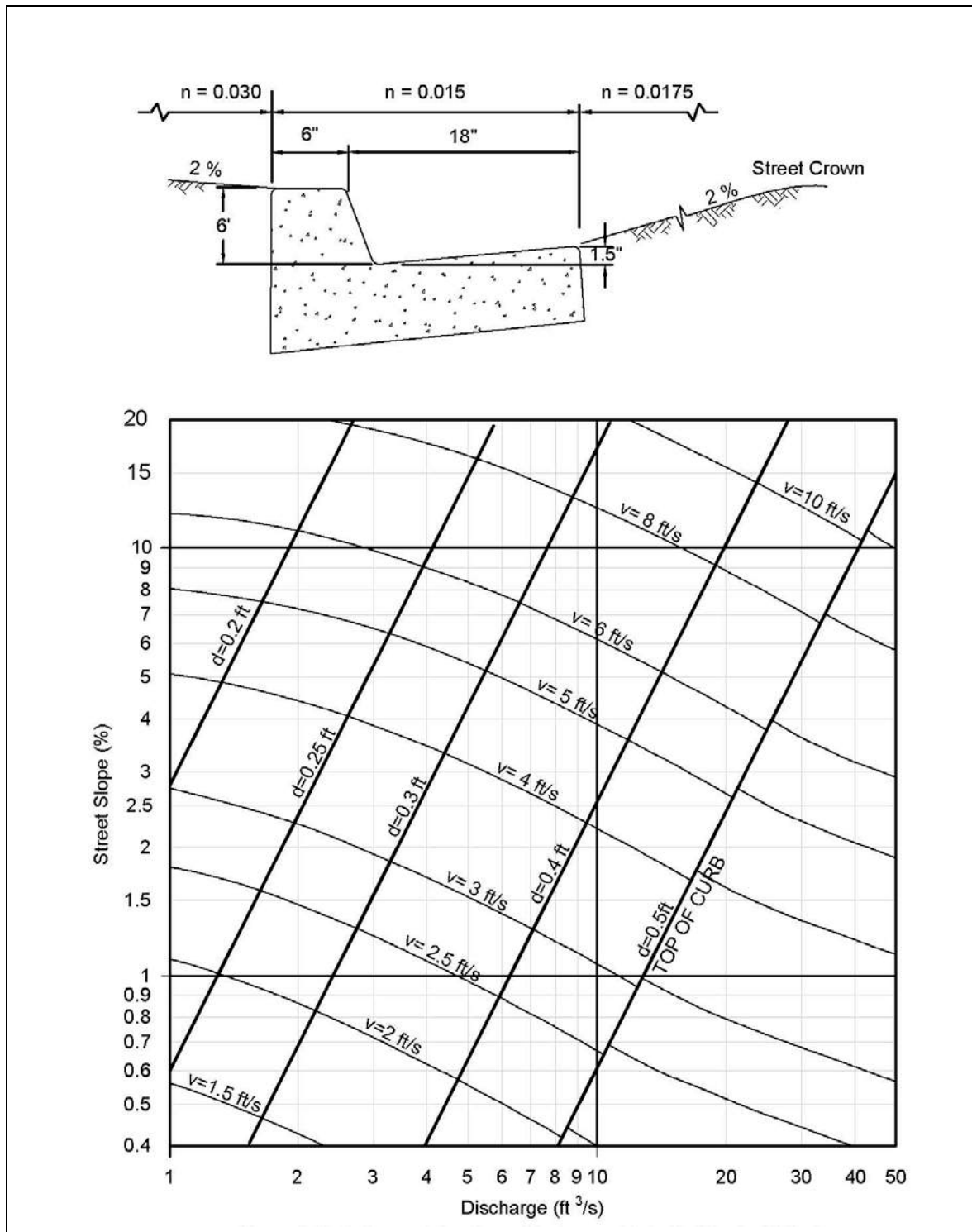


Figure 3-2: Gutter and Roadway Discharge-Velocity Chart (6" Curb)

Appendix 8

RUN DATE 1/22/2026
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 5 MIN.
6 HOUR RAINFALL 2 INCHES
BASIN AREA 0.46 ACRES
RUNOFF COEFFICIENT 0.66
PEAK DISCHARGE 1.61 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 5	DISCHARGE (CFS) = 0
TIME (MIN) = 10	DISCHARGE (CFS) = 0
TIME (MIN) = 15	DISCHARGE (CFS) = 0
TIME (MIN) = 20	DISCHARGE (CFS) = 0
TIME (MIN) = 25	DISCHARGE (CFS) = 0
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TIME (MIN) = 345	DISCHARGE (CFS) = 0
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TIME (MIN) = 355	DISCHARGE (CFS) = 0
TIME (MIN) = 360	DISCHARGE (CFS) = 0
TIME (MIN) = 365	DISCHARGE (CFS) = 0

[TITLE]
;;Project Title/Notes

[OPTIONS]
;;Option Value
FLOW_UNITS CFS
INFILTRATION GREEN_AMPT
FLOW_ROUTING DYNWAVE
LINK_OFFSETS DEPTH
MIN_SLOPE 0
ALLOW_PONDING NO
SKIP_STEADY_STATE NO

START_DATE 12/22/2025
START_TIME 00:00:00
REPORT_START_DATE 12/22/2025
REPORT_START_TIME 00:00:00
END_DATE 12/22/2025
END_TIME 06:00:00
SWEEP_START 01/01
SWEEP_END 12/31
DRY_DAYS 0
REPORT_STEP 00:00:01
WET_STEP 00:00:01
DRY_STEP 00:00:01
ROUTING_STEP 0:00:01
RULE_STEP 00:00:00

INERTIAL_DAMPING PARTIAL
NORMAL_FLOW_LIMITED BOTH
FORCE_MAIN_EQUATION H-W
VARIABLE_STEP 0.75
LENGTHENING_STEP 0
MIN_SURFAREA 12.566
MAX_TRIALS 8
HEAD_TOLERANCE 0.005
SYS_FLOW_TOL 5
LAT_FLOW_TOL 5
MINIMUM_STEP 0.5
THREADS 1

[EVAPORATION]
;;Data Source Parameters
;;-----
CONSTANT 0.0
DRY_ONLY NO

[JUNCTIONS]
;;Name Elevation MaxDepth InitDepth SurDepth Aponded
;;-----
DP-1 81.19 0 0 100 0

[OUTFALLS]

;;Name	Elevation	Type	Stage Data	Gated	Route To
;;					
;;					
Curb_Outlet	81	FREE		NO	
Discharge_to_west_neighbor	0	FREE			NO
[STORAGE]					
;;Name	Elev.	MaxDepth	InitDepth	Shape	Curve Name/Params
;;					
BMP-1	60	8	0	TABULAR	PRECAST_BOX
[CONDUITS]					
;;Name	From Node	To Node	Length	Roughness	InOffset
;;					
1	DP-1	Curb_Outlet	200	0.01	0
[PUMPS]					
;;Name	From Node	To Node	Pump Curve	Status	Sartup Shutoff
;;					
PUMP-1	BMP-1	DP-1	FL100	ON	1.5
PUMP-2	BMP-1	DP-1	FL100	ON	2.0
[ORIFICES]					
;;Name	From Node	To Node	Type	Offset	Qcoeff
;;					
Overflow	BMP-1	Discharge_to_west_neighbor	SIDE	6.0	0.6
[XSECTIONS]					
;;Link	Shape	Geom1	Geom2	Geom3	Geom4
;;					
1	FORCE_MAIN	0.25	135	0	0
Overflow	CIRCULAR	0.5	0	0	0
[INFLOWS]					
;;Node	Constituent	Time Series	Type	Mfactor	Sfactor
;;					
BMP-1	FLOW	P-1	FLOW	1.0	1.0
[CURVES]					
;;Name	Type	X-Value	Y-Value		
;;					
LE100	Pump3	0	0.42		
LE100		4	0.40		
LE100		11	0.36		
LE100		17	0.31		
LE100		23	0.27		
LE100		25	0.22		
LE100		28	0.18		
LE100		31	0.13		
LE100		34	0.09		
LE100		36	0.04		
LE100		40	0		
;					
FL100	Pump3	0	0.240641711		

FL100	10	0.231729055
FL100	20	0.216131907
FL100	30	0.200534759
FL100	40	0.184937611
FL100	50	0.160427807
FL100	60	0.138146168
FL100	70	0.106951872
FL100	80	0.06684492
FL100	90	0
;		
PRECAST_BOX	Storage	7.07
PRECAST_BOX	10	7.07

[TIMESERIES]		
;;Name	Date	Time Value
;-----		
P-1		0:00 0
P-1		0:05 0
P-1		0:10 0
P-1		0:15 0
P-1		0:20 0
P-1		0:25 0
P-1		0:30 0
P-1		0:35 0
P-1		0:40 0
P-1		0:45 0
P-1		0:50 0
P-1		0:55 0
P-1		1:00 0
P-1		1:05 0
P-1		1:10 0
P-1		1:15 0
P-1		1:20 0
P-1		1:25 0
P-1		1:30 0
P-1		1:35 0.1
P-1		1:40 0.1
P-1		1:45 0.1
P-1		1:50 0.1
P-1		1:55 0.1
P-1		2:00 0.1
P-1		2:05 0.1
P-1		2:10 0.1
P-1		2:15 0.1
P-1		2:20 0.1
P-1		2:25 0.1
P-1		2:30 0.1
P-1		2:35 0.1
P-1		2:40 0.1
P-1		2:45 0.1
P-1		2:50 0.1
P-1		2:55 0.1
P-1		3:00 0.1

P-1	3:05	0.1
P-1	3:10	0.1
P-1	3:15	0.1
P-1	3:20	0.1
P-1	3:25	0.1
P-1	3:30	0.1
P-1	3:35	0.1
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P-1	3:45	0.2
P-1	3:50	0.2
P-1	3:55	0.3
P-1	4:00	0.4
P-1	4:05	1.61
P-1	4:10	0.3
P-1	4:15	0.2
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P-1	6:00	0

[REPORT]
;;Reporting Options
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units None

[COORDINATES]
;;Node X-Coord Y-Coord
;;-----
DP-1 1238.870 3744.823

Curb_Outlet	1242.862	1476.662	
Discharge_to_west_neighbor	-1183.775	6903.974	
BMP-1	1241.322	6175.707	

[VERTICES]		
;;Link	X-Coord	Y-Coord
;;		
PUMP-2	1870.642	5461.964
PUMP-2	1870.642	4256.853

NOTE: The summary statistics displayed in this report are based on results found at every computational time step, not just on results from each reporting time step.

Analysis Options

Flow Units CFS
Process Models:
Rainfall/Runoff NO
RDII NO
Snowmelt NO
Groundwater NO
Flow Routing YES
Ponding Allowed NO
Water Quality NO
Flow Routing Method DYNWAVE
Surcharge Method EXTRAN
Starting Date 12/22/2025 00:00:00
Ending Date 12/22/2025 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:00:01
Routing Time Step 1.00 sec
Variable Time Step YES
Maximum Trials 8
Number of Threads 1
Head Tolerance 0.005000 ft

*****	Volume	Volume
Flow Routing Continuity	acre-feet	10^6 gal
*****	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.049	0.016
External Outflow	0.050	0.016
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	-1.828	

Highest Continuity Errors *****

Node DP-1 (-2.35%)

Time-Step Critical Elements

None

Highest Flow Instability Indexes

All links are stable.

```

*****
Routing Time Step Summary
*****
Minimum Time Step      : 0.50 sec
Average Time Step      : 1.00 sec
Maximum Time Step      : 1.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.17
Percent Not Converging  : 2.36

```

```
**
** Node Depth Summary **
**
```

Node	Type	Average	Maximum	Maximum	Time of Max	Reported
		Depth	Depth	HGL	Occurrence	Max Depth
		Feet	Feet	Feet	days hr:min	Feet
DP-1	JUNCTION	2.40	27.94	109.13	0 03:55	23.87
Curb_Outlet	OUTFALL	0.11	0.25	81.25	0 01:36	0.25
Discharge_to_west_neighbor	OUTFALL		0.00	0.00	0.00 0	00:00
BMP-1	STORAGE	0.91	7.68	67.68	0 04:05	7.68

```

*****
Node Inflow Summary
*****

```

Node	Type	Maximum		Time of Max Occurrence	Lateral		Total		Flow Balance Error Percent
		Lateral Inflow	Total Inflow		Inflow Volume	Inflow Volume			
		CFS	CFS		days hr:min	10^6 gal	10^6 gal		

DP-1	JUNCTION	0.00	0.40	0	04:05	0	0.0137	-2.300
Curb_Outlet	OUTFALL	0.00	0.40	0	04:05	0	0.014	0.000
Discharge_to_west_neighbor	OUTFALL	0.00	1.13	0	04:05	0	0.00219	0.000
BMP-1	STORAGE	1.61	1.61	0	04:05	0.016	0.016	0.196

Node Surgecharge Summary

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours		Max. Height		Min. Depth	
		Surcharged	Feet	Above Crown	Feet	Below Rim	Feet
DP-1	JUNCTION	2.04	27.690			0.000	

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Storage Unit	Average		Avg		Evap		Exfil		Maximum		Time of Max		Maximum
	Volume	1000 ft3	Pcnt	Full	Pcnt	Loss	Pcnt	Loss	Volume	1000 ft3	Pcnt	Occurrence	Outflow
BMP-1		0.006	11	0	0	0			0.054	96	0	04:05	1.53

Outfall Loading Summary

Outfall Node	Flow		Avg		Max		Total	
	Freq	Pcnt	Flow	CFS	Flow	CFS	Volume	10^6 gal
Curb_Outlet	64.45	0.13	0.13	0.40	0.014			
Discharge_to_west_neighbor	2.00	0.68	1.13	0.002				
System	33.22	0.81	1.13	0.016				

Link Flow Summary

Link	Type	Maximum		Time of Max Occurrence days hr:min	Maximum Veloc ft/sec	Max/ Full Flow	Max/ Full Depth
		Flow CFS					
1	CONDUIT	0.40	0	04:05	8.15	10.08	1.00
PUMP-1	PUMP	0.22	0	01:35		0.90	
PUMP-2	PUMP	0.20	0	04:05		0.83	
Overflow	ORIFICE	1.13	0	04:05			1.00

Flow Classification Summary

Conduit	Adjusted		Fraction of Time in Flow Class							
	/Actual	Length	Up	Down	Sub	Sup	Up	Down	Norm	Inlet

1	1.00	0.27	0.00	0.00	0.73	0.00	0.00	0.00	0.00	0.00

Conduit Surchage Summary

Conduit	Hours Full		Above Full		Hours	
	Both	Upstream	Dnstream	Normal	Flow	Capacity

1	1.93	1.94	1.93	2.21	1.93	1.93

Pumping Summary

Pump	Percent Utilized	Number of Start-Ups	Min Flow CFS	Avg Flow CFS	Max Flow CFS	Total Volume 10^6 gal	% Time Off		
							Power Usage Kw-hr	Pump Curve Low	Off High
PUMP-1	35.37	46	0.00	0.21	0.22	0.012	0.97	0.0	0.0
PUMP-2	6.02	1	0.00	0.20	0.20	0.002	0.20	0.0	0.0

Analysis begun on: Thu Jan 22 09:53:33 2026
Analysis ended on: Thu Jan 22 09:53:33 2026
Total elapsed time: < 1 sec

Appendix 9

Offsite Area Tributary to Gutter on Calle del Cielo

Area = 3.20 acres

Impervious % Approx. = 60%

C = 0.68

Tc = 5 minutes

Intensity = 5.27 in/hr

$Q_{100} = C * I * A = 0.68 * 5.27 \text{ in/hr} * 3.20 \text{ acres} = 11.45 \text{ cfs}$

Q_{100} with added low flow (0.40 cfs) from project site = 11.85 cfs

Legend

Offsite Area

Project Site



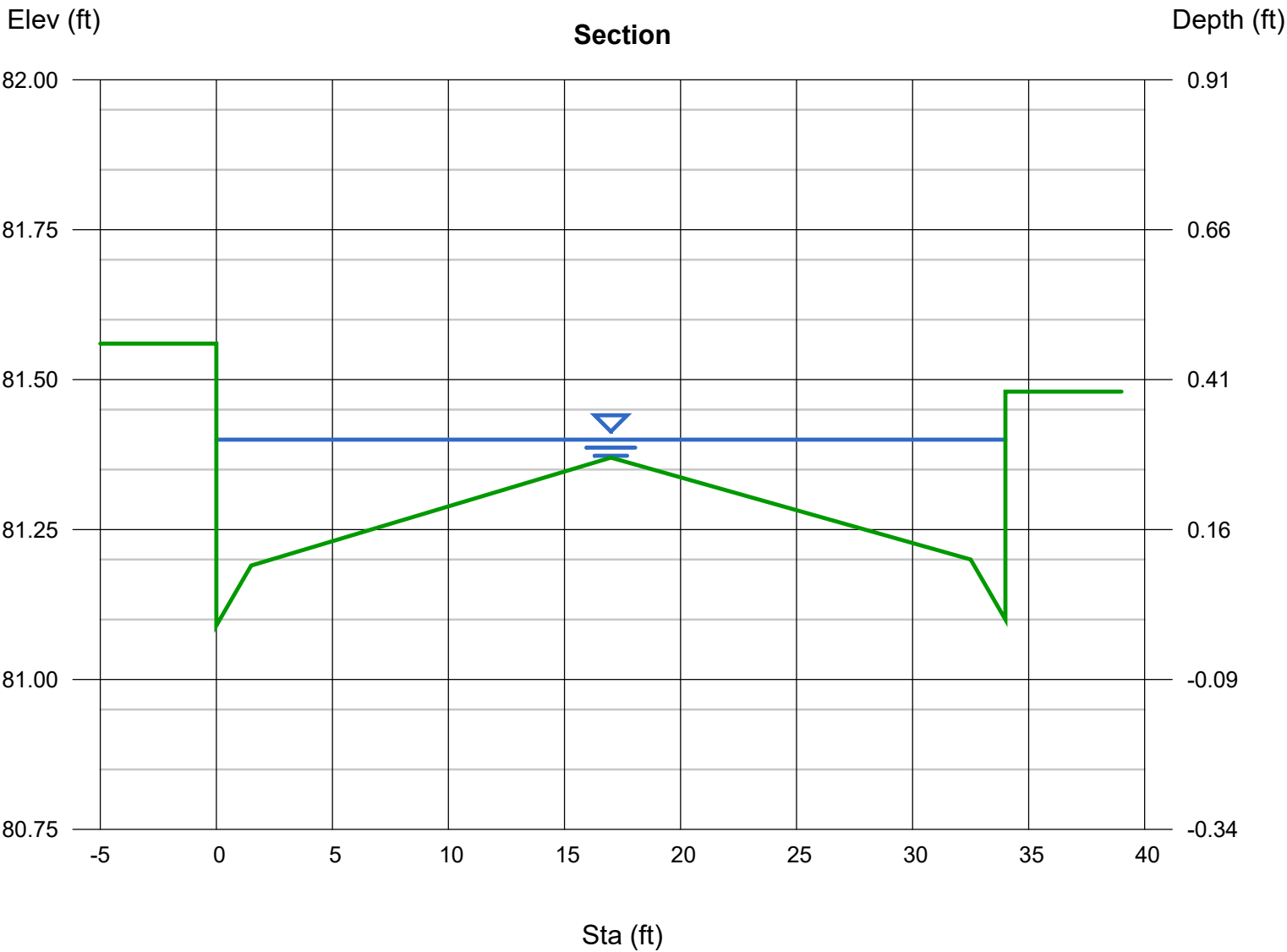
Channel Report

Gutter Capacity Existing Conditions - Calle del Cielo

User-defined		Highlighted	
Invert Elev (ft)	= 81.09	Depth (ft)	= 0.31
Slope (%)	= 0.90	Q (cfs)	= 11.45
N-Value	= 0.013	Area (sqft)	= 4.41
Calculations		Velocity (ft/s)	= 2.60
Compute by:	Known Q	Wetted Perim (ft)	= 34.62
Known Q (cfs)	= 11.45	Crit Depth, Yc (ft)	= 0.34
		Top Width (ft)	= 34.00
		EGL (ft)	= 0.41

(Sta, El, n)-(Sta, El, n)...

(0.00, 81.56)-(0.00, 81.09, 0.013)-(1.50, 81.19, 0.013)-(17.00, 81.37, 0.013)-(32.50, 81.20, 0.013)-(34.00, 81.10, 0.013)-(34.00, 81.48, 0.013)



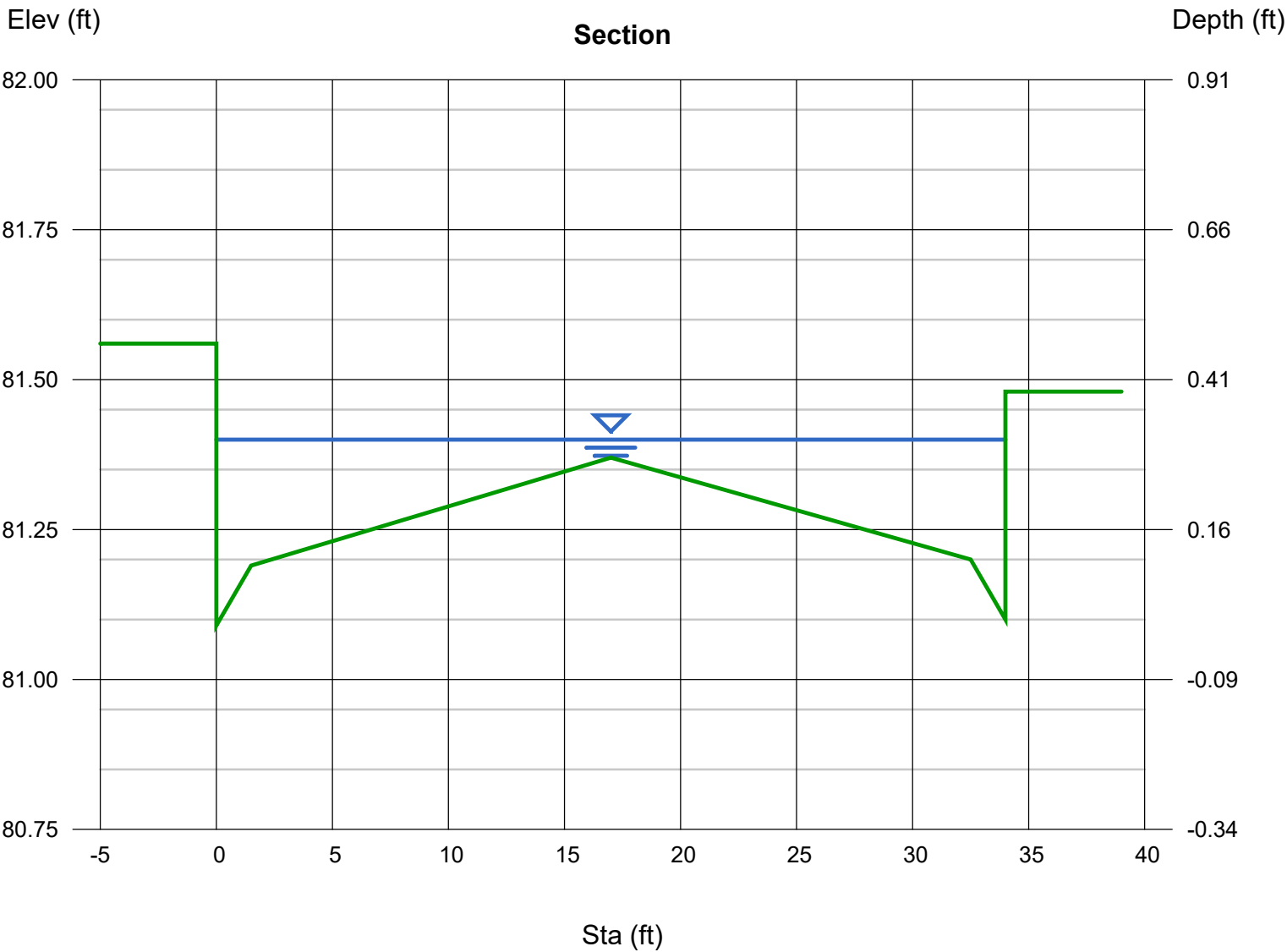
Channel Report

Gutter Capacity Proposed Conditions - Calle del Cielo

User-defined		Highlighted	
Invert Elev (ft)	= 81.09	Depth (ft)	= 0.31
Slope (%)	= 0.90	Q (cfs)	= 11.85
N-Value	= 0.013	Area (sqft)	= 4.41
		Velocity (ft/s)	= 2.69
		Wetted Perim (ft)	= 34.62
		Crit Depth, Yc (ft)	= 0.34
		Top Width (ft)	= 34.00
		EGL (ft)	= 0.42

Calculations
Compute by: Known Q
Known Q (cfs) = 11.85

(Sta, El, n)-(Sta, El, n)...
(0.00, 81.56)-(0.00, 81.09, 0.013)-(1.50, 81.19, 0.013)-(17.00, 81.37, 0.013)-(32.50, 81.20, 0.013)-(34.00, 81.10, 0.013)-(34.00, 81.48, 0.013)



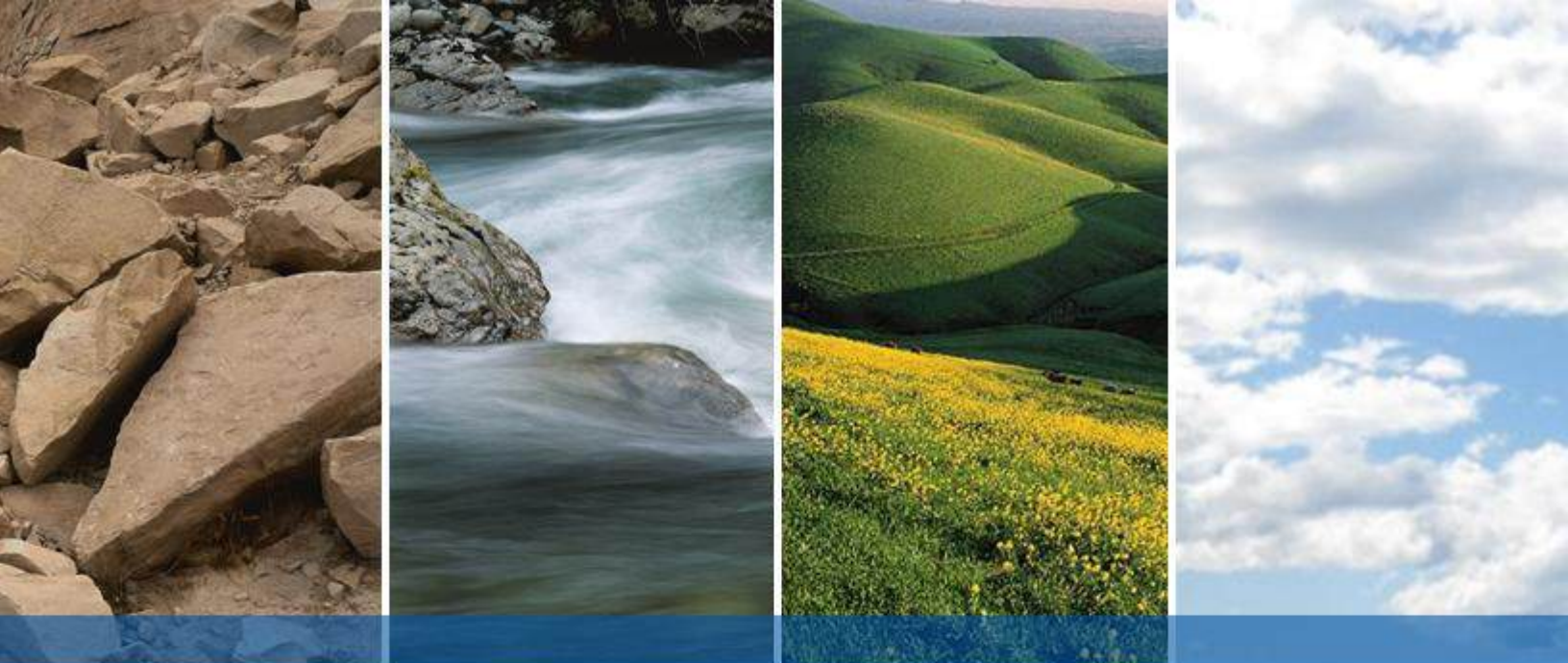
Project Name: Race Residence

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Attachment 6

Geotechnical and Groundwater Investigation Report

Attach project's geotechnical and groundwater investigation report. Refer to Appendix C.4 to determine the reporting requirements.



RACE RESIDENCE
LA JOLLA, CALIFORNIA

GEOTECHNICAL REPORT

SUBMITTED TO
Mr. Charlie and Ms. Charlene Race
8350 Calle De Cielo
La Jolla, CA 92673

‰
Mr. Tim Martin
Marlin Architecture
2333 State Street, Suite 100
Carlsbad, CA 92008

PREPARED BY
ENGEO Incorporated

February 24, 2026

PROJECT NO.
29999.000.001

Project No.
29999.000.001

February 24, 2026

Mr. Charlie and Ms. Charlene Race
8350 Calle De Cielo
La Jolla, CA 92037

% Mr. Tim Martin
Martin Architecture
2333 State Street, Suite 100
Carlsbad, CA 92008

Subject: Race Residence
8332 Calle Del Cielo
La Jolla, California

GEOTECHNICAL REPORT

Dear Mr. and Ms. Race:

ENGEO prepared this geotechnical report for the Race Residence project, located at 8332 Calle Del Cielo in La Jolla, California, as outlined in our revised agreement dated October 31, 2025. The accompanying report presents our conclusions and recommendations for design of the proposed improvements.

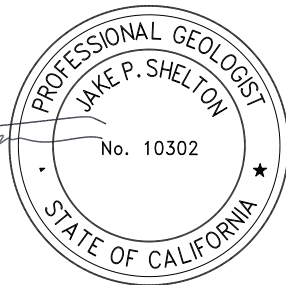
If you have any questions or comments regarding this report, please call and we will be glad to discuss them with you.

Sincerely,

ENGEO Incorporated


Jake Shelton, PG

jps/kjm/jjt/jg




Kevin McFadden, GE



TABLE OF CONTENTS

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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

As requested, we are providing design recommendations for the Race Residence project, located at 8332 Calle Del Cielo in La Jolla, California. For our use, we received an architectural plan set prepared by Martin Architecture, dated September 29, 2025.

Our scope is outlined below.

- Subsurface field exploration
- Soil laboratory testing
- Data analysis and conclusions
- Report preparation

The recommendations presented in this report include site geology and seismicity, seismic design criteria, foundation bearing capacities, estimated foundation settlement, and foundation design recommendations. These recommendations are based on the results of our exploration performed at this site and laboratory testing.

1.2 PROJECT LOCATION AND DESCRIPTION

Figure 1 displays a Vicinity Map. The site is located at 8332 Calle Del Cielo in La Jolla, California. The site is bordered by single-family residential structures to the north, east, and south, and by Calle Del Cielo to the east. The site gently slopes from east to west with site elevations between about 80 and 60 feet based on provided architectural drawings.

We understand the project will consist of the demolition of the existing residential structure and construction of a new single-family residential structure at the property. Other improvements will consist of utilities, hardscapes, a below-ground workshop, a sports court, and landscaping.

2.0 FINDINGS

2.1 FIELD EXPLORATION

We performed our exploration on January 22, 2026. Our exploration consisted of advancing two exploratory borings at the site to a depth of about 20 feet below existing surface elevations using a limited-access drill rig equipped with 6-inch solid-flight augers. We also performed two borehole infiltration tests at the site. The locations of the exploratory borings and infiltration tests are presented in Figure 2. The exploration logs depict the subsurface conditions at the exploration locations at the time of drilling and are included in Appendix A. We obtained bulk soil samples from drill cuttings and retrieved both disturbed and relatively undisturbed samples at various intervals in the borings using standard penetration tests and Modified California Sampler.

2.2 SITE BACKGROUND AND HISTORICAL DATA

Based on review of historical aerial photographs from 1953, the subject site was undeveloped and consisted of vegetated surfaces. Between 1953 and 1964, development of the surrounding properties took place with the construction of adjacent single-family residential structures. It appears that the subject site may have been used partially for agricultural uses between 1964

and 1966. Development of the subject site appears to have taken place between 1966 and 1978. Since 1978, the site appears to have been relatively unaltered.

2.3 GEOLOGY AND SEISMICITY

2.3.1 Geologic Setting

The site is located within the coastal plain of the Peninsular Ranges geomorphic province. The Peninsular Ranges geomorphic province stretches from the Los Angeles Basin to the tip of Baja California. It is characterized by northwest-trending mountain ranges and valleys, separated by fault zones subparallel to the San Andreas Fault. These ranges are primarily composed of Mesozoic metamorphic rocks, which have been intruded by plutonic rocks from the Southern California batholith. The Peninsular Ranges share a geological similarity with the Sierra Nevada, featuring granitic intrusions into older metamorphic rocks. The province is tectonically active and subject to seismic activity from major fault zones, including the Rose Canyon, Coronado Bank, La Nacion, Elsinore, San Jacinto, and San Andreas Faults.

The coastal plain, located west of the mountain ranges, is underlain by marine and nonmarine sedimentary formations deposited after the uplift of the ranges. During the past 2 million years, terrace deposits associated with various, relatively static sea level stands were deposited and mantle the coastal terrain. More recently, human actions have modified the natural topography. Hilltops have been excavated and low-lying areas have been infilled by the removal and replacement of various quantities of soil.

Locally, the area of the province within San Diego County where the project is located is underlain by uplifted and dissected Eocene sedimentary rocks. The local region of Mount Soledad in La Jolla has been uplifted to its present elevation due to a constraining bend of the adjacent Rose Canyon fault system.

Kennedy and Tan (2008) map the site as being underlain by Quaternary-age Old Paralic Deposits (Qop₆). A Regional Geologic Map is provided in Figure 3.

2.3.2 Seismicity

The site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone and no known surface expression of active faults is believed to exist within the site. Fault rupture through the site, therefore, is not likely. A map depicting regional faults and seismicity in reference to the project site is included in Figure 4.

The site is located in a seismically active region that contains numerous faults. Small earthquakes occur every year in the Southern California region and larger earthquakes have been recorded and can be expected to occur in the future. Faults have been cataloged and mapped by the U.S. Geological Survey (USGS) in the Quaternary Fault and Fold Database of the United States. An active fault is defined by the California Geological Survey (CGS) as one that experienced surface displacement within Holocene time (about the last 11,700 years) (CGS, 2018). Figure 4 shows the approximate locations of known active faults along with other Quaternary faults based on the USGS Quaternary Fault and Fold Database, as well as significant historical earthquakes recorded within the Southern California region.

To identify nearby faults that are capable of generating strong seismic ground shaking at the site, we utilized the USGS Earthquake Hazard Toolbox and the 2023 National Seismic Hazard Model (NSHM) to perform a disaggregation of the seismic hazard at the peak ground acceleration (PGA) and at spectral periods up to 5 seconds for a return period of 2,475 years. The resulting faults are listed in Table 2.3.2-1.

**TABLE 2.3.2-1: Active Faults Capable of Producing Significant Ground Shaking at the Site
(Latitude: 33.474266 Longitude: -117.631629)**

SOURCE	R _{RUP}		MOMENT MAGNITUDE M _w
	(KM)	(MILES)	
Rose Canyon (9)	1.34	0.83	6.60
Rose Canyon (10)	1.34	0.83	6.44
Rose Canyon (8)	4.32	2.68	6.33
Rose Canyon (11)	3.32	2.06	6.55
Rose Canyon (7)	8.03	4.99	6.48
Coronado Bank (6)	20.90	12.99	7.11
Rose Canyon (12)	6.95	4.32	6.53
Oceanside (4)	9.42	5.85	7.31
Rose Canyon (6)	11.72	7.28	6.47

*Based on USGS Earthquake Hazard Toolbox: NSHM Conterminous U.S. 2023

These results represent known fault sources contributing at least 1 percent to the seismic hazard at the site considering oscillator periods ranging from the peak ground acceleration (PGA) to 5 seconds for the given return period. The rupture distances (R_{RUP}) and mean moment magnitudes (M_w) listed are based on values assigned by the 2023 NSHM, and the numbers in parentheses after the fault names correspond to fault subsections assigned by the NSHM. The above fault table is not an exhaustive list and other faults in the region may generate seismic shaking at the project site.

2.4 SURFACE CONDITIONS

Surface conditions of the site consist of grass yards in the front and back of the property with other vegetation such as shrubs and trees. Other surface conditions of the site consist of concrete hardscapes. The site gently slopes from east to west with an approximate grade of 10:1. (horizontal:vertical).

2.5 SUBSURFACE CONDITIONS

Based on our exploration, the site is underlain by undocumented artificial fill overlaying Quaternary-age Old Paralac Deposits. Descriptions of the soil encountered at the site are provided below and are also included in the boring logs (Appendix A) and geologic cross sections (Figures 5 and 6).

Artificial Fill (Qaf): We encountered undocumented artificial fill at Boring 1-B2. The artificial fill extended to a depth of about 2.5 feet below existing surface elevations and consisted of moist, fine- to coarse-grained silty sand with varying amounts of plant roots. We believe that the artificial fill encountered was likely placed during initial grading activities at the subject site. The artificial

fill is considered to be unsuitable for the support of settlement-sensitive improvements and will require remedial grading.

Old Paralic Deposits (Qop₆): We encountered Old Paralic Deposits beneath artificial fill at Boring 1-B2 and at the ground surface at Boring 1-B1, and extended through the full depth explored of about 20 feet. The Old Paralic Deposits consisted of very stiff to hard sandy lean clay to sandy silt, and loose to very dense silty sand. The Old Paralic Deposits are considered suitable for the support of settlement-sensitive improvements.

Ardath Shale (Ta): We did not encounter the Ardath Shale during our exploration; however, it is anticipated to exist below the Old Paralic Deposits at depth. The Ardath Shale typically consists of weakly fissile silty shale containing thin beds of medium-grained sandstone within the upper portions of the unit.

2.6 GROUNDWATER CONDITIONS

We did not encounter groundwater or seepage during our exploration. We do not expect groundwater to preclude the constructability of the proposed improvements. However, it is possible to encounter perched water conditions at shallow depths. It is not uncommon to encounter groundwater where none was previously observed. Fluctuations in the level of groundwater may occur due to site grading, variations in rainfall, irrigation practice, and other factors not evident at the time measurements were made.

2.7 LABORATORY TESTING

We performed laboratory tests on selected samples to evaluate their engineering properties. Selected tests included proctor, expansion index, moisture-density, unconsolidated-undrained triaxial compression, grain size distribution, fine gradation, and corrosion potential testing. Moisture contents and dry densities were recorded on the boring logs in Appendix A; laboratory data is included in Appendix B.

3.0 CONCLUSIONS

From a geotechnical engineering viewpoint, in our opinion, the site is suitable for the proposed improvements, provided the geotechnical recommendations in this report are properly incorporated into the design plans and specifications. The recommendations presented in this report are based on the results of our exploration and laboratory testing. The primary geotechnical concerns that could affect development on the site are existing fill, expansive soil, and seismic ground shaking. We summarize our conclusions below.

3.1 GEOLOGIC HAZARD CATEGORY

The City of San Diego Seismic Safety Study maps the site to be within Zone 52. Zone 52 is described to be in an area of “other level areas, gently sloping to steep terrain, favorable geologic structure, low risk.”

3.2 EXISTING FILL

We encountered undocumented artificial fill in Boring 1-B2. Undocumented artificial fill soil can undergo excessive settlement, especially under new fill or building loads. Non-engineered fill is

likely limited to shallow surficial material associated with the original grading of the site. We anticipate that most of the existing fill will be removed in association with construction of the garage level of the house. We present fill removal recommendations in Section 4.2.

3.3 INFILTRATION

We conducted percolation tests at locations I-1 and I-2 and utilized the Porchet method to convert field percolation rates into infiltration rates. The test holes were excavated to a depth of approximately 5 feet below existing grades and conducted in conformance with City of San Diego BMP standards. Descriptions of the materials encountered and test results are presented in Table 3.3-1. Appendix C presents the City of San Diego Worksheet C.4-1.

TABLE 3.3-1: Stabilized Percolation Rates and Converted Infiltration Rate

TEST LOCATION	TEST ELEVATION (feet, NAVD88)	HOLE DIAMETER (inches)	RAW FIELD PERCOLATION RATE (inches/hour)	CONVERTED PORCHET DESIGN INFILTRATION RATE (inches/hour)	SOIL TYPE
I-1	68	6	2.40	0.15	Sandy Silt
I-2	62	6	3.60	0.23	Sandy Silt

Infiltration rates indicate negligible infiltration was achieved.

3.4 EXPANSIVE SOIL

Expansive soil changes in volume with changes in moisture. It can shrink or swell and cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations. Based on laboratory test results, on-site soils are considered low-expansive ($EI \leq 20$).

3.5 SEISMIC HAZARDS

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. The common secondary seismic hazards include ground shaking. The following sections present a discussion of these hazards as they apply to the site. Based on topographic and lithologic data, the risk of regional subsidence or uplift, soil liquefaction, lateral spreading, landslides, ground lurching, tsunamis, flooding, or seiches is considered low at the site.

3.5.1 Ground Rupture

Since there are no known active faults crossing the property and the site is not located within an Earthquake Fault Special Study Zone, it is our opinion that ground rupture is unlikely at the subject property.

3.5.2 Ground Shaking

An earthquake of moderate to high magnitude generated within the San Diego County region could cause considerable ground shaking at the site, similar to that which has occurred in the past. To mitigate the shaking effects, structures should be designed using sound engineering judgment and the current California Building Code (CBC) requirements, as a minimum. Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied

statically to the structure, combined with the gravity forces of dead and live loads. The code-prescribed lateral forces are generally considered to be substantially smaller than the peak forces that would be associated with a major earthquake.

Seismic design in accordance with the CBC is based on three main principles: (1) structures should have a suitably low likelihood of collapse in the strongest level of ground shaking defined by the CBC (maximum considered earthquake, MCE), (2) structures should not sustain life-threatening damage, including from nonstructural components, in a smaller but still significant earthquake (two-thirds of the MCE, or DE), and (3) structures should be suitable for immediate occupancy following small earthquake events that may occur frequently in the region. Even with these principles, many structures may be too damaged to use after a large earthquake.

Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of an MCE- or DE-level event (ASCE 7-22).

3.6 LANDSLIDES AND SLOPE STABILITY

The City of San Diego Seismic Safety Study maps the site to be within Zone 52, which does not require slope stability analysis. Review of historical aerials does not indicate the presence of historic landslides at the site. Additionally, slopes across the site are relatively shallow, ~10:1. The USGS (2016) and Kennedy and Tan (2008) show that there are no mapped landslides at the site. Therefore, it is our opinion that the potential for landslides or slope instability at the site is low.

3.7 STATIC AND PERCHED GROUNDWATER

It does not appear that the static groundwater level beneath the site is likely to affect the proposed development. However, perched water can:

1. Impede grading activities.
2. Cause moisture damage to sensitive floor coverings.
3. Transmit moisture vapor through slabs causing excessive mold/mildew build-up, fogging of windows, and damage to computers and other sensitive equipment.
4. Cause premature pavement failure if hydrostatic pressures build up beneath the section.

3.8 2025 CBC SEISMIC DESIGN PARAMETERS

The 2025 California Building Code (CBC) utilizes seismic design criteria established in the ASCE/SEI Standard “Minimum Design Loads and Associated Criteria for Buildings and Other Structures,” (ASCE 7-22). A classification of Site Class C, in accordance with Chapter 20 of ASCE 7-22, can be used for the site.

We provide the Risk-Target Maximum Considered Earthquake (MCE_R) and Design Earthquake (DE) multi-period response spectra based on Section 11.4.5 of ASCE 7-22 and the USGS Seismic Design Geodatabase in Table 3.8-1. Additionally, we provide the MCE_R and DE acceleration parameters based on Sections 11.4.3, 11.4.4, and 11.8.3 of ASCE 7-22 in Table 3.8-2.

TABLE 3.8-1: MCE_R and DE Multi-Period Response Spectra

PERIOD, <i>T</i> (seconds)	SPECTRAL RESPONSE ACCELERATION, <i>S_a</i> (g)	
	MCE _R	DE
0	0.73	0.48
0.01	0.73	0.49
0.02	0.74	0.5
0.03	0.81	0.54
0.05	1	0.67
0.075	1.27	0.85
0.1	1.46	0.97
0.15	1.7	1.13
0.2	1.79	1.19
0.25	1.76	1.17
0.3	1.65	1.1
0.4	1.43	0.96
0.5	1.25	0.84
0.75	0.93	0.62
1	0.71	0.47
1.5	0.44	0.29
2	0.31	0.2
3	0.19	0.12
4	0.13	0.086
5	0.096	0.064
7.5	0.058	0.038
10	0.04	0.027

**TABLE 3.8-2: MCE_R and DE Acceleration Parameters for Site Class C
(Latitude: 32.857764, Longitude: -117.251389)**

ACCELERATION PARAMETER	SYMBOL	VALUE (g)
MCE _R Spectral Response Acceleration at a Period of 0.2 s	<i>S_S</i>	1.56
MCE _R Spectral Response Acceleration at a Period of 1 s	<i>S₁</i>	0.49
MCE _R Spectral Response Acceleration at Short Periods Adjusted for Site Class Effects	<i>S_{MS}</i>	1.61
MCE _R Spectral Response Acceleration at a Period of 1 s Adjusted for Site Class Effects	<i>S_{M1}</i>	0.71
Design Spectral Response Acceleration at Short Periods	<i>S_{DS}</i>	1.07
Design Spectral Response Acceleration at a Period of 1 s	<i>S_{D1}</i>	0.47
MCE _G Peak Ground Acceleration Adjusted for Site Class Effects	<i>PGA_M</i>	0.7

If requested, we can collaborate with the structural engineer of record to further evaluate the structural design from an earthquake engineering perspective and to mutually decide if performance of a site-specific seismic-hazard analysis would be beneficial for the project.

4.0 EARTHWORK RECOMMENDATIONS

We do not anticipate the project involving significant earthwork operations (such as site overexcavation, keyway, slope rebuild, or slope construction). We anticipate minor grading associated with establishing pad grade for the residential structure, underground garage, and landscaping.

As used in this report, relative compaction refers to the in-place dry unit weight of soil expressed as a percentage of the maximum dry unit weight of the same soil, as determined by the ASTM D1557 laboratory compaction test procedure, latest edition. Compacted soil is not acceptable if it is unstable; it should exhibit only minimal flexing or pumping, as observed by an ENGEO representative. The term “moisture condition” refers to adjusting the moisture content of the soil by either drying if too wet or adding water if too dry.

We define “structural areas” as any area sensitive to settlement of compacted soil. These areas include, but are not limited to building pads, sidewalks, pavement areas, and retaining walls.

4.1 GENERAL SITE CLEARING

The footprint of the proposed improvements should be cleared of surface and subsurface deleterious material, including existing building foundations, slabs, buried utility and irrigation lines, pavements, debris, and designated trees, shrubs, and associated roots. Clean and backfill excavations extending below the planned finished site grades with suitable material compacted in accordance with our Earthwork Recommendations. ENGEO should be retained to observe and test backfill operations. Following clearing, the building footprint should be stripped to remove surface organic material. Strip organics from the ground surface to a depth of at least 2 to 3 inches below the surface.

4.2 EXISTING FILL REMOVAL

Existing undocumented fill on site should be removed beneath structural improvements entirely to expose competent native soil, as evaluated by ENGEO. Structural improvements include but are not limited to the residential structure, flatwork, retaining walls, and pavements.

4.3 ACCEPTABLE FILL

On-site soil material comprised of Quaternary-age Old Paralic Deposits (Qop₆) is suitable as fill material provided it is processed to remove concentrations of organic material, debris, and particles greater than 6 inches in maximum dimension.

Imported fill material should meet the above requirements and have an expansion index of 20 or less and at least 20 percent passing the No. 200 sieve. Allow ENGEO to sample and test proposed imported fill material at least 5 days prior to delivery to the site.

4.4 FILL COMPACTION

4.4.1 Grading in Structural Areas

Prior to placement of fill soil, existing soil beneath the proposed new residential building should be removed entirely to expose competent native soil.

Perform subgrade compaction prior to fill placement, following cutting operations, and in areas left at grade as follows.

1. Scarify to a depth of at least 8 inches.
2. Moisture condition soil to at least 2 percentage points over the optimum moisture content.
3. Compact the soil to between at least 90 percent relative compaction.

After the subgrade has been compacted, place and compact acceptable fill as follows.

1. Spread fill in loose lifts that do not exceed 8 inches.
2. Moisture condition lifts to at least 2 percentage points over the optimum moisture content.
3. Compact fill to at least 90 percent relative compaction.

4.4.2 Underground Utility Backfill

4.4.2.1 General

The contractor is responsible for conducting trenching and shoring in accordance with Cal/OSHA requirements. Project consultants involved in utility design should specify pipe bedding material.

4.4.2.2 Structural Areas

Place and compact trench backfill as follows.

1. Trench backfill should have a maximum particle size of 6 inches.
2. Moisture condition trench backfill to 2 percent above the optimum moisture content. Moisture condition backfill outside the trench.
3. Place fill in loose lifts not exceeding 12 inches.
4. Compact fill to at least 90 percent relative compaction.

Where utility trenches cross underneath buildings, we recommend that a plug be placed within the trench backfill to help prevent the normally granular bedding material from acting as a conduit for water to enter beneath the building. The plug should be constructed using a sand cement slurry (minimum 28-day compressive strength of 500 psi) for pipe bedding and backfill. We recommend that the plug extend for a distance of at least 3 feet in each direction from the point where the utility enters the building perimeter.

Jetting of backfill is not an acceptable means of compaction.

4.5 SITE SURFACE DRAINAGE

The project civil engineer is responsible for designing surface drainage improvements. With regard to geotechnical engineering issues, we recommend that finish grades be sloped away from the structure to the maximum extent practical to reduce the potentially damaging effects of expansive soil. The latest California Building Code Section 1804.4 specifies minimum slopes of 5 percent away from foundations. Where surface improvements restrict meeting this slope requirement, we recommend that specific drainage requirements be developed. As a minimum, we recommend the following.

1. Discharge roof downspouts into closed conduits and direct away from foundations to appropriate drainage devices.
2. Do not allow water to pond near foundations or exterior flatwork.

4.6 SLOPES

Construct final slope gradients to 2:1 or flatter. The contractor is responsible to construct temporary construction slopes in accordance with Cal/OSHA requirements.

4.7 STORMWATER INFILTRATION AND SELECT PROJECT RISK LEVEL FACTORS

The results of our percolation tests are provided in Section 3.3. The near-surface site soil is expected to have a negligible permeability value for stormwater infiltration in grassy swales or permeable pavers, unless subdrains are installed. Therefore, Best Management Practices should assume that limited stormwater infiltration will occur at the site.

4.8 STORMWATER BIORETENTION AREAS

If bioretention areas are implemented, we recommend that, when practical, they be planned a minimum of 5 feet away from structural site improvements, such as buildings, streets, retaining walls, and sidewalks/driveways. When this is not practical, bioretention areas can either:

1. Be constructed with structural side walls capable of withstanding the loads from the adjacent improvements, or
2. Incorporate filter material compacted to between 85 and 90 percent relative compaction (ASTM D1557, latest edition) and a waterproofing system designed to reduce the potential for moisture transmission into the subgrade soil beneath the adjacent improvement.

Bioretention basins above slopes should not be placed within 30 feet from the top of slope.

4.9 SPORTS COURT

Provided architectural drawings depict a sports court along the west boundary of the site. Differential movements may result from conditions where pads have significant differentials in fill thickness. We recommend that the differential fill thickness across the sports court pad be no greater than 2 feet. Local subexcavation of soil material and replacement with compacted fill may be needed to achieve this recommendation.

Additionally, we recommend the playing surface of the sports court be underlain with 24 inches of imported Class II Aggregate Base.

5.0 FOUNDATION RECOMMENDATIONS

Proposed residential structures at the site may be supported on a conventional shallow foundation system embedded on either competent low expansive native material or engineered fill. We developed foundation recommendations based on explorations and laboratory testing conducted at the subject project location.

5.1 CONVENTIONAL FOOTINGS WITH SLAB-ON-GRADE

Proposed structures at the site can be supported on continuous or isolated spread footings bearing completely in competent native material or engineered fill as outlined in Section 4.4.

5.1.1 Footing Dimensions and Allowable Bearing Capacity

Provide minimum footing dimensions shown in Table 5.1.1-1 below.

TABLE 5.1.1-1: Minimum Footing Dimensions

FOOTING TYPE	*MINIMUM DEPTH (inches)	MINIMUM WIDTH (inches)
Continuous	18	18
Isolated	18	24

* Below lowest adjacent pad grade

The minimum footing depths shown above are taken from lowest adjacent pad grade. Additionally, foundations located adjacent to slopes should be deepened to maintain a minimum lateral distance of 10 feet to daylight from the bottom of footing to the adjacent slope face. As an alternative to deepened footings, reduced bearing capacity and passive earth pressure recommendations can be provided, as needed.

Foundations meeting the minimum dimensions recommended above can be designed for a maximum allowable bearing pressure of 2,500 pounds per square foot (psf) for dead-plus-live loads. This bearing capacity may be increased by one-third for the short-term effects of wind or seismic loading.

The maximum allowable bearing pressure is a net value; the weight of the footing may be neglected for design purposes. Footings located adjacent to utility trenches should have their bearing surfaces below an imaginary 1:1 plane projected upward from the bottom edge of the trench to the footing.

5.1.2 Waterstop

If a two-pour system is used for footings and slab, the cold joint between the exterior footing and slab-on-grade should be located at least 4 inches above adjacent finish exterior grade. If this is not done, then we recommend the addition of a waterstop between the two pours to reduce moisture penetration through the cold joint and migration under the slab. Use of a monolithic pour would eliminate the need for the waterstop. Moisture penetration potential at foundation cold joints should be considered in conjunction with the below-grade retaining wall waterproofing recommendations described in Section 6.3.

5.1.3 Reinforcement

The structural engineer should design footing reinforcement to support the intended structural loads without excessive settlement. Continuous footings should be reinforced with top and bottom steel to provide structural continuity and to permit spanning of local irregularities. At a minimum, continuous footings should be designed to structurally span a clear distance of 5 feet.

5.1.4 Foundation Lateral Resistance

Lateral loads may be resisted by friction along the base and by passive pressure along the sides of foundations. The passive pressure is based on an equivalent fluid pressure in pounds per cubic foot (pcf). We recommend the following allowable values for design.

- Passive Lateral Pressure: 300 pcf
- Coefficient of Friction: 0.35

Increase the above values by one third for the short-term effects of wind or seismic loading. Passive lateral pressure should not be used for footings on or above slopes without modifications to footing design parameters.

5.1.5 Settlement

Provided our report recommendations are followed and given the proposed construction (Section 1.2), we estimate total and differential foundation settlements for the structure to be less than approximately 1 and $\frac{3}{4}$ inches, respectively.

5.2 SLABS-ON-GRADE

We recommend the following minimum design.

1. A minimum concrete thickness of 5 inches.
2. Steel reinforcing consisting of a minimum of No. 3 rebar that is placed on 18-inch centers each way within the middle third of the slab to help control the width of shrinkage cracking that inherently occurs as concrete cures.

The structural engineer should provide the final design thickness and additional reinforcement, as necessary, for the intended structural loads.

5.2.1 Slab Moisture Vapor Reduction

When buildings are constructed with concrete slab-on-grade, water vapor from beneath the slab will migrate through the slab and into the building. This water vapor can be reduced but not stopped. Vapor transmission can negatively affect floor coverings and lead to increased moisture within a building. When water vapor migrating through the slab would be undesirable, we recommend the following to reduce, but not stop, water vapor transmission upward through the slab-on-grade.

1. Construct a moisture retarder system directly beneath the slab on-grade that consists of the following.
 - a. Vapor retarder membrane sealed at all seams and pipe penetrations and connected to all footings. Vapor retarders shall conform to Class A vapor retarder in accordance with ASTM E1745, latest edition, "Standard Specification for Plastic Water Vapor Retarders used in Contact with Soil or Granular Fill under Concrete Slabs." The vapor retarder should be **underlain by**:
 - b. 6 inches of clean crushed rock. Crushed rock should have 100 percent passing the $\frac{3}{4}$ -inch sieve and less than 5 percent passing the No. 4 Sieve.
2. Use a concrete water-cement ratio for slabs-on-grade of no more than 0.50.
3. Provide inspection and testing during concrete placement to check that the proper concrete and water cement ratio are used.
4. Moist cure slabs for a minimum of 3 days or use other equivalent curing specified by the structural engineer.

The structural engineer should be consulted as to the use of a layer of clean sand or pea gravel (less than 5 percent passing the U.S. Standard No. 200 Sieve) placed on top of the vapor retarder membrane to assist in concrete curing.

5.2.2 Pad Preparation and Moisture Conditioning

The building pad should be moisture conditioned to at least 2 percentage points above optimum moisture to a depth of at least 12 inches prior to the placement of slab-on-grade concrete. Where the pad has been allowed to dry out substantially, it can take several days to moisture condition to a depth of 12 inches. The subgrade should not be allowed to dry below this specified moisture content prior to concrete placement. Interior foundations or utility trenches can impede water from entering some subgrade areas; therefore, we suggest that the contractor periodically move watering devices around.

We recommend that ENGEO be retained to check the pad prior to the concrete pour to determine if adequate moisture conditioning has been accomplished. This can generally be done using hand-probing techniques and visual observations. Slabs should be poured no later than 48 hours after we verify that adequate moisture conditioning has been performed.

5.3 EXTERIOR FLATWORK

Exterior flatwork includes items such as concrete sidewalks, steps, and outdoor courtyards exposed to foot traffic only. A minimum section of 4 inches of concrete over 4 inches of aggregate base should be provided. The aggregate base should be compacted to at least 90 percent relative compaction. The slab performance can be improved by thickening flatwork edges to at least 8 inches to help control moisture variations in the subgrade and/or placing wire mesh or rebar within the middle third of the slab to help control the width and offset of cracks. Control and construction joints should be in accordance with current Portland Cement Association guidelines.

5.4 TRENCH BACKFILL

Backfill and compact all trenches below building slabs-on-grade and to 5 feet laterally beyond any edge in accordance with Section 4.4.

6.0 RETAINING WALLS

6.1 LATERAL SOIL PRESSURES

Design proposed retaining walls to resist lateral earth pressures from adjoining low expansive natural material and/or backfill and from any surcharge loads. Provided that adequate drainage is included as recommended below, design walls restrained from movement at the top to resist an equivalent fluid pressure of 60 pounds per cubic foot (pcf). In addition, design restrained walls to resist an additional uniform pressure equivalent to one-half of any surcharge loads applied at the surface.

Design unrestrained retaining walls with adequate drainage to resist an equivalent fluid pressure of 40 pcf plus one-third of any surcharge loads.

The above lateral earth pressures assume level backfill conditions, non-expansive backfill ($PI \leq 12$), and sufficient drainage behind the walls to prevent any build-up of hydrostatic pressures from surface water infiltration and/or a rise in the groundwater level. If adequate drainage is not provided, we recommend that an additional equivalent fluid pressure of 40 pcf be added to the values recommended above for both restrained and unrestrained walls. Damp-proofing of the walls should be included in areas where wall moisture would be problematic.

Construct a drainage system, as recommended below, to reduce hydrostatic forces behind the retaining wall.

6.2 RETAINING WALL DRAINAGE

Construct either graded rock drains or geosynthetic drainage composites behind the retaining walls to reduce hydrostatic lateral forces. For rock drain construction, we recommend two types of rock drain alternatives.

1. A minimum 12-inch-thick layer of Class 2 Permeable Filter Material (Caltrans Specification 68-2.02F) placed directly behind the wall, or
2. A minimum 12-inch-thick layer of washed, crushed rock with 100 percent passing the $\frac{3}{4}$ -inch sieve and less than 5 percent passing the No. 4 sieve. Envelop rock in a minimum 6-ounce, nonwoven geotextile filter fabric.

For both types of rock drains:

1. Place the rock drain directly behind the walls of the structure.
2. Extend rock drains from the wall base to within 12 inches of the top of the wall.
3. Place a minimum of 4-inch-diameter perforated pipe (glued joints and end caps) at the base of the wall, inside the rock drain and fabric, with perforations placed down.
4. Place pipe at a gradient at least 1 percent to direct water away from the wall by gravity to a drainage facility.

ENGEO should review and approve geosynthetic composite drainage systems prior to use.

6.3 WATERPROOFING

When buildings are constructed with interior below-grade retaining walls, water vapor from adjacent soil will migrate into the building. This water vapor can be reduced but not stopped. When water vapor migrating through retaining walls is undesirable, we recommend consulting a waterproofing expert to design a waterproofing system for the interior retaining wall.

6.4 BACKFILL

Backfill behind retaining walls should be placed and compacted in accordance with Section 4.4. Use light compaction equipment within 5 feet of the wall face. If heavy compaction equipment is used, the walls should be temporarily braced to avoid excessive wall movement. Soil used as wall backfill should possess a plasticity index of 12 or less.

6.5 FOUNDATIONS

Retaining walls may be supported on continuous footings designed in accordance with recommendations presented in Section 5.1, except the minimum embedment depth should be increased to 24 inches below lowest adjacent soil grade.

7.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report presents geotechnical recommendations for design of the improvements discussed in Section 1.2 for the Race Residence project. If changes occur in the nature or design of the project, we should be allowed to review this report and provide additional recommendations, if any. It is the responsibility of the owner to transmit the information and recommendations of this report to the appropriate organizations or people involved in design of the project, including but not limited to developers, owners, buyers, architects, engineers, and designers. The conclusions and recommendations contained in this report are solely professional opinions and are valid for a period of no more than 2 years from the date of report issuance.

We strive to perform our professional services in accordance with generally accepted principles and practices currently employed in the area; there is no warranty, express or implied. There are risks of earth movement and property damages inherent in building on or with earth material. We are unable to eliminate all risks; therefore, we are unable to guarantee or warrant the results of our services.

This report is based upon field and other conditions discovered at the time of report preparation. We developed this report with limited subsurface exploration data. Considering possible underground variability of soil and groundwater, additional costs may be required to complete the project. We recommend that the owner establish a contingency fund to cover such costs. If unexpected conditions are encountered, ENGEO must be notified immediately to review these conditions and provide additional and/or modified recommendations, as necessary.

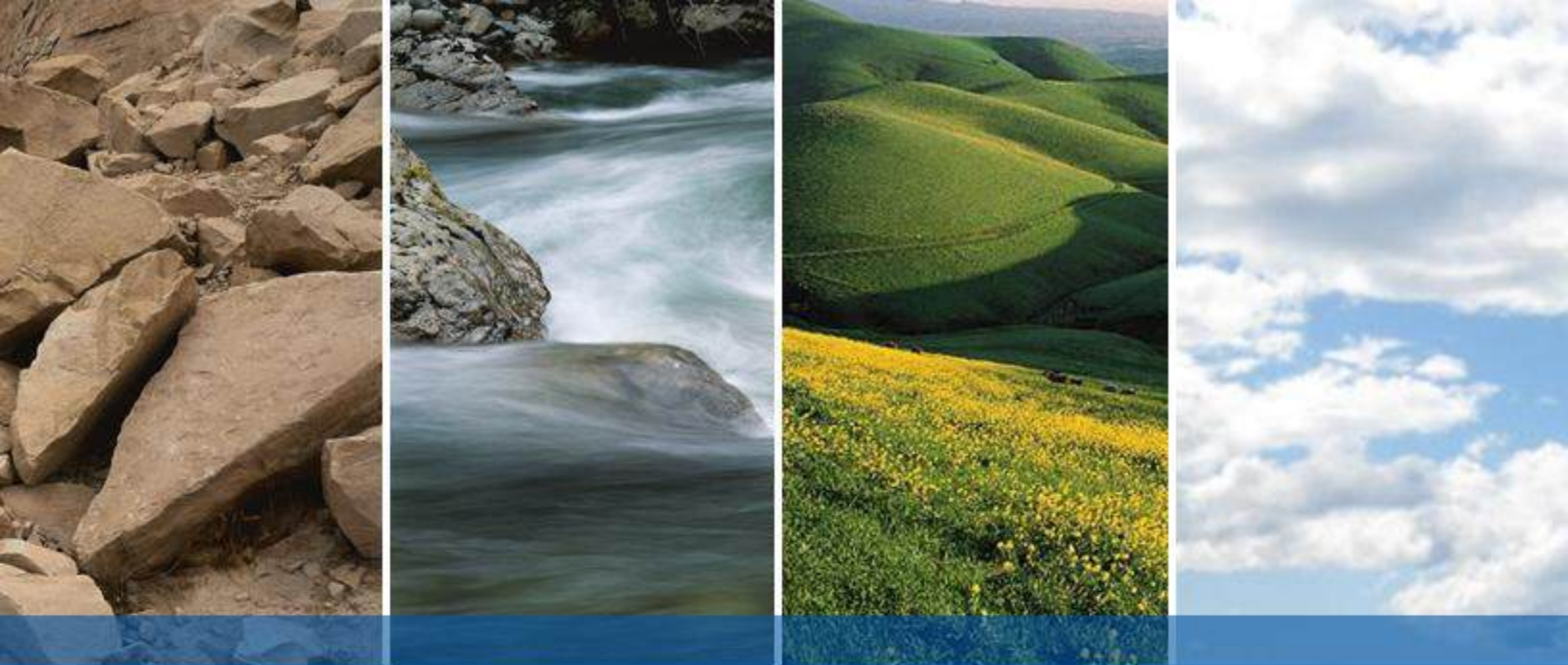
Our services did not include excavation sloping or shoring, soil volume change factors, flood potential, or a geohazard exploration. In addition, our geotechnical exploration did not include work to determine the existence of possible hazardous materials. If any hazardous materials are encountered during construction, the proper regulatory officials must be notified immediately.

This document must not be subject to unauthorized reuse, that is, reusing without written authorization of ENGEO. Such authorization is essential because it requires ENGEO to evaluate the document's applicability given new circumstances, not the least of which is passage of time.

Actual field or other conditions will necessitate clarifications, adjustments, modifications, or other changes to ENGEO's documents. Therefore, ENGEO must be engaged to prepare the necessary clarifications, adjustments, modifications, or other changes before construction activities commence or further activity proceeds. If ENGEO's scope of services does not include on-site construction observation, or if other persons or entities are retained to provide such services, ENGEO cannot be held responsible for any or all claims arising from or resulting from the performance of such services by other persons or entities, and from any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

LIST OF SELECTED REFERENCES

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FIGURES

FIGURE 1: Vicinity Map

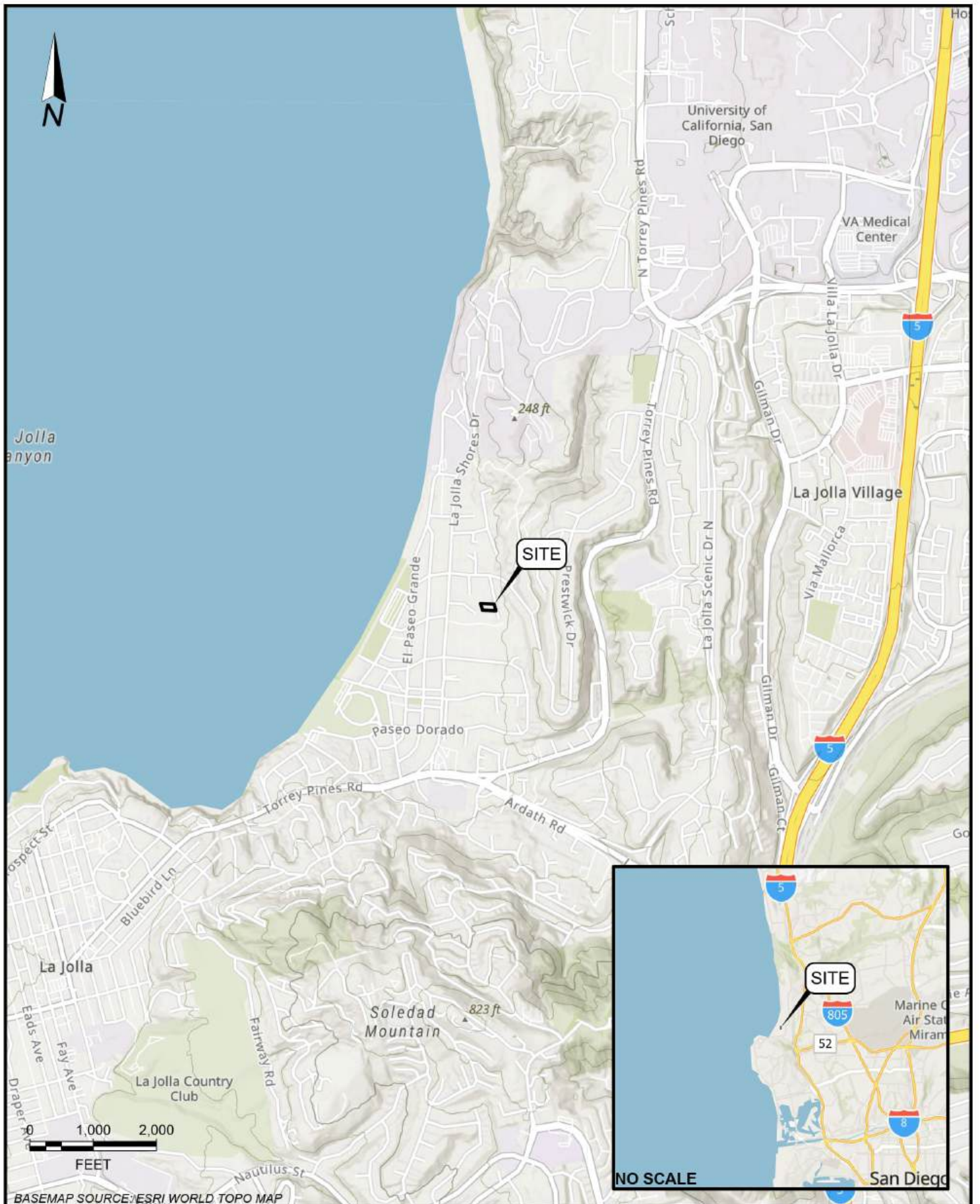
FIGURE 2: Site Plan

FIGURE 3: Regional Geologic Map

FIGURE 4: Regional Fault and Seismicity Map

FIGURE 5: Geologic Cross Section A-A'

FIGURE 6: Geologic Cross Section B-B'



BASEMAP SOURCE: ESRI WORLD TOPO MAP



VICINITY MAP
RACE RESIDENCE
LA JOLLA, CALIFORNIA

PROJECT NO.: 29999.000.001

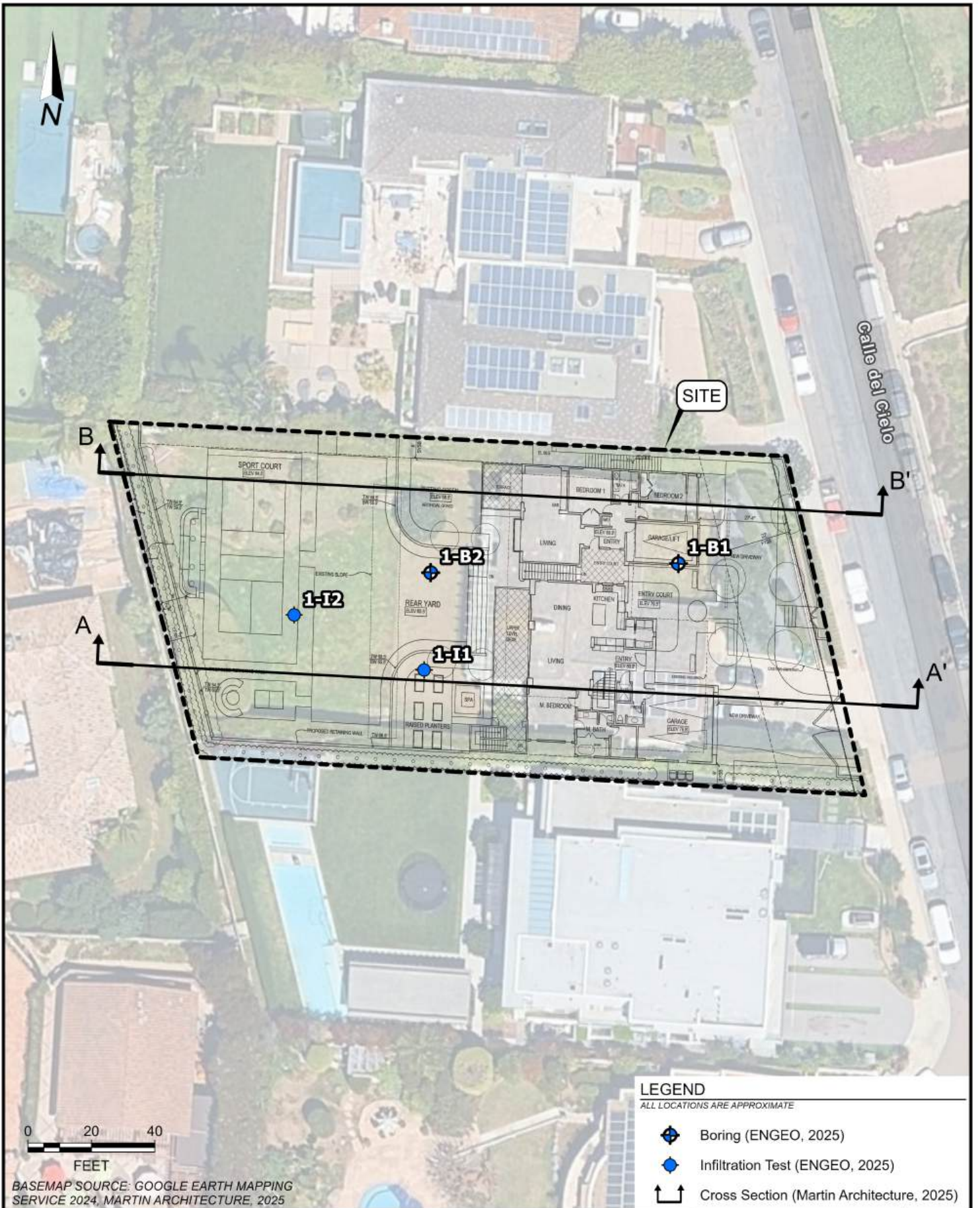
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CHECKED BY: JJT

FIGURE NO.

1



SITE PLAN
RACE RESIDENCE
LA JOLLA, CALIFORNIA

PROJECT NO.: 29999.000.001

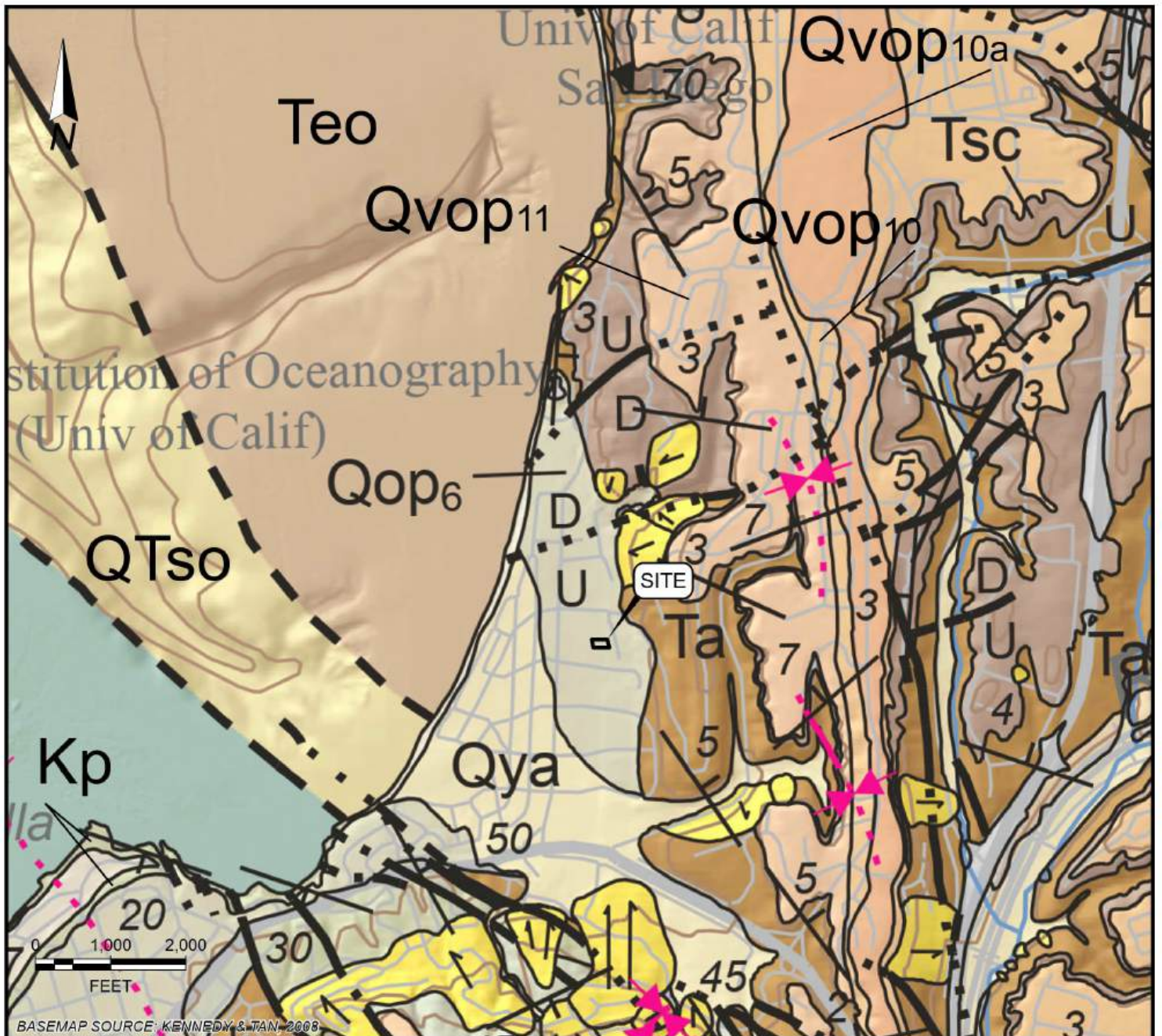
SCALE: AS SHOWN

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FIGURE NO.

2



BASEMAP SOURCE: KENNEDY & TAN, 2008

LEGEND

	Contact - All Contacts are Extrapolated From a Combination of Seismic Reflection Data, Seafloor Samples and Bathymetry, and are Approximate in Location.		Old Paralic Deposits, Unit 6 (Late-Middle Pleistocene)
	Fault - Solid Where Well Defined; Dashed Where Approximately Located; Short Dash Where Inferred; Dotted Where Concealed; Queried Where Uncertain. Where Fault Offsets Sea Floor, Age Symbol is Shown on Bar on Downthrown Side. Where Age was Determined, age Symbol is Shown Astride Fault and Relative Offset, if Known, is Shown by "D" and "U" on Downthrown and Upthrown Sides.		Very Old Paralic Deposits, Unit 11 (Middle-Early Pleistocene)
			Very Old Paralic Deposits, Unit 10 (Middle-Early Pleistocene)
			Very Old Paralic Deposits, Unit 10a (Middle-Early Pleistocene)
	Anticline - Solid Where Well Defined; Short Dash Where Inferred		Undivided Sediments and Sedimentary Rocks in Offshore Region (Holocene, Pleistocene, Pliocene and Miocene)
	Syncline - Solid Where Well Defined; Short Dash Where Inferred		Scripps Formation, Upper Unit (Middle Eocene)
	Strike and Dip of Inclined Beds		Ardath Shale (Middle Eocene)
	Qls Landslide Deposits, Undivided (Late Holocene)		Undivided Eocene Rocks in Offshore Region (Eocene)
	Qya Yonge Alluvial Flood-Plain Deposits (Holocene and Late Pleistocene)		Point Loma Formation (Upper Cretaceous)



REGIONAL GEOLOGIC MAP

RACE RESIDENCE
LA JOLLA, CALIFORNIA

PROJECT NO.: 29999.000.001

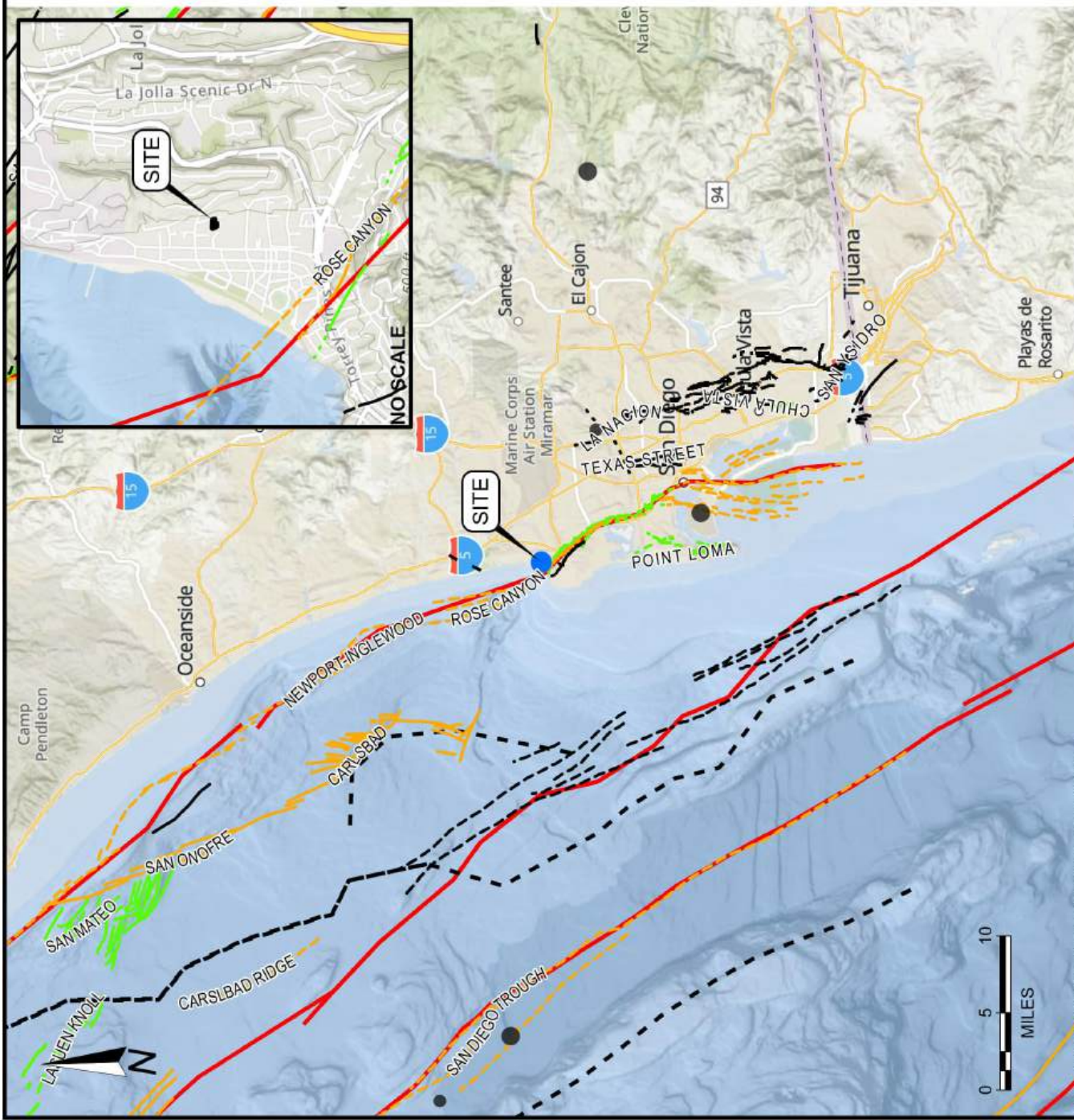
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DRAWN BY: LVL

CHECKED BY: JJT

FIGURE NO.

3



- LEGEND**
- HISTORICAL EARTHQUAKE EPICENTERS SINCE 1800**
- Magnitude 5-6
 - Magnitude 6-7
 - Magnitude 7+
- QUATERNARY FAULTS 2025**
- Latest Quaternary (<15,000 years), well constrained location
 - Latest Quaternary (<15,000 years), moderately constrained location
 - Latest Quaternary (<15,000 years), inferred location
 - Late Quaternary (<130,000 years), well constrained location
 - Late Quaternary (<130,000 years), moderately constrained location
 - Late Quaternary (<130,000 years), inferred location
 - Undifferentiated Quaternary (< 1.6 million years), well constrained location
 - Undifferentiated Quaternary (< 1.6 million years), moderately constrained location
 - Undifferentiated Quaternary (< 1.6 million years), inferred location
- CALIFORNIA OFFSHORE FAULTS**
- Latest Quaternary (<15,000 years), Accurately Located
 - Latest Quaternary (<15,000 years), Approximately Located
 - Late Quaternary (<130,000 years), Accurately Located
 - Undifferentiated Quaternary (< 1.6 million years), Accurately Located
 - Undifferentiated Quaternary (< 1.6 million years), Approximately Located

REGIONAL FAULT AND SEISMICITY MAP

RACE RESIDENCE

LA JOLLA, CALIFORNIA

PROJECT NO.: 299999.000.001	FIGURE NO. 4
SCALE: AS SHOWN	
DRAWN BY: LVL	CHECKED BY: JJT



BASE MAP SOURCE: ESRI, GARMIN, NATURALVUE, ESRI, NASA, USGS, FEMA, ESRI, CGIA, USGS, SANGIS, CALIFORNIA STATE PARKS, ESRI, TOMTOM, GARMIN, SAFEGRAPH, FAO, METU, NASA, USGS, BUREAU OF LAND MANAGEMENT, EPA, NPS, USFWS, SANGIS, CALIFORNIA STATE PARKS, ESRI, TOMTOM, GARMIN, SAFEGRAPH, GEOTECHNOLOGIES, INC, METU, NASA, USGS, BUREAU OF LAND MANAGEMENT, EPA, NPS, USDA,

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LAYOUT: 04_FAULT&SEISMICITY 8.5 X11 LANDSCAPE USER: LLOWY

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ENGEO
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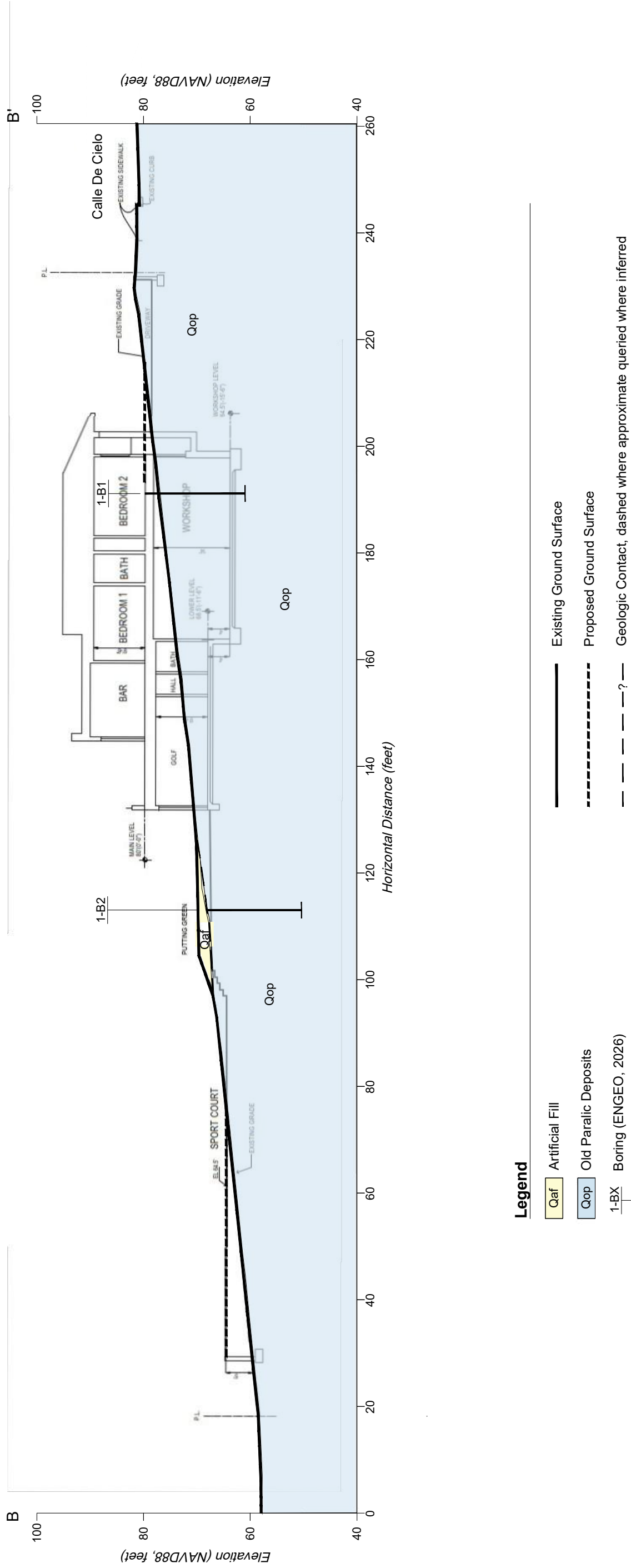
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FIGURE NO.

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Cross Section B-B'



Disclaimer: Cross Section Is For Illustration Purposes Only. The Transition Between Materials May Be Abrupt Or Gradual. Variations Should Be Expected.

CROSS SECTION SOURCE: MARTIN ARCHITECTURE, 2025

GEOLOGIC CROSS SECTION
RACE RESIDENCE
CALIFORNIA

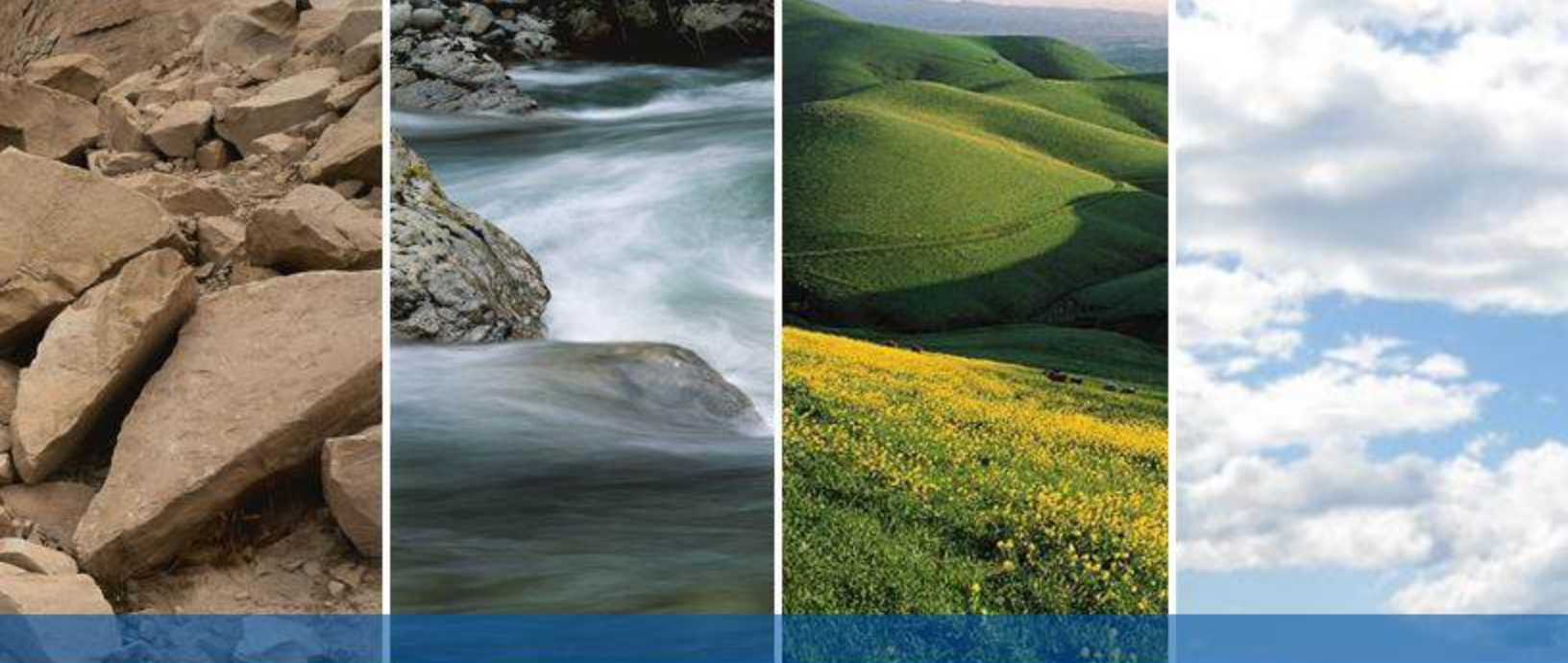
ENGEO
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PROJECT NO: 29999 000 001	FIGURE NO.
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APPENDIX A

KEY TO BORING LOGS EXPLORATION LOGS

SOIL BORING 1-B2

LATITUDE: 32.857778

LONGITUDE: -117.251543

Race Residence
La Jolla, CA
29999.000.001

DATE DRILLED: 01/22/2026
HOLE DEPTH: 20.00 ft
HOLE DIAMETER: 6 in
SURFACE ELEV.: 71.00 ft

LOGGED BY / REVIEWED BY: JPS / -
DRILLING CONTRACTOR: Pacific Drilling
DRILLING METHOD: Hollow Stem Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth (ft)	Elevation (ft)	Sampler Type	MATERIAL DESCRIPTION	Graphic Log	Water Levels	Blow Count (blows/ft) or Penetration Resistance	Liquid Limit	Plasticity Index	Fines (%)	Moisture Content (%)	Dry Density (pcf)	Compressive Strength (tsf) *Field Approximation	Shear Strength (psf) *Field Approximation	Strength Test Type
70			SILTY SAND (SM) , brown, moist, fine- to coarse-grained sand, approximately 20 to 30% fines, some plant roots [ARTIFICIAL FILL, Qaf]											
5			SANDY SILT (ML) , brown to grayish brown, moist, fine- to medium-grained sand, approximately 60 to 70% fines [OLD PARALIC DEPOSITS, Qop] Increased fines			5			65.00					
65			Harder drilling											
10			SILTY SAND (SM) , mottled brown and reddish brown, loose, moist, fine- to coarse-grained sand, approximately 30 to 40% fines, some manganese staining [OLD PARALIC DEPOSITS, Qop]			27				16.00	112.30	5.0*		
60			SANDY LEAN CLAY (CL) , mottled brown to orangish brown, hard, moist, fine- to medium-grained sand, approximately 60 to 70% fines [OLD PARALIC DEPOSITS, Qop]			32								
15			Harder drilling			56						5.0*		
55														
20														

Bottom of boring at approximately 20 feet below ground surface. No groundwater encountered. Boring backfilled with drill cuttings and bentonite chips.

SOIL BORING 1-B1

LATITUDE: 32.857808

LONGITUDE: -117.251279

Race Residence
La Jolla, CA
29999.000.001

DATE DRILLED: 01/22/2026
HOLE DEPTH: 20.00 ft
HOLE DIAMETER: 6 in
SURFACE ELEV.: 80.00 ft

LOGGED BY / REVIEWED BY: JPS / -
DRILLING CONTRACTOR: Pacific Drilling
DRILLING METHOD: Hollow Stem Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth (ft)	Elevation (ft)	Sampler Type	MATERIAL DESCRIPTION	Graphic Log	Water Levels	Blow Count (blows/ft) or Penetration Resistance	Liquid Limit	Plasticity Index	Fines (%)	Moisture Content (%)	Dry Density (pcf)	Compressive Strength (tsf) *Field Approximation	Shear Strength (psf) *Field Approximation	Strength Test Type
5	75		SANDY SILT (ML) , brown to grayish brown, moist, fine- to medium-grained sand, approximately 50 to 60% fines, some manganese staining [OLD PARALIC DEPOSITS, Qop]											
10	70		SANDY LEAN CLAY (CL) , brown, very stiff, moist, medium plasticity, fine- to medium-grained sand, approximately 60 to 70% fines, some manganese staining, some pinholing [OLD PARALIC DEPOSITS, Qop] Harder drilling			37				16.10	84.00	2.75*		
15	65		Becomes brown to grayish brown, abundant iron oxide staining			27			61.60					
20	60		Becomes hard			60				12.00	113.60	5.0*		
20	60		SILTY SAND (SM) , very dense, moist, fine- to coarse-grained sand, approximately 20 to 30% fines, some iron oxide staining [OLD PARALIC DEPOSITS, Qop]			65								

Bottom of boring at approximately 20 feet below ground surface. No groundwater encountered. Boring backfilled with drill cuttings and bentonite chips.

KEY TO BORING LOGS

MAJOR TYPES			DESCRIPTION
COARSE-GRAINED SOILS MORE THAN HALF OF MAT'L LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LESS THAN 5% FINES	GW - Well graded gravels or gravel-sand mixtures GP - Poorly graded gravels or gravel-sand mixtures
		GRAVELS WITH OVER 12 % FINES	GM - Silty gravels, gravel-sand and silt mixtures GC - Clayey gravels, gravel-sand and clay mixtures
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 5% FINES	SW - Well graded sands, or gravelly sand mixtures SP - Poorly graded sands or gravelly sand mixtures
		SANDS WITH OVER 12 % FINES	SM - Silty sand, sand-silt mixtures SC - Clayey sand, sand-clay mixtures
FINE-GRAINED SOILS MORE THAN HALF OF MAT'L SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50 % OR LESS		ML - Inorganic silt with low to medium plasticity CL - Inorganic clay with low to medium plasticity OL - Low plasticity organic silts and clays
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50 %		MH - Elastic silt with high plasticity CH - Fat clay with high plasticity OH - Highly plastic organic silts and clays
	HIGHLY ORGANIC SOILS		PT - Peat and other highly organic soils

For fine-grained soils with 15 to 29% retained on the #200 sieve, the words "with sand" or "with gravel" (whichever is predominant) are added to the group name.

For fine-grained soil with >30% retained on the #200 sieve, the words "sandy" or "gravelly" (whichever is predominant) are added to the group name.

GRAIN SIZES

U.S. STANDARD SERIES SIEVE SIZE				CLEAR SQUARE SIEVE OPENINGS			
200	40	10	4	3/4 "	3"	12"	
SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

RELATIVE DENSITY

SANDS AND GRAVELS

VERY LOOSE
LOOSE
MEDIUM DENSE
DENSE
VERY DENSE

BLOWS/FOOT (S.P.T.)

0-4
4-10
10-30
30-50
OVER 50

CONSISTENCY

SILTS AND CLAYS

VERY SOFT
SOFT
MEDIUM STIFF
STIFF
VERY STIFF
HARD

STRENGTH*

0-1/4
1/4-1/2
1/2-1
1-2
2-4
OVER 4

MOISTURE CONDITION

DRY
MOIST
WET

Dusty, dry to touch
Damp but no visible water
Visible freewater

LINE TYPES

————— Solid - Layer Break
----- Dashed - Gradational or approximate layer break

GROUNDWATER SYMBOLS



Groundwater level during drilling



Stabilized groundwater level

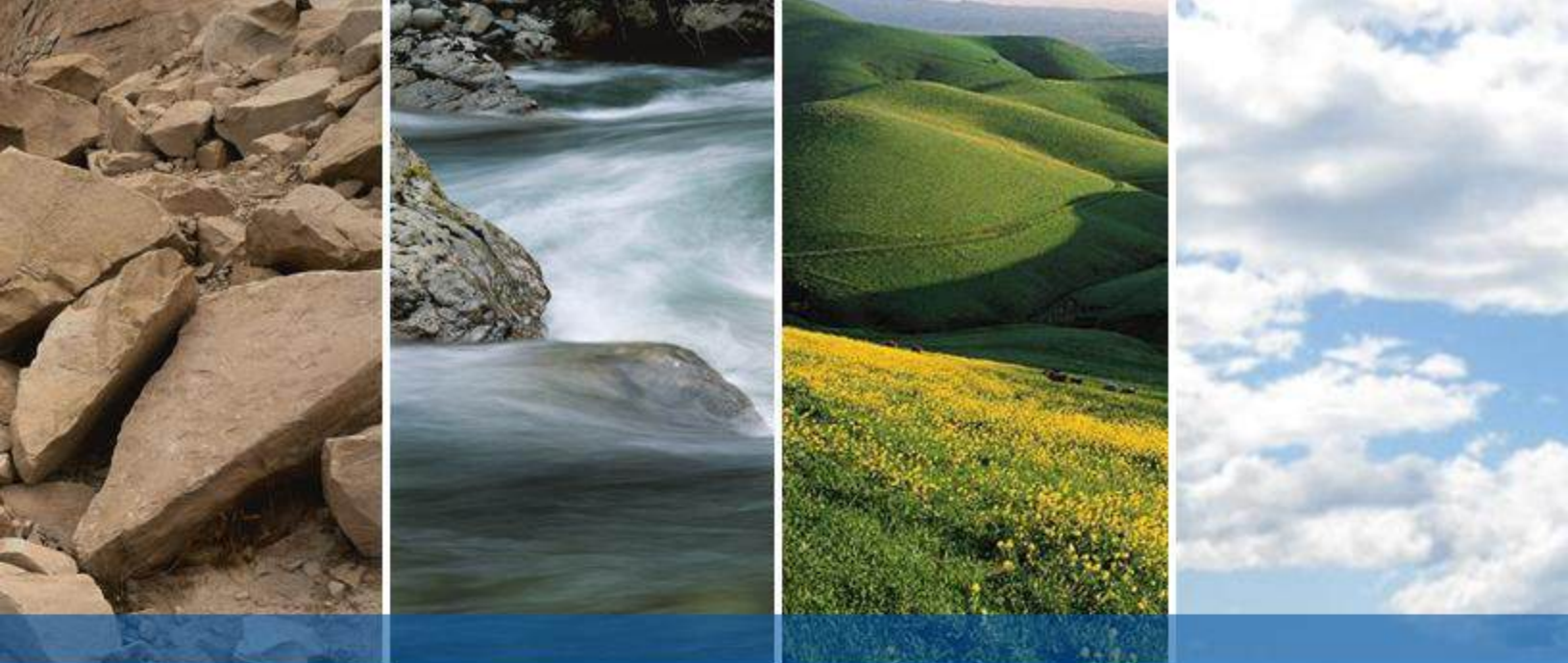
SAMPLER SYMBOLS

-

(S.P.T.) Number of blows of 140 lb. hammer falling 30" to drive a 2-inch O.D. (1-3/8 inch I.D.) sampler

* Unconfined compressive strength in tons/sq. ft., asterisk on log means determined by pocket penetrometer

ENGEO
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APPENDIX B

LABORATORY TEST DATA



WSP USA Inc.

9177 Sky Park Ct. San Diego, CA. 92123

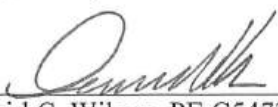
PHYSICAL PROPERTIES OF SOILS

PROJECT: ENGEO – Race Residence (29999.000.001)	LAB NO.: 38662-38668 (page 1 of 1)	PROJECT NO.: US0046152.7702
	SAMPLED BY: J. Shelton	DATE: 1/26/2026
	SUBMITTED BY: J. Shelton	DATE: 1/27/2026
	AUTHORIZED BY: J. Shelton	DATE: 1/30/2026
	REVIEWED BY: M. Gibson	REPORT DATE: 2/X/2026

WSP Lab No.	Boring	Depth (ft.)	-#200, % (ASTM D1140)	As-Received Moisture Content, % (ASTM D2216)	Dry Density (pcf)	Expansion Index (ASTM D4829)
38662	1-B1	0-5	--	--	--	--
38663	1-B1	5.5-6.5	--	16.1	84.0	--
38664	1-B1	10-11.5	61.6	--	--	--
38665	1-B1	15.5-16.5	--	12.0	113.6	17
38666	1-B2	2.5-5	--	--	--	--
38667	1-B2	5-6.5	65.0	--	--	--
38668	1-B2	10.5-11.5	--	16.0	112.3	--

Notes:

Respectfully Submitted,



David C. Wilson, PE C54734
Senior Associate Engineer – Materials



9177 Sky Park Court, San Diego, CA 92123

Phone: 858-278-3600 Fax: 858-278-5300

Expansion Index - ASTM D4829

Project #:	US0046152.7702.01	Lab #:	38665
Project Name:	Race Residence #29999.000.001		
Sampled By:	J. Shelton	Date Sampled:	Not Submitted
Tested By:	J. Bresee	Date Tested:	2/6/2026
Reviewed By:	L. Collins	Date Reviewed:	2/9/2026
Sample Location:	Boring #1 @ 0-5'		
Soil Type:	Clayey Sand, SC		

Sample Amount Retained on #4 Sieve, %: _____

Mass of test load applied, g: 5692.3

Prior to Testing Moisture Content

Wet weight + tare, g: 447.2
Dry weight + tare, g: 418.1
Tare weight, g: 106.9
Initial moisture, %: 9.4

After Testing Moisture Content

Wet weight + tare, g: 676.0
Dry weight + tare, g: 606.7
Tare weight, g: 228.7
Final moisture, %: 18.3

Weight compacted sample, g:	589.6	Ring diameter (in):	4.006
Weight of ring, g:	195.6	Ring height (in):	1.002
Weight of soil, g:	394.0	Ring volume (cubic feet):	0.0073086
Initial height of sample measured, in.:	1.002		
Final height of sample measured, in.:	1.040	Final soil mass, g:	449.7

As-Tested Density and Saturation

Wet density of soil, pcf:	118.8
Dry density of soil, pcf:	108.7
Degree of saturation, %:	45.8

After Test Density and Saturation

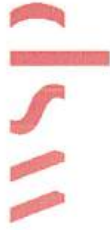
Wet density of soil, pcf:	130.7
Dry density of soil, pcf:	110.4
Degree of saturation, %:	94.1

Test duration, hours: 24
Initial reading: 0.688 in
Final reading: 0.671 in
Difference: 0.017 in

Expansion Index: 17
Very Low

Respectfully Submitted:
WSP USA, Inc.

David C. Wilson, PE C54734
Senior Principal Engineer



WSP USA Inc.
9177 Sky Park Court, San Diego, CA

Moisture & Density of ASTM Rings (ASTM D2216/D7263)

Lab #	38663	
Boring #	1-B1	
Depth	5.5'-6.5'	
Soil Type	CL	
Wt. Soil + Ring	1195.3	
Wt. Ring	442.45	
Wt. of Soil	752.85	
Wet + Pan	402.3	
Dry + Pan	370.2	
Pan Wt.	170.74	
Dia 1	2.50	
Dia 2		
Dia 3		
Dia 4		
Dia 5		
Ht 1	6.00	
Ht 2		
Ht 3		
Ht 4		
Ht 5		
Volume of Rings	0.01703	
Moisture Content	16.1	
Wet Density, pcf	97.4	
Dry Density, pcf	84.0	

Note: Sample was in a Shelby tube approximately 6 inches long, samples had one end extruded slightly (and cut flush) while the other end had the extruding spacer flush to ensure both ends were fairly square and flush in order to get an accurate volume in order to get the density measurement.

Project: ENGEO - Race Residence
Project #: US0046152.7702

Tested By: AC
Sampled: 1/26/2026
Date Tested: 2/4/2026



LABORATORY TEST RESULTS OF SOIL SAMPLES

Project No.: US0046152.7702
Project Name: ENGEO - Race Residence (29999.000.001)

Tested By: RP
Reviewed By: MG

Date: 2/3-4/2026
Date: 2/6/2026

			Soil Resistivity/pH		Chemical Analysis in mg/kg (ppm)	
			CTM 643		CTM 422	CTM 417
Lab No.	Boring/Sample ID	Depth	Min. Resistivity (ohm-cm)	pH	Cl	SO ₄
38666	1-B2	2.5'-5'	1,076	7.01	155.5	271.1

Notes:

NT = Not tested

CTM = CALTRANS Test Method

mg/kg = milligrams per kilogram of (parts per million) of dry soil

Chemical analysis for CTM 417 and 422 were made on 1:3 soil-to-water extract

Respectfully Submitted:

WSP USA Inc.

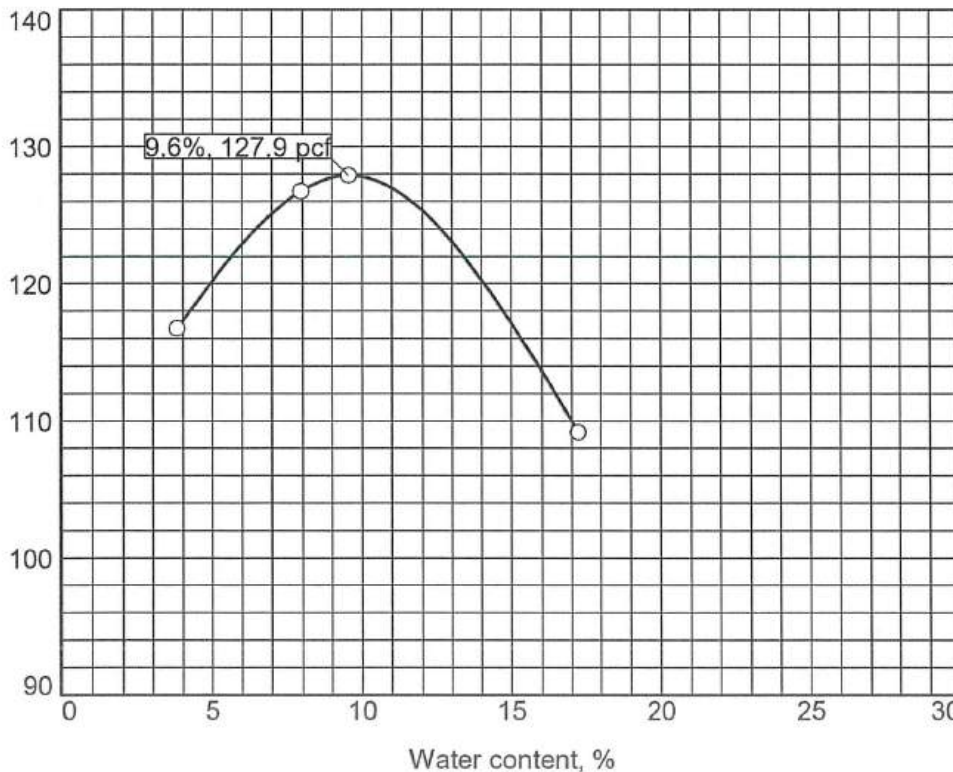
David C. Wilson, PE C54734

Senior Principal Engineer

COMPACTION TEST REPORT

Curve No.
38662

Dry density, pcf



Test Specification:
ASTM D 1557-12 Method A Modified

Preparation Method _____
 Hammer Wt. 10 lb.
 Hammer Drop 18 in.
 Hammer Type: automatic
 Layers five Blows/Layer 25
 Mold Size 0.03333 cu. ft.

Test Performed on Material
 Passing #4 Sieve

NM _____ LL _____ PI _____
 Sp.G. (D854): _____

%>#4 _____ %<No.200 _____

USCS SC AASHTO _____

Date Sampled 1/26/2026

Date Received 1/27/2026

Date Tested 1/30/2026

Tested By RP

TESTING DATA	1	2	3	4	5	6
WM + WS	3816.2	3918.9	4053.2	4103.3		
WM	1980.2	1980.2	1980.2	1980.2		
WW + T #1	1036.7	1174.9	1064.7	1065.9		
WD + T #1	1004.4	1028.0	999.2	988.0		
TARE #1	155.8	175.2	175.6	174.1		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	3.8	17.2	8.0	9.6		
DRY DENSITY	116.7	109.2	126.8	127.9		

TEST RESULTS

Maximum dry density = 127.9 pcf

Optimum moisture = 9.6 %

Project No.: US0045894.7702.01 Client: ENGEO

Project: P#29999.000.001 Race Residence

Location: 1 B-1 @ 0-5' Sample Number: 38662

wsp

Material Description

Medium Brown Clayey Sand, SC

Remarks:

Checked by: LC

Title: Lab Supv.

Don Figure

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST

ASTM-D2850

Project Name:	ENGEO - Race Residence (29999.000.001)			Project No.:	US0046152.7702
Boring No.:	1-B1	Depth (Feet):	15.5'-16.5'	WSP Lab No.:	38665
Test Date:	2/2/2026	Tested By:	MG		
Soil Description:	Clayey Sand, SC			Sample Preparation:	Intact

Prior to Testing Moisture Content

Wet weight + tare, g:	185.53
Dry weight + tare, g:	168.50
Tare weight, g:	26.46
Initial moisture, %:	12.0

After Testing Moisture Content

Wet weight + tare, g:	770.51
Dry weight + tare, g:	681.83
Tare weight, g:	79.30
Final moisture, %:	14.7

Sample Dimensions

Initial Sample Height, in.	4.514
Initial Sample Diameter, in.	2.405
Initial Sample Area, in. ²	4.543
Change in Sample Height After Applying Chamber Pressure, in.	-0.015
Sample Height After Applying Chamber Pressure, in.	4.499
Corrected Sample Area After Consolidation, in. ²	4.573

Sample Parameters

Initial Sample Mass, g	684.69
Wet Density, pcf	127.2
Dry Density, pcf	113.6
Degree of Saturation, %	69.6
Void Ratio (Gs assumed=2.70)	0.46

Chamber Pressure

Initial, psi	6.28
Final, psi	6.27

Test Axial Strain

Test Axial Strain, in/min	0.0226
Test Axial Strain, %/min	0.50

Maximum Values at Failure (or 15% strain)

Compressive Strength, psi	25.50
Major Principal Stress (σ_1), psi	27.38
Minor Principal Stress (σ_3), psi	6.28

Respectfully Submitted:

WSP USA, Inc.



David C. Wilson, PE C54734

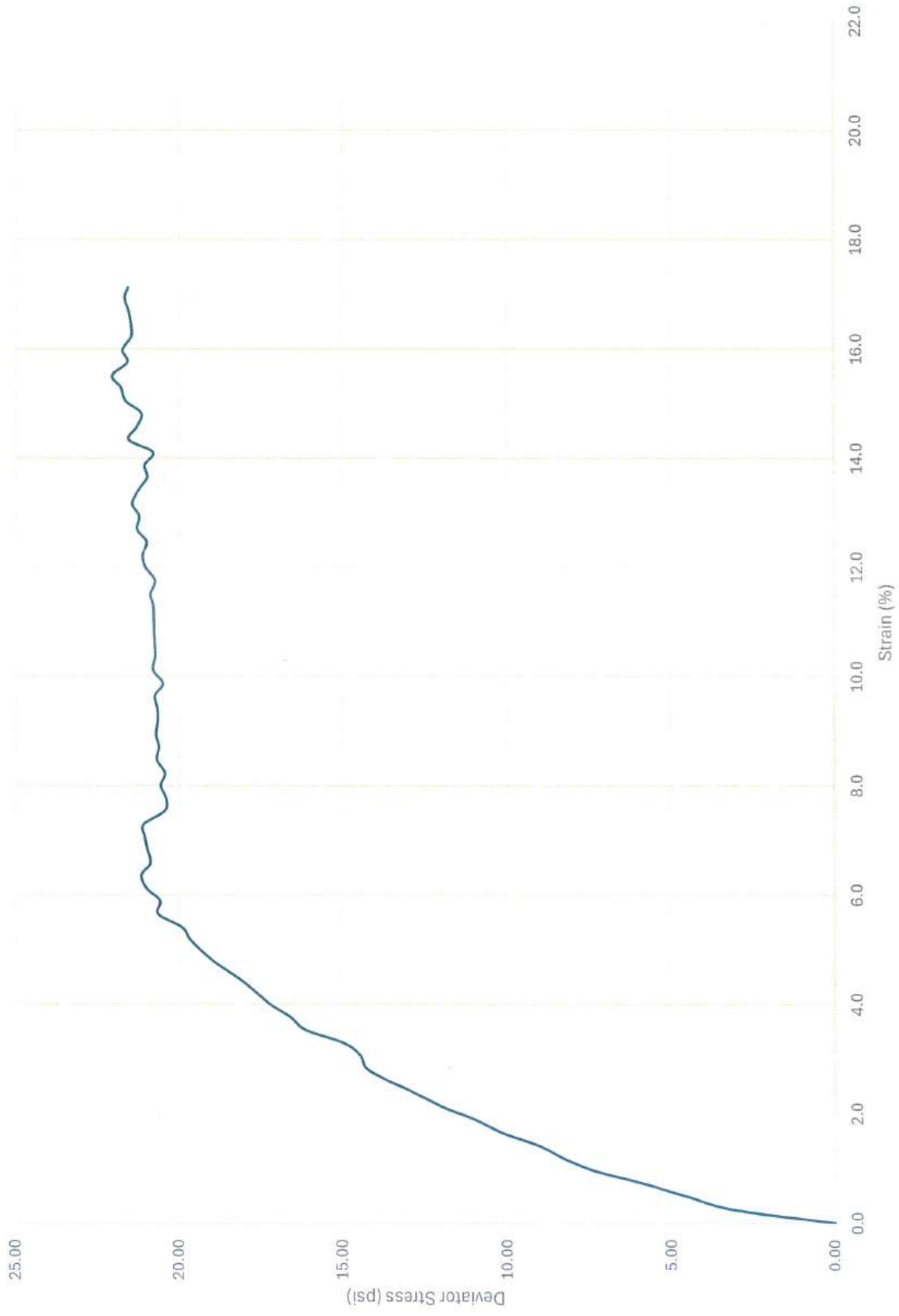
Senior Principal Engineer

Reading No.	Deviator Load (lbs)	Axial Deformati on (in)	Corrected Area (in2)	Axial Strain (%)	Deviator Stress (psi)	Corrected Deviator Stress (psi)	σ_1 (psi)	σ_3 (psi)	σ_{1c} (psi)	σ_1/σ_3	Q (psi)	P' (psi)
0	18.2	0.337	4.573	0.000	0.000	0.000	6.28	6.275	6.28	1.00	0.00	6.28
1	32.5	0.348	4.584	0.244	3.127	3.119	9.39	6.275	9.38	1.50	1.56	7.83
2	38.6	0.358	4.594	0.467	4.461	4.440	10.72	6.275	10.70	1.71	2.22	8.49
3	45.0	0.369	4.606	0.711	5.860	5.819	12.09	6.275	12.07	1.93	2.91	9.17
4	52.2	0.380	4.617	0.956	7.435	7.364	13.64	6.275	13.60	2.17	3.68	9.94
5	56.5	0.390	4.628	1.178	8.375	8.277	14.55	6.275	14.50	2.32	4.14	10.39
6	60.4	0.401	4.639	1.423	9.228	9.097	15.37	6.275	15.31	2.45	4.55	10.79
7	65.4	0.411	4.649	1.645	10.321	10.152	16.43	6.275	16.36	2.62	5.08	11.32
8	69.4	0.422	4.661	1.889	11.196	10.985	17.26	6.275	17.18	2.75	5.49	11.73
9	74.0	0.432	4.672	2.112	12.202	11.944	18.22	6.275	18.14	2.90	5.97	12.21
10	77.9	0.443	4.683	2.356	13.055	12.747	19.02	6.275	18.93	3.03	6.37	12.60
11	82.2	0.454	4.695	2.601	13.995	13.631	19.91	6.275	19.80	3.17	6.82	13.04
12	85.4	0.464	4.706	2.823	14.695	14.280	20.56	6.275	20.44	3.28	7.14	13.36
13	86.5	0.475	4.718	3.067	14.935	14.477	20.75	6.275	20.63	3.31	7.24	13.45
14	89.0	0.485	4.729	3.290	15.482	14.973	21.25	6.275	21.12	3.39	7.49	13.70
15	94.7	0.496	4.741	3.534	16.729	16.137	22.41	6.275	22.27	3.57	8.07	14.27
16	96.9	0.506	4.751	3.756	17.210	16.563	22.84	6.275	22.69	3.64	8.28	14.48
17	100.1	0.517	4.764	4.001	17.909	17.193	23.47	6.275	23.31	3.74	8.60	14.79
18	102.6	0.528	4.776	4.245	18.456	17.673	23.95	6.275	23.78	3.82	8.84	15.03
19	105.1	0.538	4.787	4.468	19.003	18.154	24.43	6.275	24.25	3.89	9.08	15.26
20	108.3	0.549	4.799	4.712	19.703	18.774	25.05	6.275	24.86	3.99	9.39	15.57
21	110.8	0.559	4.810	4.934	20.249	19.250	25.53	6.275	25.33	4.07	9.63	15.80
22	113.0	0.570	4.823	5.179	20.730	19.657	25.93	6.275	25.73	4.13	9.83	16.00
23	114.4	0.580	4.834	5.401	21.037	19.900	26.18	6.275	25.96	4.17	9.95	16.12
24	118.3	0.591	4.847	5.646	21.889	20.654	26.93	6.275	26.71	4.29	10.33	16.49
25	118.3	0.602	4.859	5.890	21.889	20.600	26.88	6.275	26.64	4.28	10.30	16.46
26	120.5	0.612	4.871	6.112	22.370	21.003	27.28	6.275	27.04	4.35	10.50	16.66
27	121.6	0.623	4.883	6.357	22.611	21.174	27.45	6.275	27.20	4.37	10.59	16.74
28	120.5	0.633	4.895	6.579	22.370	20.899	27.17	6.275	26.92	4.33	10.45	16.60
29	121.2	0.644	4.908	6.824	22.523	20.987	27.26	6.275	27.00	4.34	10.49	16.64
30	121.9	0.655	4.921	7.068	22.677	21.074	27.35	6.275	27.07	4.36	10.54	16.67
31	122.3	0.665	4.933	7.291	22.764	21.104	27.38	6.275	27.10	4.36	10.55	16.69

32	119.4	0.676	4.946	7.535	22.130	20.462	26.74	6.275	26.44	4.26	10.23	16.36
33	119.4	0.686	4.958	7.757	22.130	20.413	26.69	6.275	26.39	4.25	10.21	16.33
34	120.5	0.697	4.971	8.002	22.370	20.580	26.86	6.275	26.55	4.28	10.29	16.41
35	120.1	0.707	4.983	8.224	22.283	20.450	26.73	6.275	26.41	4.26	10.23	16.34
36	121.6	0.718	4.996	8.469	22.611	20.696	26.97	6.275	26.64	4.30	10.35	16.46
37	121.6	0.729	5.009	8.713	22.611	20.641	26.92	6.275	26.58	4.29	10.32	16.43
38	122.3	0.739	5.022	8.935	22.764	20.730	27.00	6.275	26.66	4.30	10.36	16.47
39	122.3	0.75	5.035	9.180	22.764	20.674	26.95	6.275	26.60	4.29	10.34	16.44
40	122.6	0.76	5.048	9.402	22.830	20.683	26.96	6.275	26.60	4.30	10.34	16.44
41	123.3	0.771	5.061	9.647	22.983	20.766	27.04	6.275	26.67	4.31	10.38	16.47
42	122.3	0.781	5.074	9.869	22.764	20.517	26.79	6.275	26.41	4.27	10.26	16.34
43	124.1	0.792	5.088	10.113	23.158	20.816	27.09	6.275	26.70	4.32	10.41	16.49
44	124.1	0.803	5.101	10.358	23.158	20.759	27.03	6.275	26.64	4.31	10.38	16.46
45	124.4	0.813	5.114	10.580	23.223	20.766	27.04	6.275	26.64	4.31	10.38	16.46
46	124.8	0.824	5.128	10.825	23.311	20.787	27.06	6.275	26.65	4.31	10.39	16.46
47	125.1	0.834	5.141	11.047	23.376	20.794	27.07	6.275	26.65	4.31	10.40	16.46
48	125.5	0.845	5.155	11.291	23.464	20.814	27.09	6.275	26.66	4.32	10.41	16.47
49	126.2	0.855	5.168	11.514	23.617	20.898	27.17	6.275	26.74	4.33	10.45	16.51
50	125.8	0.866	5.182	11.758	23.529	20.763	27.04	6.275	26.59	4.31	10.38	16.43
51	127.6	0.877	5.197	12.003	23.923	21.052	27.33	6.275	26.87	4.35	10.53	16.57
52	128.3	0.887	5.210	12.225	24.076	21.133	27.41	6.275	26.95	4.37	10.57	16.61
53	128.0	0.898	5.224	12.469	24.010	21.017	27.29	6.275	26.82	4.35	10.51	16.55
54	129.8	0.908	5.238	12.692	24.404	21.307	27.58	6.275	27.10	4.40	10.65	16.69
55	129.8	0.919	5.252	12.936	24.404	21.247	27.52	6.275	27.03	4.39	10.62	16.65
56	131.2	0.929	5.266	13.158	24.710	21.459	27.73	6.275	27.24	4.42	10.73	16.76
57	130.6	0.940	5.281	13.403	24.575	21.281	27.56	6.275	27.05	4.39	10.64	16.66
58	129.4	0.951	5.296	13.647	24.317	20.998	27.27	6.275	26.76	4.35	10.50	16.52
59	130.1	0.961	5.309	13.870	24.470	21.076	27.35	6.275	26.83	4.36	10.54	16.55
60	129.1	0.972	5.325	14.114	24.251	20.828	27.10	6.275	26.57	4.32	10.41	16.42
61	133.3	0.982	5.338	14.337	25.169	21.561	27.84	6.275	27.30	4.44	10.78	16.79
62	132.3	0.993	5.354	14.581	24.951	21.313	27.59	6.275	27.04	4.40	10.66	16.66
63	131.9	1.004	5.369	14.826	24.863	21.177	27.45	6.275	26.90	4.37	10.59	16.59
64	134.8	1.014	5.383	15.048	25.497	21.661	27.94	6.275	27.38	4.45	10.83	16.83
65	135.9	1.025	5.399	15.292	25.738	21.802	28.08	6.275	27.51	4.47	10.90	16.89
66	137.6	1.035	5.413	15.515	26.110	22.059	28.33	6.275	27.76	4.52	11.03	17.02
67	135.5	1.046	5.428	15.759	25.651	21.608	27.88	6.275	27.30	4.44	10.80	16.79

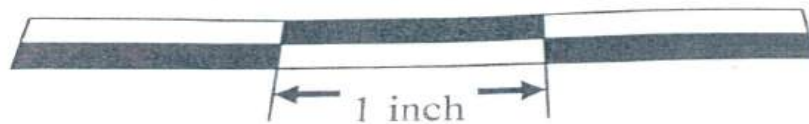
68	136.6	1.056	5.443	15.981	25.891	21.753	28.03	6.275	27.44	4.47	10.88	16.86
69	135.5	1.067	5.459	16.226	25.651	21.489	27.76	6.275	27.16	4.42	10.74	16.72
70	135.9	1.078	5.475	16.470	25.738	21.499	27.77	6.275	27.17	4.43	10.75	16.72
71	136.6	1.088	5.489	16.693	25.891	21.569	27.84	6.275	27.23	4.44	10.78	16.75
72	137.6	1.099	5.505	16.937	26.110	21.688	27.96	6.275	27.34	4.46	10.84	16.81
73	137.3	1.107	5.517	17.115	26.044	21.587	27.86	6.275	27.23	4.44	10.79	16.75

Stress-Strain





Client:	ENGEO
Project Name:	Race Residence
Project No.:	US0046152.7702
Lab No.:	38665
Sample ID:	1-B1
Depth:	15.5'-16.5'

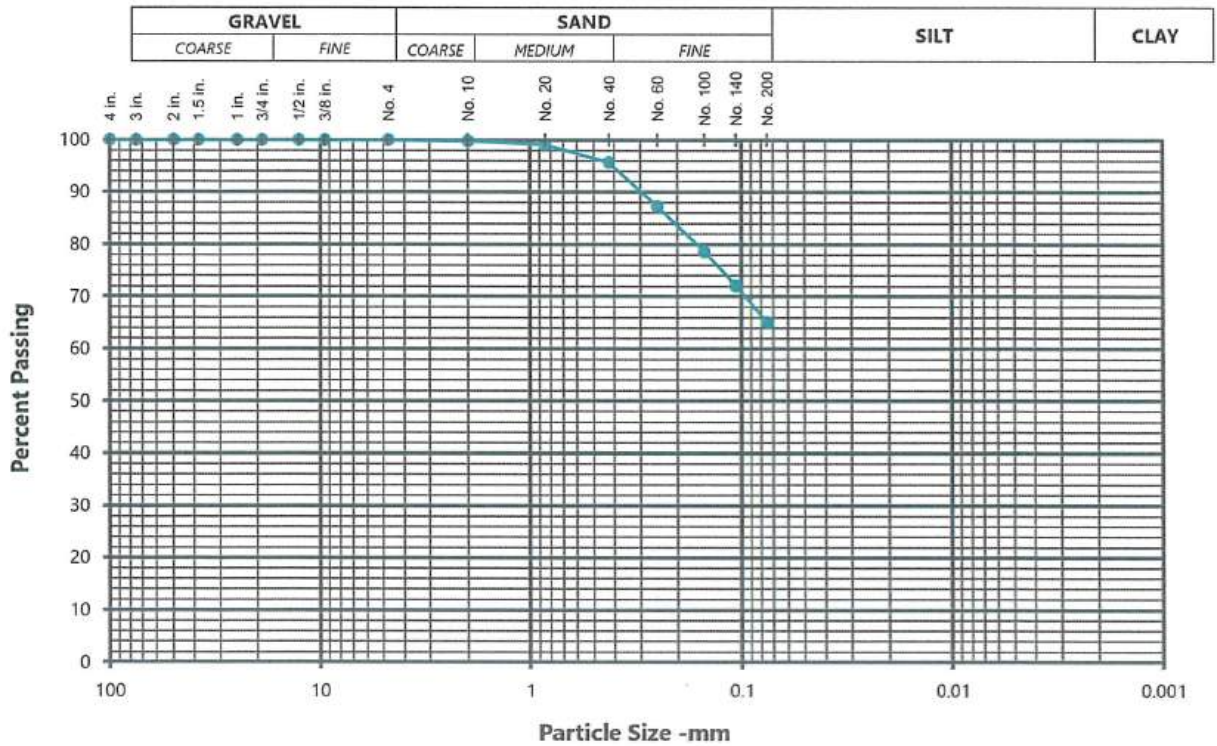


WSP Lab No. 38665

After Testing

Sample Summary Report

ASTM D6913 & D7928



%+3"	% GRAVEL		% SAND			% FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt and Clay	
0.0	0.0	0.0	0.2	4.1	30.7	65.0	
Sieve No.	Opening (mm)	Percent Finer	Sieve No.	Opening (mm)	Percent Finer		
4 in.	100	100	No. 4	4.75	100		
3 in.	75	100	No. 10	2.00	100		
2 in.	50	100	No. 20	0.85	99		
1.5 in.	38.1	100	No. 40	0.425	96		
1 in.	25	100	No. 60	0.250	87		
3/4 in.	19	100	No. 100	0.150	79		
1/2 in.	12.7	100	No. 140	0.106	72		
3/8 in.	9.5	100	No. 200	0.075	65.0		

Material Description

Lab No.: 38667

Sandy Lean Clay, CL

Sample/Boring Number: 1-B2

Depth: 5'-6.5'

Testing Remarks:

Atterberg Limits

Liquid Limit = ---

Plastic Limit = ---

Plasticity Index = ---

Moisture & Density Results

As-Received Moisture %: ---

Wet Density (pcf): ---

Dry Density (pcf): ---

Date Sampled: 1/26/2026

Date Tested: 1/30/2026

Tested By: LC

Checked By: M. Gibson

Coefficients

$D_{90} = 0.3063$ $D_{85} = 0.2235$

$D_{60} = N/A$ $D_{50} = N/A$

$D_{30} = N/A$ $D_{15} = N/A$

$D_{10} = N/A$

$C_u = N/A$ $C_c = N/A$

9177 Sky Park Court, San Diego, CA 92123
(858)278-3600

Client: ENGEO

Project: Race Residence (29999.000.001)

Project No.: US0046152.7702

Reviewed By:

David C. Wilson, PE C54734

Senior Associate Engineer - Materials

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST

ASTM-D2850

Project Name:	ENGEO - Race Residence (29999.000.001)			Project No.:	US0046152.7702
Boring No.:	1-B2	Depth (Feet):	10.5'-11.5'	WSP Lab No.:	38668
Test Date:	2/2/2026	Tested By:	MG		
Soil Description:	Sandy Clay, CL			Sample Preparation:	Intact

Prior to Testing Moisture Content

Wet weight + tare, g:	141.31
Dry weight + tare, g:	125.49
Tare weight, g:	26.50
Initial moisture, %:	16.0

After Testing Moisture Content

Wet weight + tare, g:	852.94
Dry weight + tare, g:	742.40
Tare weight, g:	80.82
Final moisture, %:	16.7

Sample Dimensions

Initial Sample Height, in.	4.994
Initial Sample Diameter, in.	2.398
Initial Sample Area, in. ²	4.516
Change in Sample Height After Applying Chamber Pressure, in.	-0.005
Sample Height After Applying Chamber Pressure, in.	4.989
Corrected Sample Area After Consolidation, in. ²	4.525

Sample Parameters

Initial Sample Mass, g	770.9
Wet Density, pcf	130.2
Dry Density, pcf	112.3
Degree of Saturation, %	89.4
Void Ratio (Gs assumed=2.70)	0.47

Chamber Pressure

Initial, psi	4.19
Final, psi	4.22

Test Axial Strain

Test Axial Strain, in/min	0.025
Test Axial Strain, %/min	0.50

Maximum Values at Failure (or 15% strain)

Compressive Strength, psi	40.47
Major Principal Stress (σ_{1c}), psi	44.11
Minor Principal Stress (σ_3), psi	4.21

Respectfully Submitted:

WSP USA, Inc.



David C. Wilson, PE C54734

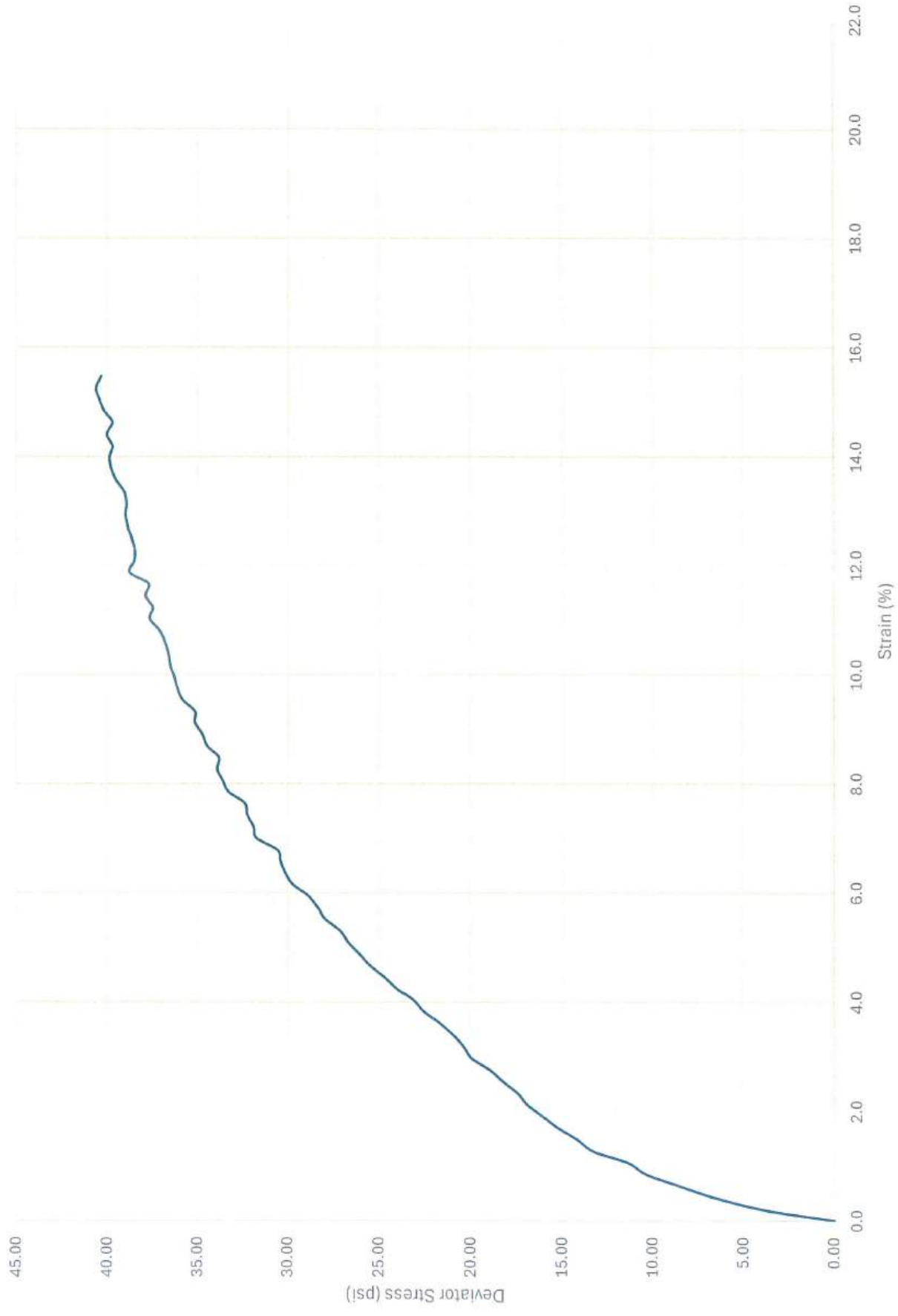
Senior Principal Engineer

Reading No.	Deviator Load (lbs)	Axial Deformation (in)	Corrected Area (in ²)	Axial Strain (%)	Deviator Stress (psi)	Corrected Deviator Stress (psi)	σ_1 (psi)	σ_3 (psi)	σ_{1c} (psi)	σ_1/σ_3	Q (psi)	P' (psi)
0	4.6	0.140	4.525	0.000	0.000	0.000	4.21	4.205	4.21	1.00	0.00	4.21
1	22.5	0.150	4.534	0.200	3.955	3.948	8.15	4.205	8.14	1.94	1.97	6.17
2	34.7	0.161	4.545	0.421	6.651	6.623	10.83	4.205	10.81	2.58	3.31	7.51
3	44.0	0.172	4.555	0.641	8.706	8.651	12.86	4.205	12.83	3.06	4.33	8.52
4	51.8	0.182	4.564	0.842	10.430	10.342	14.55	4.205	14.51	3.46	5.17	9.36
5	56.8	0.193	4.574	1.062	11.535	11.412	15.62	4.205	15.57	3.71	5.71	9.89
6	65.4	0.203	4.583	1.263	13.435	13.266	17.47	4.205	17.42	4.15	6.63	10.81
7	69.7	0.214	4.594	1.483	14.385	14.172	18.38	4.205	18.32	4.37	7.09	11.26
8	74.4	0.224	4.603	1.684	15.424	15.164	19.37	4.205	19.30	4.61	7.58	11.75
9	78.7	0.235	4.613	1.904	16.374	16.062	20.27	4.205	20.19	4.82	8.03	12.20
10	82.9	0.246	4.624	2.125	17.302	16.935	21.14	4.205	21.05	5.03	8.47	12.63
11	85.4	0.256	4.633	2.325	17.855	17.440	21.64	4.205	21.55	5.15	8.72	12.88
12	89.4	0.267	4.644	2.546	18.739	18.262	22.47	4.205	22.36	5.34	9.13	13.28
13	92.6	0.277	4.653	2.746	19.446	18.912	23.12	4.205	23.01	5.50	9.46	13.61
14	97.6	0.288	4.664	2.967	20.551	19.941	24.15	4.205	24.03	5.74	9.97	14.12
15	99.7	0.298	4.673	3.167	21.015	20.349	24.55	4.205	24.43	5.84	10.17	14.32
16	102.6	0.309	4.684	3.387	21.656	20.922	25.13	4.205	24.99	5.98	10.46	14.60
17	106.5	0.320	4.695	3.608	22.517	21.705	25.91	4.205	25.77	6.16	10.85	14.99
18	110.8	0.331	4.706	3.828	23.468	22.569	26.77	4.205	26.62	6.37	11.28	15.41
19	113.7	0.341	4.715	4.029	24.108	23.137	27.34	4.205	27.18	6.50	11.57	15.69
20	118.0	0.351	4.725	4.229	25.059	23.999	28.20	4.205	28.04	6.71	12.00	16.12
21	121.6	0.362	4.736	4.450	25.854	24.704	28.91	4.205	28.73	6.87	12.35	16.47
22	125.8	0.373	4.747	4.670	26.782	25.531	29.74	4.205	29.55	7.07	12.77	16.88
23	128.7	0.383	4.757	4.871	27.423	26.087	30.29	4.205	30.10	7.20	13.04	17.15
24	131.9	0.394	4.768	5.091	28.130	26.698	30.90	4.205	30.70	7.35	13.35	17.45
25	134.1	0.404	4.778	5.292	28.616	27.102	31.31	4.205	31.10	7.45	13.55	17.65
26	138.4	0.415	4.789	5.512	29.566	27.937	32.14	4.205	31.92	7.64	13.97	18.06
27	140.5	0.425	4.800	5.713	30.030	28.315	32.52	4.205	32.29	7.73	14.16	18.25
28	143.4	0.436	4.811	5.933	30.671	28.852	33.06	4.205	32.82	7.86	14.43	18.51
29	148.0	0.447	4.822	6.154	31.688	29.738	33.94	4.205	33.70	8.07	14.87	18.95
30	150.2	0.457	4.832	6.354	32.174	30.130	34.33	4.205	34.08	8.17	15.06	19.14
31	151.9	0.468	4.844	6.574	32.550	30.410	34.61	4.205	34.36	8.23	15.20	19.28

32	153.0	0.478	4.854	6.775	32.793	30.571	34.78	4.205	34.51	8.27	15.29	19.36
33	159.1	0.489	4.866	6.995	34.141	31.752	35.96	4.205	35.68	8.55	15.88	19.94
34	160.2	0.499	4.876	7.196	34.384	31.909	36.11	4.205	35.83	8.59	15.95	20.02
35	162.3	0.510	4.888	7.416	34.848	32.263	36.47	4.205	36.18	8.67	16.13	20.19
36	163.4	0.521	4.900	7.637	35.091	32.411	36.62	4.205	36.32	8.71	16.21	20.26
37	168.0	0.531	4.910	7.837	36.107	33.277	37.48	4.205	37.18	8.91	16.64	20.69
38	170.2	0.542	4.922	8.058	36.593	33.645	37.85	4.205	37.54	9.00	16.82	20.87
39	172.0	0.552	4.933	8.258	36.991	33.936	38.14	4.205	37.82	9.07	16.97	21.01
40	172.0	0.563	4.945	8.479	36.991	33.855	38.06	4.205	37.73	9.05	16.93	20.97
41	175.5	0.573	4.955	8.679	37.765	34.487	38.69	4.205	38.36	9.20	17.24	21.28
42	177.3	0.584	4.967	8.900	38.162	34.766	38.97	4.205	38.63	9.27	17.38	21.42
43	179.8	0.595	4.980	9.120	38.715	35.184	39.39	4.205	39.04	9.37	17.59	21.62
44	180.2	0.605	4.991	9.321	38.803	35.187	39.39	4.205	39.03	9.37	17.59	21.62
45	184.1	0.616	5.003	9.541	39.665	35.881	40.09	4.205	39.72	9.53	17.94	21.96
46	185.9	0.626	5.014	9.741	40.063	36.160	40.37	4.205	39.99	9.60	18.08	22.10
47	187.3	0.637	5.026	9.962	40.372	36.350	40.56	4.205	40.17	9.64	18.18	22.19
48	188.8	0.647	5.037	10.162	40.704	36.567	40.77	4.205	40.38	9.70	18.28	22.29
49	189.8	0.658	5.050	10.383	40.925	36.675	40.88	4.205	40.48	9.72	18.34	22.34
50	191.3	0.669	5.062	10.603	41.256	36.881	41.09	4.205	40.68	9.77	18.44	22.44
51	193.1	0.679	5.074	10.804	41.654	37.154	41.36	4.205	40.94	9.84	18.58	22.57
52	196.3	0.690	5.086	11.024	42.361	37.691	41.90	4.205	41.47	9.96	18.85	22.84
53	195.9	0.700	5.098	11.225	42.272	37.528	41.73	4.205	41.30	9.92	18.76	22.75
54	198.4	0.711	5.110	11.445	42.825	37.924	42.13	4.205	41.69	10.02	18.96	22.95
55	198.1	0.722	5.123	11.666	42.759	37.771	41.98	4.205	41.53	9.98	18.89	22.87
56	203.8	0.732	5.135	11.866	44.018	38.795	43.00	4.205	42.55	10.23	19.40	23.38
57	203.1	0.743	5.148	12.087	43.863	38.562	42.77	4.205	42.31	10.17	19.28	23.26
58	203.4	0.753	5.159	12.287	43.930	38.532	42.74	4.205	42.27	10.16	19.27	23.24
59	204.8	0.764	5.172	12.508	44.239	38.706	42.91	4.205	42.44	10.20	19.35	23.32
60	206.3	0.774	5.184	12.708	44.571	38.907	43.11	4.205	42.63	10.25	19.45	23.42
61	207.4	0.785	5.197	12.928	44.814	39.020	43.22	4.205	42.74	10.28	19.51	23.47
62	207.7	0.796	5.211	13.149	44.880	38.979	43.18	4.205	42.69	10.27	19.49	23.45
63	208.8	0.806	5.223	13.349	45.123	39.099	43.30	4.205	42.80	10.30	19.55	23.50
64	211.6	0.817	5.236	13.570	45.742	39.535	43.74	4.205	43.23	10.40	19.77	23.72
65	213.4	0.827	5.248	13.770	46.140	39.786	43.99	4.205	43.47	10.46	19.89	23.84
66	214.5	0.838	5.262	13.991	46.383	39.893	44.10	4.205	43.57	10.49	19.95	23.89
67	214.1	0.848	5.274	14.191	46.294	39.724	43.93	4.205	43.40	10.45	19.86	23.80

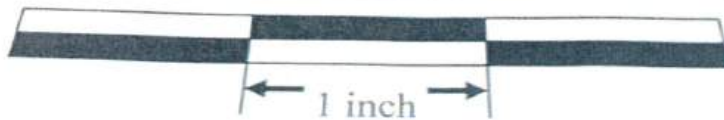
68	216.3	0.859	5.287	14.412	46.780	40.038	44.24	4.205	43.70	10.52	20.02	23.95
69	215.2	0.870	5.301	14.632	46.537	39.728	43.93	4.205	43.38	10.45	19.86	23.79
70	218.1	0.880	5.314	14.833	47.178	40.180	44.39	4.205	43.83	10.56	20.09	24.02
71	220.2	0.891	5.327	15.053	47.642	40.471	44.68	4.205	44.11	10.62	20.24	24.16
72	221.7	0.901	5.340	15.254	47.974	40.656	44.86	4.205	44.29	10.67	20.33	24.25
73	220.6	0.912	5.354	15.474	47.735	40.349	44.55	4.205	43.98	10.60	20.17	24.09
74	222.0	0.922	5.367	15.674	48.040	40.510	44.71	4.205	44.13	10.63	20.25	24.17
75	223.4	0.933	5.381	15.895	48.349	40.664	44.87	4.205	44.28	10.67	20.33	24.24
76	224.9	0.944	5.395	16.115	48.681	40.836	45.04	4.205	44.44	10.71	20.42	24.32
77	227.0	0.954	5.408	16.316	49.145	41.126	45.33	4.205	44.73	10.78	20.56	24.47
78	227.0	0.965	5.422	16.536	49.145	41.018	45.22	4.205	44.61	10.75	20.51	24.41
79	227.0	0.975	5.435	16.737	49.145	40.920	45.12	4.205	44.50	10.73	20.46	24.35
80	227.4	0.986	5.449	16.957	49.233	40.885	45.09	4.205	44.46	10.72	20.44	24.33
81	225.9	0.987	5.451	16.977	48.902	40.599	44.80	4.205	44.18	10.66	20.30	24.19

Stress-Strain



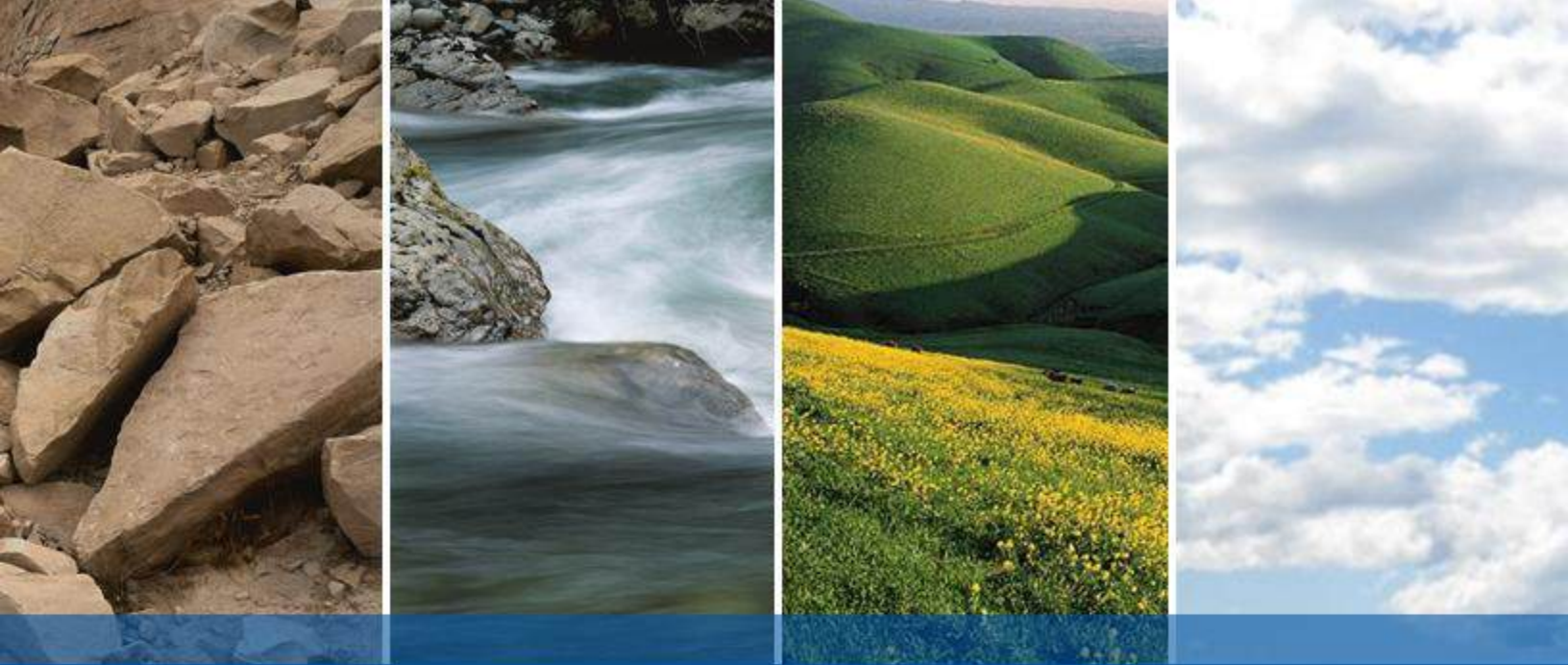


Client:	ENGEO
Project Name:	Race Residence
Project No.:	US0046152.7702
Lab No.:	38668
Sample ID:	1-B2
Depth:	10.5'-11.5'



WSP Lab No. 38668

After Testing



APPENDIX C

CITY OF SAN DIEGO WORKSHEET C.4-1

Appendix C: Geotechnical and Groundwater Investigation Requirements

Worksheet C.4-1: Categorization of Infiltration Feasibility Condition Based on Geotechnical Conditions⁹

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ¹⁰
Part 1 - Full Infiltration Feasibility Screening Criteria		
DMA(s) Being Analyzed:		Project Phase:
		Geotechnical Exploration
Criteria 1: Infiltration Rate Screening		
1A	Is the mapped hydrologic soil group according to the NRCS Web Soil Survey or UC Davis Soil Web Mapper Type A or B and corroborated by available site soil data¹¹? ☐ Yes; the DMA may feasibly support full infiltration. Answer “Yes” to Criteria 1 Result or continue to Step 1B if the applicant elects to perform infiltration testing. ☒ No; the mapped soil types are A or B but is not corroborated by available site soil data (continue to Step 1B). ☐ No; the mapped soil types are C, D, or “urban/unclassified” and is corroborated by available site soil data. Answer “No” to Criteria 1 Result. ☐ No; the mapped soil types are C, D, or “urban/unclassified” but is not corroborated by available site soil data (continue to Step 1B).	
1B	Is the reliable infiltration rate calculated using planning phase methods from Table D.3-1? ☒ Yes; Continue to Step 1C. ☐ No; Skip to Step 1D.	
1C	Is the reliable infiltration rate calculated using planning phase methods from Table D.3-1 greater than 0.5 inches per hour? ☐ Yes; the DMA may feasibly support full infiltration. Answer “Yes” to Criteria 1 Result. ☒ No; full infiltration is not required. Answer “No” to Criteria 1 Result.	
1D	Infiltration Testing Method. Is the selected infiltration testing method suitable during the design phase (see Appendix D.3)? Note: Alternative testing standards may be allowed with appropriate rationales and documentation. ☐ Yes; continue to Step 1E. ☐ No; select an appropriate infiltration testing method.	

⁹ Note that it is not required to investigate each and every criterion in the worksheet, a single “no” answer in Part 1, Part 2, Part 3, or Part 4 determines a full, partial, or no infiltration condition.

¹⁰ This form must be completed each time there is a change to the site layout that would affect the infiltration feasibility condition. Previously completed forms shall be retained to document the evolution of the site stormwater design.

¹¹ Available data includes site-specific sampling or observation of soil types or texture classes, such as obtained from borings or test pits necessary to support other design elements.

Appendix C: Geotechnical and Groundwater Investigation Requirements

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions	Worksheet C.4-1: Form I-8A ¹⁰
1E	Number of Percolation/Infiltration Tests. Does the infiltration testing method performed satisfy the minimum number of tests specified in Table D.3-2? ☐ Yes; continue to Step 1F. ☐ No; conduct appropriate number of tests.
1F	Factor of Safety. Is the suitable Factor of Safety selected for full infiltration design? See guidance in D.5; Tables D.5-1 and D.5-2; and Worksheet D.5-1 (Form I-9). ☐ Yes; continue to Step 1G. ☐ No; select appropriate factor of safety.
1G	Full Infiltration Feasibility. Is the average measured infiltration rate divided by the Factor of Safety greater than 0.5 inches per hour? ☐ Yes; answer "Yes" to Criteria 1 Result. ☐ No; answer "No" to Criteria 1 Result.
Criteria 1 Result	Is the estimated reliable infiltration rate greater than 0.5 inches per hour within the DMA where runoff can reasonably be routed to a BMP? ☐ Yes; the DMA may feasibly support full infiltration. Continue to Criteria 2. ☒ No; full infiltration is not required. Skip to Part 1 Result.
Summarize infiltration testing methods, testing locations, replicates, and results and summarize estimates of reliable infiltration rates according to procedures outlined in D.5. Documentation should be included in project geotechnical report. Infiltration testing at the site was performed at two locations within the project site by excavating a 5 ft deep boring and converting to infiltration test boreholes. The infiltration rates are 0.04 and 0.15 in/hr.	

Appendix C: Geotechnical and Groundwater Investigation Requirements

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ¹⁰	
Criteria 2: Geologic/Geotechnical Screening			
2A	If all questions in Step 2A are answered “Yes,” continue to Step 2B. For any “No” answer in Step 2A answer “No” to Criteria 2, and submit an “Infiltration Feasibility Condition Letter” that meets the requirements in Appendix C.1.1. The geologic/geotechnical analyses listed in Appendix C.2.1 do not apply to the DMA because one of the following setbacks cannot be avoided and therefore result in the DMA being in a no infiltration condition. The setbacks must be the closest horizontal radial distance from the surface edge (at the overflow elevation) of the BMP.		
2A-1	Can the proposed full infiltration BMP(s) avoid areas with existing fill materials greater than 5 feet thick below the infiltrating surface?	☐ Yes	☐ No
2A-2	Can the proposed full infiltration BMP(s) avoid placement within 10 feet of existing underground utilities, structures, or retaining walls?	☐ Yes	☐ No
2A-3	Can the proposed full infiltration BMP(s) avoid placement within 50 feet of a natural slope (>25%) or within a distance of 1.5H from fill slopes where H is the height of the fill slope?	☐ Yes	☐ No
2B	When full infiltration is determined to be feasible, a geotechnical investigation report must be prepared that considers the relevant factors identified in Appendix C.2.1. If all questions in Step 2B are answered “Yes,” then answer “Yes” to Criteria 2 Result. If there are “No” answers continue to Step 2C.		
2B-1	Hydroconsolidation. Analyze hydroconsolidation potential per approved ASTM standard due to a proposed full infiltration BMP. Can full infiltration BMPs be proposed within the DMA without increasing hydroconsolidation risks?	☐ Yes	☐ No
2B-2	Expansive Soils. Identify expansive soils (soils with an expansion index greater than 20) and the extent of such soils due to proposed full infiltration BMPs. Can full infiltration BMPs be proposed within the DMA without increasing expansive soil risks?	☐ Yes	☐ No

Appendix C: Geotechnical and Groundwater Investigation Requirements

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ¹⁰	
2B-3	Liquefaction. If applicable, identify mapped liquefaction areas. Evaluate liquefaction hazards in accordance with Section 6.4.2 of the City of San Diego's Guidelines for Geotechnical Reports (2011 or most recent edition). Liquefaction hazard assessment shall take into account any increase in groundwater elevation or groundwater mounding that could occur as a result of proposed infiltration or percolation facilities. Can full infiltration BMPs be proposed within the DMA without increasing liquefaction risks?	☐ Yes	☐ No
2B-4	Slope Stability. If applicable, perform a slope stability analysis in accordance with the ASCE and Southern California Earthquake Center (2002) Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Landslide Hazards in California to determine minimum slope setbacks for full infiltration BMPs. See the City of San Diego's Guidelines for Geotechnical Reports (2011) to determine which type of slope stability analysis is required. Can full infiltration BMPs be proposed within the DMA without increasing slope stability risks?	☐ Yes	☐ No
2B-5	Other Geotechnical Hazards. Identify site-specific geotechnical hazards not already mentioned (refer to Appendix C.2.1). Can full infiltration BMPs be proposed within the DMA without increasing risk of geologic or geotechnical hazards not already mentioned?	☐ Yes	☐ No
2B-6	Setbacks. Establish setbacks from underground utilities, structures, and/or retaining walls. Reference applicable ASTM or other recognized standard in the geotechnical report. Can full infiltration BMPs be proposed within the DMA using established setbacks from underground utilities, structures, and/or retaining walls?	☐ Yes	☐ No

Appendix C: Geotechnical and Groundwater Investigation Requirements

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ¹⁰	
2C	Mitigation Measures. Propose mitigation measures for each geologic/geotechnical hazard identified in Step 2B. Provide a discussion of geologic/geotechnical hazards that would prevent full infiltration BMPs that cannot be reasonably mitigated in the geotechnical report. See Appendix C.2.1.8 for a list of typically reasonable and typically unreasonable mitigation measures. Can mitigation measures be proposed to allow for full infiltration BMPs? If the question in Step 2 is answered “Yes,” then answer “Yes” to Criteria 2 Result. If the question in Step 2C is answered “No,” then answer “No” to Criteria 2 Result.	☐ Yes	☐ No
Criteria 2 Result	Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geologic or geotechnical hazards that cannot be reasonably mitigated to an acceptable level?	☐ Yes	☐ No
Summarize findings and basis; provide references to related reports or exhibits.			
Part 1 Result – Full Infiltration Geotechnical Screening ¹²		Result	
If answers to both Criteria 1 and Criteria 2 are “Yes”, a full infiltration design is potentially feasible based on Geotechnical conditions only. If either answer to Criteria 1 or Criteria 2 is “No”, a full infiltration design is not required.		☐ Full infiltration Condition ☒ Complete Part 2	

¹² To be completed using gathered site information and best professional judgement considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate findings.



Appendix C: Geotechnical and Groundwater Investigation Requirements

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ¹⁰
Part 2 – Partial vs. No Infiltration Feasibility Screening Criteria		
DMA(s) Being Analyzed:		Project Phase:
		Geotechnical Exploration
Criteria 3 : Infiltration Rate Screening		
3A	NRCS Type C, D, or “urban/unclassified”: Is the mapped hydrologic soil group according to the NRCS Web Soil Survey or UC Davis Soil Web Mapper is Type C, D, or “urban/unclassified” and corroborated by available site soil data? ☐ Yes; the site is mapped as C soils and a reliable infiltration rate of 0.15 in/hr. is used to size partial infiltration BMPS. Answer “Yes” to Criteria 3 Result. ☐ Yes; the site is mapped as D soils or “urban/unclassified” and a reliable infiltration rate of 0.05 in/hr. is used to size partial infiltration BMPS. Answer “Yes” to Criteria 3 Result. ☒ No; infiltration testing is conducted (refer to Table D.3-1), continue to Step 3B.	
3B	Infiltration Testing Result: Is the reliable infiltration rate (i.e. average measured infiltration rate/2) greater than 0.05 in/hr. and less than or equal to 0.5 in/hr? ☐ Yes; the site may support partial infiltration. Answer “Yes” to Criteria 3 Result. ☒ No; the reliable infiltration rate (i.e. average measured rate/2) is less than 0.05 in/hr., partial infiltration is not required. Answer “No” to Criteria 3 Result.	
Criteria 3 Result	Is the estimated reliable infiltration rate (i.e., average measured infiltration rate/2) greater than or equal to 0.05 inches/hour and less than or equal to 0.5 inches/hour at any location within each DMA where runoff can reasonably be routed to a BMP? ☐ Yes; Continue to Criteria 4. ☒ No: Skip to Part 2 Result.	
Summarize infiltration testing and/or mapping results (i.e. soil maps and series description used for infiltration rate).		

Appendix C: Geotechnical and Groundwater Investigation Requirements

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ¹⁰	
Criteria 4: Geologic/Geotechnical Screening			
4A	If all questions in Step 4A are answered “Yes,” continue to Step 2B. For any “No” answer in Step 4A answer “No” to Criteria 4 Result, and submit an “Infiltration Feasibility Condition Letter” that meets the requirements in Appendix C.1.1. The geologic/geotechnical analyses listed in Appendix C.2.1 do not apply to the DMA because one of the following setbacks cannot be avoided and therefore result in the DMA being in a no infiltration condition. The setbacks must be the closest horizontal radial distance from the surface edge (at the overflow elevation) of the BMP.		
4A-1	Can the proposed partial infiltration BMP(s) avoid areas with existing fill materials greater than 5 feet thick?	☐ Yes	☐ No
4A-2	Can the proposed partial infiltration BMP(s) avoid placement within 10 feet of existing underground utilities, structures, or retaining walls?	☐ Yes	☐ No
4A-3	Can the proposed partial infiltration BMP(s) avoid placement within 50 feet of a natural slope (>25%) or within a distance of 1.5H from fill slopes where H is the height of the fill slope?	☐ Yes	☐ No
4B	When full infiltration is determined to be feasible, a geotechnical investigation report must be prepared that considers the relevant factors identified in Appendix C.2.1 If all questions in Step 4B are answered “Yes,” then answer “Yes” to Criteria 4 Result. If there are any “No” answers continue to Step 4C.		
4B-1	Hydroconsolidation. Analyze hydroconsolidation potential per approved ASTM standard due to a proposed full infiltration BMP. Can partial infiltration BMPs be proposed within the DMA without increasing hydroconsolidation risks?	☐ Yes	☐ No
4B-2	Expansive Soils. Identify expansive soils (soils with an expansion index greater than 20) and the extent of such soils due to proposed full infiltration BMPs. Can partial infiltration BMPs be proposed within the DMA without increasing expansive soil risks?	☐ Yes	☐ No
4B-3	Liquefaction. If applicable, identify mapped liquefaction areas. Evaluate liquefaction hazards in accordance with Section 6.4.2 of the City of San Diego's Guidelines for Geotechnical Reports (2011). Liquefaction hazard assessment shall take into account any increase in groundwater elevation or groundwater mounding that could occur as a result of proposed infiltration or percolation facilities. Can partial infiltration BMPs be proposed within the DMA without increasing liquefaction risks?	☐ Yes	☐ No

Appendix C: Geotechnical and Groundwater Investigation Requirements

Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions		Worksheet C.4-1: Form I-8A ¹⁰	
4B-4	Slope Stability. If applicable, perform a slope stability analysis in accordance with the ASCE and Southern California Earthquake Center (2002) Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Landslide Hazards in California to determine minimum slope setbacks for full infiltration BMPs. See the City of San Diego's Guidelines for Geotechnical Reports (2011) to determine which type of slope stability analysis is required. Can partial infiltration BMPs be proposed within the DMA without increasing slope stability risks?	☐ Yes	☐ No
4B-5	Other Geotechnical Hazards. Identify site-specific geotechnical hazards not already mentioned (refer to Appendix C.2.1). Can partial infiltration BMPs be proposed within the DMA without increasing risk of geologic or geotechnical hazards not already mentioned?	☐ Yes	☐ No
4B-6	Setbacks. Establish setbacks from underground utilities, structures, and/or retaining walls. Reference applicable ASTM or other recognized standard in the geotechnical report. Can partial infiltration BMPs be proposed within the DMA using recommended setbacks from underground utilities, structures, and/or retaining walls?	☐ Yes	☐ No
4C	Mitigation Measures. Propose mitigation measures for each geologic/geotechnical hazard identified in Step 4B. Provide a discussion on geologic/geotechnical hazards that would prevent partial infiltration BMPs that cannot be reasonably mitigated in the geotechnical report. See Appendix C.2.1.8 for a list of typically reasonable and typically unreasonable mitigation measures. Can mitigation measures be proposed to allow for partial infiltration BMPs? If the question in Step 4C is answered "Yes," then answer "Yes" to Criteria 4 Result. If the question in Step 4C is answered "No," then answer "No" to Criteria 4 Result.	☐ Yes	☐ No
Criteria 4 Result	Can infiltration of greater than or equal to 0.05 inches/hour and less than or equal to 0.5 inches/hour be allowed without increasing the risk of geologic or geotechnical hazards that cannot be reasonably mitigated to an acceptable level?	☐ Yes	☐ No

Appendix C: Geotechnical and Groundwater Investigation Requirements

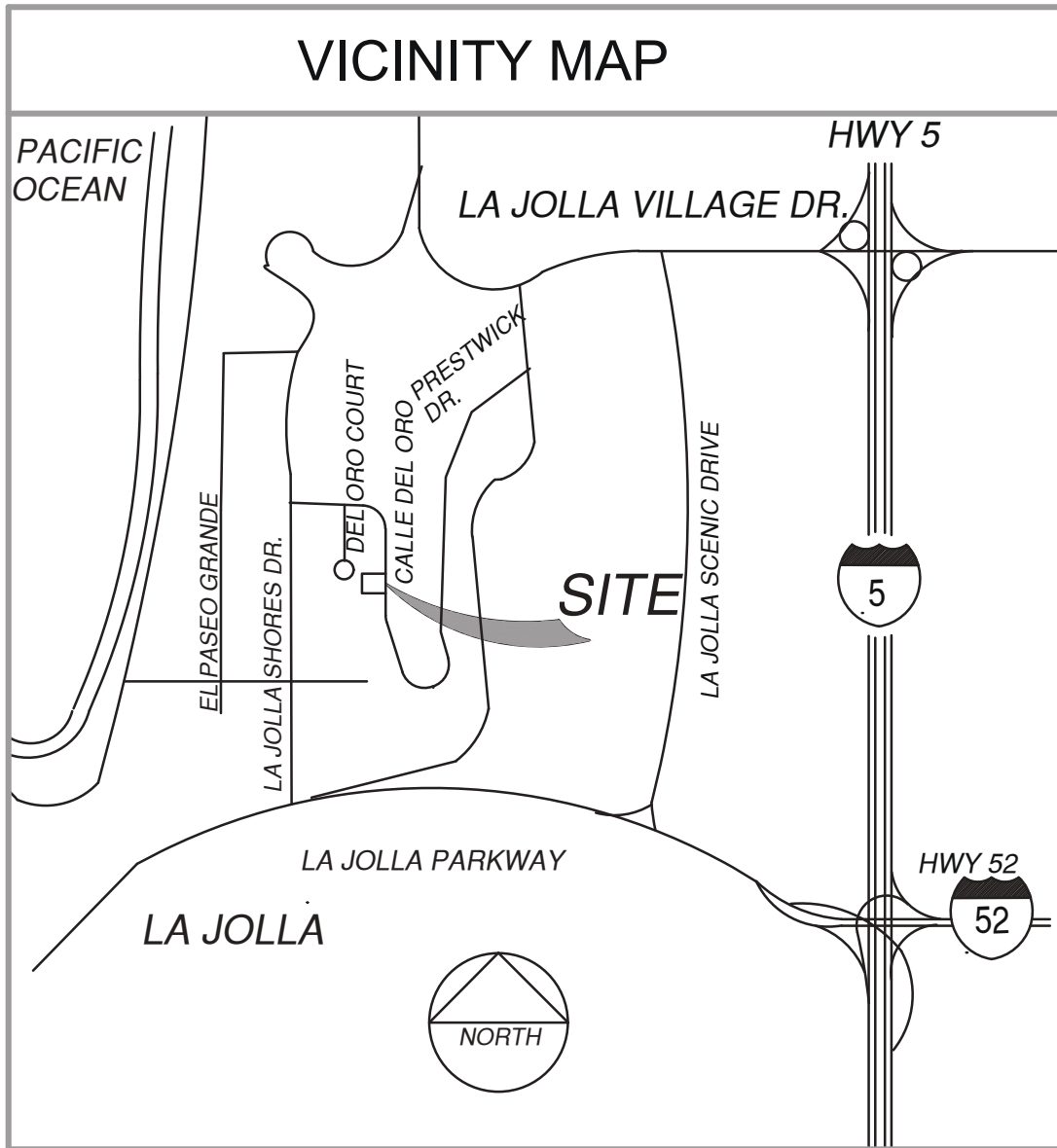
Categorization of Infiltration Feasibility Condition based on Geotechnical Conditions	Worksheet C.4-1: Form I-8A ¹⁰
Summarize findings and basis; provide references to related reports or exhibits.	
Part 2 – Partial Infiltration Geotechnical Screening Result¹³	Result
If answers to both Criteria 3 and Criteria 4 are “Yes”, a partial infiltration design is potentially feasible based on geotechnical conditions only. If answers to either Criteria 3 or Criteria 4 is “No”, then infiltration of any volume is considered to be infeasible within the site.	☐ Partial Infiltration Condition ☒ No Infiltration Condition

¹³ To be completed using gathered site information and best professional judgement considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate findings.



Project Name: Race Residence

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PROJECT TEAM	
ARCHITECT:	MARTIN ARCHITECTURE 2333 STATE STREET STE.100 CARLSBAD, CA. 92008 CONTACT: TIM MARTIN AIA 760-729-3470 (O) 760-729-3473 (F)
CIVIL ENGINEER:	OMEGA ENGINEERING CONSULTANTS & SURVEYING 4340 VIEWRIDGE AVENUE SUITE B SAN DIEGO, CA. 92123 858-634-8620
SURVEYOR:	BWE CIVIL ENGINEERING & SURVEYING 9449 BALBOA PARK SUITE 270 SAN DIEGO, CA. 92123 619-299-5550
GEOTECHNICAL ENGINEER:	ENGE0 GEOTECHNICAL ENGINEERING 2633 CAMINO RAMON SUITE 250 SAN RAMON, CA. 94583 925-866-9000
LANDSCAPE ARCHITECT:	CARSON DOUGLAS LANDSCAPE ARCHITECTURE 3671 CENTER STREET SAN DIEGO CA 92103 805-705 3564 www.cd-la.com

- FIRE DEPARTMENT REQUIREMENTS**
- SEE NEIGHBORHOOD SITE PLAN SHEET A105 FOR FIRE HYDRANT LOCATIONS WITHIN 600 FT
 - PROVIDE BUILDING ADDRESS NUMBERS VISIBLE & LEGIBLE FROM THE STREET PER FHPS POLICY P-00-6.9 (UFC 901.4.4)
 - NEW CONSTRUCTION REQUIRES FULL SPRINKLER SYSTEM (RESIDENTIAL)

- STORMWATER REQUIREMENTS**
- THE PROPOSED PROJECT WILL COMPLY WITH ALL THE REQUIREMENTS OF THE CURRENT CITY OF SAN DIEGO STORM WATER STANDARDS MANUAL BEFORE GRADING OR BUILDING PERMIT IS ISSUED. IT IS THE RESPONSIBILITY OF THE OWNER/ DESIGNER TO ENSURE THAT THE CURRENT STORMWATER PERMANENT BMP DESIGN STANDARDS ARE INCORPORATED INTO THIS PROJECT
 - THIS PROJECT WILL NOT DISCHARGE ANY INCREASE IN STORM WATER RUN-OFF ONTO THE ADJACENT PROPERTIES
 - PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT THE OWNER /PERMITTEE SHALL INCORPORATE ANY CONSTRUCTION BEST MANAGEMENT PRACTICES NECESSARY TO COMPLY WITH CHAPTER 14 ARTICLE2 DIVISION 1 (GRADING REGULATIONS) OF THE SDMC INTO THE CONSTRUCTION PLANS OR SPECIFICATIONS
 - PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT THE OWNER /PERMITTEE SHALL SUBMIT A WATER POLLUTION CONTROL PLAN (WPCP) THE WPCP SHALL BE PREPARED IN ACCORDANCE WITH THE GUIDELINES IN APPENDIX E OF THE CITY'S STORM WATER STANDARDS
 - PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT THE OWNER / PERMITTEE SHALL ENTER INTO A MAINTENANCE AGREEMENT FOR THE ONGOING PERMANENT BMP MAINTENANCE, SATISFACTORY TO THE CITY ENGINEER
 - THIS PROJECT IS LOCATED IN THE ASBS WATERSHED NO DRY WEATHER RUNOFF IS PERMITTED. PROJECT WILL BE SUBJECT TO INCREASED INSPECTIONS, SATISFACTORY TO THE CITY ENGINEER

- CUT/FILL QUANTITIES**
- SEE CONCEPTUAL GRADING PLAN SHEET C02
- | | |
|---------------|---|
| ADJUSTED CUT | 1,102 CU. YDS. (INCLUDES 297 CY FOR UNDERCUTS) |
| ADJUSTED FILL | 677 CU. YDS. (INCLUDES 122 CY DEBRIS HAUL OFF) |
| TOTAL EXPORT | 425 CU. YDS. |

- GENERAL NOTES**
- 1) FOR FINISH GRADE ELEVATIONS SEE GRADING PLAN SHEET C-2
 - 2) FOR SITE HARDSCAPE AND LANDSCAPED AREA SEE LANDSCAPE PLANTING AND HARDSCAPE PLANS SHEETS L1.0 , L1.1
 - 3) FOR RETAINING WALL ELEVATIONS SEE GRADING PLAN SHEET C-2
 - 4) SEE SITE SECTIONS SHEET A102 FOR SITE SECTIONS INDICATED BY SECTION SYMBOL
 - 5) FOR SITE DRAINAGE SEE GRADING PLAN SHEET C-2
 - 6) SEE NEIGHBORHOOD SITE PLAN SHEET A105 FOR FIRE HYDRANT LOCATIONS AND ADJACENT LOT INFORMATION
 - 7) NO STRUCTURES OR LANDSCAPING OVER 3 FT HT. TO BE PLACED IN VISIBILITY AREAS
 - 8) PROVISION FOR FUTURE ELECTRICAL VEHICLE CHARGING STATION PROVIDE RESERVE SPACE AT ELECTRICAL PANEL WITH RACEWAY TO JUNCTION BOX AT GARAGE FOR FUTURE ELEC. VEHICLE CHARGING
 - 9) SOLAR PHOTOVOLTAIC PANELS SHALL BE INSTALLED. PROVIDE RESERVE SPACE AT MAIN ELECTRICAL SERVICE PANEL
 - 10) EXTERIOR LIGHTING REQUIREMENTS
ALL PRIVATE OUTDOOR LIGHTING SHALL BE SHADED & ADJUSTED TO FALL ON SAME PREMISES ON WHICH LIGHTS ARE LOCATED
 - 11) A LIMITED GEOTECHNICAL INVESTIGATION HAS BEEN PREPARED FOR THIS PROJECT . SEE JOB _____ DATED _____ PREPARED BY ENGE0 GEOTECHNICAL EXPLORATION INC.
 - 12) A PRELIMINARY DRAINAGE STUDY BY OMEGA ENGINEERING CONSULTANTS DATED _____ HAS BEEN PREPARED FOR THIS PROJECT

EXISTING BUILDING	
EXISTING BUILDING (TO BE DEMOLISHED):	
DATE OF CONSTRUCTION:	1976
EXISTING USE:	SINGLE FAMILY RESIDENCE w/ ATTACHED 3 CAR GARAGE
OCCUPANCY:	R-3 & U
DESCRIPTION:	3 BEDROOMS, 3.5 BATH SINGLE STORY
EXISTING MAIN FLOOR AREA	= 2,734 SF
EXISTING GARAGE	= 693 SF
EXISTING GROSS FLOOR AREA	= 3,427 SF
PROPOSED BUILDINGS	
EXISTING USE	SINGLE FAMILY RESIDENCE
PROPOSED USE	SINGLE FAMILY RESIDENCE & GUEST QUARTERS
OCCUPANCY:	R-3 & U
NO STORIES:	2 STORY
CONSTRUCTION :	TYPE V B

- BUILDING HEIGHT:** 30 FT MAX HT. PER COASTAL PROP "D".
ACTUAL HEIGHT 18'-9"
30 FT MAX. HEIGHT PER ZONING:
ACTUAL HEIGHT: 23'-6"

RESIDENCE (MAIN LEVEL)	FLOOR AREA	G.F.A. TOTAL
MAIN LEVEL HABITABLE	1,705 SF	
MAIN LEVEL GARAGE	512 SF	
STAIR WELL	50 SF	
TOTAL MAIN LEVEL	2,267 SF	2,267 SF

RESIDENCE (LOWER LEVEL)	FLOOR AREA	G.F.A. TOTAL
LOWER LEVEL HABITABLE	1,404 SF	
LOWER LEVEL STORAGE	319 SF	
LOWER LEVEL EXEMPT	-20 SF	
MECH EQUIP. ROOM (SPA)	15 SF	
GOLF ROOM / OFFICE	717 SF	
STORAGE	323 SF	
TOTAL LOWER LEVEL	2,758 SF	2748 SF

GUEST QUARTERS	FLOOR AREA	G.F.A. TOTAL
MAIN LEVEL HABITABLE	1,131 SF	
MAIN LEVEL GARAGE	307 SF	
TOTAL MAIN LEVEL	1,438 SF	1,438 SF

TOTAL GFA RESIDENCE & GUEST QUARTERS 6,463 SF

FLOOR AREA RATIO
PROPOSED F.A.R. 0.31
EXISTING F.A.R. 0.17
MAX F.A.R. PER SDMC 131-04J 0.45 (9,240 SF)

GUEST QUARTERS AREA LIMITATION
(25% OF MAX FLOOR AREA PER SDMC 141.0307)
PROPOSED GUEST QUARTERS IS 16% OF MAX FLOOR AREA

COVERED TERRACE & DECK AREAS	
GUEST HOUSE TERRACE	193 SF
RESIDENCE:	
MAIN LEVEL TERRACE	572 SF
LOWER LEVEL COVERED TERRACE	492 SF

ENVIRONMENTALLY SENSITIVE LANDS:

SITE IS NOT LOCATED WITHIN MHPA
NO SENSITIVE HABITAT. EXISTING VEGETATION IS NON NATIVE
AREAS OF BIOLOGICAL SIGNIFICANCE
STEEP SLOPES
NO STEEP SLOPES
MAXIMUM ELEVATION CONTOUR 81 FT
MINIMUM ELEVATION CONTOUR 59 FT
HYDROLOGY
MISSION BAY WATERSHED
SCRIPPS WATERSHED SUBAREA
BIOLOGY
AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE ON SITE
PARKING

NO.SPACES EXISTING: 3 GARAGE
NO.SPACES PROPOSED: 3 GARAGE

PALEONTOLOGY
HIGH PALEONTOLOGICAL SENSITIVITY AREA IN ACCORDANCE WITH SECTION 142.0151 OF THE SDMC
IF PALEONTOLOGICAL RESOURCES ARE DISCOVERED DURING GRADING, ALL WORK IN THE AFFECTED AREA MUST IMMEDIATELY STOP. A QUALIFIED PALEONTOLOGICAL MONITOR MUST ASSESS THE DISCOVERY AND ENSURE PROPER RECOVERY. IN ACCORDANCE WITH THE GENERAL GRADING GUIDELINES FOR PALEONTOLOGICAL RESOURCES.

TRANSIT STOPS
MTS STOPS ROUTE 30 @ LA JOLLA SHORES DRIVE
DISTANCE 1200 FT

FIRE ZONES
PROJECT IS LOCATED IN VERY HIGH FIRE HAZARD SEVERITY ZONE

EASEMENTS

PRIVATE AERIAL EASEMENT:
A VERTICAL LIMITATION EASEMENT OVER THE ENTIRETY OF LOT 10 IN CERCA DE LA PLAYA, MAP NO. 7957
THIS EASEMENT IS TO PRESERVE THE VIEW FROM LOT 3 OF MAP 2996 IN PERPETUITY
EASEMENT IS DESCRIBED AS BEING FIXED AT AN ELEVATION 16.1 FT ABOVE THE FINISHED FLOOR OF THE EXISTING BUILDING LOCATED ON LOT 10 CERCA DE LA PLAYA. THIS LEVEL PLANE IS AT AN ELEVATION OF 95.5' ABOVE MEAN SEA LEVEL

GEOLOGICAL INVESTIGATION

GEOLOGICAL HAZARD CATEGORY 52
PROJECT DATA

A.P.N. 346-180-23-00
LOT SIZE: 20,533 SF (0.47 ACRES)
SITE ADDRESS: 8332 CALLE DEL CIELO LA JOLLA CA 92037
BUILDING CODES: 2025 C.B.C, CRC, CPC, CEC, CMC

LEGAL DESCRIPTION:
LOT 10 CERCA DE LA PLAYA IN THE CITY OF SAN DIEGO OFFICE OF COUNTY RECORDER, SAN DIEGO COUNTY JUNE 5TH 1974
SAN DIEGO COUNTY ACCORDING TO MAP 7975 FILED IN THE OWNERS
8332 CALLE DEL CIELO LLC
8350 CALLE DEL CIELO
LA JOLLA CA 92037

WEST VIEW

- SCOPE OF WORK**
- EXISTING 1 STORY SINGLE FAMILY RESIDENCE TO BE DEMOLISHED
 - EXISTING EXTERIOR HARDSCAPE AND FRONT YARD LANDSCAPING TO BE REMOVED
 - NEW CURB CUT @ CALLE DEL CIELO TO BE CONSTRUCTED
 - NEW 2- STORY RESIDENCE W/ GUEST QUARTERS TO BE CONSTRUCTED
 - NEW 2 CAR ATTACHED GARAGE @ RESIDENCE
 - NEW SINGLE GARAGE @ GUEST QUARTERS
 - NEW LANDSCAPING TO BE INSTALLED AT FRONT & REAR YARDS W/ NEW SITE DRAINAGE SYSTEM & SITE RETAINING WALLS
 - NEW ELECTRICAL SERVICE/UPGRADE

REQUIRED PERMITS

- COASTAL DEVELOPMENT PERMIT
- SITE DEVELOPMENT PLAN PRJ-1154920

PERMIT HISTORY

- BUILDING CONSTRUCTION PERMIT 1976

ZONING CLASSIFICATION

- ZONE: LA JOLLA SHORES PLANNED DISTRICT -SF

- OVERLAY ZONES - COASTAL HEIGHT LIMIT OVERLAY ZONE
COASTAL OVERLAY ZONE
CST-APP
- PARKING ZONES - NONE
- TRANSPORTATION - HIGH AFFORDABLE HOUSING PARKING DEMAND
- OFF STREET PARKING - 2 SPACES (STREET PARKING)
- HISTORIC DISTRICT: NONE
- HISTORIC REVIEW : EXISTING RESIDENCE BUILT 1976
- FIRE ZONE : VERY HIGH FIRE HAZARD SEVERITY ZONE

SETBACKS (SEE NEIGHBORHOOD SITE SURVEY)

FRONT YARD	PROPOSED	26'-9"
REAR YARD	PROPOSED	88'-0"
SIDE YARDS	PROPOSED	6'-0"

LOT COVERAGE

PROPOSED 21 % SEE TABLE BELOW
EXISTING 22.5 %

LOT COVERAGE	
RESIDENCE & ATTACHED GARAGE (EXCLUDES ROOF EAVES)	2285 SF
RESIDENCE TERRACE	486 SF
RESIDENCE EXTERIOR STAIRS	88 SF
GUEST QUARTERS & GARAGE	1153 SF
GUEST QUARTERS TERRACE	193 SF
GUEST QTRS. EXTERIOR STAIRS	88 SF
TOTAL LOT COVERAGE	21% 4,293 SF

SHEET INDEX

CS1	COVER SHEET / PROJECT INFO.
A101	SITE PLAN
A102	SITE SECTIONS
A103	BUILDING HEIGHT PLAN
A104	EXISTING SITE PLAN
A105	NEIGHBORHOOD SITE PLAN
A106	SITE RETAINING WALLS
C01	CONSTRAINTS MAP
C02	CONCEPTUAL GRADING & UTILITY PLAN
C03	DMA PLAN
C04	STORMWATER REQUIREMENTS APPLICABILITY CHECKLIST
L-1.0	HARDSCAPE PLAN
L-1.1	LANDSCAPE DIAGRAM
L-1.2	BRUSH MANAGEMENT PLAN
L-2.0	HYDROZONE PLAN
L-3.0	PLANTING PLAN
A201	MAIN FLOOR PLAN
A202	UPPER FLOOR PLAN
A301	EXTERIOR ELEVATIONS
A302	EXTERIOR ELEVATIONS
A303	PERSPECTIVE VIEWS
A401	BUILDING SECTIONS
A402	BUILDING SECTIONS
A403	BUILDING SECTIONS
A501	ROOF PLAN
A601	MAIN LEVEL REFLECTED CEILING PLAN
A602	UPPER LEVEL REFLECTED CEILING PLAN
A701	ARCHITECTURAL DETAILS

PROJECT NAME
RACE RESIDENCE
PROJECT ADDRESS
8332 CALLE DEL CIELO
LA JOLLA CA 92037

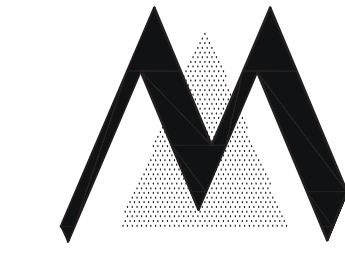
SHEET TITLE
COVER SHEET &
PROJECT INFO.

DRAWING SCALE
SCALE: 1"=10 FT

ORIGINAL DATE: 03-27-26

REVISION 1	07-08-26
REVISION 2	
REVISION 3	
REVISION 4	
REVISION 5	
REVISION 6	
REVISION 7	
REVISION 8	

PROJECT NO. PRJ-1154920



MARTIN ARCHITECTURE

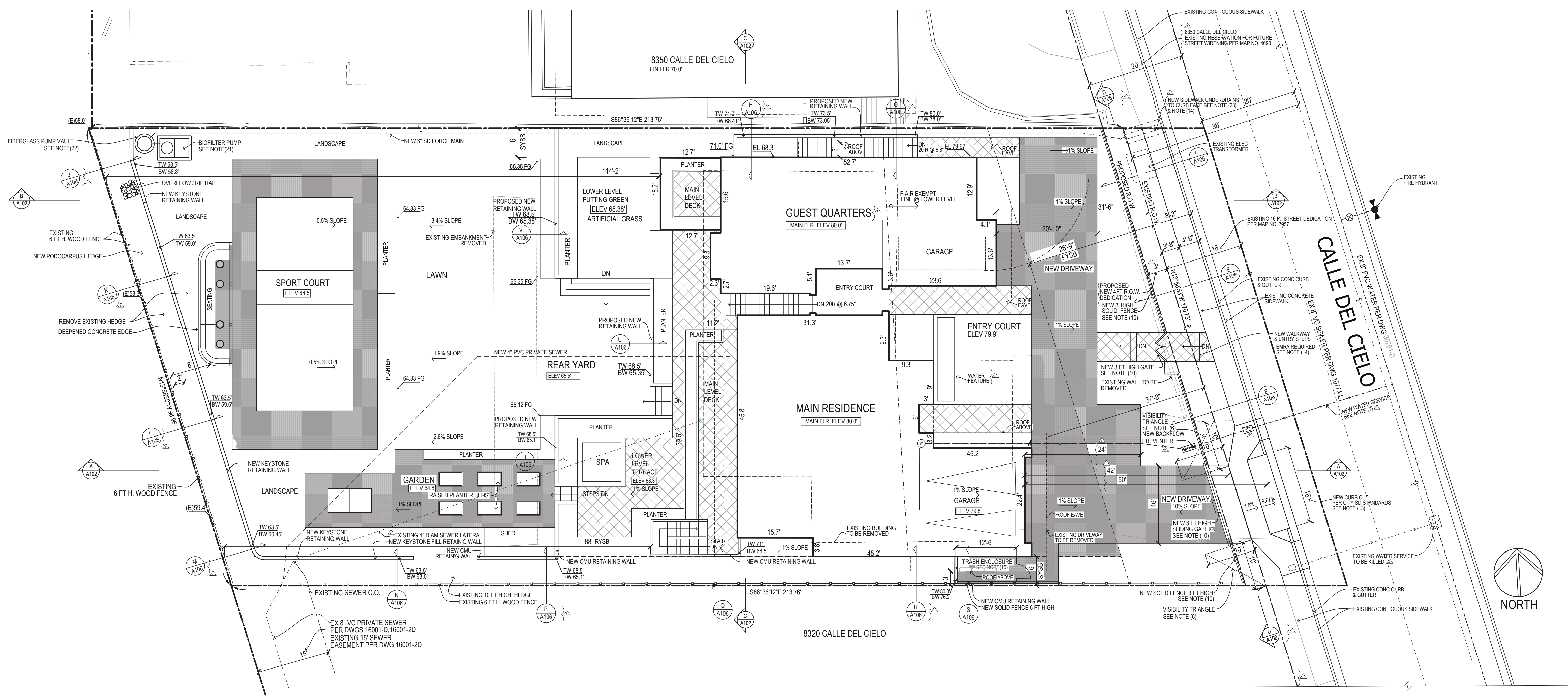
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tim@martinarchitecture.com

RACE RESIDENCE

8332 CALLE DEL CIELO LA JOLLA CA 92037

CS1



SITE PLAN

SCALE 1"=10FT

NOTES

- SEE SHEET A104 FOR EXISTING SITE PLAN
- SEE SHEET A102 FOR SITE SECTIONS
- SEE SHEET A105 FOR NEIGHBORHOOD SITE PLAN AND FIRE HYDRANT LOCATIONS
- SEE GRADING PLAN SHEET C02 FOR PROPOSED GRADES & SITE DRAINAGE
- MAX 6FT HIGH NEW SOLID CEDAR FENCE TYPICAL AT SIDEYARD PROPERTY LINES
- NO OBSTRUCTION INCLUDING SOLID WALLS IN THE VISIBILITY AREA SHALL EXCEED 3FT IN HEIGHT. PER SDMC SECTION 142.0409(b)(2) PLANT MATERIAL OTHER THAN TREES LOCATED IN VISIBILITY AREAS OR THE THE ADJACENT RIGHT OF WAY SHALL NOT EXCEED 36" IN HEIGHT, MEASURED FROM THE LOWEST GRADE ABUTTING THE PLANT MATERIAL TO THE TOP OF THE PLANT MATERIAL
- NEW WATER SERVICE
KILL EXISTING WATER SERVICE
PROPOSED NEW PRIVATE 1.5" PVC WATER SERVICE w/ WATER METER
NEW BACKFLOW PREVENTER AT PROPERTY LINE PER CITY S.D. STDS. SEE NOTE (8)
- ALL DOMESTIC WATER SERVICE LINE DIAMETERS ARE PROVIDED FOR CLARITY OF INTENT ONLY. ACTUAL SERVICE LINE DIAMETERS WILL BE BASED ON THE PROJECTS APPROVED WATER METER DATA CARD
- NEW 8" CONC BLOCK RETAINING WALL SEE GRADING PLAN SHEET C02
- ANY SOLID FENCE IN FRONT YARD SHALL NOT EXCEED 3FT IN HEIGHT. 75% OPEN FENCE PERMITTED UP TO 6 FT IN HEIGHT PER SDMC SECTION 142.0310(c) (2) IN THE COASTAL ZONE
- ROOF AND DECK DRAINS TO DRAIN TO EXTERIOR AT GRADE. (DS= DOWNSPOUT LOCATION)
- EXISTING 8" VC SEWER PER DWG. 16001-D
EXISTING 8" PVC WATER MAIN PER DWG. 30291-D
- NEW CURB, CURBCUTS AND PAVEMENT SHALL BE CONSTRUCTED PER CITY OF SAN DIEGO STANDARDS
- AN ENCROACHMENT MAINTENANCE REMOVAL AGREEMENT (EMRA) WILL BE CONDITION OF APPROVAL FOR ANY DECORATIVE PAVEMENT, SIDEWALK UNDERDRAINS LANDSCAPE AND IRRIGATION IN THE CALLE DEL CIELO RIGHT OF WAY SUBJECT TO THE CITY ENGINEERS APPROVAL
- MIN AREA REQUIRED PER SDMC TABLE 142-08B IS 36 SF FOR 2 DWELLING UNITS
AREA OF TRASH ENCLOSURE PROVIDED: (5.5' x 12.5') 68.75 sf.
TRASH AREA SHALL BE SCREENED W/ 6FT HIGH SOLID FENCING

- POOL & SPA, SOLAR PANELS & NEW CURBCUTS ARE BY SEPARATE PERMITS
- EASEMENTS:
 - THERE ARE NO WATER, SEWER OR GENERAL UNDERGROUND UTILITY EASEMENT THAT LIE ON THIS PROPERTY OR THAT LIE CONTIGUOUS TO THIS PROPERTY IF THE EASEMENT IS PRIVATE & WAS RECORDED ON THE ADJACENT PROPERTY'S TITLE IN FAVOR IN FAVOR OF THIS PROPERTY
 - THERE IS A PRIVATE HEIGHT RESTRICTIVE EASEMENT OVER THE PROPERTY SEE SHEET CS1- EASEMENTS
- SEE LANDSCAPE CONCEPT PLANS SHEETS L1 & L2 FOR NEW PLANTING, IRRIGATION AND WATER USAGE
- FOR AREA DRAINS AND DRAINAGE SYSTEM SEE PRELIMINARY GRADING & UTILITY PLAN SHEET C02
- ALL PROPOSED WATER LINES BOTH PUBLIC AND PRIVATE WITHIN THE PUBLIC RIGHT OF WAY MUST HAVE A 5 FT MIN. SEPARATION (EDGE TO EDGE) FROM THE TRUNK OF ANY TREE
- CONTECH MWS-4-6-L-V MODULAR WETLAND BIOFILTER PUMP SEE DMA PLAN SHEET C03
- 36" DIAM x 7FT DEPTH FIBERGLASS PUMP VAULT: CONTECH MWS-4-6-L-V MODULAR WETLAND BIOFILTER PUMP SEE DMA PLAN SHEET C03
- (4) 3" DIAM SIDEWALK UNDERDRAINS: SEE GRADING PLANS SHEET C02
- PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT THE OWNER / PERMITTEE SHALL ENTER INTO A MAINTENANCE AGREEMENT FOR THE ONGOING PERMANENT BMP MAINTENANCE, SATISFACTORY TO THE CITY ENGINEER
- THIS PROJECT IS LOCATED IN THE ASBS WATERSHED
NO DRY WEATHER RUNOFF IS PERMITTED. PROJECT WILL BE SUBJECT TO INCREASED INSPECTIONS, SATISFACTORY TO THE CITY ENGINEER

SITE AREAS

SEE CONCEPTUAL GRADING PLAN SHEET C02

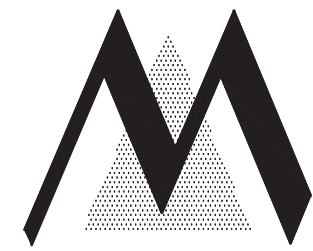
TOTAL SITE AREA	20,533 S.F. (0.47 ACRES)
PROPOSED IMPERVIOUS AREA	11,346 S.F. (0.26 ACRES)
PROPOSED PERVIOUS AREA	8,845 S.F. (0.2 ACRES)
DISTURBANCE AREA	20,533 S.F. (0.47 ACRES)

HARDSCAPE AREAS

MAX AREA OF HARDSCAPE SHALL NOT EXCEED 60% FRONT YARD PER SDMC	
FRONT YARD AREA:	2,649 SF
DRIVEWAY AREA:	1,279 SF
WALKWAY AREA:	117 SF
FRONT YARD HARDSCAPE AREA:	1,396 SF (53%)

LEGEND

- INDICATES SITE SECTION LOCATION SEE SHEET A102,A106
- INDICATES RETAINING WALL SECTION SEE SHEET A106
- INDICATES NEW CONTOUR LINE
- INDICATES TOP OF WALL ELEVATION
- INDICATES BOTTOM OF WALL ELEVATION
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- PROPOSED FINISH ELEVATION



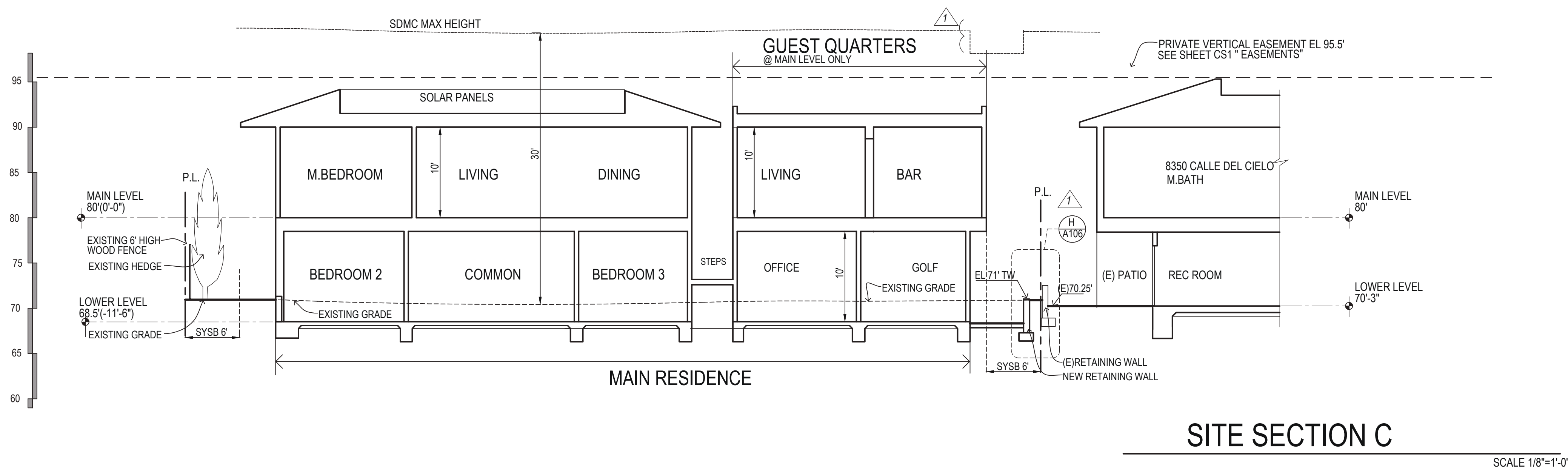
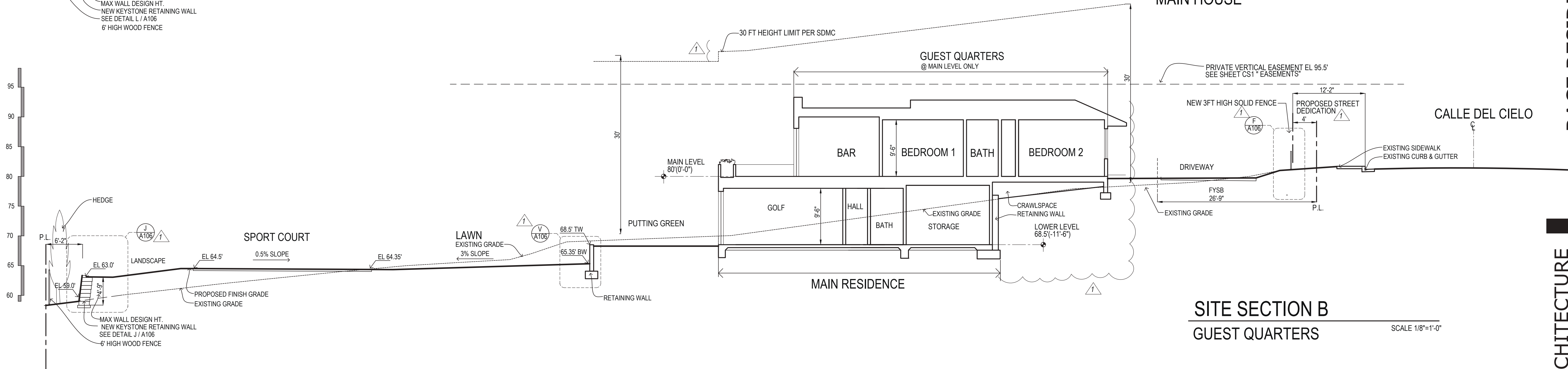
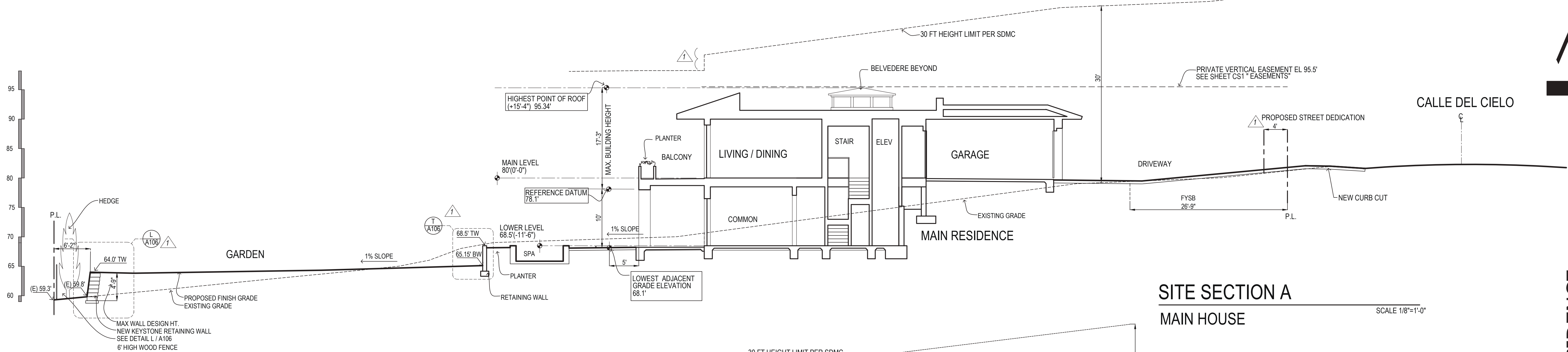
RACE RESIDENCE
8332 CALLE DEL CIELO LA JOLLA CA 92037

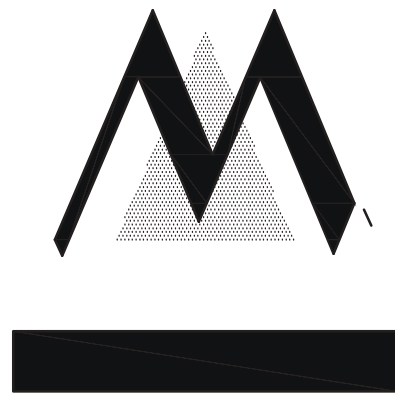
MARTIN ARCHITECTURE
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03-27-2026
07-08-2026

SHEET NO.

A102





RACE RESIDENCE
8332 CALLE DEL CIELO LA JOLLA CA 92037

MARTIN ARCHITECTURE

Tim Martin A.I.A.

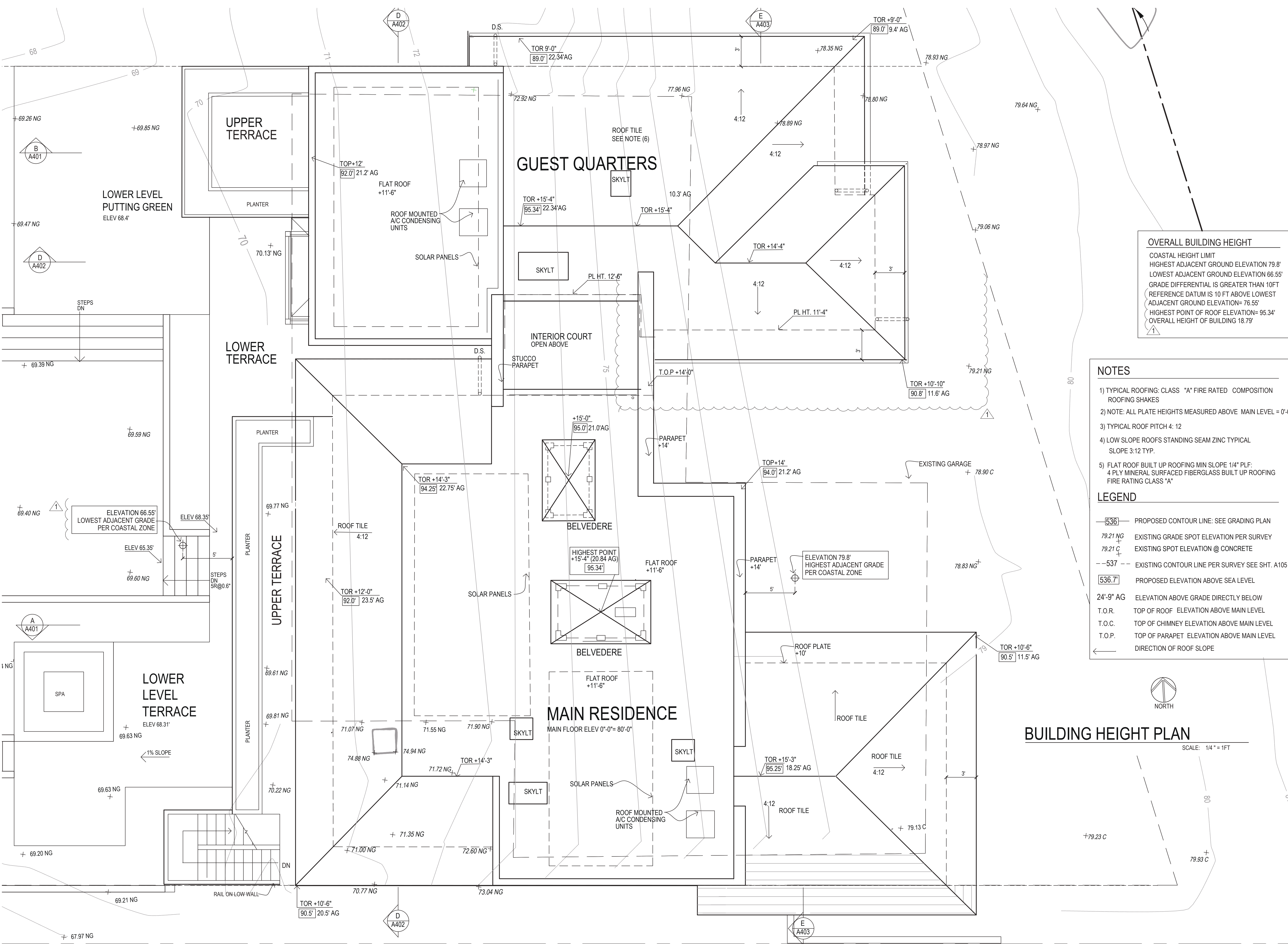
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03-27-2026
07-08-2026

SHEET NO.

A103



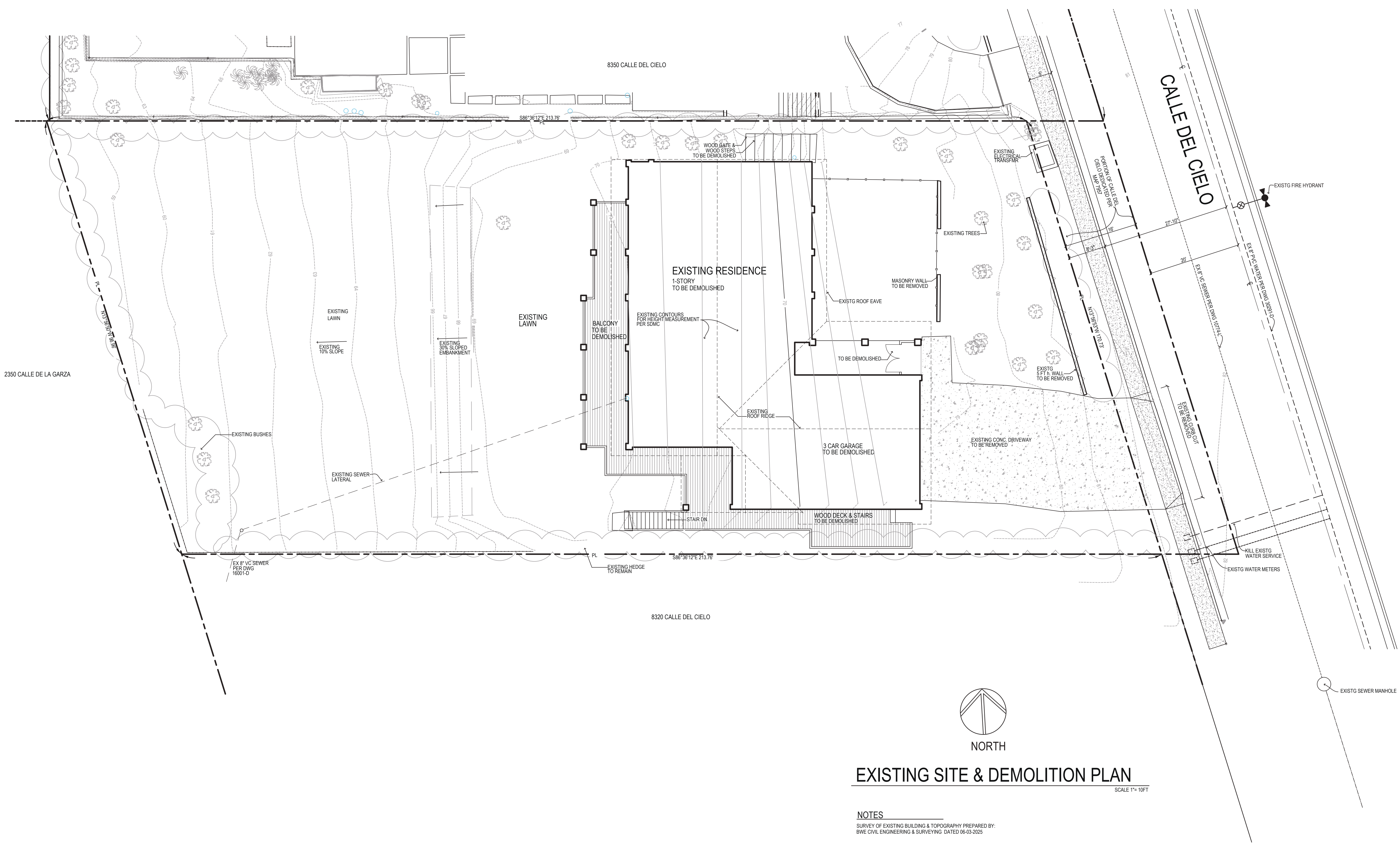
OVERALL BUILDING HEIGHT

COASTAL HEIGHT LIMIT
HIGHEST ADJACENT GROUND ELEVATION 79.8'
LOWEST ADJACENT GROUND ELEVATION 66.55'
GRADE DIFFERENTIAL IS GREATER THAN 10 FT
REFERENCE DATUM IS 10 FT ABOVE LOWEST
ADJACENT GROUND ELEVATION= 76.55'
HIGHEST POINT OF ROOF ELEVATION= 95.34'
OVERALL HEIGHT OF BUILDING 18.79'

- NOTES
- 1) TYPICAL ROOFING: CLASS "A" FIRE RATED COMPOSITION ROOFING SHAKES
 - 2) NOTE: ALL PLATE HEIGHTS MEASURED ABOVE MAIN LEVEL = 0'-0"
 - 3) TYPICAL ROOF PITCH 4: 12
 - 4) LOW SLOPE ROOFS STANDING SEAM ZINC TYPICAL SLOPE 3:12 TYP.
 - 5) FLAT ROOF BUILT UP ROOFING MIN SLOPE 1/4" PLF: 4 PLY MINERAL SURFACED FIBERGLASS BUILT UP ROOFING FIRE RATING CLASS "A"
- LEGEND
- 536— PROPOSED CONTOUR LINE: SEE GRADING PLAN
 - 79.21 NG EXISTING GRADE SPOT ELEVATION PER SURVEY
 - 79.21 C EXISTING SPOT ELEVATION @ CONCRETE
 - 537-- EXISTING CONTOUR LINE PER SURVEY SEE SHT. A105
 - 536.7' PROPOSED ELEVATION ABOVE SEA LEVEL
 - 24'-9" AG ELEVATION ABOVE GRADE DIRECTLY BELOW
 - T.O.R. TOP OF ROOF ELEVATION ABOVE MAIN LEVEL
 - T.O.C. TOP OF CHIMNEY ELEVATION ABOVE MAIN LEVEL
 - T.O.P. TOP OF PARAPET ELEVATION ABOVE MAIN LEVEL
 - DIRECTION OF ROOF SLOPE

BUILDING HEIGHT PLAN

SCALE: 1/4" = 1 FT



EXISTING SITE & DEMOLITION PLAN

SCALE 1"= 10FT

NOTES

SURVEY OF EXISTING BUILDING & TOPOGRAPHY PREPARED BY:
BWE CIVIL ENGINEERING & SURVEYING DATED 06-03-2025



RACE RESIDENCE
8332 CALLE DEL CIELO LA JOLLA CA 92037

MARTIN ARCHITECTURE
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07-08-26

SHEET NO.

A104

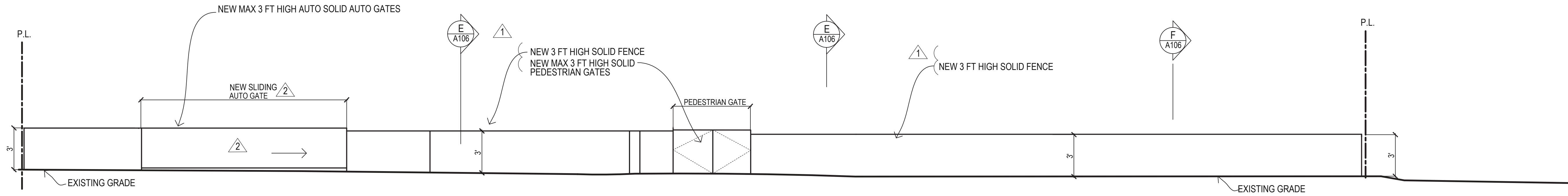
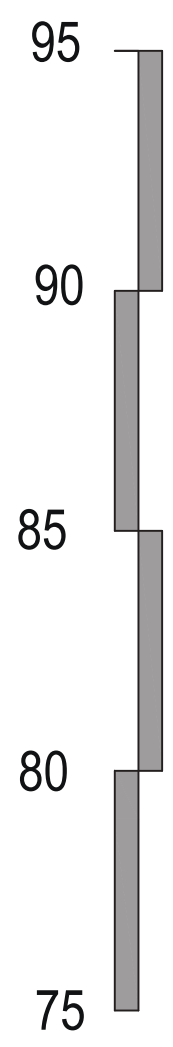


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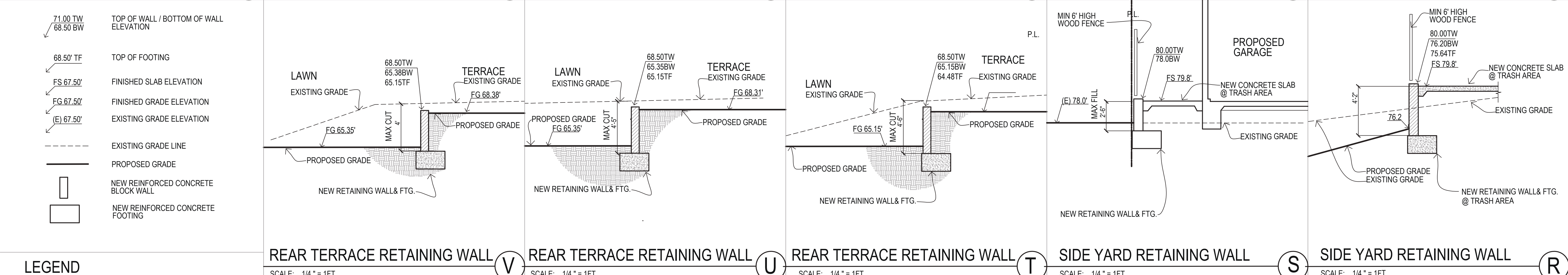
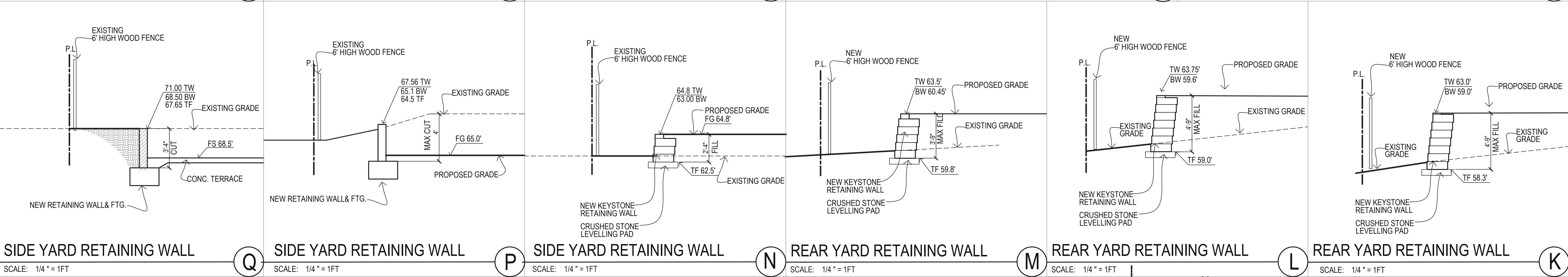
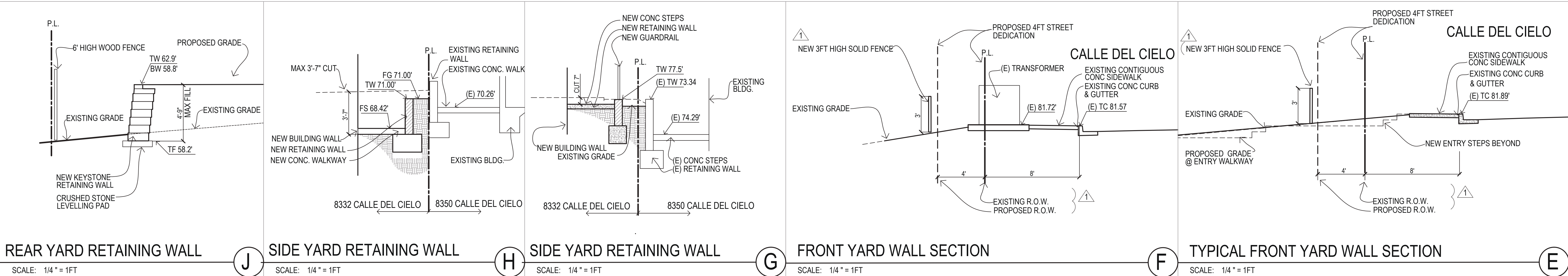
A105

PROJECT NO. PRJ-1154920



SITE SECTION D / FRONT WALL ELEVATION

SCALE: 1/4" = 1FT



LEGEND



RACE RESIDENCE
8332 CALLE DEL CIELO LA JOLLA CA 92037

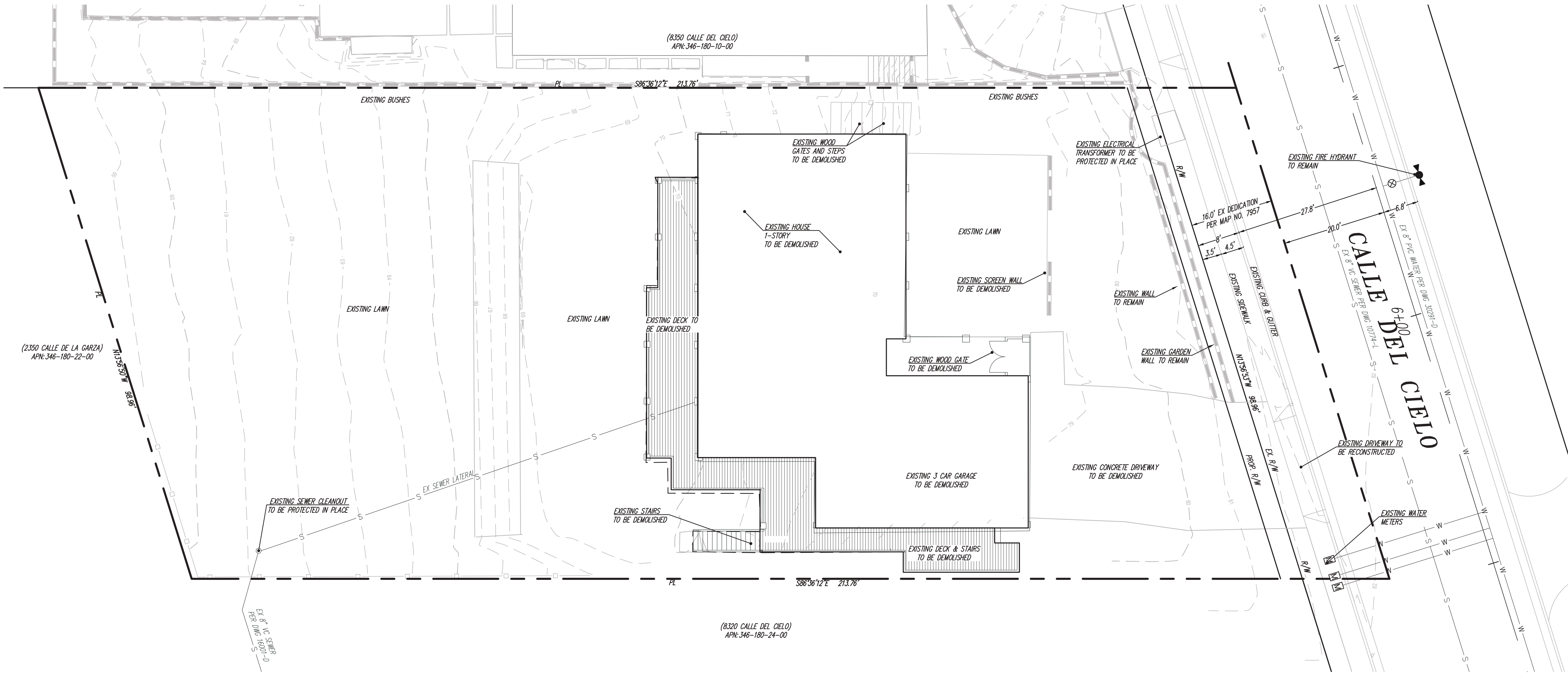
MARTIN A.I.A. ARCHITECTURE
Tim Martin A.I.A.
2333 State Street Suite 100 Carlsbad, CA 92008
760-729-3470 (O) 760-729-3473 (F) 858-349-3474 (C)
tim@martinarchitecture.com

1 07-15-26
2 09-01-26

SHEET NO.

A106

CONSTRAINTS MAP



SITE ADDRESS:
8332 CALLE DEL CIELO
LA JOLLA, CA 92037

ASSESSOR'S PARCEL NUMBER:
346-180-23-00

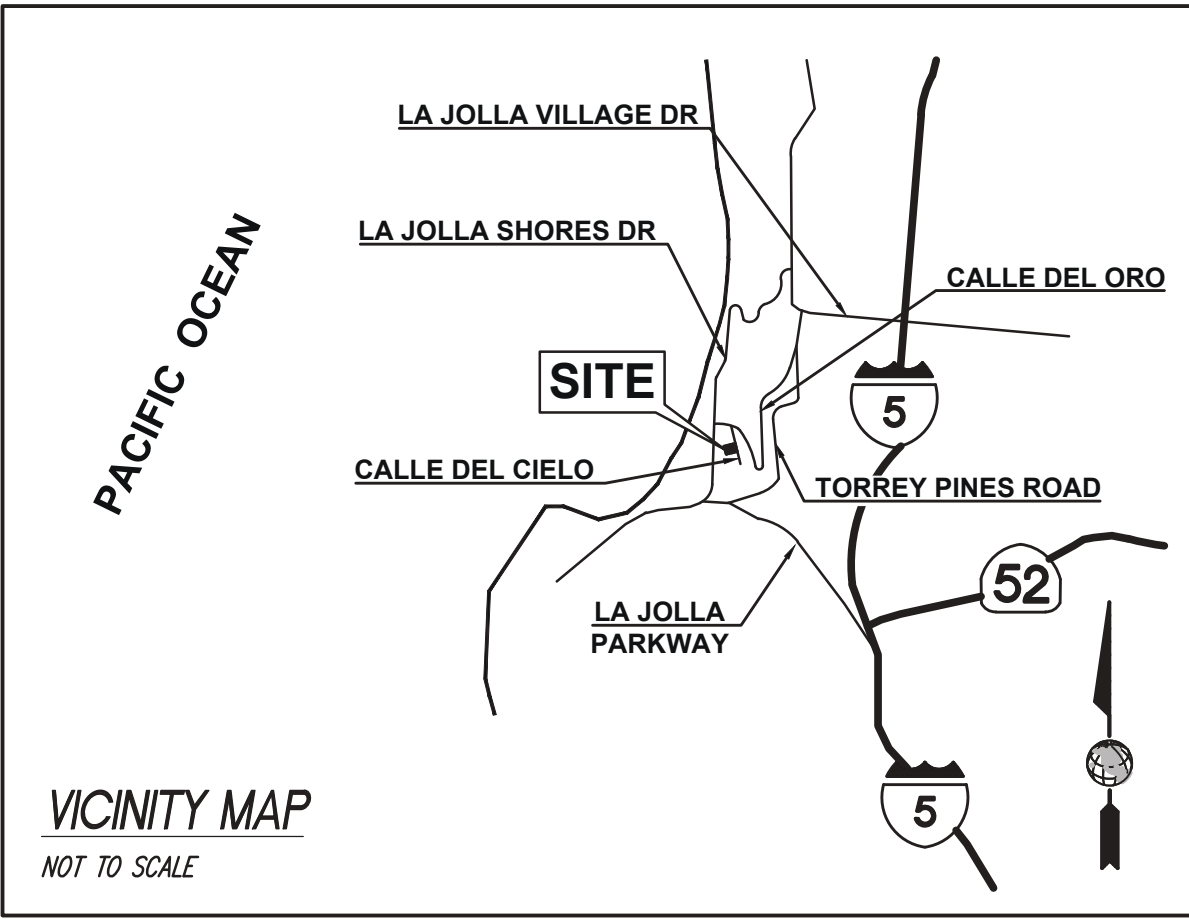
OWNER INFO:
8332 CALLE DEL CIELO, LLC
8350 CALLE DEL CIELO
LA JOLLA, CA 92037

LEGAL DESCRIPTION:
LOT 10 OF CERCA DE LA PLAYA, IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 7957, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY ON JUNE 5, 1974.

VERTICAL BENCHMARK:
DESCRIPTION:
BRASS PLUG ON THE SOUTHEAST CORNER OF THE INTERSECTION OF CALLE DEL ORO & LA JOLLA SHORE AS PUBLISHED IN THE CITY OF SAN DIEGO VERTICAL CONTROL BOOK. FD 6M @ CALLE DE ORO & LA JOLLA SHORE: SEDP-EL 35. 787

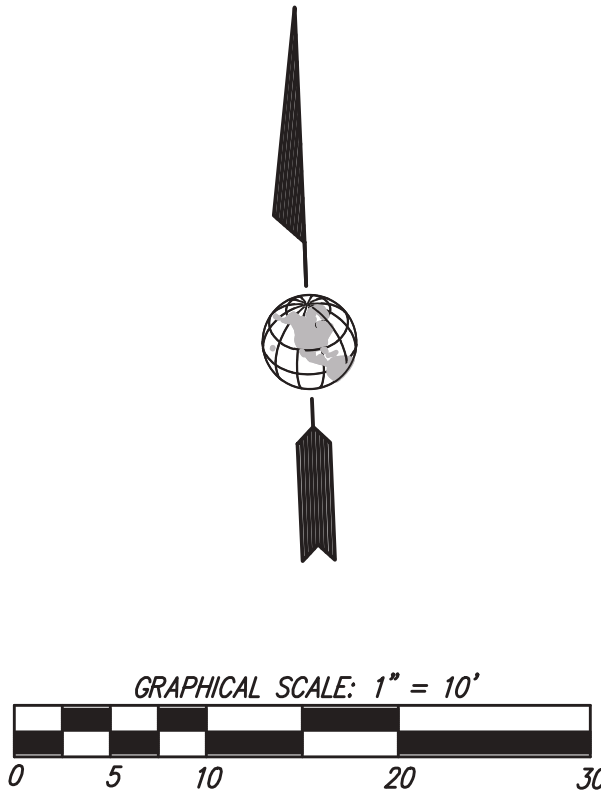
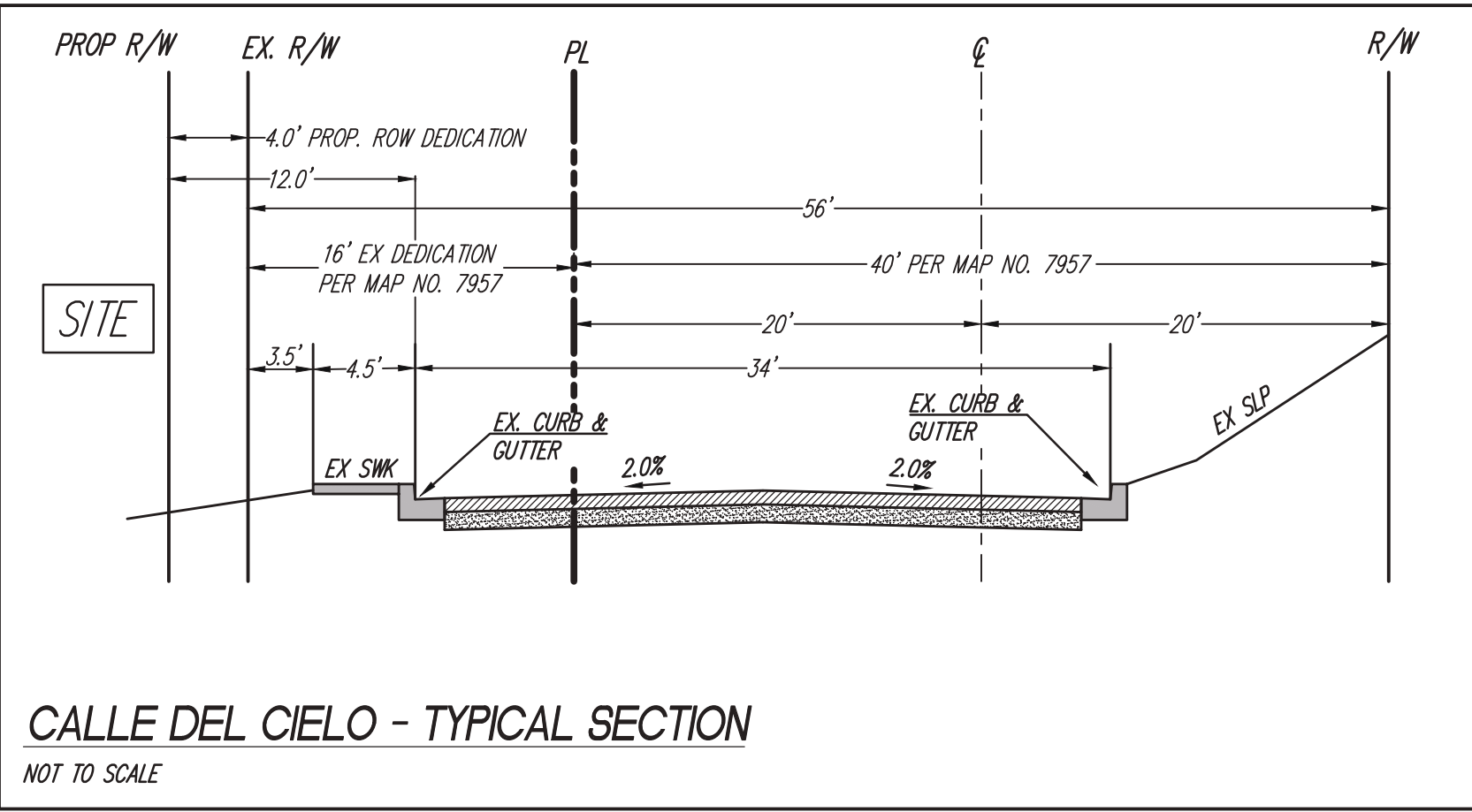
ELEVATION:
35.78' (NAVD 88)

SOURCE OF TOPOGRAPHY:
FIELD SURVEY COMPLETED BY BWE ENGINEERING



EXISTING LEGEND:

ITEM	SYMBOL
PROPERTY LINE	-----
CENTERLINE	-----
RIGHT-OF-WAY	-----
EX CONTOUR	-----
EX EASEMENT	-----
SETBACK LIMITS	-----



RACE RESIDENCE
8332 CALLE DEL CIELO
LA JOLLA, CA 92037

1.

OMEGA
ENGINEERING CONSULTANTS
4330 VENTURE AVE. SUITE C
SAN DIEGO, CA 92123
PH: (619) 634-8620

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THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AT THE SITE BEFORE PROCEEDING WITH EACH PHASE OF HIS WORK.

DRAWN BY	CHECKED BY
JC	NS
DATE	JOB NO.
9/4/26	0931

CONSTRAINTS
MAP
C-01

1.	-
	-

OMEGA
ENGINEERING CONSULTANTS
4320 VUEWIDGE AVE. SUITE C
SAN DIEGO, CA 92123
PH: (858) 634-8620

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AWN BY JC	CHECKED BY NS
DATE 4/26	JOB NO. 0931

C-02



PRELIMINARY EARTHWORK QUANTITIES:

ADJUSTED CUT: 1,102 CY
(INCLUDES 297 CY FOR UNDERCUTS)

ADJUSTED FILL: 677 CY
(INCLUDES 122 CY FOR DEBRIS HAUL OFF)

EXPORT: 425 CY

MAX CUT/FILL:

OUTSIDE BUILDING FOOTPRINT: 4.8' (FILL)
INSIDE BUILDING FOOTPRINT: 6.6' (CUT)

MAX FILL OUTSIDE OF BUILDING DOES NOT EXCEED 5.0'
(NO GRADING PERMIT IS REQUIRED)

NOTES:

WPCP NOTE:
PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT THE OWNER/PERMITEE SHALL SUBMIT A PWATER POLLUTION CONTROL PLAN (WPCP). THE WPCP SHALL BE PREPARED IN ACCORDANCE WITH THE GUIDELINES IN PART 2 CONSTRUCTION BMP STANDARDS CHAPTER 4 OF THE CITY'S STORM WATER STANDARDS.

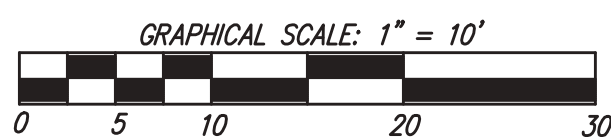
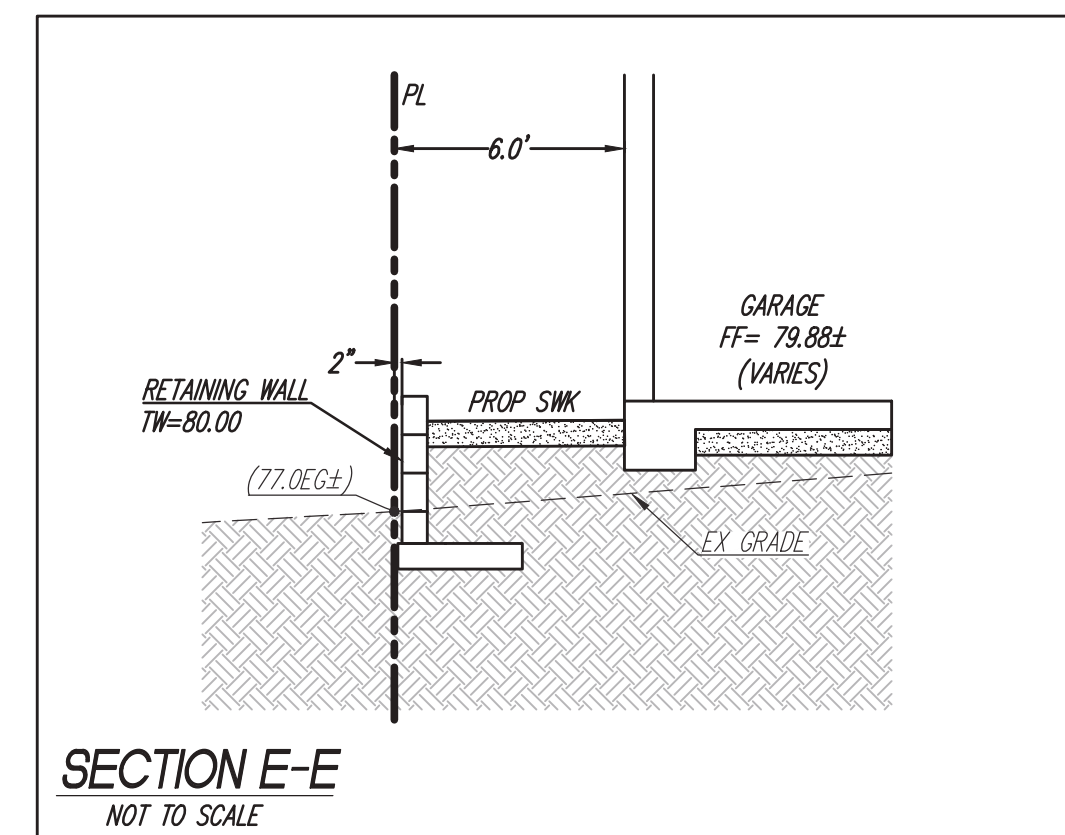
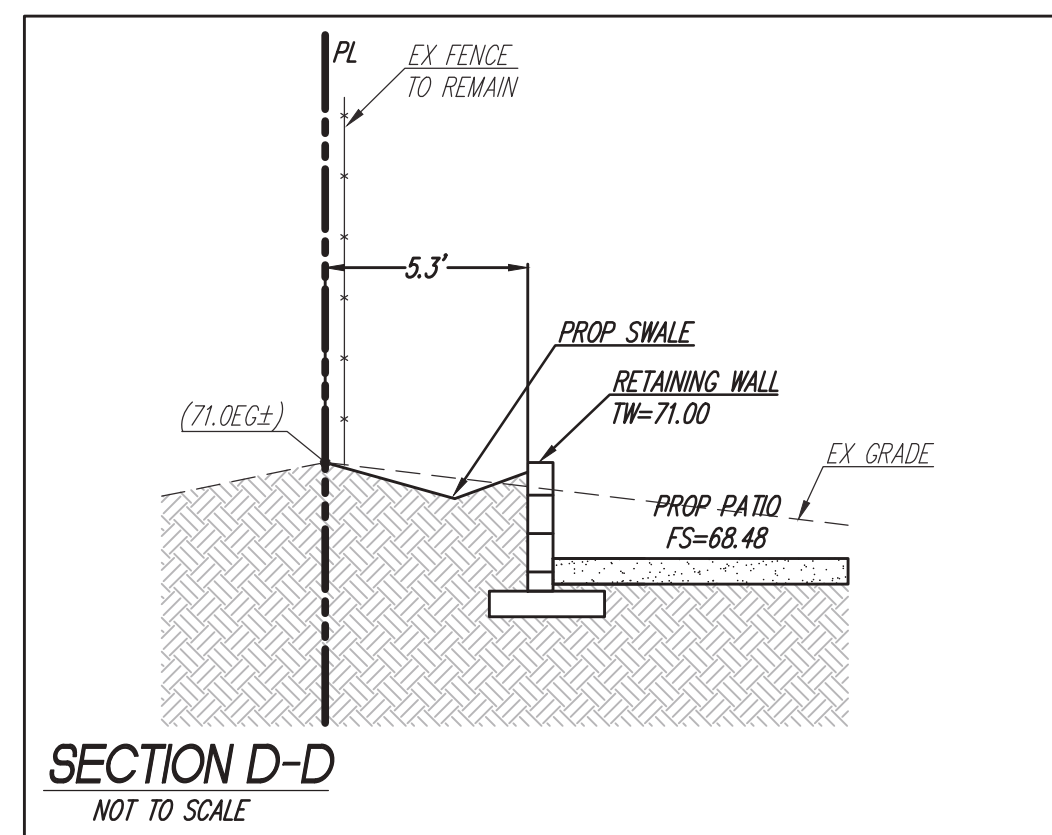
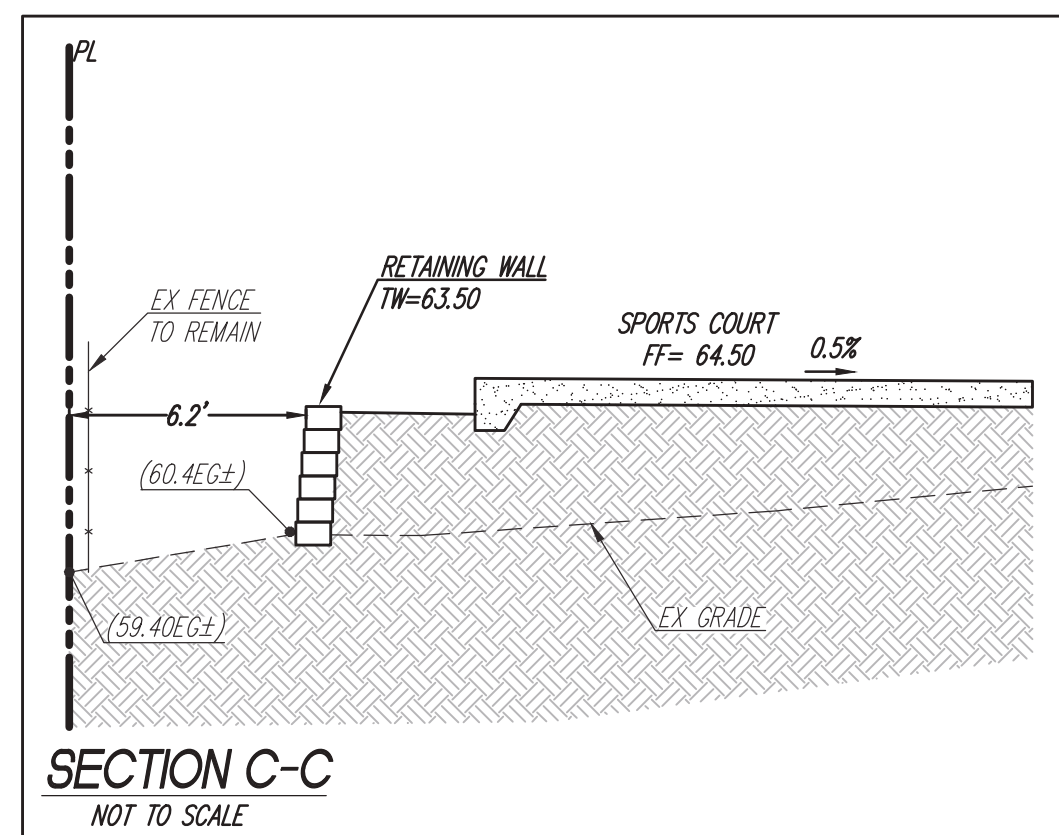
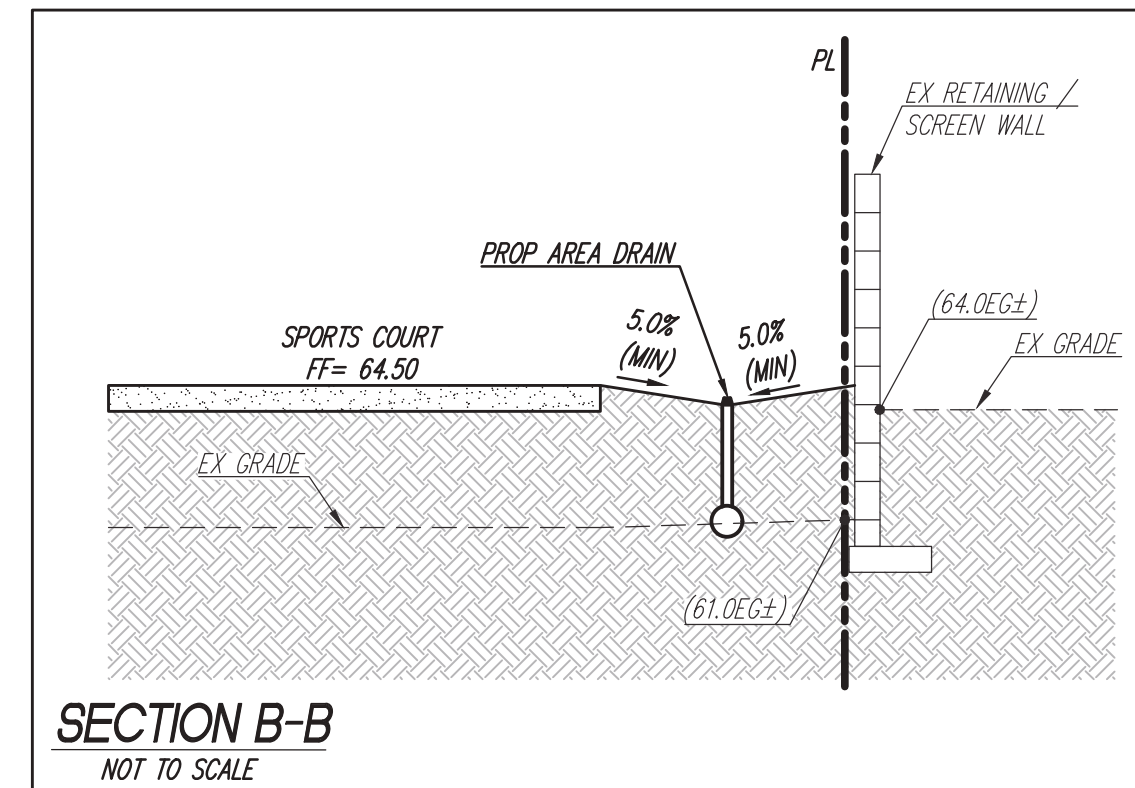
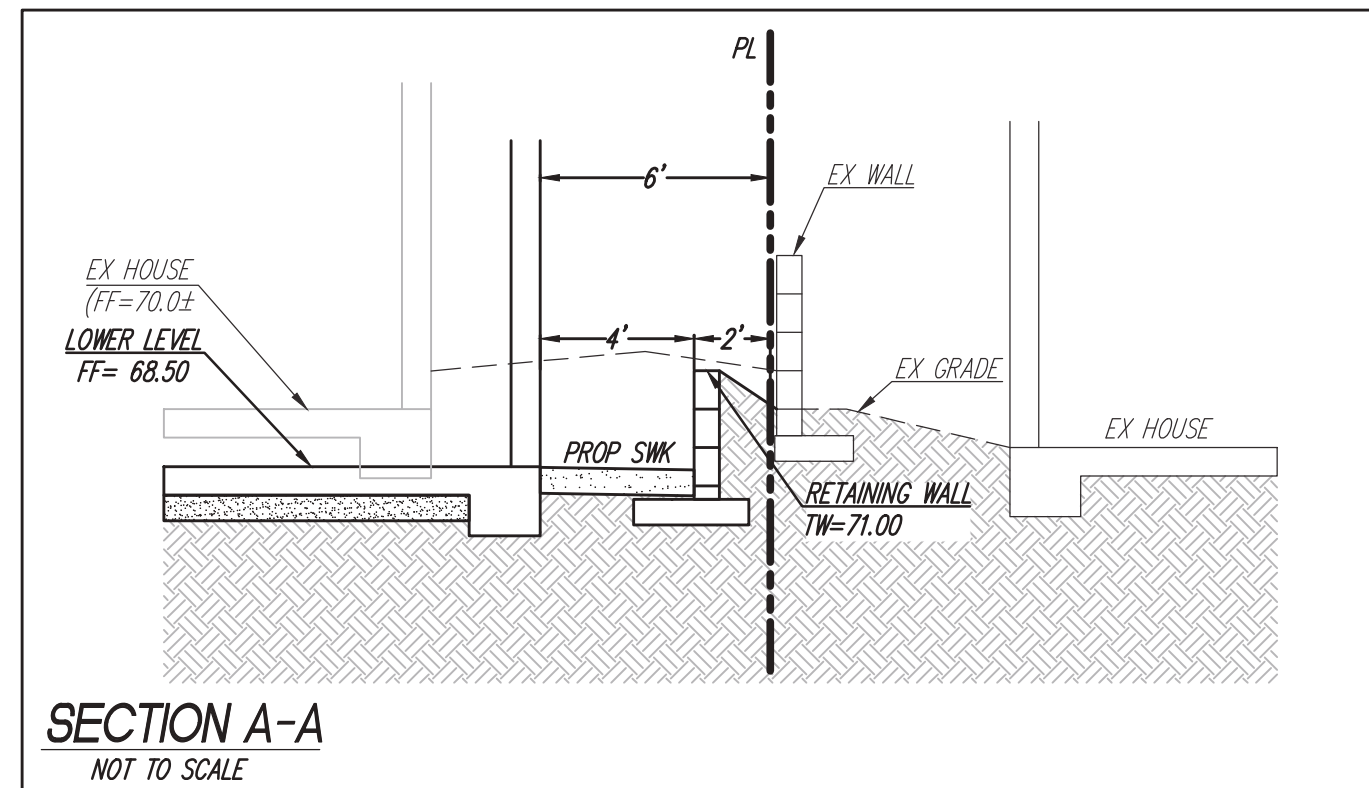
STORMWATER NOTE:
THE PROPOSED PROJECT WILL COMPLY WITH ALL THE REQUIREMENTS OF THE CURRENT CITY OF SAN DIEGO STORM WATER STANDARDS MANUAL BEFORE A GRADING OR BUILDING PERMIT IS ISSUED. IT IS THE RESPONSIBILITY OF THE OWNER/DESIGNER/APPLICANT TO ENSURE THE AT THE CURRENT STORM WATER PERMANENT BMP DESIGN STANDARDS ARE INCORPORATED INTO THE PROJECT.

BMP NOTE:
PRIOR TO THE ISSUANCE OF ANY CONSTRUCTION PERMIT, THE OWNER/PERMITEE SHALL INCORPORATE ANY CONSTRUCTION BMP'S NECESSARY TO COMPLY WITH CHAPTER 14, ARTICLE 2, DIVISION 1 (GRADING REGULATIONS) OF THE SAN DIEGO MUNICIPAL CODE, INTO THE CONSTRUCTION PLANS OR SPECIFICATIONS.

VERTICAL OBSTRUCTIONS NOTE:
NO OBSTRUCTION INCLUDING SOIL WALLS IN VISIBILITY AREA SHALL EXCEED 3 FEET IN HEIGHT PER SDMC SECTION 142.0409(b)(2). PLANT MATERIAL, OTHER THAN TREES, LOCATED WITHIN VISIBILITY AREAS OR THE ADJACENT PUBLIC ROW SHALL NOT EXCEED 36 INCHES IN HEIGHT, MEASURED FROM THE LOWEST GRADE ABUTTING THE PLANT MATERIAL TO THE TOP OF THE PLANT MATERIAL.

SITE AREA SUMMARY

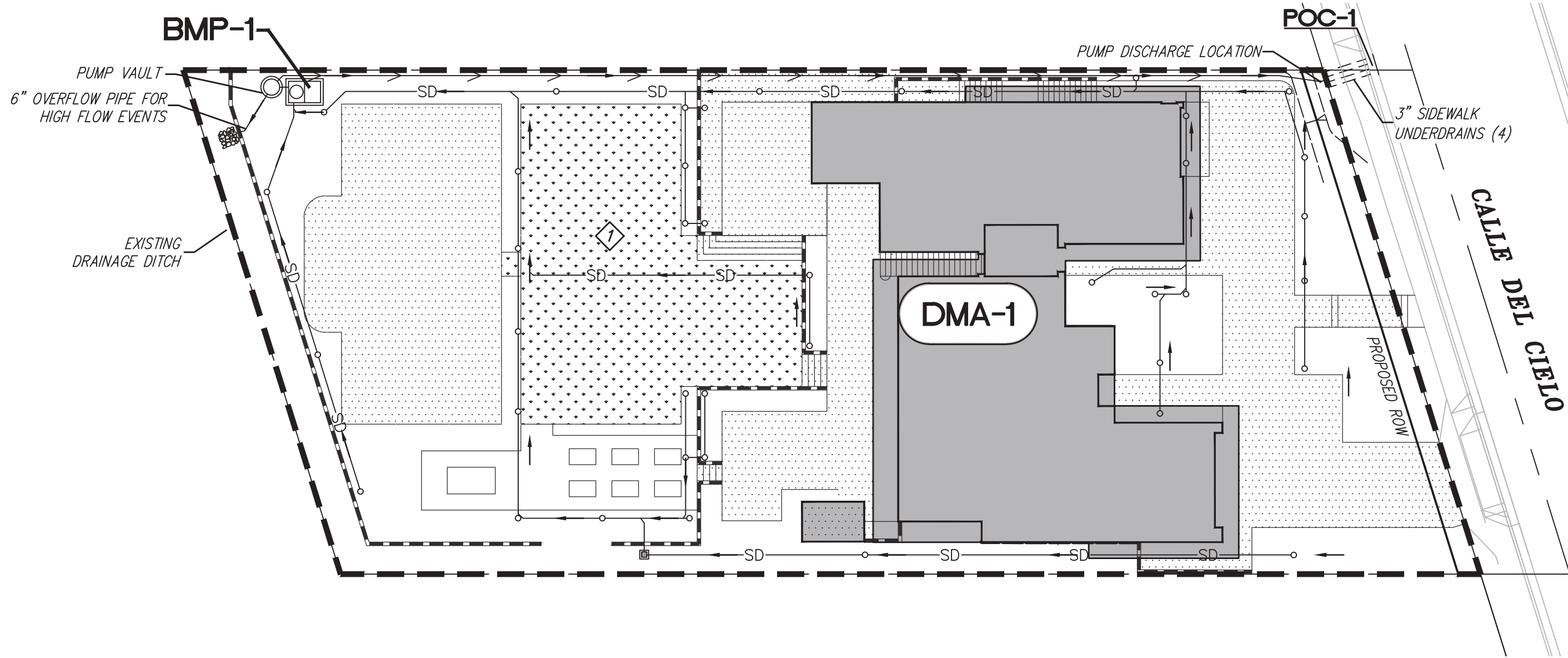
TOTAL SITE	20,533 SF
BUILDING FOOTPRINT (IMPERVIOUS)	4,845 SF
PROPOSED IMPERVIOUS	11,346 SF
PROPOSED PERVIOUS	8,845 SF
DISTURBED AREA	20,533 SF



DATE: 8/20/2026 5:28:40 PM BY: NICK SORCE FILENAME: P:\DWG OMEGA\0931 RACE RESIDENCES\ACAD\0931-C-2-CONCEPTUAL GRADING.DWG

DMA PLAN

NOTE: THIS PROJECT IS LOCATED WITHIN THE ASBS WATERSHED. NO DRY WEATHER RUNOFF IS PERMITTED. PROJECT WILL BE SUBJECT TO INCREASED INSPECTIONS, SATISFACTION TO THE CITY ENGINEER.



MAINTENANCE NOTES

MODULAR WETLAND SYSTEM.
MAINTENANCE THRESHOLD:
- REMOVE TRASH FROM SCREENING DEVICE - AVERAGE MAINTENANCE INTERVAL 6 TO 12 MONTHS.
- REMOVE SEDIMENT FROM SEPARATION CHAMBER - AVERAGE MAINTENANCE INTERVAL IS 12 TO 24 MONTHS.
- REPLACE CARTRIDGE FILTER MEDIA - AVERAGE MAINTENANCE INTERVAL IS 12 TO 14 MONTHS.
- REPLACE DRAIN DOWN FILTER MEDIA - AVERAGE MAINTENANCE INTERVAL IS 12 TO 24 MONTHS.
- TRIM VEGETATION - AVERAGE MAINTENANCE INTERVAL IS 6 TO 12 MONTHS.
ACCESS TO STRUCTURAL BMP:
- MANHOLE ON MWS UNIT

DMA DATA TABLE

DMA-NO.	TOT. AREA (SF)	IMP. AREA (SF)	PERVIOUS AREA (SF)	IMPERVIOUS (%)	TYPE/TREATED BY
DMA-1	20,191	11,346	8,845	56	BMP-1

TREATMENT BMP DATA TABLE

BMP-#	TREATING	Q _{TREATMENT} (CFS)	1.5 * Q _{TREATMENT} (CFS)	PROVIDED FLOWRATE (CFS)	DESCRIPTION
BMP-1	DMA-1	0.051	0.076	0.076	MWS-L-4-6-V MODULAR WETLAND BIOFILTER BMP

IMPERVIOUS AREA DISPERSION TABLE

LANDSCAPE AREA (SF)	IMP. AREA DRAINING TO LANDSCAPE AREA (SF)	IMP. TO PERVIOUS AREA RATIO	TARGET VOLUME RETENTION (CF)	VOLUME RETENTION REQUIREMENTS MET?
2369	1970	0.83	11	YES

SOURCE CONTROL BMPs

STORM DRAIN STENCILING

SITE DESIGN BMPs

IMPERVIOUS AREA DISPERSION

LEGEND:

- DMA BOUNDARY DMA-#
- DRAINAGE ARROWS BMP-#
- DRAINAGE MANAGEMENT AREA.....
- STRUCTURAL BEST MANAGEMENT PRACTICE.....
- IMPERVIOUS AREA
- ROOF AREA
- LANDSCAPED AREAS
- AMENDED/RETILLED SOIL AREAS.....
- ROOF DRAIN LOCATION (RD)

GENERAL NOTES

- THE UNDERLYING HYDROLOGIC SOIL GROUP FOR THE SITE IS TYPE D
- GROUNDWATER DEPTH HAS NOT YET BEEN DETERMINED.
- NO EXISTING NATURAL HYDROLOGIC FEATURES EXIST ON SITE.
- NO CRITICAL COARSE SEDIMENT YIELD AREAS ON SITE OR UPSTREAM OF SITE.
- ALL APPLICABLE SOURCE CONTROL BMPs SHALL BE IMPLEMENTED.

SOURCE CONTROL BMP NOTES

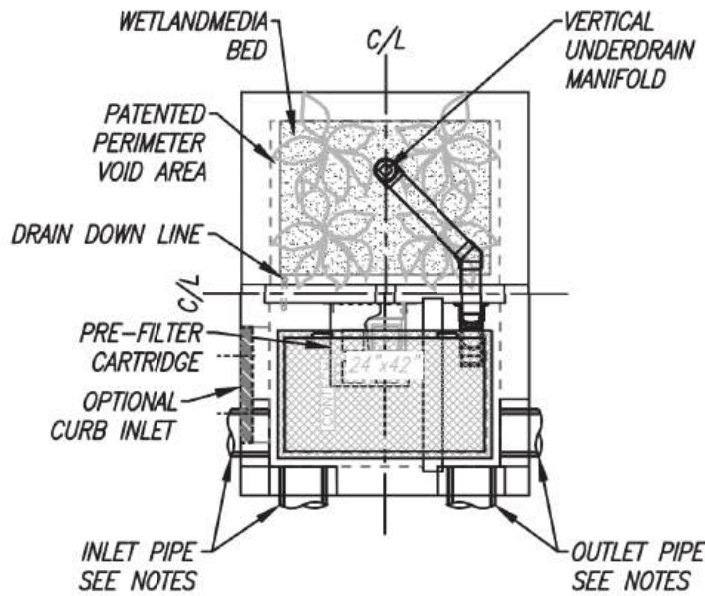
- ALL APPLICABLE SOURCE CONTROL BMPs SHALL BE UTILIZED
- 4.2.1 PREVENT ILLICIT DISCHARGE INTO THE MSA
- 4.2.2 ALL ONSITE INLETS TO BE MARKED "NO DUMPING" OR SIMILAR AND ALL OPERATIONAL PRECAUTIONS TO AVOID NON STORM WATER DISCHARGE SHALL BE FOLLOWED PER THE CITY'S BMP DESIGN MANUAL.
- 4.2.6 SC-A ONSITE STORM DRAIN INLETS
SC-D1 NEED FOR FUTURE INDOOR & STRUCTURAL PEST CONTROL
SC-D2 LANDSCAPE/OUTDOOR PESTICIDE USE
SC-P PLAZAS, SIDEWALKS, AND PARKING LOTS

SITE SPECIFIC DATA				
PROJECT NUMBER		0931		
PROJECT NAME		Race Residence		
PROJECT LOCATION		La Jolla, CA		
STRUCTURE ID		BMP-1		
TREATMENT REQUIRED				
TREATMENT FLOW (CFS)		0.076		
PRETREATMENT LOADING RATE (GPM/SF)		2.1 GPM/SF		
WETLAND MEDIA LOADING RATE (GPM/SF)		1.0		
PEAK BYPASS REQUIRED (CFS) - IF APPLICABLE		(CFS)		
PIPE DATA		I.E.	MATERIAL	DIAMETER
INLET PIPE 1				
INLET PIPE 2				
OUTLET PIPE				
RIM ELEVATION		PRETREATMENT	BIOFILTRATION	DISCHARGE
SURFACE LOAD		PEDESTRIAN		
NOTES:				

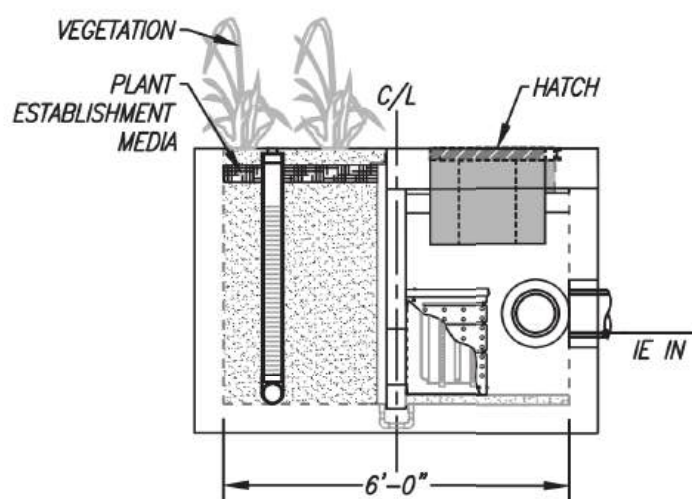
* PRELIMINARY ONLY - NOT FOR CONSTRUCTION

INSTALLATION NOTES

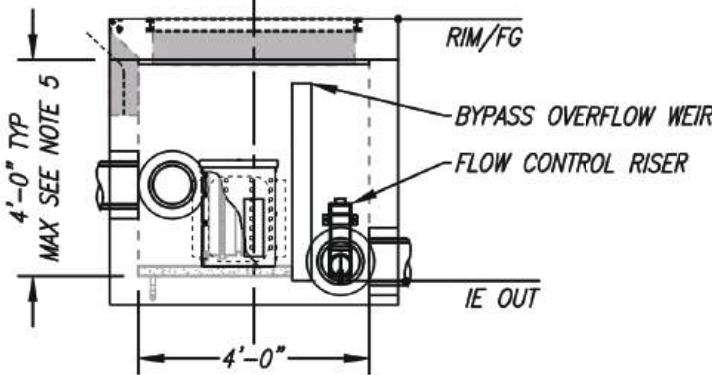
- CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
- UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING PROJECT ENGINEER'S RECOMMENDED BASE SPECIFICATIONS.
- CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATERTIGHT PER MANUFACTURER'S STANDARD CONNECTION DETAIL. CONTRACTOR RESPONSIBLE FOR CONTACTING CONTECH FOR ACTIVATION OF UNIT. MANUFACTURER'S WARRANTY IS VOID WITHOUT PROPER ACTIVATION BY A CONTECH REPRESENTATIVE.
- VERTICAL HEIGHT VARIES BASED ON SITE SPECIFIC REQUIREMENTS.



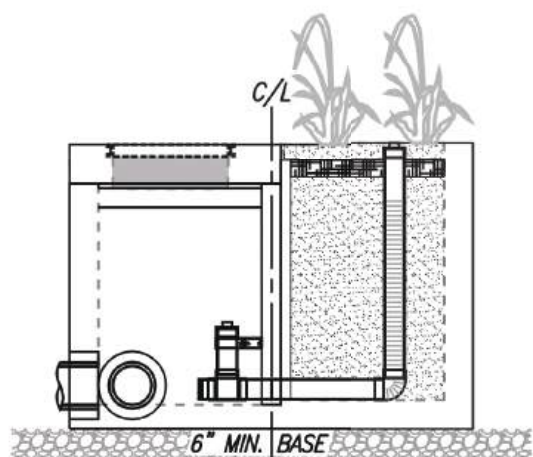
PLAN VIEW



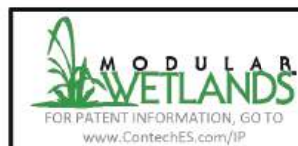
LEFT END VIEW



ELEVATION VIEW



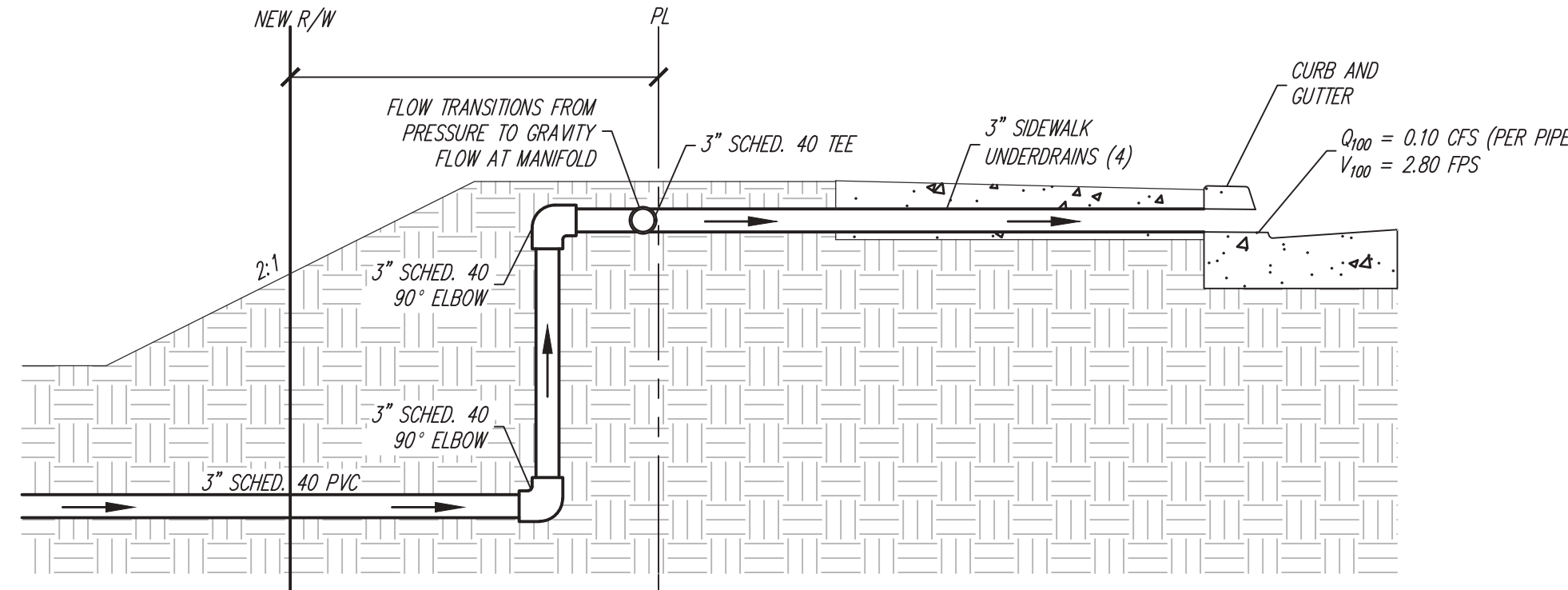
RIGHT END VIEW



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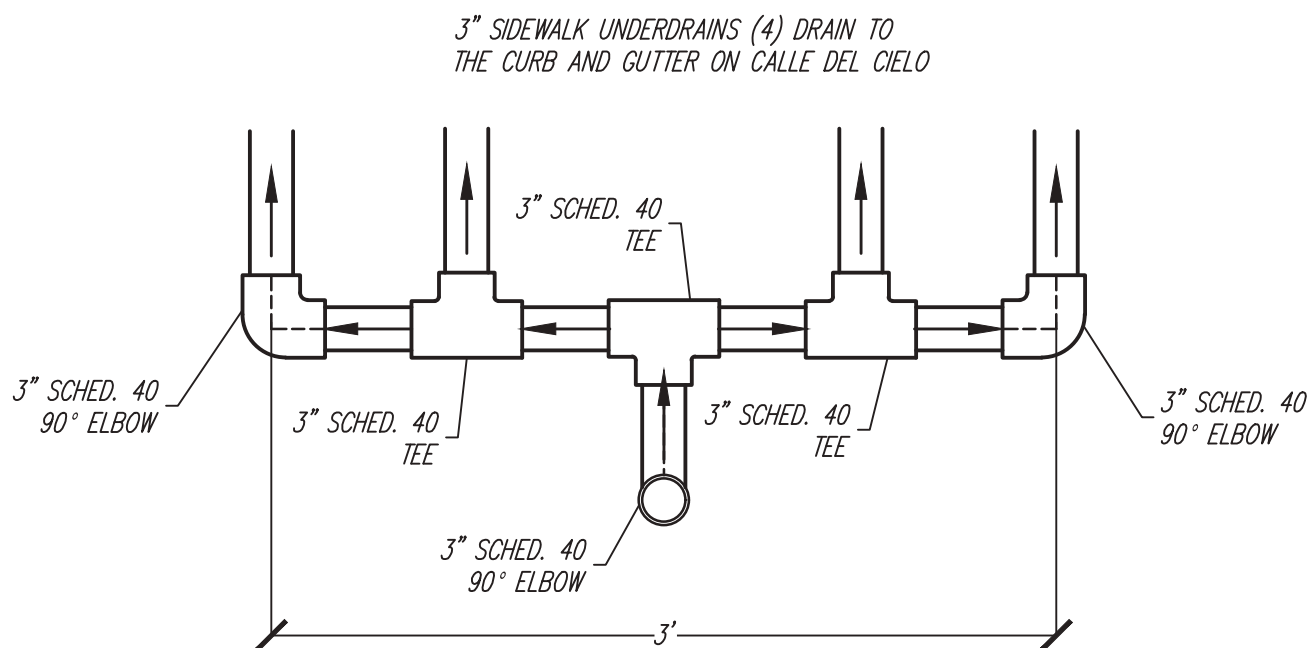


MWS-L-4-6-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL



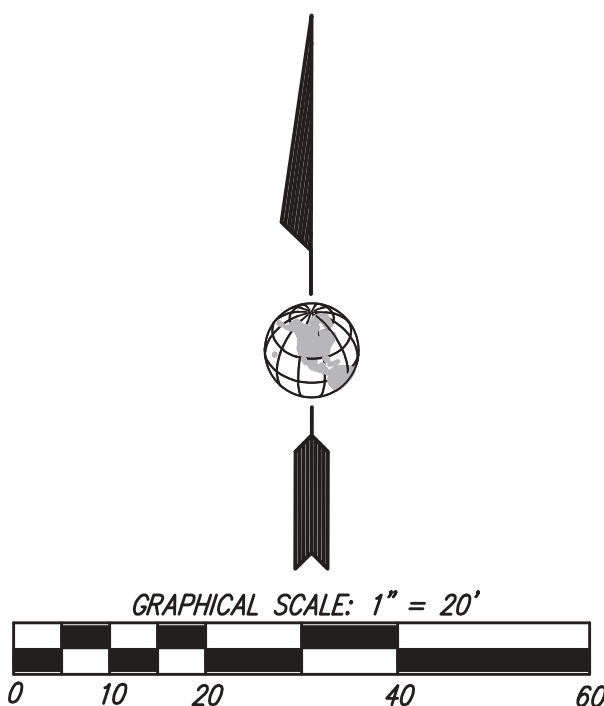
PUMP DISCHARGE DETAIL

NOT TO SCALE



SIDEWALK UNDERDRAIN SCHEMATIC

NOT TO SCALE



1.	-

OMEGA
ENGINEERING CONSULTANTS
4330 NEWBRIDGE AVE, SUITE C
SAN DIEGO, CA 92123
PH: (619) 634-8620

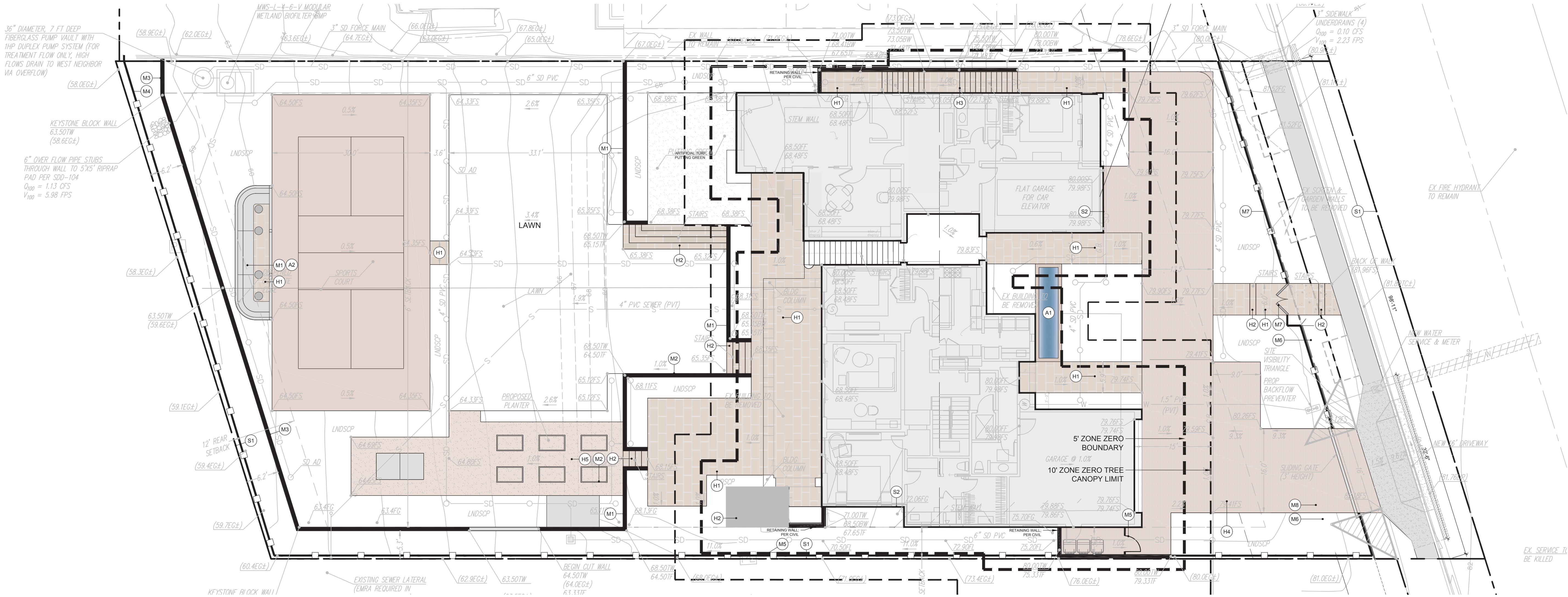
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DRAWN BY	CHECKED BY
JC	NS
DATE	JOB NO.
9/4/26	0931

DMA PLAN

C-03



CONSTRUCTION LEGEND

SITE FEATURES

- S1 PROPERTY LINE - VERIFY BY SURVEYOR IN THE FIELD
- S2 BUILDING FOOTPRINT

HARDSCAPE & PAVING

- H1 SCALA TRAVERTINE BY ECO OUTDOOR, SIZE: 24"X48", RUNNING BOND PATTERN
- H2 SCALA TRAVERTINE BY ECO OUTDOOR STONE STAIR WITH UNDERMOUNT TREAD LIGHT
- H3 SCALA TRAVERTINE BY ECO OUTDOOR STONE STAIR
- H4 DRIVEWAY PAVERS, PORPHYRY COBBLESTONE BY ECO OUTDOOR, SET ON CONCRETE STRUCTURAL BASE
- H5 DECOMPOSED GRANITE IN 'GOLD CHIP SEAL' AVAILABLE FROM KRC ROCK

MASONRY / FENCING

- M1 CMU PLANTER WALL, 30" MAX ELEVATION
- M2 REDWOOD VEGGIE BED
- M3 EXISTING RETAINING WALL TO REMAIN
- M4 SOLID WOOD FENCE, 6' HEIGHT
- M5 SOLID PEDESTRIAN GATE, 6' HEIGHT

- M6 FRONT YARD FENCE, 36" HEIGHT
- M7 FRONT YARD PEDESTRIAN GATE, 36" HEIGHT
- M8 VEHICULAR GATE, 36" HEIGHT

AMENITIES

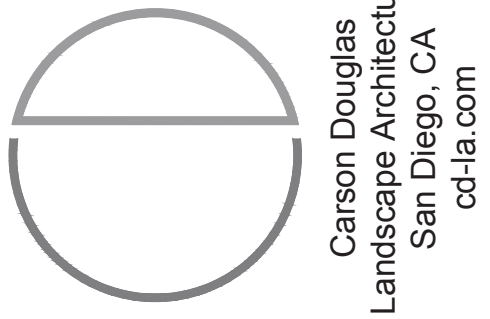
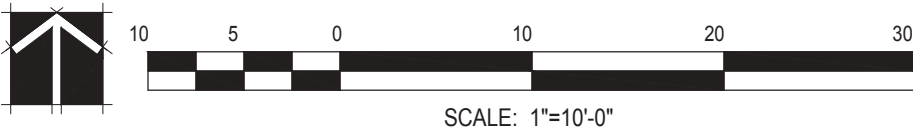
- A1 WATER FEATURE
- A2 PICKLEBALL COURT

NOTES

CONTRACTOR TO LOCATE AND CONFIRM ALL UTILITIES PRIOR TO CONSTRUCTION - NOTIFY LANDSCAPE ARCHITECT OF ANY DESIGN CONFLICTS

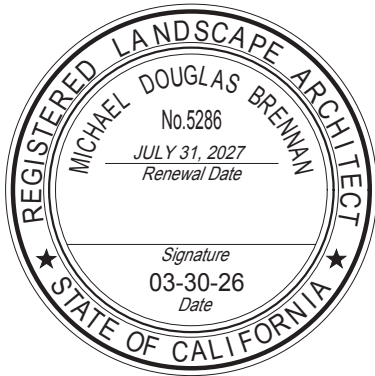
REFER TO CIVIL PLAN FOR GRADING AND DRAINAGE INFORMATION

HAND DIGGING IS REQUIRED AROUND ALL TREES TO REMAIN



SHEET TITLE:
HARDSCAPE
PLAN

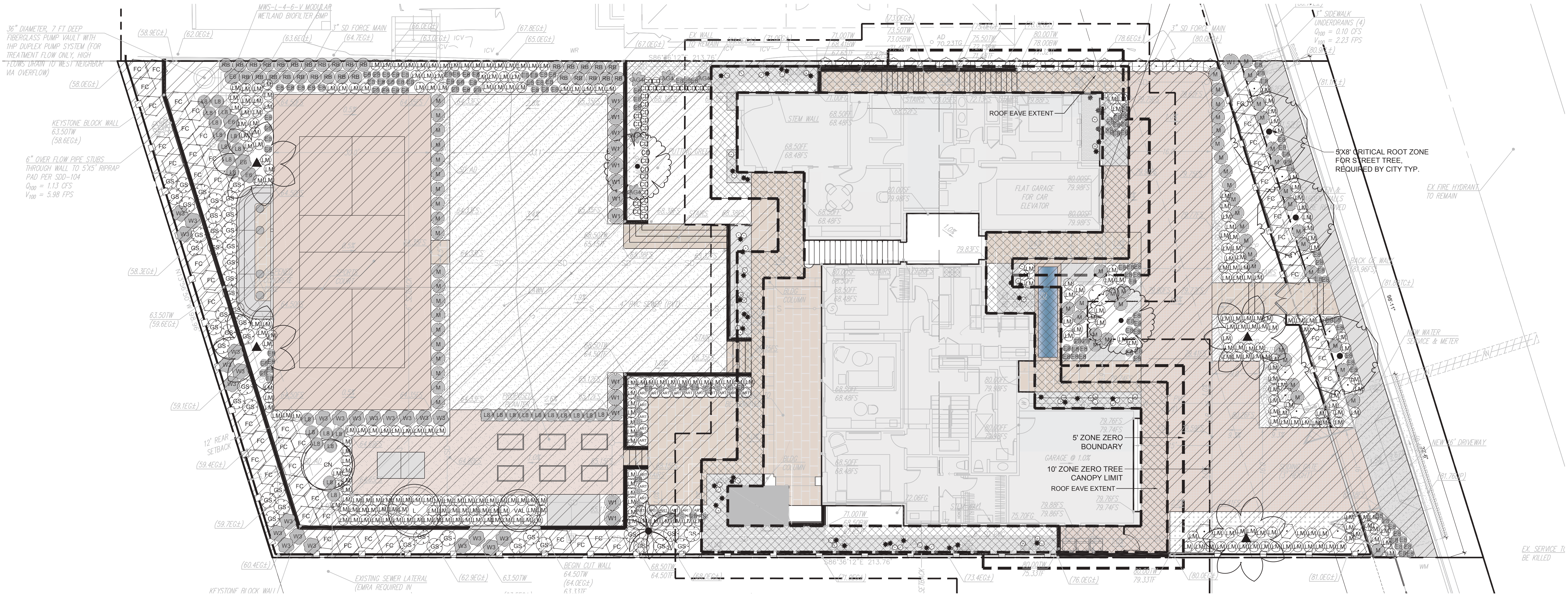
PROJECT | CLIENT:
RACE RESIDENCE
COASTAL DEVELOPMENT PERMIT
8332 CALLE DEL CIELO
LA JOLLA, CA 92037



revisions	
CDP Submittal	03-30-26
City Comments Revisions	06-30-26

sheet plot date -	09-03-26
carson douglas job number -	25-012
design start date -	08-12-2025

L-1.0



BRUSH MANAGEMENT LEGEND

- ZONE 0
- ZONE 1

BRUSH MANAGEMENT PLAN NOTES

1. PROJECT SEEKS ALTERNATIVE COMPLIANCE WITH A ZONE 1 LANDSCAPE AND ZERO ZONE 2 AREA
2. ENTIRE BUILDING TO UTILIZE DUAL GLAZED / DUAL TEMPERED WINDOWS AS AN ALTERNATIVE COMPLIANCE MEASURE. SEE ARCHITECTURE DRAWINGS
3. **ALL** EXTERIOR WALLS TO BE 1 HOUR RATED. SEE ARCHITECTURE DETAIL "S" ON SHEET A.11
4. THIS PROJECT SHALL ADHERE TO THE CBC CHAPTER 7A AND CRC R3327 REQUIREMENTS
5. ONE HOSE BIB TO BE LOCATED A MINIMUM OF EVERY 100' LINEAR FEET PER CODE
6. PLANTING SHOWN ON THIS SHEET FOR REFERENCE TO BRUSH MANAGEMENT ONLY. SEE PLANTING PLAN ON L-2.0 FOR FULL PLANT SCHEDULE
7. IRRIGATION SHOWN ON THIS SHEET FOR REFERENCE TO BRUSH MANAGEMENT ONLY. SEE IRRIGATION PLAN ON L-4.0 FOR FULL IRRIGATION PLAN
8. A PERMANENT, BELOW-GRADE IRRIGATION SYSTEM WILL BE USED PER SDMC 142.0403(c)

9.THE OWNER/PERMITTEE SHALL SCHEDULE A PRE-CONSTRUCTION MEETING ON SITE WITH THE CONTRACTOR AND THE DEVELOPMENT SERVICES DEPARTMENT TO DISCUSS AND OUTLINE THE IMPLEMENTATION OF THE BRUSH MANAGEMENT PROGRAM.

10. BRUSH MANAGEMENT ACTIVITIES ARE PROHIBITED WITHIN COASTAL SAGE SCRUB, MARITIME SUCCULENT SHRUB, AND CHAPARRAL HABITATS DURING THE BREEDING SEASON OF FEDERALLY PROTECTED SPECIES, FROM MARCH 1 TO AUGUST 15, EXCEPT WHERE DOCUMENTED TO THE SATISFACTION OF THE CITY OF SAN DIEGO THAT THE THINNING WOULD BE CONSISTENT WITH THE CONDITIONS OF SPECIES COVERAGE DESCRIBED IN THE CITY OF SAN DIEGO'S MSCP SUBAREA PLAN.
11. UPON REPAIR OR REPLACEMENT OF ALL STRUCTURES IN ZONE 1, UPGRADES SHALL BE OF NONCOMBUSTIBLE, ONE-HOUR FIRE-RATED OR TYPE IV OR HEAVY TIMBER CONSTRUCTION.
12. OFFSITE BRUSH MANAGEMENT SHALL BE THE RESPONSIBILITY OF ADJACENT PROPERTY OWNERS. FOR FUEL LOAD MAINTENANCE ISSUES, CONTACT THE FIRE-RESCUE DEPARTMENT'S FIRE HAZARD ADVISOR – BRUSH/WEED COMPLAINT LINE AT (619) 533-4444.

Section 604.3.2. Zone 0 Requirements

Zone 0 is the area immediately adjacent to the exterior wall surface, patio, deck, or attachment to structures, extending 5 feet (1,524 mm) on a horizontal plane.

Zone 0 requirements shall apply to all new structures applying for a building permit on or after the effective date of this Ordinance and shall apply to existing structures one year after the Ordinance effective date. A compliance plan may be established to allow sufficient time for structures to fully comply with these regulations.

The requirements within Zone 0 are as follows:

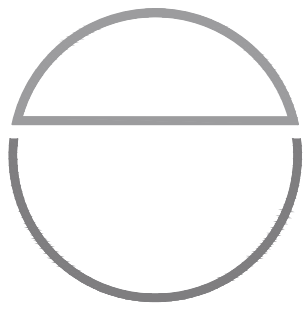
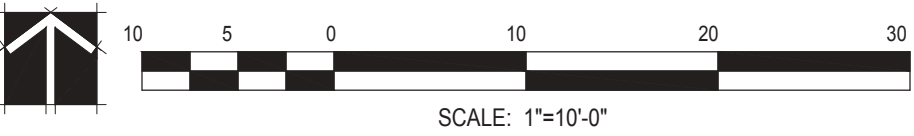
1. No landscape materials that are likely to be ignited by embers are permitted within Zone 0. This includes ornamental or native plants, shrubs, fallen leaves and tree needles, weeds, and combustible mulches, including bark and wood chips.
2. No items that are likely to be ignited by embers are permitted within Zone 0, including combustible boards, timbers, firewood, petroleum-based products, window boxes, and trellises. The responsible person shall keep the roof and rain gutters clear of leaves and needles. The area under decks, balconies, and stairs shall be kept free from vegetation and combustible items.

Section 604.3.3. Zone 1 Requirements

Zone 1 is the area immediately adjacent to Zone 0 and extends outward from the structure on a horizontal plane. Zone 1 shall typically consist of pavement and permanently irrigated ornamental planting. All vegetation shall be well watered and well maintained by the responsible person.

The requirements within Zone 1 are as follows:

1. Vegetation within Zone 1 shall be primarily low-growing and less than 4 feet (1,219 mm) in height, except for trees.
2. The responsible person shall remove all dead and dying grass, plants, shrubs, trees, branches, leaves, weeds, and needles from Zone 1.
3. Trees within Zone 1 shall be located a minimum distance of 10 feet (3,048 mm) from structures, as measured from the drip line of the tree at maturity to the roofline of a structure, chimney, or stovepipe outlet.
4. Exposed firewood piles shall be relocated outside of Zone 1 unless they are completely enclosed in a fire-resistant material.
5. Zone 1 includes a transitional area adjacent to Zone 0 that protects the integrity of Zone 0. This transitional area extends within 5 feet (1,524 mm) of Zone 0 or to the property line, whichever is closer. Plants within this transitional zone shall not exceed 2 feet (610 mm) in height.



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SHEET TITLE:

BRUSH
MANAGEMENT
PLAN

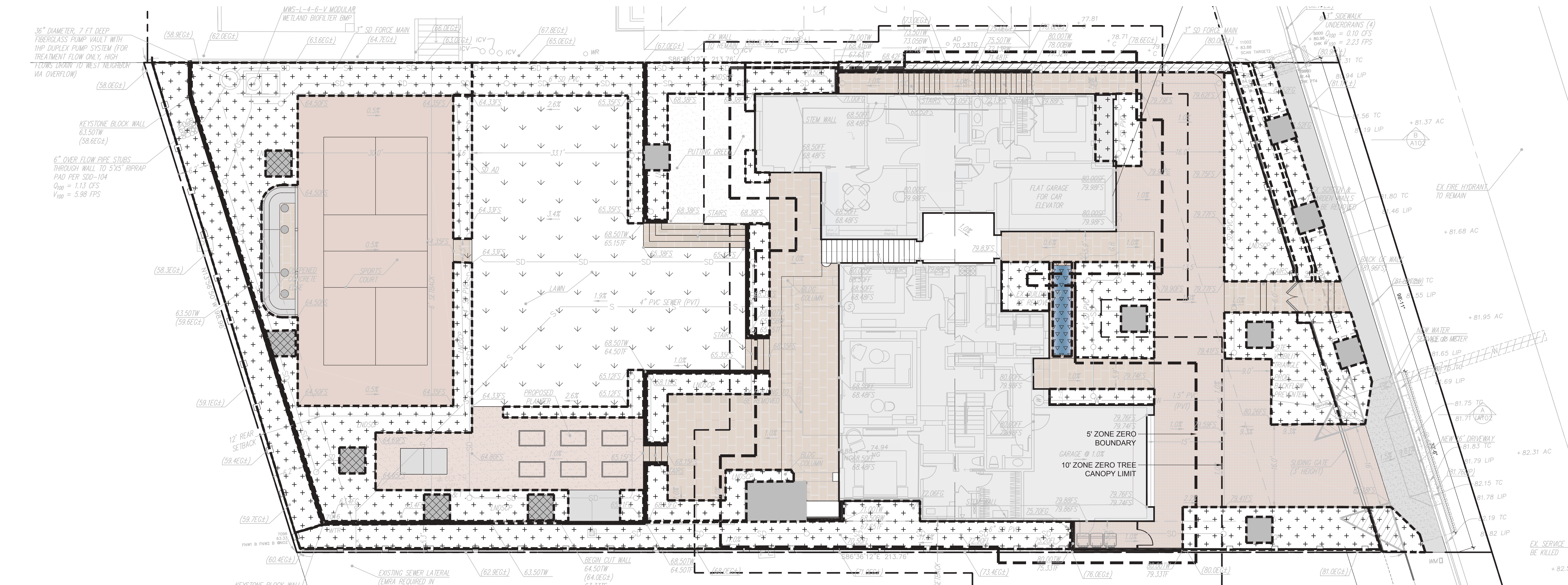
PROJECT | CLIENT:

RACE RESIDENCE
COASTAL DEVELOPMENT PERMIT
8332 CALLE DEL CIELO
LA JOLLA, CA 92037



revisions	
CDP Submittal	03-30-26
City Comments Revisions	06-30-26
sheet plot date -	09-03-26
carson douglas job number -	25-012
design start date -	08-12-2025

L-1.2



GENERAL IRRIGATION NOTES

ALL LOCAL MUNICIPAL AND STATE LAWS, RULES AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR. IN CASE OF CONFLICT BETWEEN THE SPECIFICATIONS, DRAWINGS, AND / OR CODE, THE MORE STRINGENT REQUIREMENT SHALL PREVAIL.

THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, STRUCTURES AND SERVICES BEFORE COMMENCING WORK. THE LOCATIONS OF UTILITIES, STRUCTURES AND SERVICES SHOWN IN THESE PLANS ARE APPROXIMATE ONLY. ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE.

THE CONTRACTOR SHALL OBTAIN THE PERTINENT ENGINEERING OR ARCHITECTURAL PLANS BEFORE BEGINNING WORK.

THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK INDICATED HEREIN BEFORE BEGINNING WORK.

THE MAINLINE AND SLEEVING IS DIAGRAMMATIC. ALL PIPING IS FOR DESIGN CLARIFICATION ONLY AND SHALL BE INSTALLED WITHIN LIMIT OF WORK BOUNDARIES AND IN SHRUB PLANTING AREAS WHERE POSSIBLE. AVOID ANY CONFLICTS BETWEEN THE SPRINKLER SYSTEM, PLANTING AND ARCHITECTURAL FEATURES.

IRRIGATION EQUIPMENT AS SHOWN IS DIAGRAMMATIC. INSTALL ALL THE IRRIGATION REMOTE CONTROL VALVES, QUICK COUPLERS, MASTER VALVES, FLOW SENSORS, BACKFLOWS, AIR/VACUUM DEVICES, BALL VALVES, AND ANCILLARY EQUIPMENT, IN SHRUB PLANTING AREAS WHEN FEASIBLE OR AS APPROVED BY OWNER'S REPRESENTATIVE AND THE LANDSCAPE ARCHITECT.

DO NOT WILLFULLY INSTALL ANY EQUIPMENT AS SHOWN ON THE PLANS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN CONDITIONS EXIST THAT WERE NOT EVIDENT AT THE TIME THESE PLANS WERE PREPARED. ANY SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE PRIOR TO ANY WORK OR THE IRRIGATION CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY FIELD CHANGES DEEMED NECESSARY BY THE OWNER.

INSTALL ALL EQUIPMENT AS SHOWN IN THE DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH LOCAL CITY, COUNTY AND STATE REQUIREMENTS FOR BOTH EQUIPMENT AND INSTALLATION.

IF ANY PLANT MATERIAL, TREES, LAWN, OR PLANTING AREAS WITHIN THE PROJECT ARE TO REMAIN IN PLACE, AND ARE PART OF AN EXISTING IRRIGATION SYSTEM, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR THE WATERING OF THESE AREAS AND ENSURE THE HEALTH OF THESE PLANTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RELOCATING OR ADDING TEMPORARY PIPING TO ENSURE SCHEDULED WATERINGS FOR ALL EXISTING PLANTS.

CONTRACTOR TO PROVIDE AN ADDITIONAL PILOT WIRE FROM CONTROLLER ALONG ENTIRETY OF MAINLINE TO THE LAST RCV ON EACH AND EVERY LEG OF MAIN LINE. LABEL SPARE WIRES AT BOTH ENDS.

ALL PIPE UNDER PAVED AREAS, HARDSCAPE, OR AS DIRECTED BY OWNERS REPRESENTATIVE TO BE INSTALLED IN SLEEVING, TWICE THE DIAMETER OF PIPE OR WIRE BUNDLE CARRIED. ALL 2" AND 3" SLEEVING FOR NON-VEHICULAR PAVING SHALL BE PVC1220 SCH. 40, TYPE 1, GRADE 2 MATERIAL CONFORMING TO ASTM STANDARD D-1785-4. ALL 4" AND LARGER SLEEVING BELOW VEHICULAR PAVING SHALL BE PVC1220 SCH.80 SDR21, TYPE 1, GRADE 2 MATERIAL CONFORMING TO ASTM STANDARD D-2241. SLEEVES UNDER BROW DITCHES SHALL BE ENCASED IN CONCRETE A MINIMUM OF 6" THICK ON ALL SIDES OF PIPE. SLEEVES TO EXTEND AT LEAST 12" PAST THE EDGE OF PAVING.

ALL QUICK COUPLER VALVES TO BE INSTALLED IN SHRUB OR GROUND COVER AREAS WHERE POSSIBLE. ALL QUICK COUPLER VALVES TO BE INSTALLED AS SHOWN ON THE INSTALLATION DETAILS. INSTALL ALL QUICK COUPLER VALVES WITHIN 18" OF HARDSCAPE.

IRRIGATION HEADS ADJACENT TO THE STREET SHALL BE HELD A MINIMUM OF 2 FEET FROM EDGE OF PAVEMENT. ALL HEADS ARE TO BE INSTALLED WITH THE NOZZLE, SCREEN AND ARCS SHOWN ON THE PLANS. ALL HEADS ARE TO BE ADJUSTED TO PREVENT OVERSPRAY ONTO BUILDINGS, WALLS, FENCES AND HARDSCAPE. THIS INCLUDES, BUT NOT LIMITED TO, ADJUSTMENT OF DIFFUSER PIN OR ADJUSTMENT SCREW, REPLACEMENT OF PRESSURE COMPENSATING SCREENS, REPLACEMENT OF NOZZLES WITH MORE APPROPRIATE RADIUS UNITS AND THE REPLACEMENT OF NOZZLES WITH ADJUSTABLE ARC UNITS. WHEN VERTICAL OBSTRUCTIONS (PROPS, STREET LIGHTS, TREES, ETC.) INTERFERE WITH THE SPRAY PATTERN OF THE SPRINKLER HEADS PREVENTING PROPER COVERAGE, THE IRRIGATION CONTRACTOR SHALL FIELD ADJUST THE SPRINKLER SYSTEM BY INSTALLING A QUARTER CIRCLE OR HALF CIRCLE SPRINKLER HEAD ON EACH SIDE OF THE OBSTRUCTION SO AS TO PROVIDE PROPER COVERAGE. ALL ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.

THE IRRIGATION CONTRACTOR SHALL ADJUST THE PRESSURE REGULATOR ON EACH ELECTRIC CONTROL VALVE SO THAT THE SPRINKLER HEAD FARTHEST AND HIGHEST IN ELEVATION FROM ITS RESPECTIVE CONTROL VALVE OPERATES WITHIN THE OPERATING PRESSURE SHOWN ON THE IRRIGATION LEGEND. NOT TO EXCEED FIVE (5) PSI ABOVE THE GIVEN OPERATING PRESSURE FROM THE SPECIFIED PRESSURE LOCATED ON THE IRRIGATION LEGEND.

THE IRRIGATION SYSTEM DESIGN IS BASED ON THE MINIMUM OPERATING PRESSURE AND THE MAXIMUM FLOW DEMAND SHOWN ON THE IRRIGATION DRAWINGS AT EACH POINT OF CONNECTION. THE IRRIGATION CONTRACTOR SHALL VERIFY WATER PRESSURE VIA DIRECT FIELD MEASUREMENT PRIOR TO CONSTRUCTION. REPORT ANY DIFFERENCE BETWEEN THE WATER PRESSURE INDICATED ON THE DRAWINGS AND THE ACTUAL PRESSURE READING AT THE IRRIGATION POINT OF CONNECTION TO THE OWNER'S AUTHORIZED REPRESENTATIVE. IN THE EVENT PRESSURE DIFFERENCES ARE NOT REPORTED PRIOR TO START OF CONSTRUCTION, THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS, AND COSTS ASSOCIATED WITH SAID REVISIONS.

SHOULD FIELD CONDITIONS REQUIRE PIPE INSTALLATION OTHER THAN THAT SHOWN ON PLANS, THE CONTRACTOR SHALL LIMIT EXCESS FLOW AND SIZE ALL PIPE NOT TO EXCEED A VELOCITY OF 5 FEET PER SECOND (FPS) IN PVC PIPE AND CAST IRON PIPE. FLOW THROUGH ANCILLARY EQUIPMENT, STEEL AND COPPER PIPE SHALL NOT EXCEED A VELOCITY OF 7 1/2 FPS. ALL ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.

CHECK VALVES SHALL BE USED TO PREVENT ALL LOW HEAD DRAINAGE.

WATER EFFICIENT LANDSCAPE WORKSHEET								
Irrigation Point of Connection (P.O.C.) #1								
REFERENCE EVAPOTRANSPIRATION (ETO)			47					
Hydro zone #	Planting Description	Plant Factor (average) (PF)	Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Landscape Area (sq ft)	ETAF x Area	Estimated Total Water Use (ETWU)
REGULAR LANDSCAPE AREAS								
1	LOW WATER	0.30	DRIP	0.81	0.37	5719	2118.15	61723
2	LOW WATER	0.30	BUBBLER	0.75	0.40	175	70.00	2040
3	MODERATE	0.50	DRIP	0.81	0.62	145	89.51	2608
4	MODERATE	0.50	BUBBLER	0.75	0.67	125	83.33	2428
5	HIGH WATER	0.00	POOL FILL	1.00	0.00	67	0.00	0
6	MODERATE	0.40	ROTATOR	0.75	0.53	2370	1264.00	36833
TOTAL						8601	3625	
SPECIAL LANDSCAPE AREAS								
TOTAL						0	0	0
ETWU TOTAL								105632
MAXIMUM WATER ALLOWANCE (MAWA)								112785
IRRIGATION EFFICIENCY (IE) AVERAGE								

HYDROZONE MAP

- | | | | |
|---|--|-----------------------------------|----------|
| 1 | | LOW WATER USE ZONE - DRIPLINE | 5,719 SF |
| 2 | | LOW WATER USE ZONE - BUBBLER | 175 SF |
| 3 | | MODERATE WATER USE ZONE- DRIPLINE | 145 SF |
| 4 | | MODERATE WATER USE ZONE - BUBBLER | 125 SF |
| 5 | | WATER FEATURE - POOL FILL | 67 SF |
| 6 | | MODERATE WATER USE ZONE - ROTATOR | 2,370 SF |



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SHEET TITLE:

HYDROZONE PLAN

PROJECT | CLIENT:

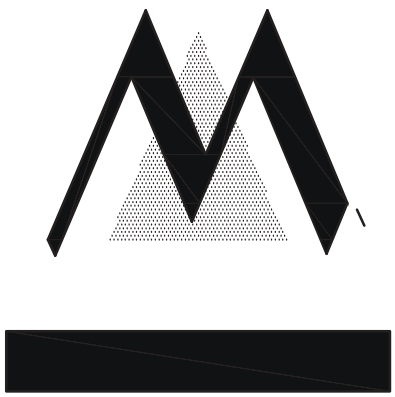
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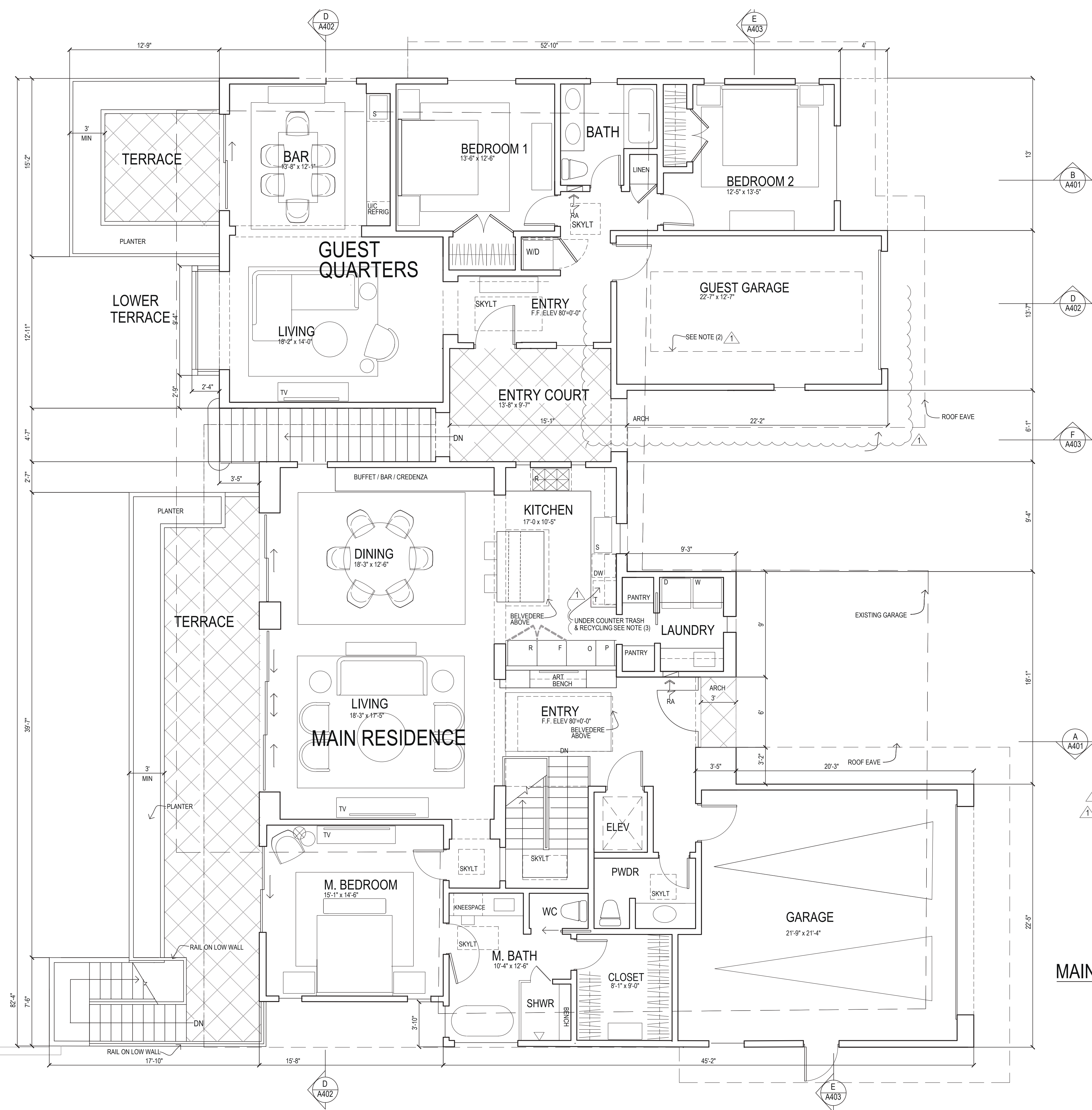
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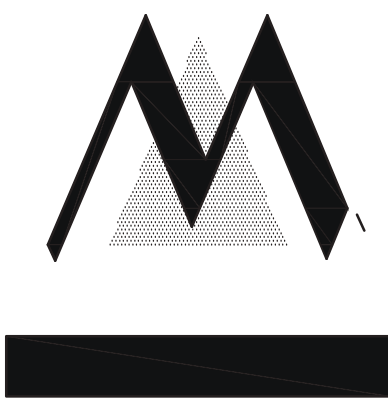
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07-08-26

SHEET NO.

A201





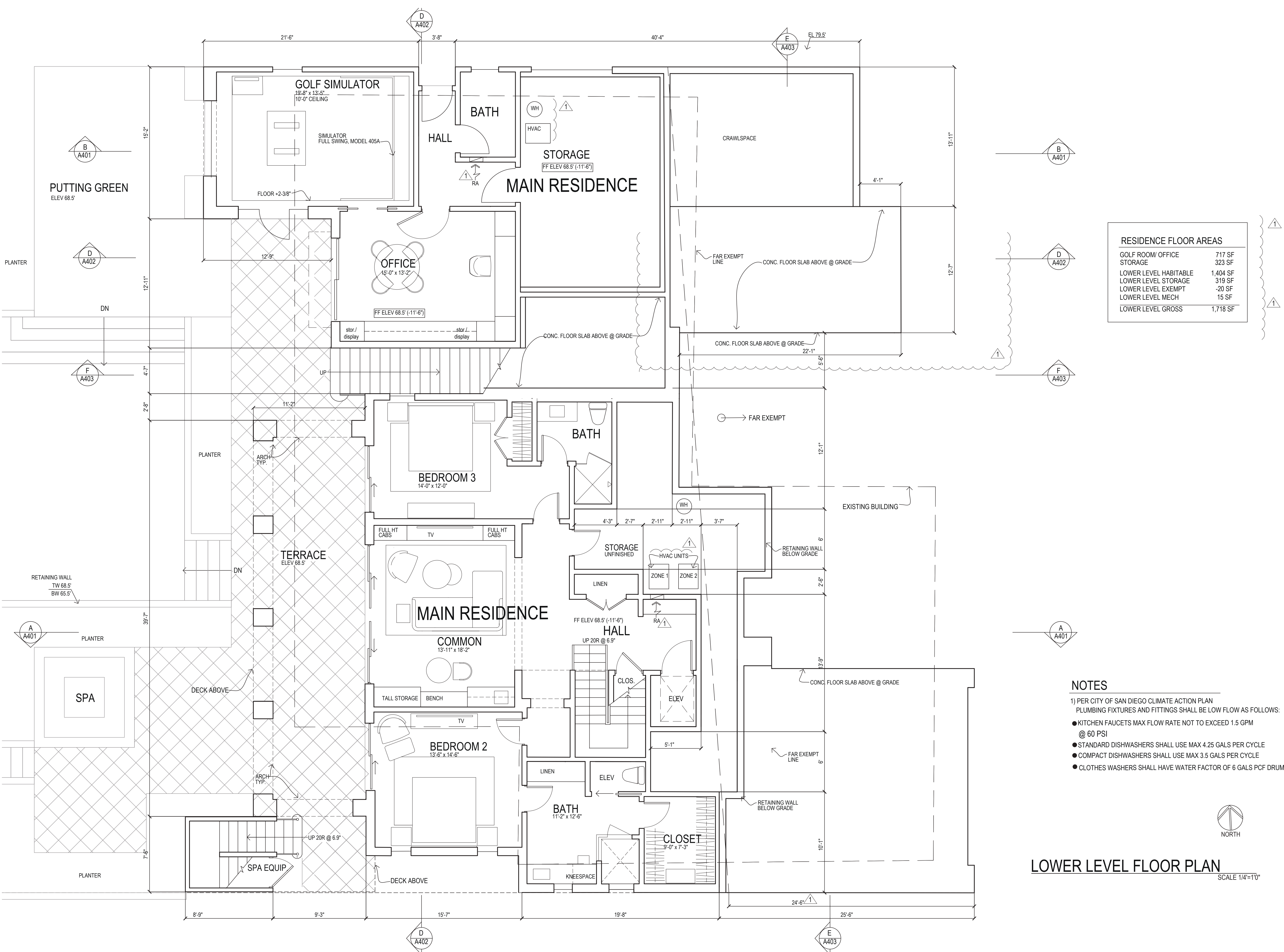
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A202





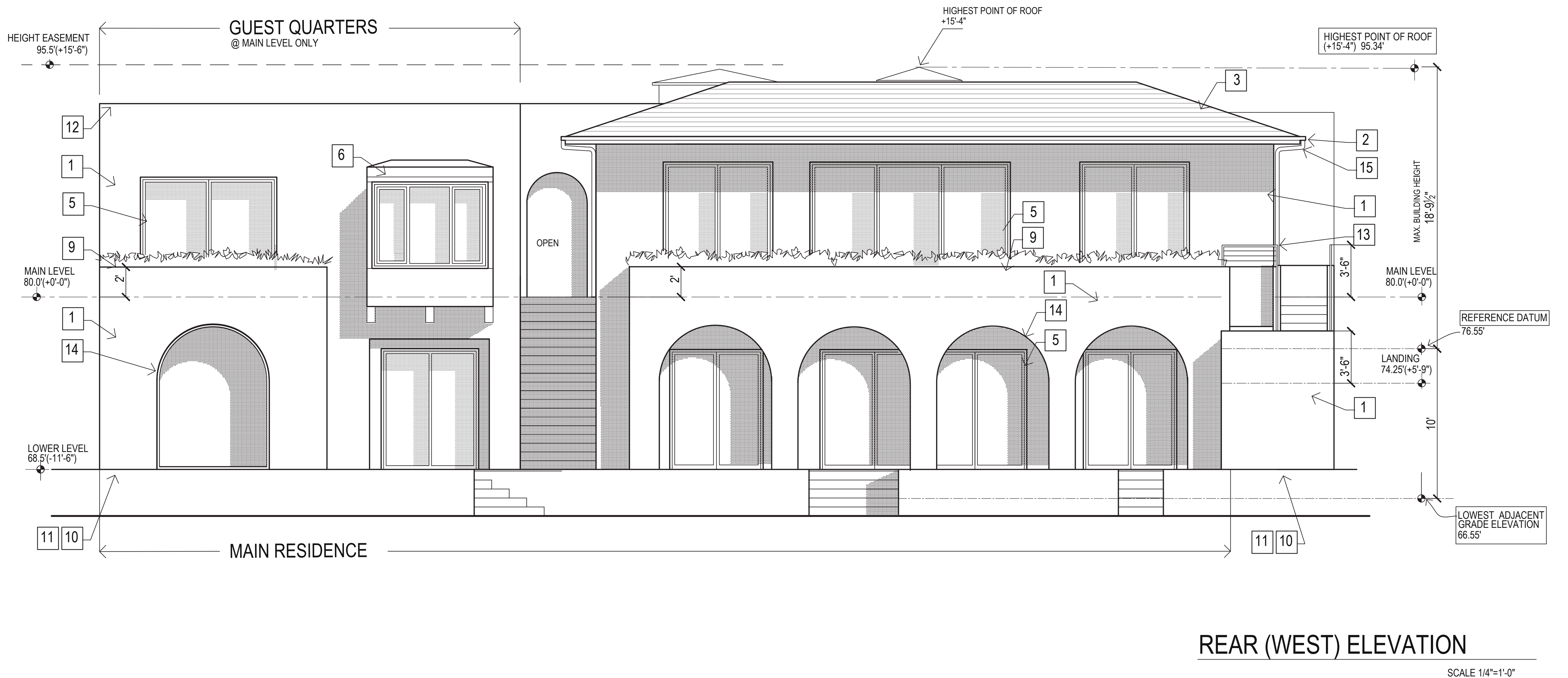
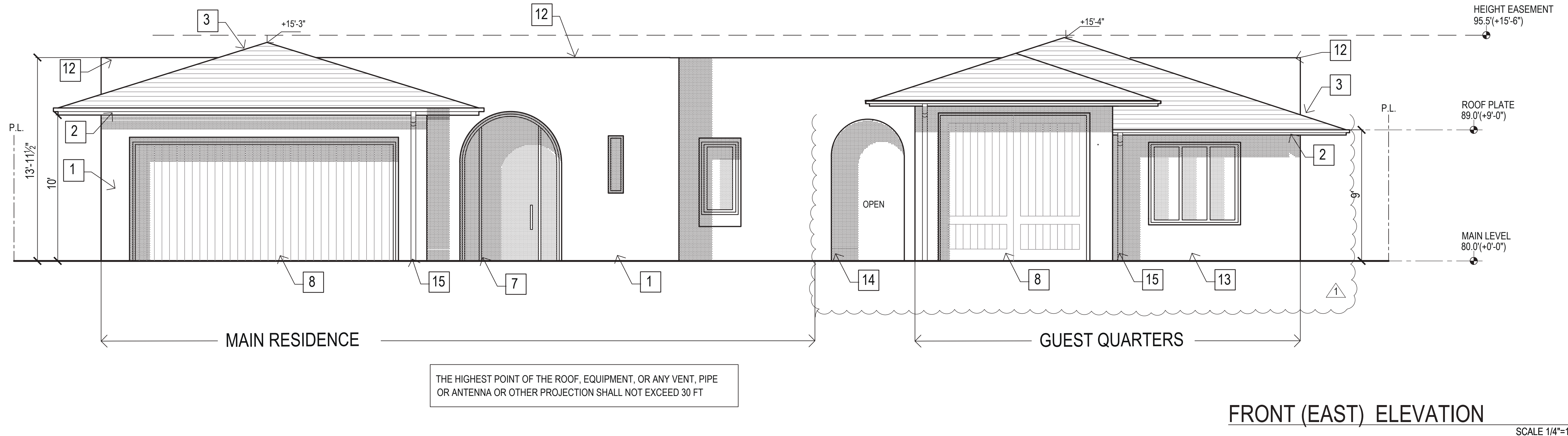
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A301



EXTERIOR MATERIALS LEGEND

- 1 STUCCO FINISH ON CEMENT PLASTER
SANTA BARBARA FINISH COLOR: WHITE
- 2 PAINTED WOOD FASCIA
COLOR: CHARCOAL GREY
- 3 COMPOSITION SHINGLES CLASS "A"
FIRE RATED COLOR: CHARCOAL GREY
- 4 ALUMINUM CLAD WOOD CASEMENT
WINDOWS W/ DIVIDED LIGHTS
COLOR: BRONZE
- 5 ALUMINUM CLAD WOOD SLIDING DOORS
COLOR: BRONZE
- 6 STAINED WOOD BAY WINDOW
BRONZE ALUM. CLAD CASEMENTS
- 7 ARCHED GLAZED ENTRY DOOR
BRONZE ALUM. CLAD
- 8 METAL OVERHEAD SECTION GARAGE
DOOR STAINED WOOD TYPICAL
- 9 STUCCO PLANTER BOX ON DECK
SANTA BARBARA FINISH COLOR: WHITE
- 10 CONCRETE BLOCK RETAINING WALLS
W/ STONE FACING BEIGE/GREY MIX
- 11 TERRACED LANDSCAPE PLANTERS
W/ STONE FACING BEIGE/GREY MIX
- 12 STUCCO PARAPET
SANTA BARBARA FINISH COLOR: WHITE
- 13 STEEL GUARDRAIL W/ STEEL CABLES
FINISH: STAINLESS STEEL
- 14 STUCCO ARCH
SANTA BARBARA FINISH COLOR: WHITE
- 15 ROOF DRAIN AND GUTTERS
BRONZE FINISH TYPICAL
- 16 STAINED WOOD SOFFIT @ EAVES
STAINED CEDAR TYPICAL

EXTERIOR MATERIALS LEGEND

1

STUCCO FINISH ON CEMENT PLASTER
SANTA BARBARA FINISH COLOR: WHITE

2

PAINTED WOOD FASCIA
COLOR: CHARCOAL GREY

3

COMPOSITION SHINGLES CLASS "A"
FIRE RATED COLOR: CHARCOAL GREY

4

ALUMINUM CLAD WOOD CASEMENT
WINDOWS W/ DIVIDED LIGHTS
COLOR: BRONZE

5

ALUMINUM CLAD WOOD SLIDING DOORS
COLOR: BRONZE

6

STAINED WOOD BAY WINDOW
BRONZE ALUM. CLAD CASEMENTS

7

ARCHED GLAZED ENTRY DOOR
BRONZE ALUM. CLAD

8

METAL OVERHEAD SECTION GARAGE
DOOR STAINED WOOD TYPICAL

9

STUCCO PLANTER BOX ON DECK
SANTA BARBARA FINISH COLOR: WHITE

10

CONCRETE BLOCK RETAINING WALLS
W/ STONE FACING BEIGE/GREY MIX

11

TERRACED LANDSCAPE PLANTERS
W/ STONE FACING BEIGE/GREY MIX

12

STUCCO PARAPET
SANTA BARBARA FINISH COLOR: WHITE

13

STEEL GUARDRAIL W/ STEEL CABLES
FINISH: STAINLESS STEEL

14

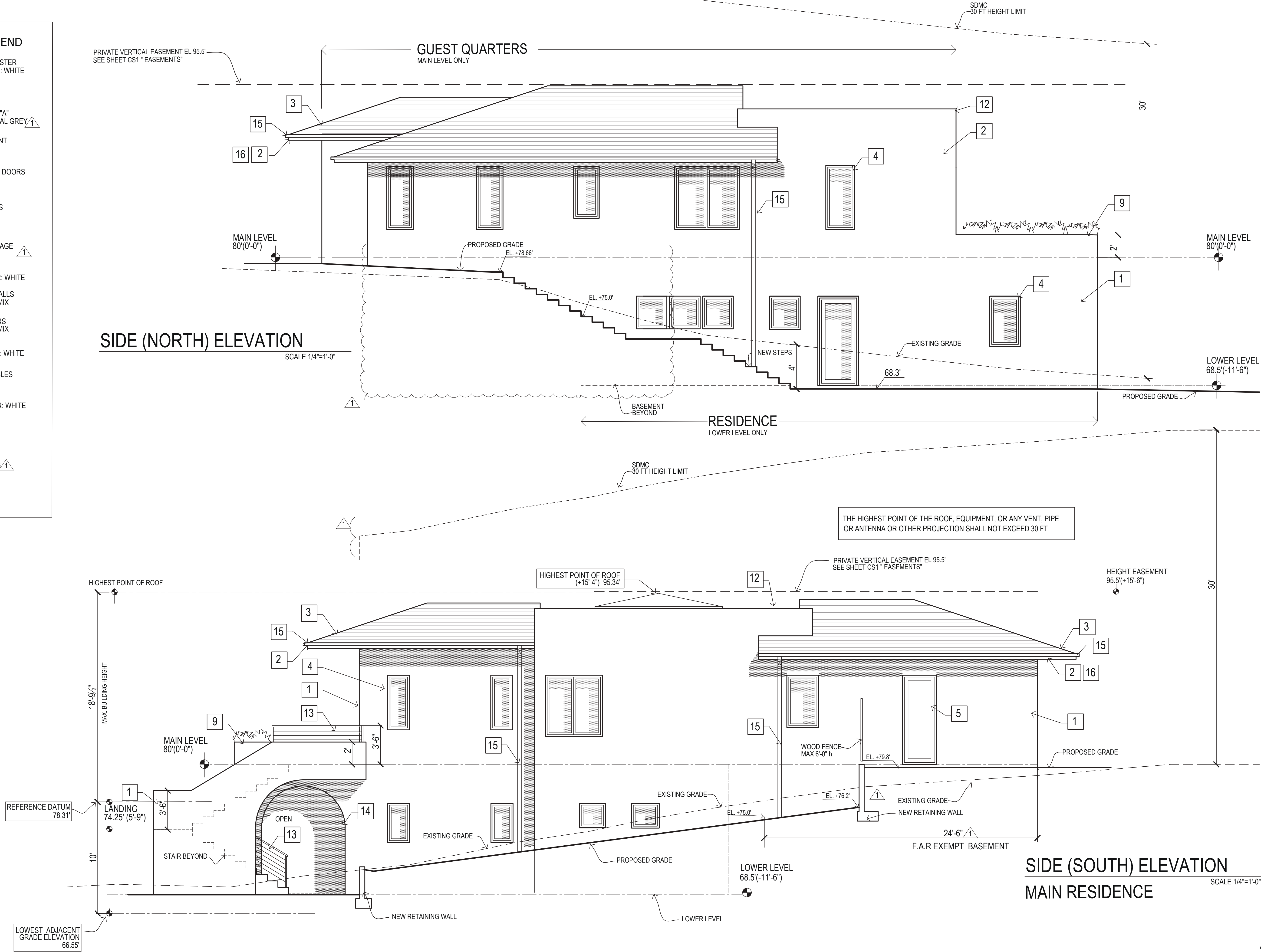
STUCCO ARCH
SANTA BARBARA FINISH COLOR: WHITE

15

ROOF DRAIN AND GUTTERS
BRONZE FINISH TYPICAL

16

STAINED WOOD SOFFIT @ EAVES
STAINED CEDAR TYPICAL





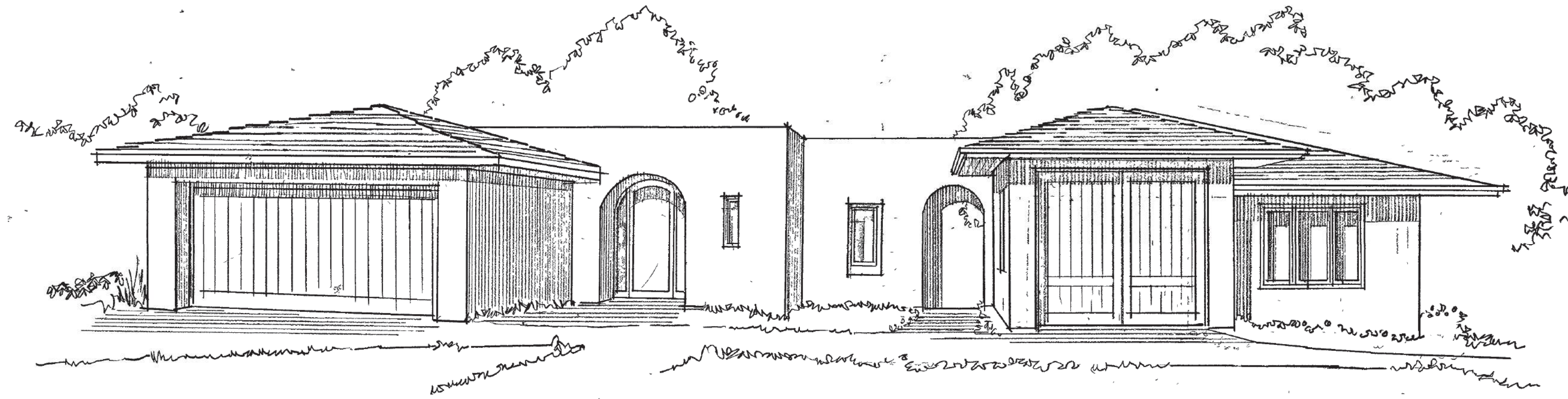
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07-08-26

SHEET NO.

A303



EAST VIEW (FROM STREET) ¹



WEST VIEW (FROM REAR YARD)

PERSPECTIVE VIEWS

NO SCALE



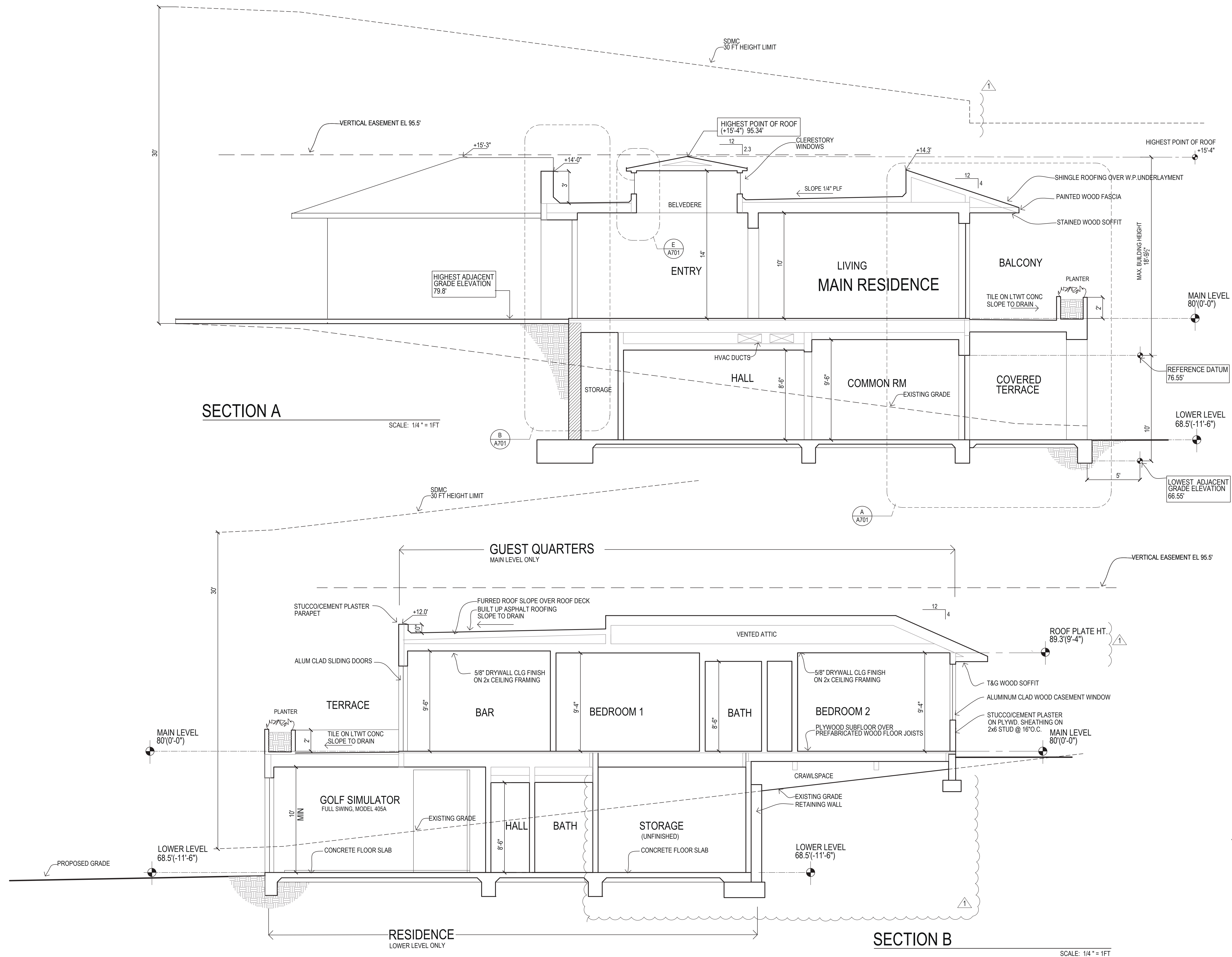
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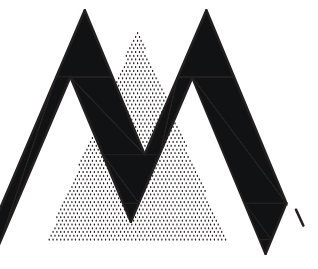
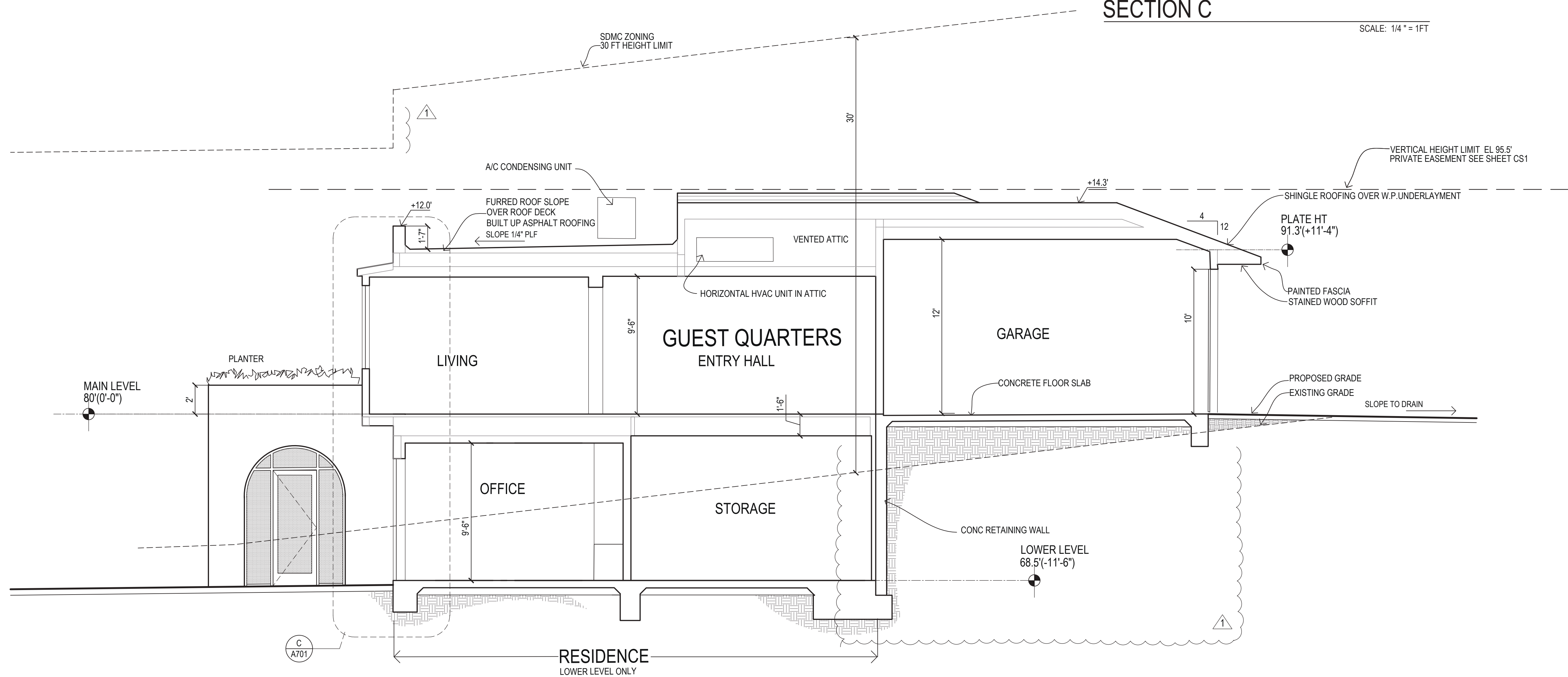
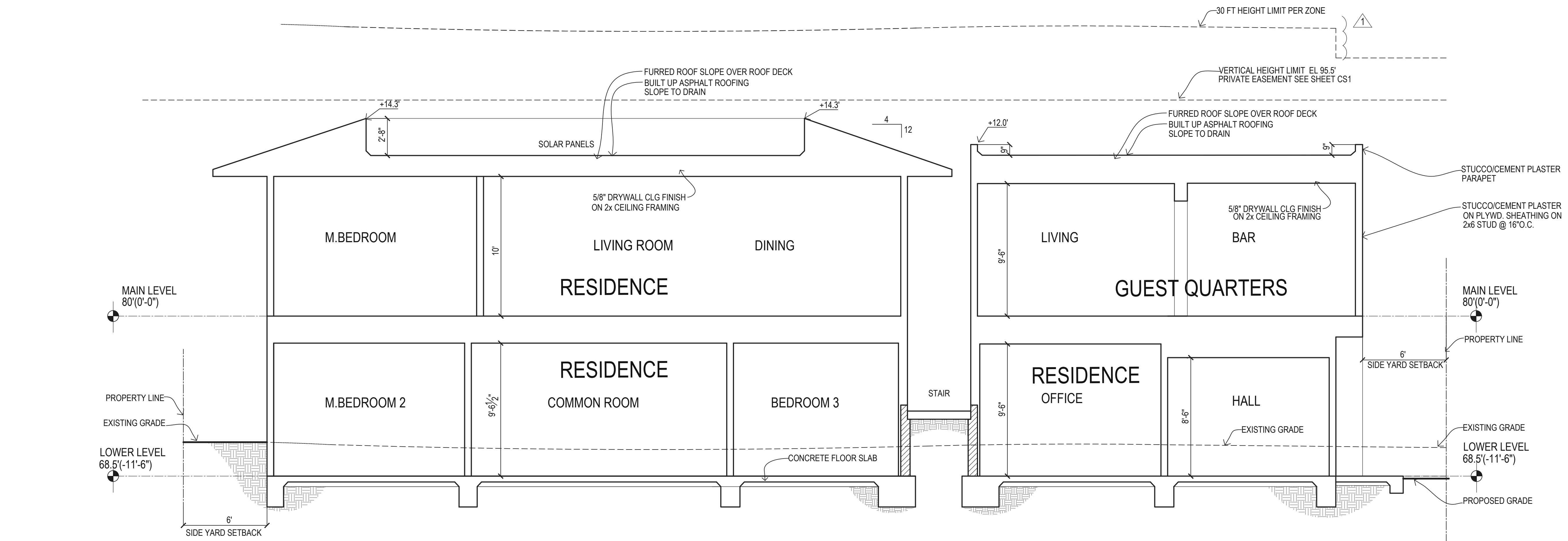
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A401





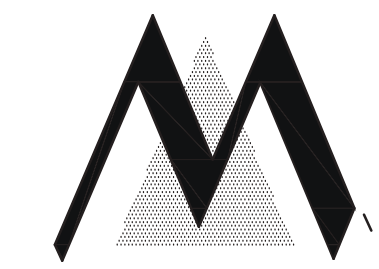
RACE RESIDENCE
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A402



RACE RESIDENCE
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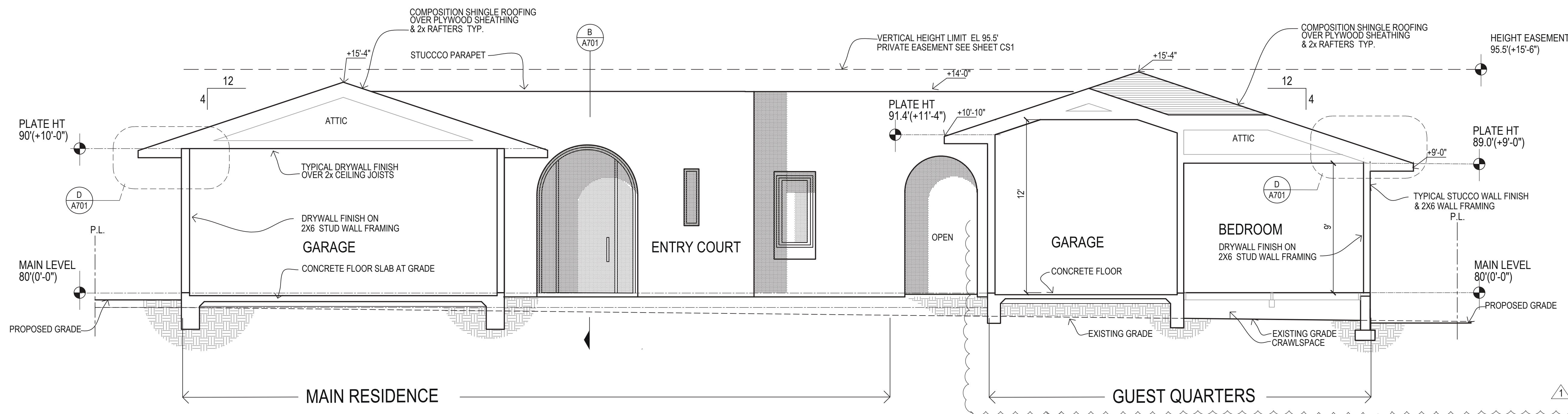
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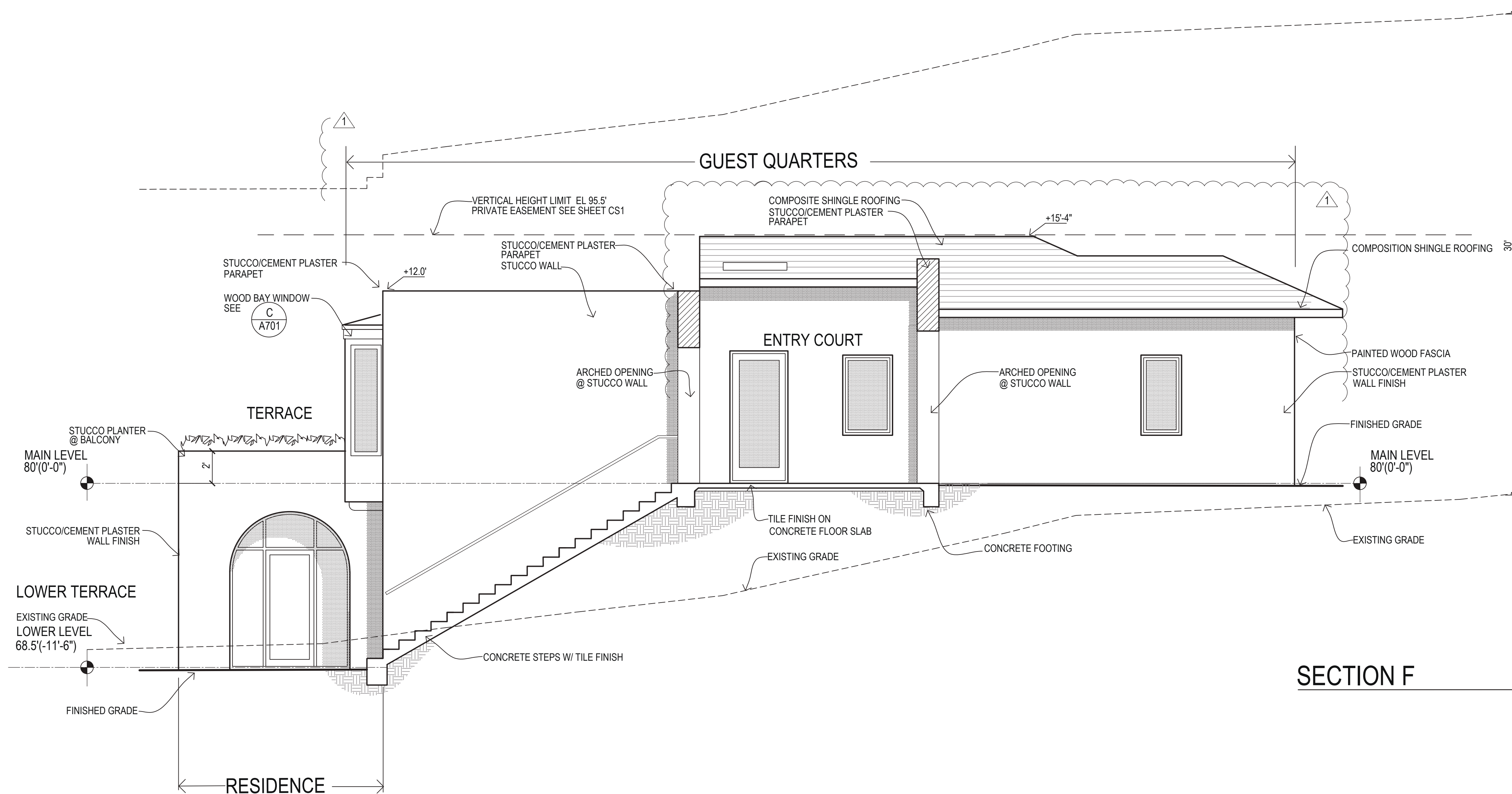
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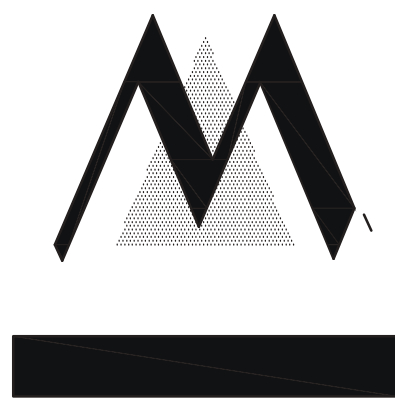
SECTION E

SCALE: 1/4" = 1FT



SECTION F

SCALE: 1/4" = 1FT



RACE RESIDENCE
8332 CALLE DEL CIELO LA JOLLA CA 92037

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SHEET NO.

A501

NOTES

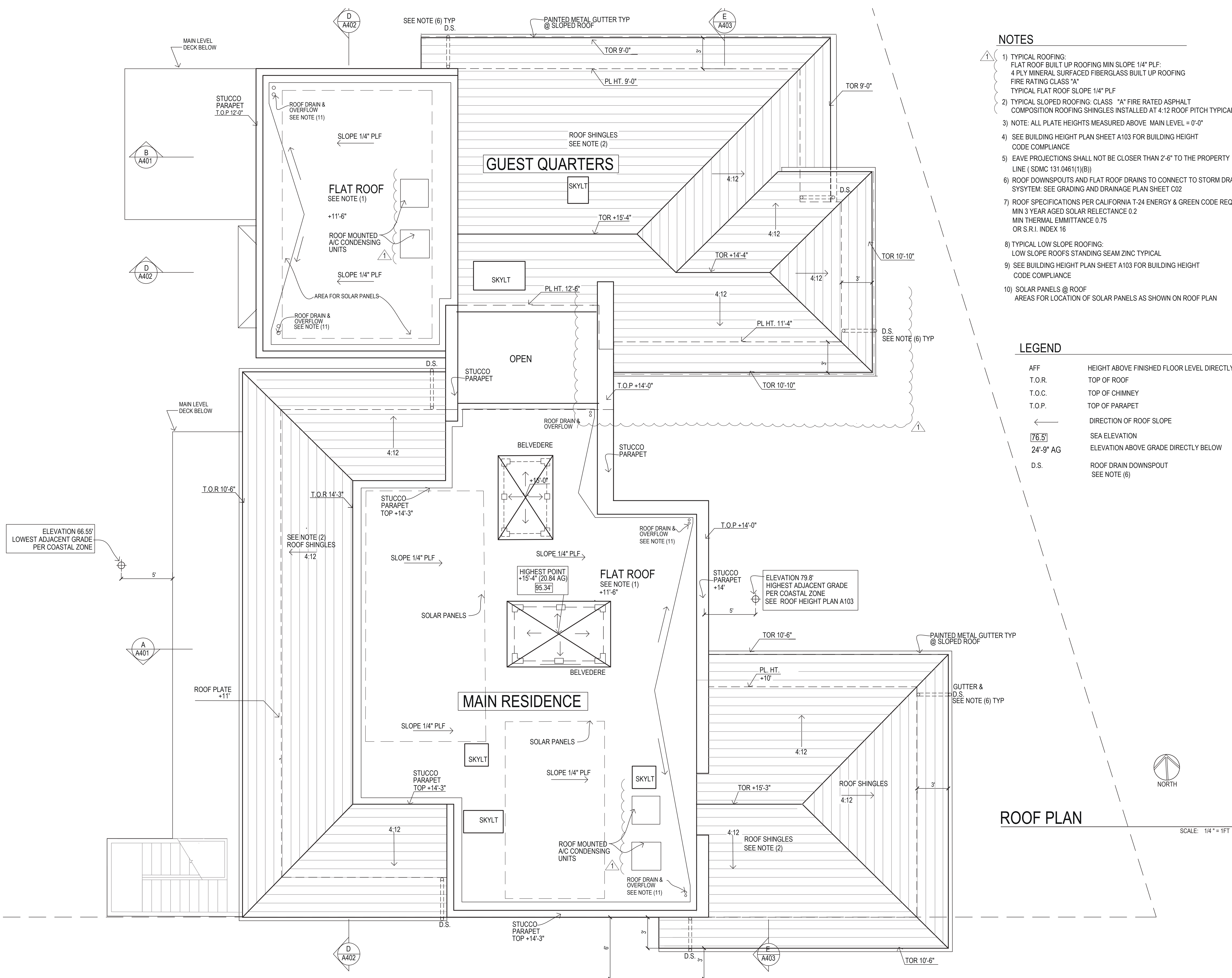
- 1) TYPICAL ROOFING:
FLAT ROOF BUILT UP ROOFING MIN SLOPE 1/4" PLF:
4 PLY MINERAL SURFACED FIBERGLASS BUILT UP ROOFING
FIRE RATING CLASS "A"
TYPICAL FLAT ROOF SLOPE 1/4" PLF
- 2) TYPICAL SLOPED ROOFING: CLASS "A" FIRE RATED ASPHALT
COMPOSITION ROOFING SHINGLES INSTALLED AT 4:12 ROOF PITCH TYPICAL
- 3) NOTE: ALL PLATE HEIGHTS MEASURED ABOVE MAIN LEVEL = 0'-0"
- 4) SEE BUILDING HEIGHT PLAN SHEET A103 FOR BUILDING HEIGHT
CODE COMPLIANCE
- 5) EAVE PROJECTIONS SHALL NOT BE CLOSER THAN 2'-6" TO THE PROPERTY
LINE (SDMC 131.0461(1)(B))
- 6) ROOF DOWNSPOUTS AND FLAT ROOF DRAINS TO CONNECT TO STORM DRAIN
SYSYTEM: SEE GRADING AND DRAINAGE PLAN SHEET C02
- 7) ROOF SPECIFICATIONS PER CALIFORNIA T-24 ENERGY & GREEN CODE REQUIREMENTS:
MIN 3 YEAR AGED SOLAR RELECTANCE 0.2
MIN THERMAL EMMITTANCE 0.75
OR S.R.I. INDEX 16
- 8) TYPICAL LOW SLOPE ROOFING:
LOW SLOPE ROOFS STANDING SEAM ZINC TYPICAL
- 9) SEE BUILDING HEIGHT PLAN SHEET A103 FOR BUILDING HEIGHT
CODE COMPLIANCE
- 10) SOLAR PANELS @ ROOF
AREAS FOR LOCATION OF SOLAR PANELS AS SHOWN ON ROOF PLAN

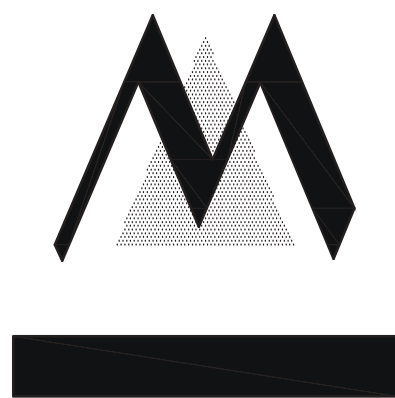
LEGEND

AFF	HEIGHT ABOVE FINISHED FLOOR LEVEL DIRECTLY BELOW
T.O.R.	TOP OF ROOF
T.O.C.	TOP OF CHIMNEY
T.O.P.	TOP OF PARAPET
←	DIRECTION OF ROOF SLOPE
76.5'	SEA ELEVATION
24'-9" AG	ELEVATION ABOVE GRADE DIRECTLY BELOW
D.S.	ROOF DRAIN DOWNSPOUT SEE NOTE (6)

ROOF PLAN

SCALE: 1/4" = 1'FT





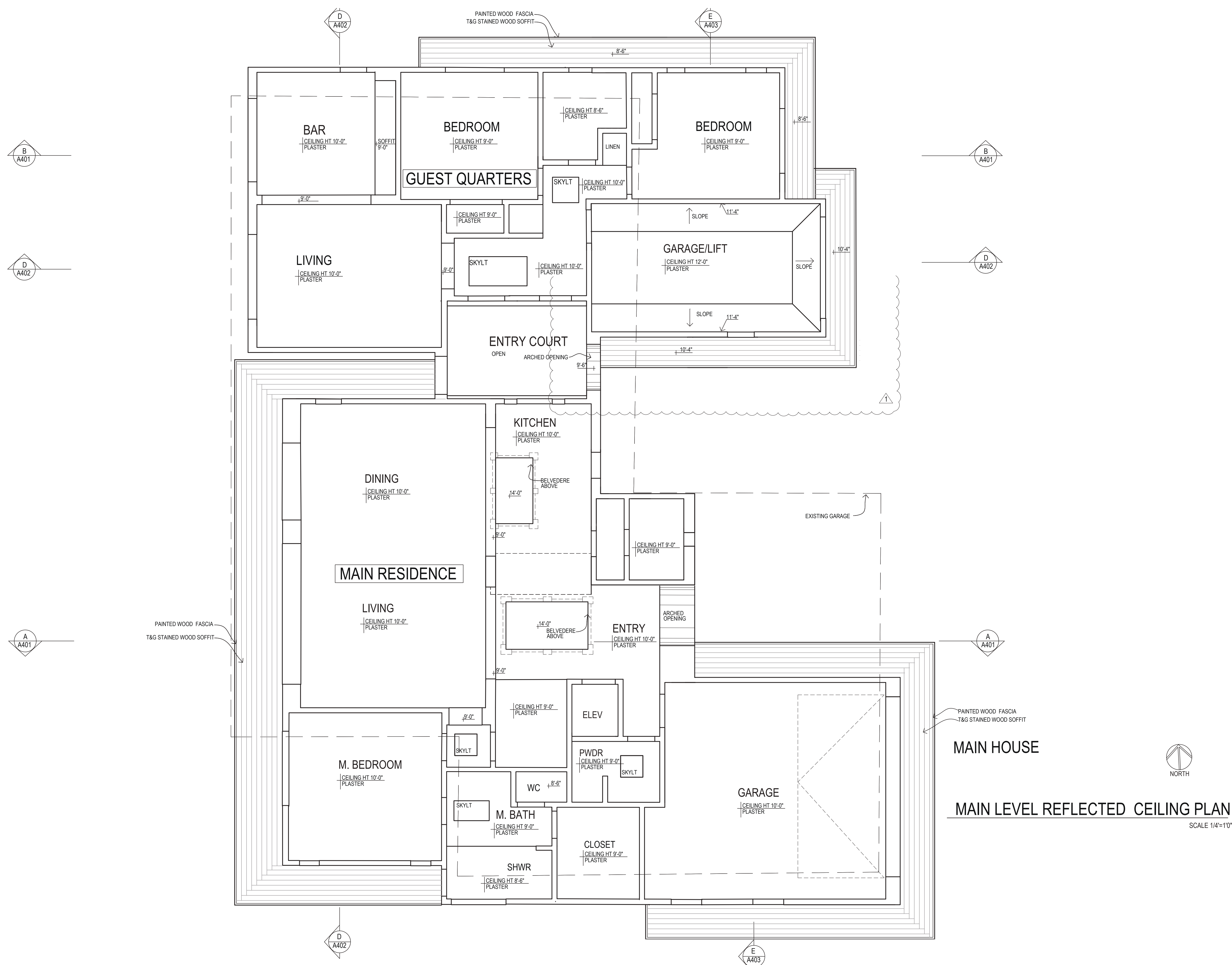
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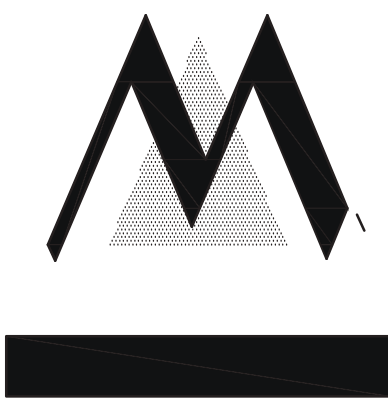
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1\07-08-26

SHEET NO.

A601





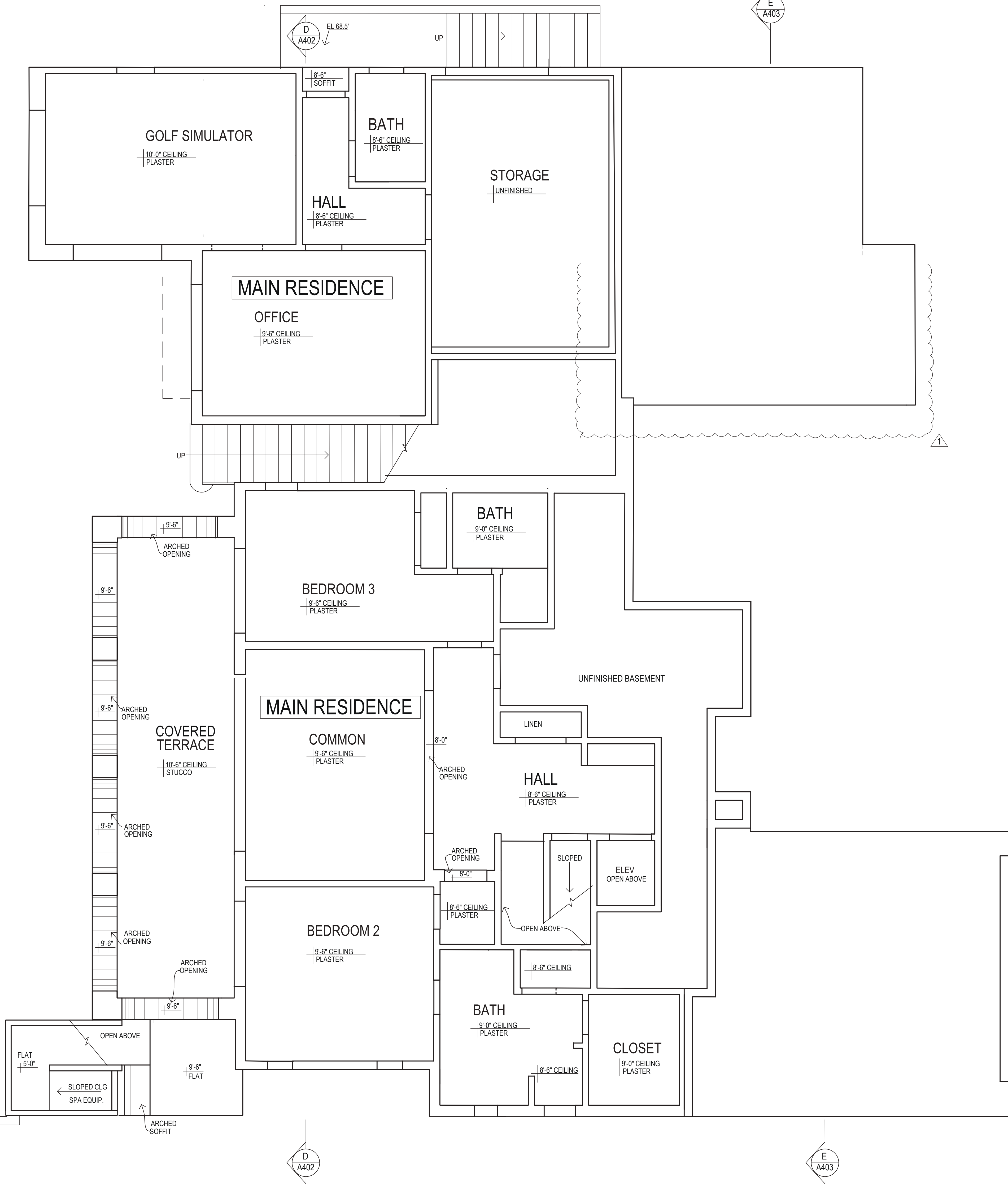
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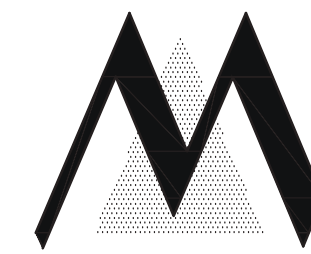
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07-08-26

SHEET NO.

A602



LOWER LEVEL REFLECTED CEILING PLAN
SCALE 1/4"=1'0"



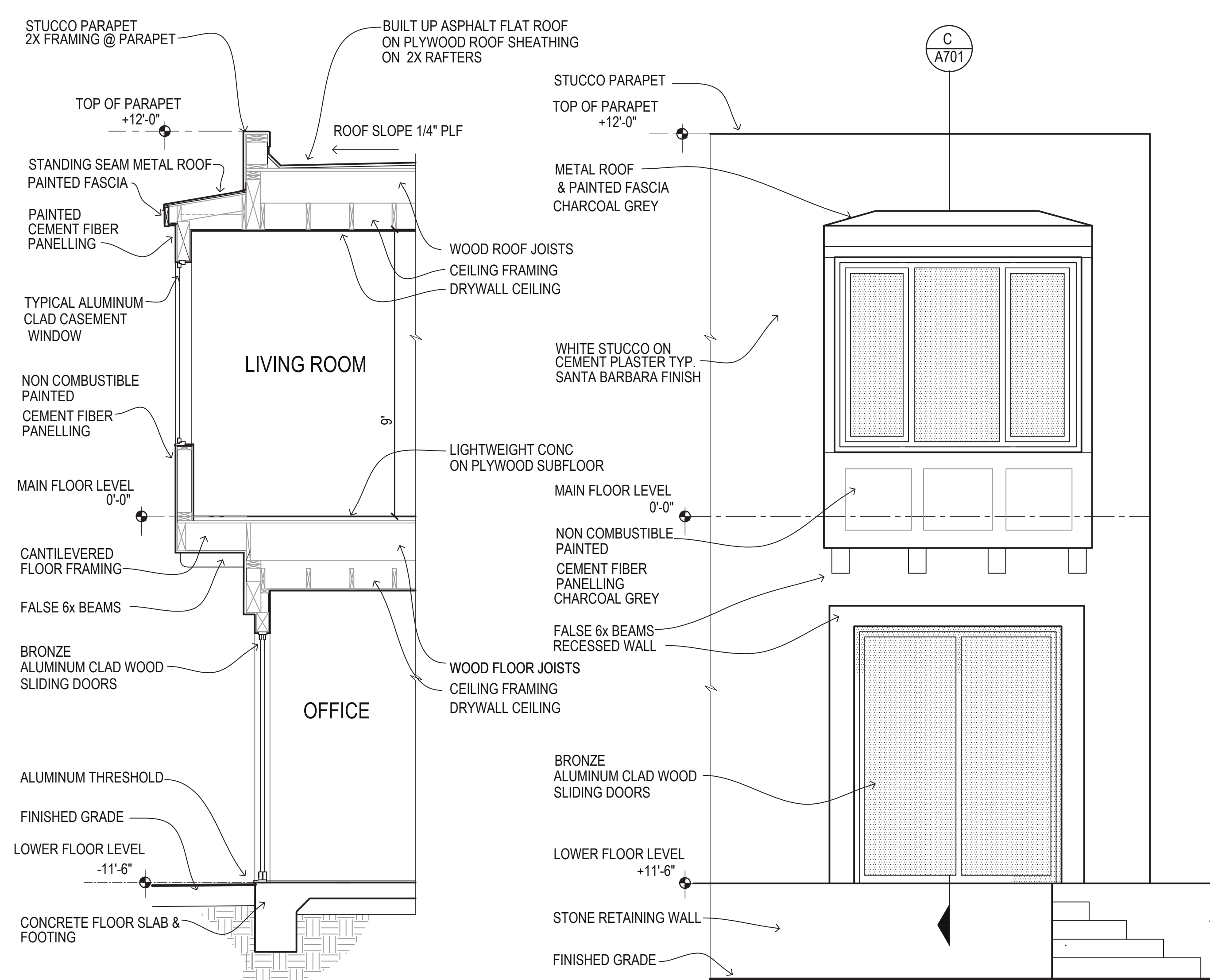
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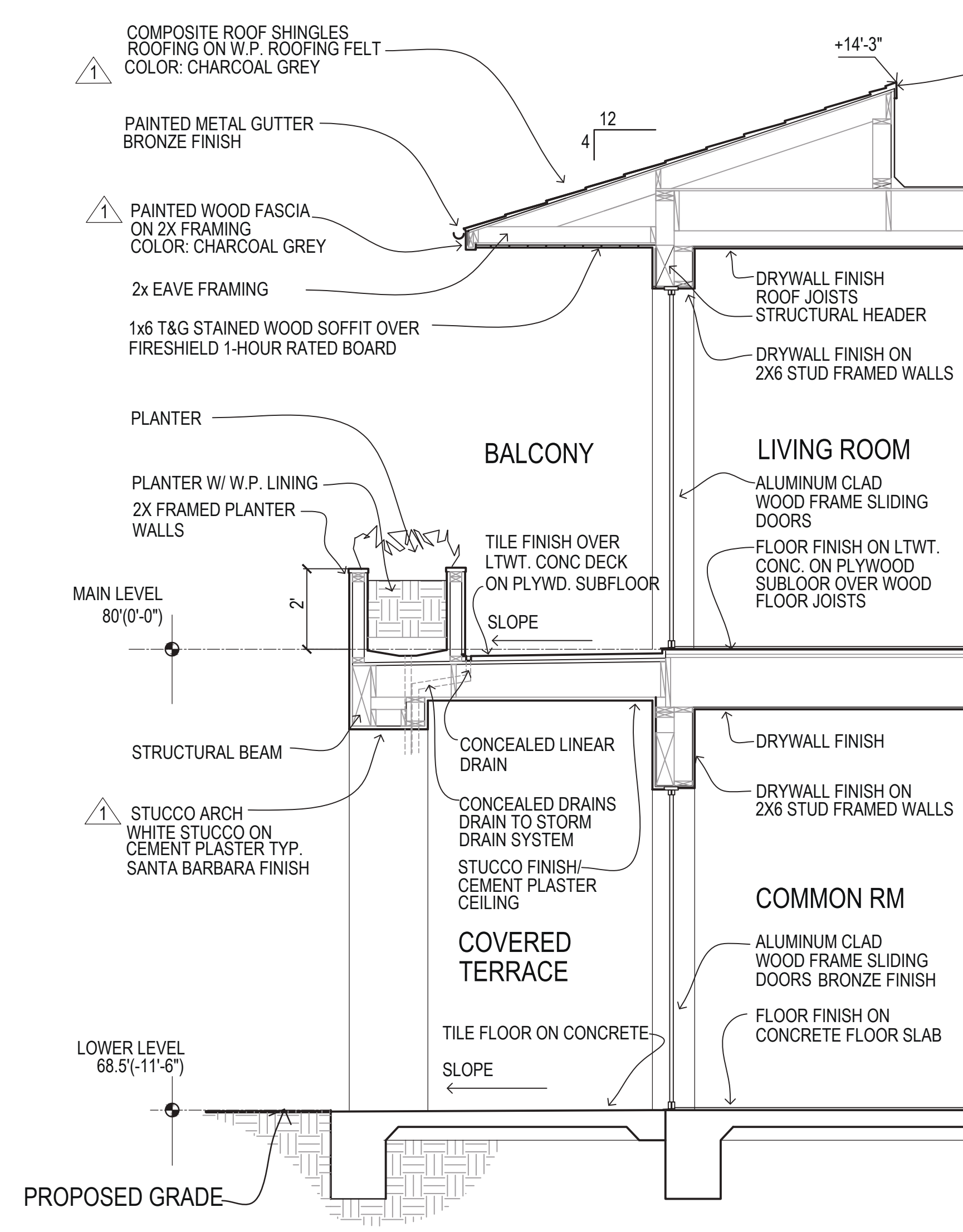
07-08-26

SHEET NO.

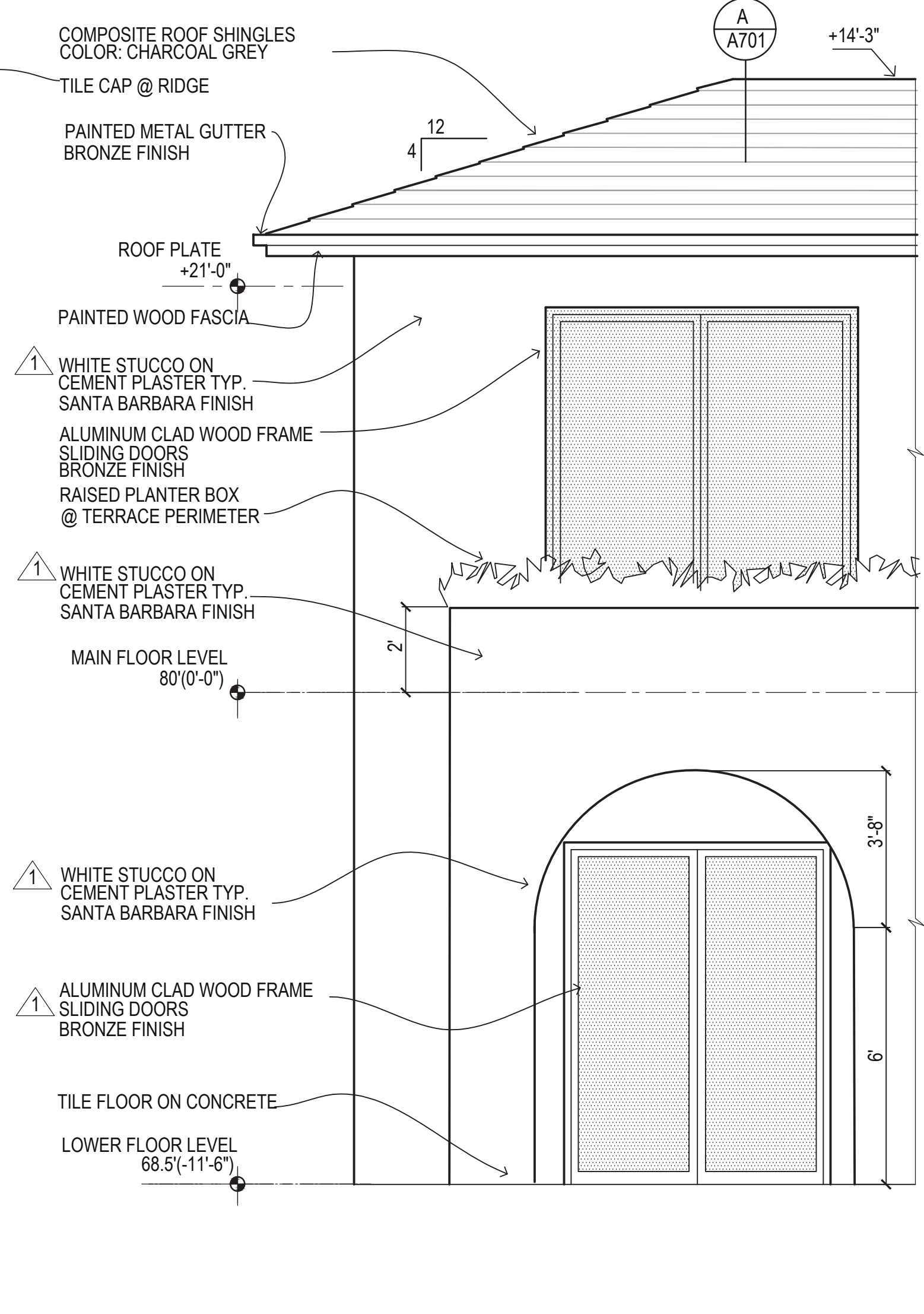
A701



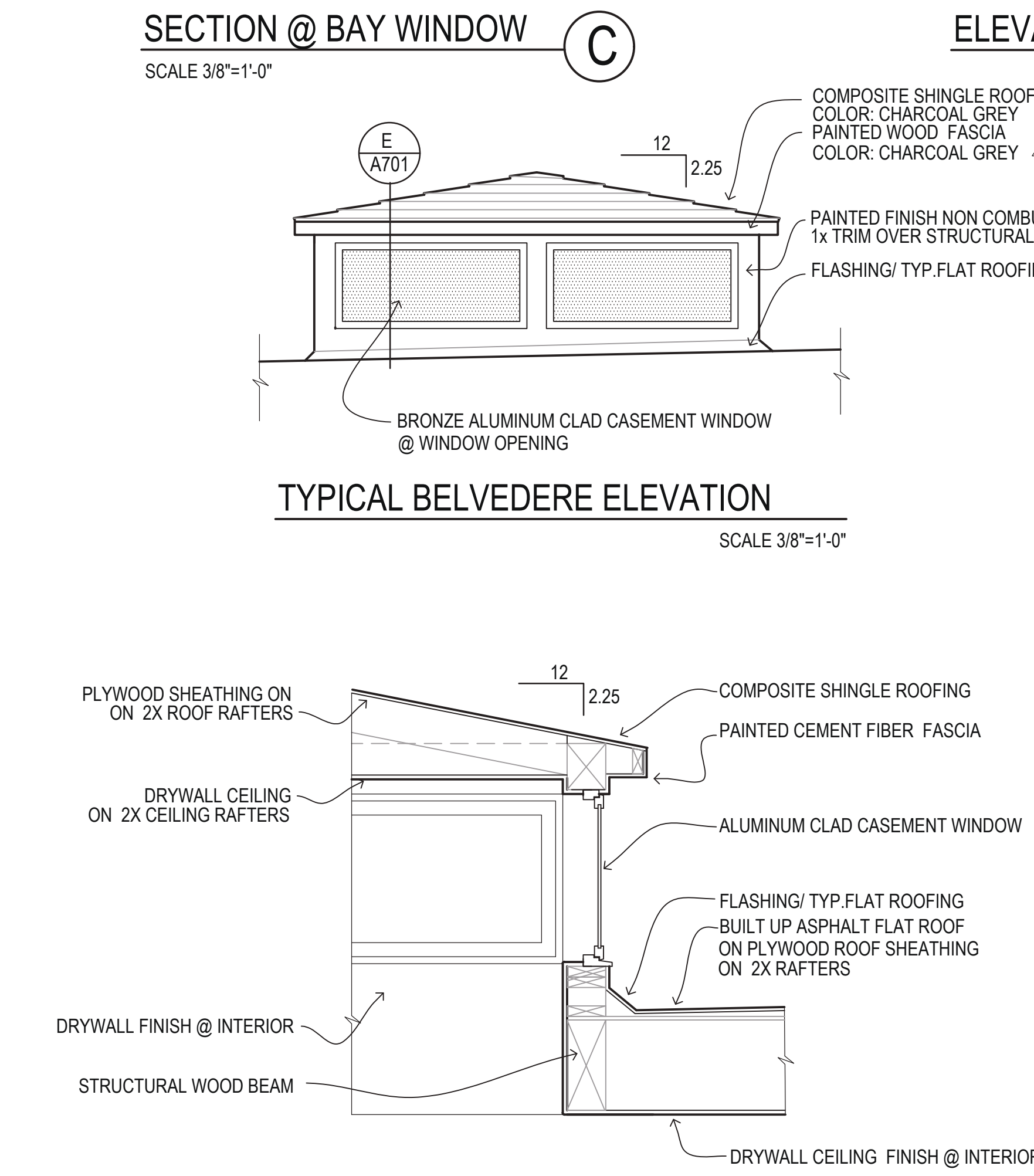
ELEVATION @ BAY WINDOW : GUEST QUARTERS
SCALE 3/8"=1'-0"



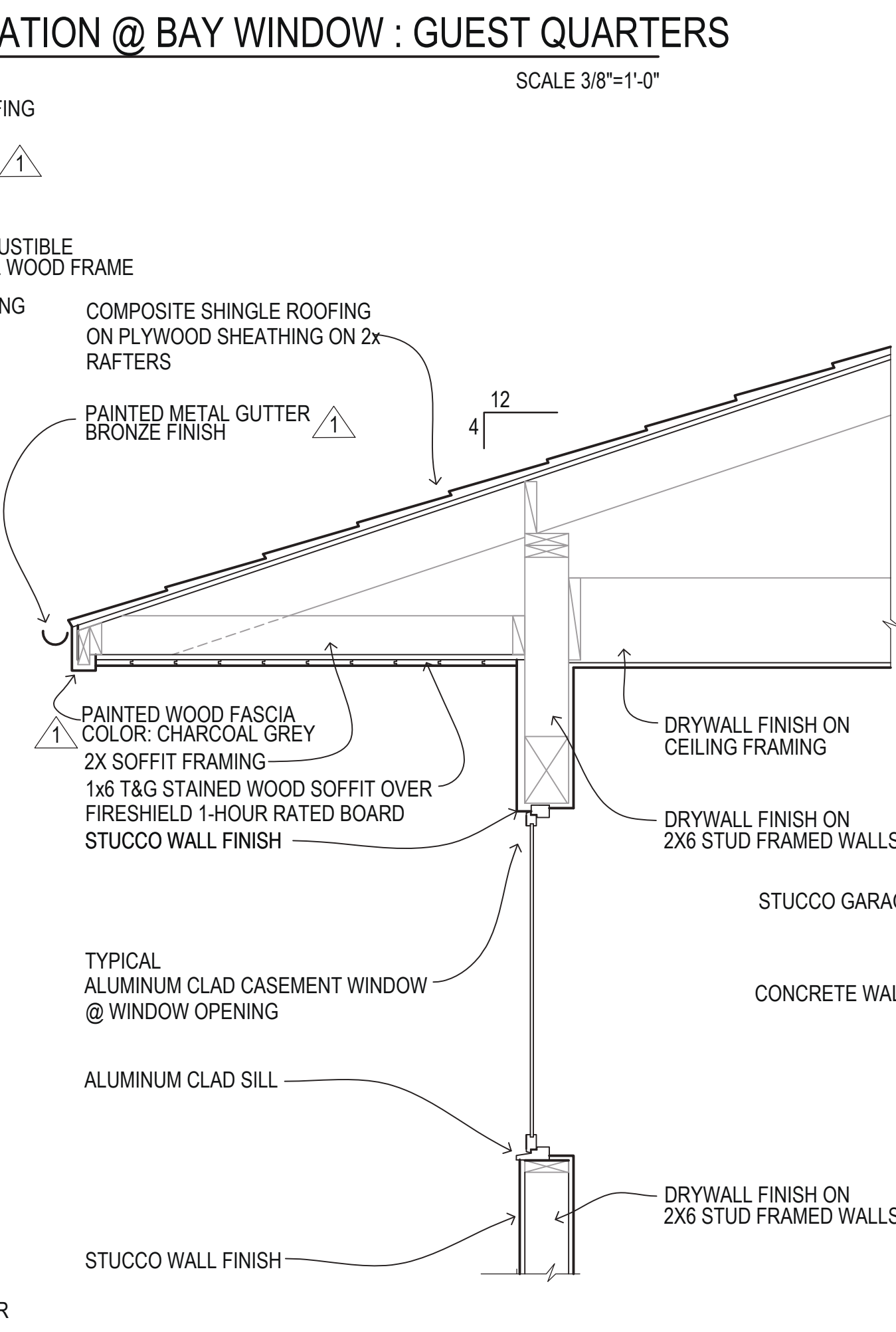
SECTION THRU BALCONY (A)
SCALE 3/8"=1'-0"



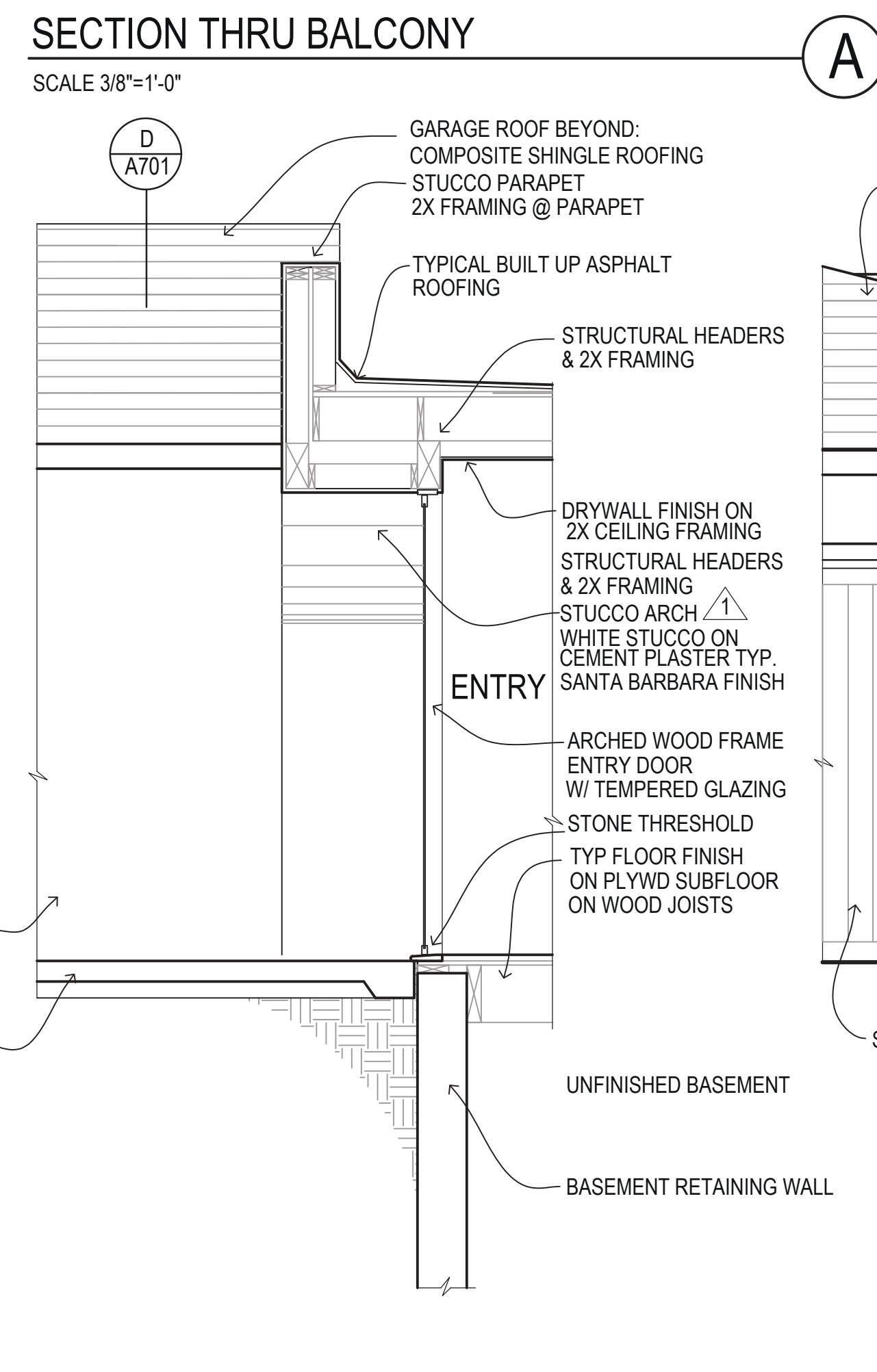
ELEVATION @ BALCONY: MAIN RESIDENCE
SCALE 3/8"=1'-0"



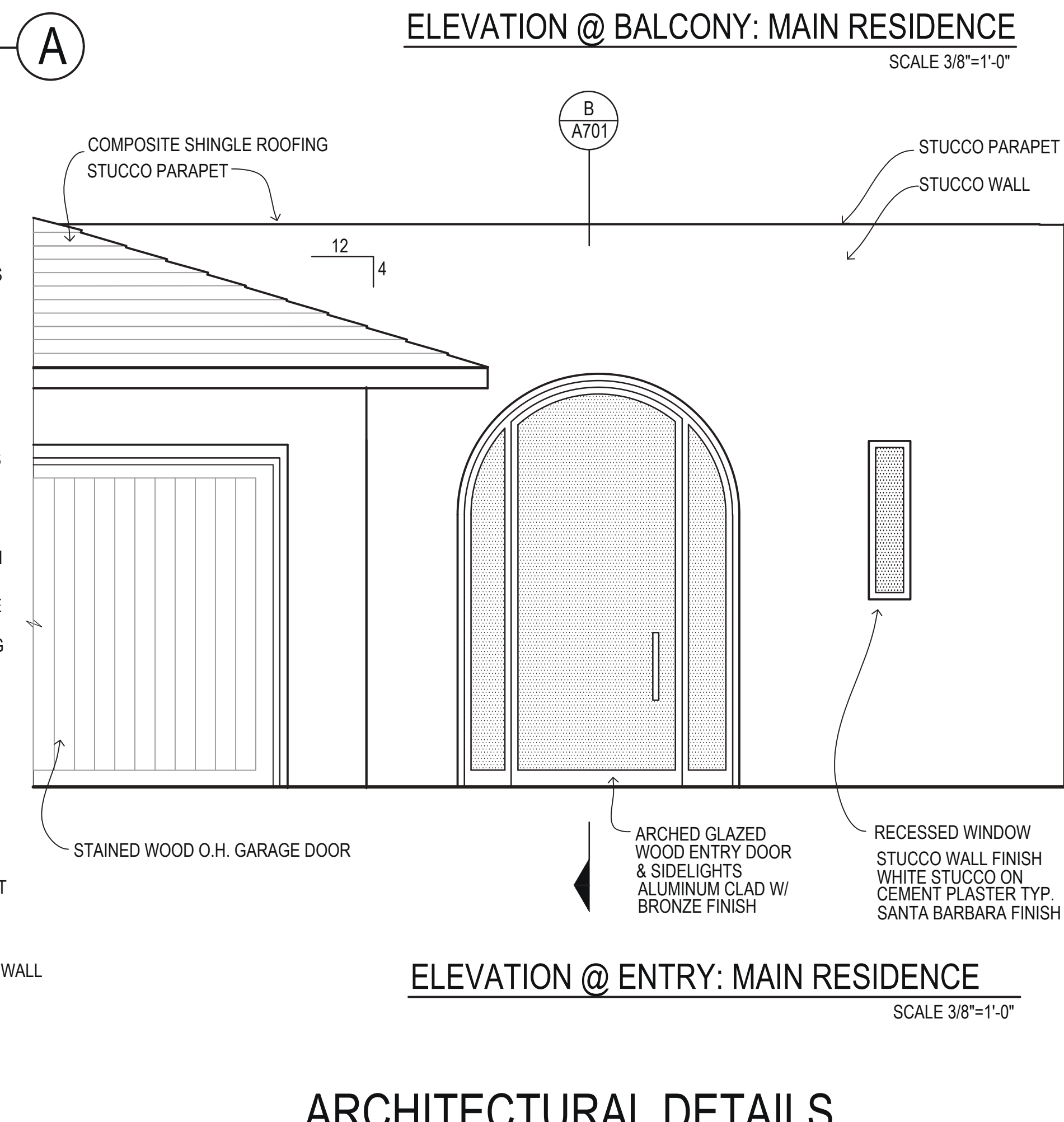
SECTION THRU BELVEDERE (E)
SCALE 3/4"=1'-0"



SECTION THRU TYPICAL EAVE (D)
SCALE 3/4"=1'-0"



SECTION @ ENTRY (B)
SCALE 3/4"=1'-0"



ELEVATION @ ENTRY: MAIN RESIDENCE
SCALE 3/8"=1'-0"

ARCHITECTURAL DETAILS

MARTIN ARCHITECTURE

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July 23, 2026

City of San Diego
Development Services Department
1222 1st Avenue
San Diego, Ca 92101

PROJECT: PRJ-1154920 – 8332 CALLE DEL CIELO
SUBJECT: RESPONSES TO CYCLE ISSUES
COASTAL DEVELOPMENT PERMIT - RESUBMITTAL 3

*Below are responses to the subject project correction lists dated 6/11/2025
Correction items on associated plans have been clouded with **Delta 2** and dated 9/1/2026*

REVISION TO PLANS

The lower level workshop has been removed from the plans with this submittal at the request of the owner (revision delta 1)

RESPONSE TO PLAN REVIEW COMMENTS

Plan revisions indicated delta 1

DSD ENGINEERING REVIEW

COMMENT No.

006 sheet CS1	Note added to Stormwater requirements list, sheets CS1 & A101
007 sheet CS1	Note added to Stormwater requirements list, sheets CS1 & A101
008 -022	See Civil Engineer response letter
023 sheet A101	Plan revised to show 12 ft parkway width and proposed Private improvements have been removed from the ROW see sheet A101 Street design manual calls for a non-contiguous sidewalk Calle del Cielo has existing contiguous sidewalks to the north and south of this property. It would be expedient for the existing contiguous sidewalk to remain and avoid complicated transitions and relocation of transformer: See sheet A101

024	Proposed ROW dedication shown on Site plan A101, street sections A102
025	all "A" sheets changed to correct spelling for Calle Del Cielo
026 sheet A101	see note (6) sheet A101
027	Sheet A106 added to submittal drawings. See Cross section "D" Sheet A106 added with front wall elevation shown, also wall Details E/A106 and F/A106 added
028 sheet A101	See sheet A101 and retaining wall details sheet A106 for cut and fill depths at each location shown on site plan
029 sheet A101	No retaining walls proposed in the ROW and proposed street dedication
030 sheet A101	EMRA requirement noted on site plan sheet A101 note (14)

DSD PLANNING REVIEW

080	Note added sheet CS1
081	See table added sheet CS1
082	Dimensions added to Site plan sheet A101 Distance to curb and sidewalk meet minimum requirements
083	see sheets A301, A302, A701
084	see sheets A301, A302, A701
085	parapet & guardrail dimensions shown sheets A301, A302, A401, A402, A403, A501
086	mechanical equipment shown on floor plans and roof plan. No mechanical equipment located in front, side or rear yards; see sheets A201, A202, A501
088	Low point for overall height measurement revised to be Located on steps down from lower terrace. Resulting change in overall height does not affect proposed building structure. See sheets CS1, A103, A301, A302, A401, A501 Height limit revised to show lower of existing or proposed heights. See sheets A102, A301, A302, A401, A402, A403

089		Note (10) added sheet A101 & fence detailed sheet A106
090		Guest house shown as Guest Quarters on all drawings
091	CS1	Guest quarters floor area calculated as 16%, See floor areas sheet CS1
093		Trash area exceeds minimum area required for two dwelling units See note(15) sheet A101
093		6ft high fence at trash area see sheet A101 & details R/A106 and S/A106
093		Trash storage location shown sheet A 201 see also note (3) A201

*Respectfully,
Tim Martin*

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