# ATTACHMENT 8

Data Forms for the Streamflow Duration Assessment Method for the Arid West of the United States

# Beta Arid West Streamflow Duration Assessment Method

## General site information

| | | |
|---|---|---|
| Project name or number: Southwest Village 8868 | | |
| Site code or identifier: Drainage A | Assessor(s): Beth Procsal and Gerry Scheid | |
| Waterway name: Drainage A | | Visit date: 8/18/21 |
| Current weather conditions (check one)<br>☐ Storm/heavy rain<br>☐ Steady rain<br>☐ Intermittent rain<br>☐ Snowing<br>☑ Cloudy (100% cover)<br>☐ Clear/Sunny | Notes on current or recent weather conditions (e.g., precipitation in previous week): Sunny, dry | Coordinates at downstream end (decimal degrees):<br>Lat (N):32.56112<br>Long (W):-117.02166<br>Datum:NAD83 |
| Surrounding land-use within 100 m (check one or two):<br>☐ Urban/industrial/residential<br>☐ Agricultural (farmland, crops, vineyards, pasture)<br>☐ Developed open-space (e.g., golf course)<br>☐ Forested<br>☑ Other natural<br>☐ Other: _____ | Describe reach boundaries: | |
| Mean channel width (m)<br>1.5 m | Reach length (m):<br>40x width; min 40 m; max 200 m.<br>200 m | Enter photo ID, or check if completed<br>Top down: _____ Mid down: _____<br>Mid up: _____ Bottom up: _____ |
| Disturbed or difficult conditions (check all that apply):<br>☐ Recent flood or debris flow<br>☐ Stream modifications (e.g., channelization)<br>☐ Diversions<br>☐ Discharges<br>☐ Drought<br>☐ Vegetation removal/limitations<br>☐ Other (explain in notes)<br>☑ None | Notes on disturbances or difficult site conditions: | |
| Observed hydrology:<br>0 % of reach with surface flow<br>0 % of reach with sub-surface or surface flow<br>0 # of isolated pools | Comments on observed hydrology:<br>No ponded water of flows present. | |

## Site sketch:

## 1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

| Species | Odd distribution? | Notes | Photo ID |
|---|---|---|---|
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Notes on hydrophytic vegetation:

## 2 and 3. Aquatic invertebrates

**2. How many aquatic invertebrates are quantified in a 15-minute search?**

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID:_____

**3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?**

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

## 4. Algal Cover

| **Are algae found on the streambed?** ☐ Check if *all* observed algae appear to be deposited from an upstream source. | ☑ Not detected<br>☐ Yes, < 10% cover<br>☐ Yes, ≥ 10% (check Yes in single indicator below) | Notes on algae cover: | Photo ID: |
|---|---|---|---|

## 5. Are single indicators observed?

| Indicator | Present | Notes | Photo ID |
|---|---|---|---|
| Fish | ☐ Yes<br>☑ No, no fish<br>☐ No, only non-native mosquitofish | | |
| Algae cover ≥ 10% | ☐ Yes<br>☑ No | | |

**Supplemental information** E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

## Photo log

Indicate if any other photos taken during the assessment

| Photo ID | Description |
|---|---|
| Photograph 1 | Downstream of Drainage A, Facing East |
| Photograph 2 | Upstream View of Drainage A, Facing West |
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## Additional notes about the assessment:

**Classification:** Ephemeral

| 1. Hydrophytic plant species | 2. Aquatic invertebrates | 3. EPT taxa | 4. Algae | 5. Single indicators • fish present • algae cover ≥ 10% | Classification |
|---|---|---|---|---|---|
| None | None | Absent | Absent | Absent | **Ephemeral** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | Few (1-19) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| Few (1-2) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | Absent | | **At least intermittent** |
| | | | Present | | **Intermittent** |
| Many (3+) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |
| | Many (20+) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

PHOTOGRAPH 1
Downstream of Drainage A, Facing East

PHOTOGRAPH 2
Upstream View of Drainage A, Facing West

RECON

# Beta Arid West Streamflow Duration Assessment Method

## General site information

| | | |
|---|---|---|
| Project name or number: Southwest Village 8868 | | |
| Site code or identifier: Drainage B(b) | Assessor(s): Beth Procsal and Gerry Scheid | |
| Waterway name: Drainage B(b) | | Visit date: 8/18/21 |
| Current weather conditions (check one)<br>☐ Storm/heavy rain<br>☐ Steady rain<br>☐ Intermittent rain<br>☐ Snowing<br>☑ Cloudy (___ % cover)<br>☐ Clear/Sunny | Notes on current or recent weather conditions (e.g., precipitation in previous week): Sunny, dry | Coordinates at downstream end (decimal degrees):<br>Lat (N): 32.55926<br>Long (W): -117.02127<br>Datum: NAD83 |
| Surrounding land-use within 100 m (check one or two):<br>☐ Urban/industrial/residential<br>☐ Agricultural (farmland, crops, vineyards, pasture)<br>☐ Developed open-space (e.g., golf course)<br>☐ Forested<br>☑ Other natural<br>☐ Other: _____ | Describe reach boundaries: | |
| Mean channel width (m)<br>1.0 m | Reach length (m):<br>40x width; min 40 m; max 200 m.<br>40 m | Enter photo ID, or check if completed<br>Top down: _____ Mid down: _____<br>Mid up: _____ Bottom up: _____ |
| Disturbed or difficult conditions (check all that apply):<br>☐ Recent flood or debris flow<br>☐ Stream modifications (e.g., channelization)<br>☐ Diversions<br>☐ Discharges<br>☐ Drought<br>☐ Vegetation removal/limitations<br>☐ Other (explain in notes)<br>☑ None | Notes on disturbances or difficult site conditions:<br>Trash dumping on canyon slopes, however, no effect on hydrology. | |
| Observed hydrology:<br>0 % of reach with surface flow<br>0 % of reach with sub-surface or surface flow<br>0 # of isolated pools | Comments on observed hydrology: | |

## Site sketch:

## 1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

| Species | Odd distribution? | Notes | Photo ID |
|---|---|---|---|
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Notes on hydrophytic vegetation:

## 2 and 3. Aquatic invertebrates

**2. How many aquatic invertebrates are quantified in a 15-minute search?**

Number of individuals quantified:
☑ None
☐ 1 to 19
☐ 20 +

(Do not count mosquitos)

Photo ID:_____

**3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?**

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

## 4. Algal Cover

| **Are algae found on the streambed?** ☐ Check if *all* observed algae appear to be deposited from an upstream source. | ☑ Not detected<br>☐ Yes, < 10% cover<br>☐ Yes, ≥ 10% (check Yes in single indicator below) | Notes on algae cover: | Photo ID: |
|---|---|---|---|

## 5. Are single indicators observed?

| Indicator | Present | Notes | Photo ID |
|---|---|---|---|
| Fish | ☐ Yes<br>☑ No, no fish<br>☐ No, only non-native mosquitofish | | |
| Algae cover ≥ 10% | ☐ Yes<br>☑ No | | |

**Supplemental information** E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

## Photo log

Indicate if any other photos taken during the assessment

| Photo ID | Description |
|---|---|
| Photograph 1 | Downstream View of Drainage B(b), Facing Southwest |
| Photograph 2 | Upstream View of Drainage B(b), Facing Northeast |
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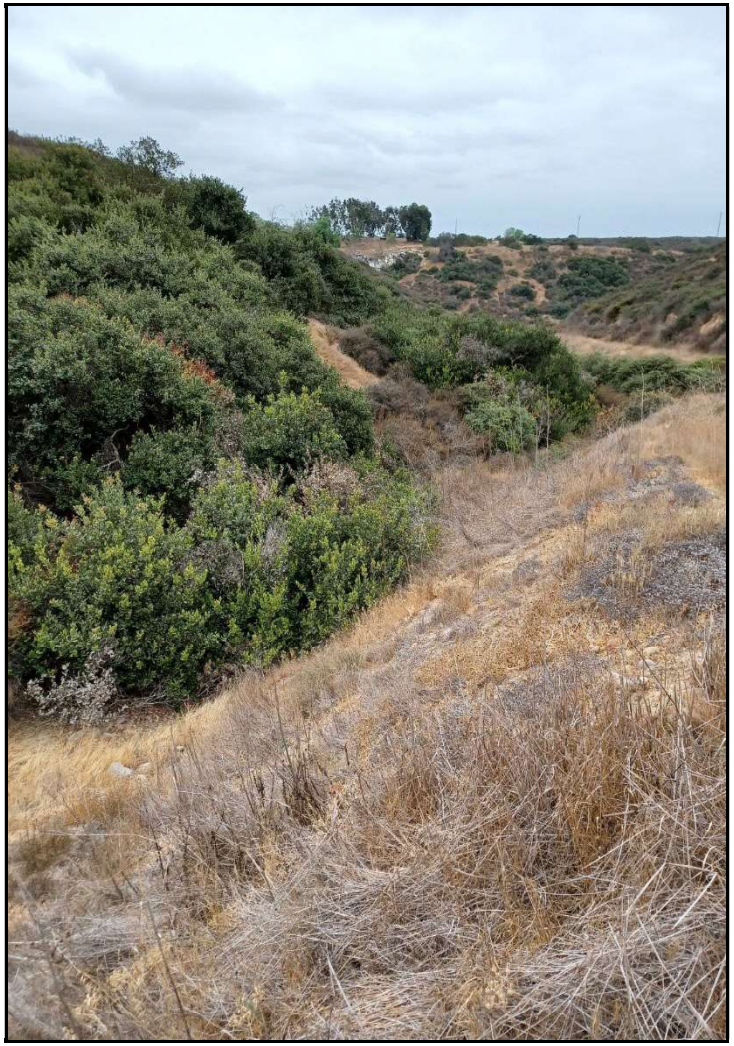
## Additional notes about the assessment:

**Classification:** Ephemeral

| 1. Hydrophytic plant species | 2. Aquatic invertebrates | 3. EPT taxa | 4. Algae | 5. Single indicators • fish present • algae cover ≥ 10% | Classification |
|---|---|---|---|---|---|
| None | None | Absent | Absent | Absent | **Ephemeral** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | Few (1-19) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| Few (1-2) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | Absent | | **At least intermittent** |
| | | | Present | | **Intermittent** |
| Many (3+) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |
| | Many (20+) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.



PHOTOGRAPH 1
Downstream View of Drainage B(b),
Facing Southwest

PHOTOGRAPH 2
Upstream View of Drainage B(b),
Facing Northeast

RECON

# Beta Arid West Streamflow Duration Assessment Method

## General site information

| | | |
|---|---|---|
| Project name or number: Southwest Village 8868 | | |
| Site code or identifier: Drainage B | Assessor(s): Beth Procsal and Gerry Scheid | |
| Waterway name: Drainage B | | Visit date: 8/18/21 |
| Current weather conditions (check one)<br>☐ Storm/heavy rain<br>☐ Steady rain<br>☐ Intermittent rain<br>☐ Snowing<br>☑ Cloudy (100 % cover)<br>☐ Clear/Sunny | Notes on current or recent weather conditions (e.g., precipitation in previous week): Sunny, dry | Coordinates at downstream end (decimal degrees):<br>Lat (N): 32.55823<br>Long (W): -117.02167<br>Datum: NAD83 |
| Surrounding land-use within 100 m (check one or two):<br>☐ Urban/industrial/residential<br>☐ Agricultural (farmland, crops, vineyards, pasture)<br>☐ Developed open-space (e.g., golf course)<br>☐ Forested<br>☑ Other natural<br>☐ Other: _____ | Describe reach boundaries: | |
| Mean channel width (m)<br>1.5 m | Reach length (m):<br>40x width; min 40 m; max 200 m.<br>200 m | Enter photo ID, or check if completed<br>Top down: _____ Mid down: _____<br>Mid up: _____ Bottom up: _____ |
| Disturbed or difficult conditions (check all that apply):<br>☐ Recent flood or debris flow<br>☐ Stream modifications (e.g., channelization)<br>☐ Diversions<br>☐ Discharges<br>☐ Drought<br>☐ Vegetation removal/limitations<br>☐ Other (explain in notes)<br>☑ None | Notes on disturbances or difficult site conditions: | |
| Observed hydrology:<br>0 % of reach with surface flow<br>0 % of reach with sub-surface or surface flow<br>0 # of isolated pools | Comments on observed hydrology: | |

## Site sketch:

## 1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

| Species | Odd distribution? | Notes | Photo ID |
|---|---|---|---|
| | | | |
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Notes on hydrophytic vegetation:

Isolated, but continuous stand of Bacsal in upper mid-channel of reach.

## 2 and 3. Aquatic invertebrates

**2. How many aquatic invertebrates are quantified in a 15-minute search?**

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID:_____

**3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?**

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

## 4. Algal Cover

| **Are algae found on the streambed?** ☐ Check if *all* observed algae appear to be deposited from an upstream source. | ☑ Not detected ☐ Yes, < 10% cover ☐ Yes, ≥ 10% (check Yes in single indicator below) | Notes on algae cover: | Photo ID: |
|---|---|---|---|

## 5. Are single indicators observed?

| Indicator | Present | Notes | Photo ID |
|---|---|---|---|
| Fish | ☐ Yes ☑ No, no fish ☐ No, only non-native mosquitofish | | |
| Algae cover ≥ 10% | ☐ Yes ☑ No | | |

**Supplemental information** E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

## Photo log

Indicate if any other photos taken during the assessment

| Photo ID | Description |
|---|---|
| Photograph 1 | Downstream View of Drainage B, Facing Northeast |
| Photograph 2 | Upstream View of Drainage B, Facing Southeast |
| | |
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## Additional notes about the assessment:

**Classification:** _____

| 1. Hydrophytic plant species | 2. Aquatic invertebrates | 3. EPT taxa | 4. Algae | 5. Single indicators • fish present • algae cover ≥ 10% | Classification |
|---|---|---|---|---|---|
| None | None | Absent | Absent | Absent | **Ephemeral** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | Few (1-19) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| Few (1-2) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | Absent | | **At least intermittent** |
| | | | Present | | **Intermittent** |
| Many (3+) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |
| | Many (20+) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

PHOTOGRAPH 1
Downstream View of Drainage B,
Facing Northeast

PHOTOGRAPH 2
Upstream View of Drainage B,
Facing Southeast

RECON

# Beta Arid West Streamflow Duration Assessment Method

## General site information

| | | |
|---|---|---|
| Project name or number: Southwest Village 8868 | | |
| Site code or identifier: Drainage D | Assessor(s): Beth Procsal and Gerry Scheid | |
| Waterway name: Drainage D | | Visit date: 8/18/21 |
| Current weather conditions (check one)<br>☐ Storm/heavy rain<br>☐ Steady rain<br>☐ Intermittent rain<br>☐ Snowing<br>☑ Cloudy (100 % cover)<br>☐ Clear/Sunny | Notes on current or recent weather conditions (e.g., precipitation in previous week): Sunny, dry | Coordinates at downstream end (decimal degrees):<br>Lat (N): 32.55706<br>Long (W): -117.02457<br>Datum: NAD83 |
| Surrounding land-use within 100 m (check one or two):<br>☐ Urban/industrial/residential<br>☐ Agricultural (farmland, crops, vineyards, pasture)<br>☐ Developed open-space (e.g., golf course)<br>☐ Forested<br>☑ Other natural<br>☐ Other: _____ | Describe reach boundaries:<br>Drainage D flows into drainage E and the entire length of this drainage is less than 40 m. The entire drainage is considered the reach. | |
| Mean channel width (m)<br>1.0 m | Reach length (m):<br>40x width; min 40 m; max 200 m.<br><40 m | Enter photo ID, or check if completed<br>Top down: _____ Mid down: _____<br>Mid up: _____ Bottom up: _____ |
| Disturbed or difficult conditions (check all that apply):<br>☐ Recent flood or debris flow<br>☐ Stream modifications (e.g., channelization)<br>☐ Diversions<br>☐ Discharges<br>☐ Drought<br>☐ Vegetation removal/limitations<br>☐ Other (explain in notes)<br>☑ None | Notes on disturbances or difficult site conditions: | |
| Observed hydrology:<br>0 % of reach with surface flow<br>0 % of reach with sub-surface or surface flow<br>0 # of isolated pools | Comments on observed hydrology: | |

## Site sketch:

## 1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

| Species | Odd distribution? | Notes | Photo ID |
|---|---|---|---|
| | | | |
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Notes on hydrophytic vegetation:

## 2 and 3. Aquatic invertebrates

**2. How many aquatic invertebrates are quantified in a 15-minute search?**

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID:_____

**3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?**

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

## 4. Algal Cover

| **Are algae found on the streambed?** ☐ Check if *all* observed algae appear to be deposited from an upstream source. | ☑ Not detected<br>☐ Yes, < 10% cover<br>☐ Yes, ≥ 10% (check Yes in single indicator below) | Notes on algae cover: | Photo ID: |
|---|---|---|---|

## 5. Are single indicators observed?

| Indicator | Present | Notes | Photo ID |
|---|---|---|---|
| Fish | ☐ Yes<br>☑ No, no fish<br>☐ No, only non-native mosquitofish | | |
| Algae cover ≥ 10% | ☐ Yes<br>☑ No | | |

**Supplemental information** E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

## Photo log

Indicate if any other photos taken during the assessment

| Photo ID | Description |
|---|---|
| Photograph 1 | Downstream View of Drainage D, Facing North |
| Photograph 2 | Upstream View of Drainage D, Facing South |
| | |
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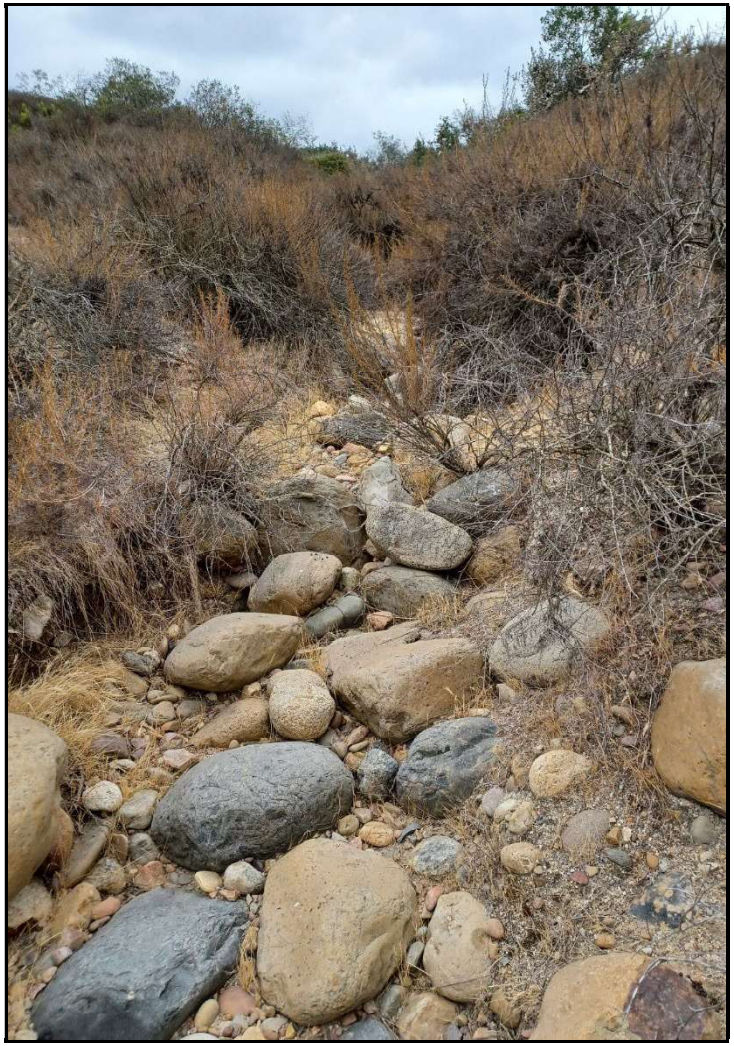
## Additional notes about the assessment:

**Classification:** Ephemeral

| 1. Hydrophytic plant species | 2. Aquatic invertebrates | 3. EPT taxa | 4. Algae | 5. Single indicators • fish present • algae cover ≥ 10% | Classification |
|---|---|---|---|---|---|
| None | None | Absent | Absent | Absent | **Ephemeral** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | Few (1-19) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| Few (1-2) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | Absent | | **At least intermittent** |
| | | | Present | | **Intermittent** |
| Many (3+) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |
| | Many (20+) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

PHOTOGRAPH 1
Downstream View of Drainage D,
Facing North



PHOTOGRAPH 2
Upstream View of Drainage D,
Facing South

RECON

# Beta Arid West Streamflow Duration Assessment Method

## General site information

| | | |
|---|---|---|
| Project name or number: Southwest Village 8868 | | |
| Site code or identifier: Drainage E | Assessor(s): Beth Procsal and Gerry Scheid | |
| Waterway name: Drainage E | | Visit date: 8/18/21 |
| Current weather conditions (check one)<br>☐ Storm/heavy rain<br>☐ Steady rain<br>☐ Intermittent rain<br>☐ Snowing<br>☑ Cloudy (100% cover)<br>☐ Clear/Sunny | Notes on current or recent weather conditions (e.g., precipitation in previous week): Sunny, dry | Coordinates at downstream end (decimal degrees):<br>Lat (N):32.55823<br>Long (W): -117.02444<br>Datum: NAD8 |
| Surrounding land-use within 100 m (check one or two):<br>☐ Urban/industrial/residential<br>☐ Agricultural (farmland, crops, vineyards, pasture)<br>☐ Developed open-space (e.g., golf course)<br>☐ Forested<br>☑ Other natural<br>☐ Other: _____ | Describe reach boundaries: | |
| Mean channel width (m)<br>2 m | Reach length (m):<br>40x width; min 40 m; max 200 m.<br>40 m | Enter photo ID, or check if completed<br>Top down: _____ Mid down: _____<br>Mid up: _____ Bottom up: _____ |
| Disturbed or difficult conditions (check all that apply):<br>☐ Recent flood or debris flow<br>☐ Stream modifications (e.g., channelization)<br>☐ Diversions<br>☐ Discharges<br>☐ Drought<br>☐ Vegetation removal/limitations<br>☐ Other (explain in notes)<br>☑ None | Notes on disturbances or difficult site conditions: | |
| Observed hydrology:<br>0 % of reach with surface flow<br>0 % of reach with sub-surface or surface flow<br>0 # of isolated pools | Comments on observed hydrology: | |

## Site sketch:

## 1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

| Species | Odd distribution? | Notes | Photo ID |
|---|---|---|---|
| | | | |
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Notes on hydrophytic vegetation:
3 isolated Bacsal + one isolated Tamram observed but less than 2% of AA and only in one location each. Both species are FAC.

## 2 and 3. Aquatic invertebrates

**2. How many aquatic invertebrates are quantified in a 15-minute search?**

Number of individuals quantified:
☑ None
☐ 1 to 19
☐ 20 +

(Do not count mosquitos)

Photo ID:_____

**3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?**

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

## 4. Algal Cover

| **Are algae found on the streambed?** ☐ Check if *all* observed algae appear to be deposited from an upstream source. | ☑ Not detected<br>☐ Yes, < 10% cover<br>☐ Yes, ≥ 10% (check Yes in single indicator below) | Notes on algae cover: | Photo ID: |
|---|---|---|---|

## 5. Are single indicators observed?

| Indicator | Present | Notes | Photo ID |
|---|---|---|---|
| Fish | ☐ Yes<br>☑ No, no fish<br>☐ No, only non-native mosquitofish | | |
| Algae cover ≥ 10% | ☐ Yes<br>☑ No | | |

**Supplemental information** E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

## Photo log

Indicate if any other photos taken during the assessment

| Photo ID | Description |
|---|---|
| Photograph 1 | Downstream View of Drainage E from the Center, Facing North |
| Photograph 2 | Upstream View of Drainage E, Facing South |
| | |
| | |
| | |
| | |
| | |

## Additional notes about the assessment:

**Classification:** Ephemeral

| 1. Hydrophytic plant species | 2. Aquatic invertebrates | 3. EPT taxa | 4. Algae | 5. Single indicators • fish present • algae cover ≥ 10% | Classification |
|---|---|---|---|---|---|
| None | None | Absent | Absent | Absent | **Ephemeral** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | Few (1-19) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| Few (1-2) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | Absent | | **At least intermittent** |
| | | | Present | | **Intermittent** |
| Many (3+) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |
| | Many (20+) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

PHOTOGRAPH 1
Downstream View of Drainage E from the Center,
Facing North

PHOTOGRAPH 2
Upstream View of Drainage E,
Facing South

RECON

# Beta Arid West Streamflow Duration Assessment Method

## General site information

| | | |
|---|---|---|
| Project name or number: Southwest Village 8868 | | |
| Site code or identifier: Drainage F | Assessor(s): Beth Procsal and Gerry Scheid | |
| Waterway name: Drainage F | | Visit date: 8/20/21 |
| Current weather conditions (check one)<br>☐ Storm/heavy rain<br>☐ Steady rain<br>☐ Intermittent rain<br>☐ Snowing<br>☑ Cloudy (90 % cover)<br>☐ Clear/Sunny | Notes on current or recent weather conditions (e.g., precipitation in previous week): Sunny, dry | Coordinates at downstream end (decimal degrees):<br>Lat (N): 32.55934<br>Long (W): -117.01783<br>Datum: NAD83 |
| Surrounding land-use within 100 m (check one or two):<br>☐ Urban/industrial/residential<br>☐ Agricultural (farmland, crops, vineyards, pasture)<br>☐ Developed open-space (e.g., golf course)<br>☐ Forested<br>☑ Other natural<br>☐ Other: _____ | Describe reach boundaries: | |
| Mean channel width (m)<br>0.25 m | Reach length (m):<br>40x width; min 40 m; max 200 m. | Enter photo ID, or check if completed<br>Top down: _____ Mid down: _____<br>Mid up: _____ Bottom up: _____ |
| Disturbed or difficult conditions (check all that apply):<br>☐ Recent flood or debris flow<br>☐ Stream modifications (e.g., channelization)<br>☐ Diversions<br>☐ Discharges<br>☐ Drought<br>☐ Vegetation removal/limitations<br>☐ Other (explain in notes)<br>☑ None | Notes on disturbances or difficult site conditions: | |
| Observed hydrology:<br>0 % of reach with surface flow<br>0 % of reach with sub-surface or surface flow<br>0 # of isolated pools | Comments on observed hydrology: | |

## Site sketch:

## 1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

| Species | Odd distribution? | Notes | Photo ID |
|---|---|---|---|
| | | | |
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| | | | |

Notes on hydrophytic vegetation:

## 2 and 3. Aquatic invertebrates

**2. How many aquatic invertebrates are quantified in a 15-minute search?**

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID:_____

**3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?**

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

## 4. Algal Cover

| **Are algae found on the streambed?** ☐ Check if *all* observed algae appear to be deposited from an upstream source. | ☑ Not detected<br>☐ Yes, < 10% cover<br>☐ Yes, ≥ 10% (check Yes in single indicator below) | Notes on algae cover: | Photo ID: |
|---|---|---|---|

## 5. Are single indicators observed?

| Indicator | Present | Notes | Photo ID |
|---|---|---|---|
| Fish | ☐ Yes<br>☑ No, no fish<br>☐ No, only non-native mosquitofish | | |
| Algae cover ≥ 10% | ☐ Yes<br>☑ No | | |

**Supplemental information** E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

## Photo log

Indicate if any other photos taken during the assessment

| Photo ID | Description |
|---|---|
| Photograph 1 | Downstream View of Drainage F, Facing Southeast |
| | |
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## Additional notes about the assessment:

**Classification:** Ephemeral

| 1. Hydrophytic plant species | 2. Aquatic invertebrates | 3. EPT taxa | 4. Algae | 5. Single indicators • fish present • algae cover ≥ 10% | Classification |
|---|---|---|---|---|---|
| None | None | Absent | Absent | Absent | **Ephemeral** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | Few (1-19) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| Few (1-2) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | Absent | | **At least intermittent** |
| | | | Present | | **Intermittent** |
| Many (3+) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |
| | Many (20+) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

PHOTOGRAPH 1
Downstream View of Drainage F, Facing Southeast

RECON

# Beta Arid West Streamflow Duration Assessment Method

## General site information

| | | |
|---|---|---|
| Project name or number: Southwest Village 8868 | | |
| Site code or identifier: Drainage G | Assessor(s): Beth Procsal and Gerry Scheid | |
| Waterway name: Drainage G | | Visit date: 8/20/21 |
| Current weather conditions (check one)<br>☐ Storm/heavy rain<br>☐ Steady rain<br>☐ Intermittent rain<br>☐ Snowing<br>☑ Cloudy (90 % cover)<br>☐ Clear/Sunny | Notes on current or recent weather conditions (e.g., precipitation in previous week): Sunny, dry | Coordinates at downstream end (decimal degrees):<br>Lat (N):32.55983<br>Long (W): -117.01791<br>Datum: NAD83 |
| Surrounding land-use within 100 m (check one or two):<br>☐ Urban/industrial/residential<br>☐ Agricultural (farmland, crops, vineyards, pasture)<br>☐ Developed open-space (e.g., golf course)<br>☐ Forested<br>☑ Other natural<br>☐ Other: _____ | Describe reach boundaries: | |
| Mean channel width (m)<br>1.0 m | Reach length (m):<br>40x width; min 40 m; max 200 m. | Enter photo ID, or check if completed<br>Top down: _____ Mid down: _____<br>Mid up: _____ Bottom up: _____ |
| Disturbed or difficult conditions (check all that apply):<br>☐ Recent flood or debris flow<br>☐ Stream modifications (e.g., channelization)<br>☐ Diversions<br>☐ Discharges<br>☐ Drought<br>☐ Vegetation removal/limitations<br>☐ Other (explain in notes)<br>☑ None | Notes on disturbances or difficult site conditions: | |
| Observed hydrology:<br>0 % of reach with surface flow<br>0 % of reach with sub-surface or surface flow<br>0 # of isolated pools | Comments on observed hydrology: | |

## Site sketch:

## 1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

| Species | Odd distribution? | Notes | Photo ID |
|---|---|---|---|
| | | | |
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| | | | |

Notes on hydrophytic vegetation:
One isolated patch of Sallas, but contributes less than 2% of AA. One isolated patch of Bacsal.

## 2 and 3. Aquatic invertebrates

**2. How many aquatic invertebrates are quantified in a 15-minute search?**

Number of individuals quantified:
☑ None
☐ 1 to 19
☐ 20 +

(Do not count mosquitos)

Photo ID:_____

**3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?**

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

## 4. Algal Cover

| **Are algae found on the streambed?** ☐ Check if *all* observed algae appear to be deposited from an upstream source. | ☑ Not detected<br>☐ Yes, < 10% cover<br>☐ Yes, ≥ 10% (check Yes in single indicator below) | Notes on algae cover: | Photo ID: |
|---|---|---|---|

## 5. Are single indicators observed?

| Indicator | Present | Notes | Photo ID |
|---|---|---|---|
| Fish | ☐ Yes<br>☑ No, no fish<br>☐ No, only non-native mosquitofish | | |
| Algae cover ≥ 10% | ☐ Yes<br>☑ No | | |

**Supplemental information** E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

## Photo log

Indicate if any other photos taken during the assessment

| Photo ID | Description |
|---|---|
| Photograph 1 | Upstream View of Drainage G from the Center, Facing North |
| Photograph 2 | Downstream View of Drainage G, Facing South |
| | |
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| | |

## Additional notes about the assessment:

**Classification:** Ephemeral

| 1. Hydrophytic plant species | 2. Aquatic invertebrates | 3. EPT taxa | 4. Algae | 5. Single indicators • fish present • algae cover ≥ 10% | Classification |
|---|---|---|---|---|---|
| None | None | Absent | Absent | Absent | **Ephemeral** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | Few (1-19) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| Few (1-2) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | Absent | | **At least intermittent** |
| | | | Present | | **Intermittent** |
| Many (3+) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |
| | Many (20+) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

PHOTOGRAPH 1
Upstream View of Drainage G from the Center,
Facing North

PHOTOGRAPH 2
Downstream View of Drainage G,
Facing South

RECON

# Beta Arid West Streamflow Duration Assessment Method

## General site information

| | | |
|---|---|---|
| Project name or number: Southwest Village 8868 | | |
| Site code or identifier: Drainage H(b) | Assessor(s): Beth Procsal and Gerry Scheid | |
| Waterway name: Drainage H(B) | | Visit date: 8/20/21 |
| Current weather conditions (check one)<br>☐ Storm/heavy rain<br>☐ Steady rain<br>☐ Intermittent rain<br>☐ Snowing<br>☑ Cloudy (85 % cover)<br>☐ Clear/Sunny | Notes on current or recent weather conditions (e.g., precipitation in previous week): Sunny, dry | Coordinates at downstream end (decimal degrees):<br>Lat (N): 32.55379<br>Long (W): -117.01286<br>Datum: NAD83 |
| Surrounding land-use within 100 m (check one or two):<br>☐ Urban/industrial/residential<br>☐ Agricultural (farmland, crops, vineyards, pasture)<br>☐ Developed open-space (e.g., golf course)<br>☐ Forested<br>☑ Other natural<br>☐ Other: _____ | Describe reach boundaries: | |
| Mean channel width (m)<br>0.5 m | Reach length (m):<br>40x width; min 40 m; max 200 m. | Enter photo ID, or check if completed<br>Top down: _____ Mid down: _____<br>Mid up: _____ Bottom up: _____ |
| Disturbed or difficult conditions (check all that apply):<br>☐ Recent flood or debris flow<br>☐ Stream modifications (e.g., channelization)<br>☐ Diversions<br>☐ Discharges<br>☐ Drought<br>☐ Vegetation removal/limitations<br>☐ Other (explain in notes)<br>☑ None | Notes on disturbances or difficult site conditions: | |
| Observed hydrology:<br>0 % of reach with surface flow<br>0 % of reach with sub-surface or surface flow<br>0 # of isolated pools | Comments on observed hydrology: | |

## Site sketch:

## 1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

| Species | Odd distribution? | Notes | Photo ID |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Notes on hydrophytic vegetation:

## 2 and 3. Aquatic invertebrates

**2. How many aquatic invertebrates are quantified in a 15-minute search?**

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID:_____

**3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?**

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

## 4. Algal Cover

| **Are algae found on the streambed?** ☐ Check if *all* observed algae appear to be deposited from an upstream source. | ☑ Not detected<br>☐ Yes, < 10% cover<br>☐ Yes, ≥ 10% (check Yes in single indicator below) | Notes on algae cover: | Photo ID: |
|---|---|---|---|

## 5. Are single indicators observed?

| Indicator | Present | Notes | Photo ID |
|---|---|---|---|
| Fish | ☐ Yes<br>☑ No, no fish<br>☐ No, only non-native mosquitofish | | |
| Algae cover ≥ 10% | ☐ Yes<br>☑ No | | |

**Supplemental information** E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

## Photo log

Indicate if any other photos taken during the assessment

| Photo ID | Description |
|---|---|
| Photograph 1 | Downstream View of Drainage H(b), Facing South |
| | |
| | |
| | |
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| | |
| | |

## Additional notes about the assessment:

**Classification:** Ephemeral

| 1. Hydrophytic plant species | 2. Aquatic invertebrates | 3. EPT taxa | 4. Algae | 5. Single indicators • fish present • algae cover ≥ 10% | Classification |
|---|---|---|---|---|---|
| None | None | Absent | Absent | Absent | **Ephemeral** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | Few (1-19) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| Few (1-2) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | Absent | | **At least intermittent** |
| | | | Present | | **Intermittent** |
| Many (3+) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |
| | Many (20+) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

PHOTOGRAPH 1
Downstream View of Drainage H(b), Facing South

RECON

# Beta Arid West Streamflow Duration Assessment Method

## General site information

| | | |
|---|---|---|
| Project name or number: Southwest Village 8868 | | |
| Site code or identifier: Drainage H | Assessor(s): Beth Procsal and Gerry Scheid | |
| Waterway name: Drainage H | | Visit date: 8/20/21 |
| Current weather conditions (check one)<br>☐ Storm/heavy rain<br>☐ Steady rain<br>☐ Intermittent rain<br>☐ Snowing<br>☑ Cloudy (10 % cover)<br>☐ Clear/Sunny | Notes on current or recent weather conditions (e.g., precipitation in previous week): Sunny, dry | Coordinates at downstream end (decimal degrees):<br>Lat (N):32.55371<br>Long (W):-117.01221<br>Datum:NAD83 |
| Surrounding land-use within 100 m (check one or two):<br>☐ Urban/industrial/residential<br>☐ Agricultural (farmland, crops, vineyards, pasture)<br>☐ Developed open-space (e.g., golf course)<br>☐ Forested<br>☑ Other natural<br>☐ Other: _____ | Describe reach boundaries: | |
| Mean channel width (m)<br>2 m | Reach length (m):<br>40x width; min 40 m; max 200 m. | Enter photo ID, or check if completed<br>Top down: _____ Mid down: _____<br>Mid up: _____ Bottom up: _____ |
| Disturbed or difficult conditions (check all that apply):<br>☐ Recent flood or debris flow<br>☐ Stream modifications (e.g., channelization)<br>☐ Diversions<br>☐ Discharges<br>☐ Drought<br>☐ Vegetation removal/limitations<br>☑ Other (explain in notes)<br>☐ None | Notes on disturbances or difficult site conditions: | |
| Observed hydrology:<br>0 % of reach with surface flow<br>0 % of reach with sub-surface or surface flow<br>0 # of isolated pools | Comments on observed hydrology: | |

## Site sketch:

## 1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

| Species | Odd distribution? | Notes | Photo ID |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Notes on hydrophytic vegetation:

## 2 and 3. Aquatic invertebrates

**2. How many aquatic invertebrates are quantified in a 15-minute search?**

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID:_____

**3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?**

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

## 4. Algal Cover

| **Are algae found on the streambed?** ☐ Check if *all* observed algae appear to be deposited from an upstream source. | ☑ Not detected<br>☐ Yes, < 10% cover<br>☐ Yes, ≥ 10% (check Yes in single indicator below) | Notes on algae cover: | Photo ID: |
|---|---|---|---|

## 5. Are single indicators observed?

| Indicator | Present | Notes | Photo ID |
|---|---|---|---|
| Fish | ☐ Yes<br>☑ No, no fish<br>☐ No, only non-native mosquitofish | | |
| Algae cover ≥ 10% | ☐ Yes<br>☑ No | | |

**Supplemental information** E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

## Photo log

Indicate if any other photos taken during the assessment

| Photo ID | Description |
|---|---|
| Photograph 1 | Downstream View of Drainage H from the Center, Facing East |
| Photograph 2 | Upstream View of Drainage H, Facing Southwest |
| | |
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| | |

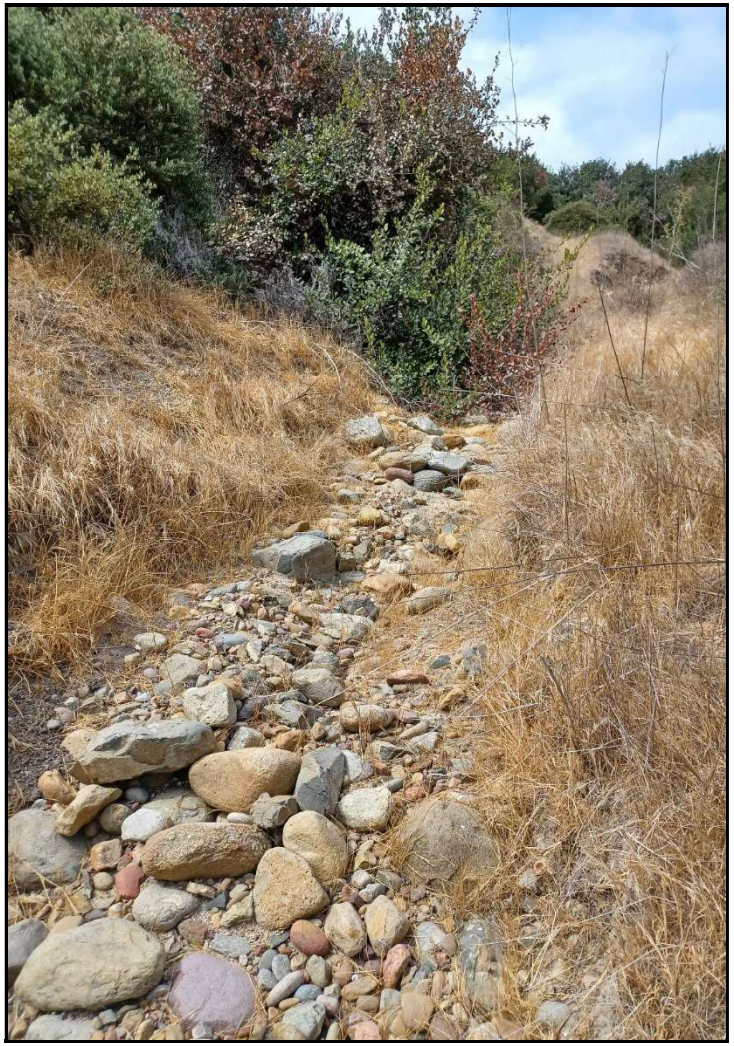
## Additional notes about the assessment:

**Classification:** Ephemeral

| 1. Hydrophytic plant species | 2. Aquatic invertebrates | 3. EPT taxa | 4. Algae | 5. Single indicators • fish present • algae cover ≥ 10% | Classification |
|---|---|---|---|---|---|
| None | None | Absent | Absent | Absent | **Ephemeral** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | Few (1-19) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| Few (1-2) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | Absent | | **At least intermittent** |
| | | | Present | | **Intermittent** |
| | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |
| | | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

PHOTOGRAPH 1
Downstream View of Drainage H from the Center,
Facing East



PHOTOGRAPH 2
Upstream View of Drainage H,
Facing Southwest

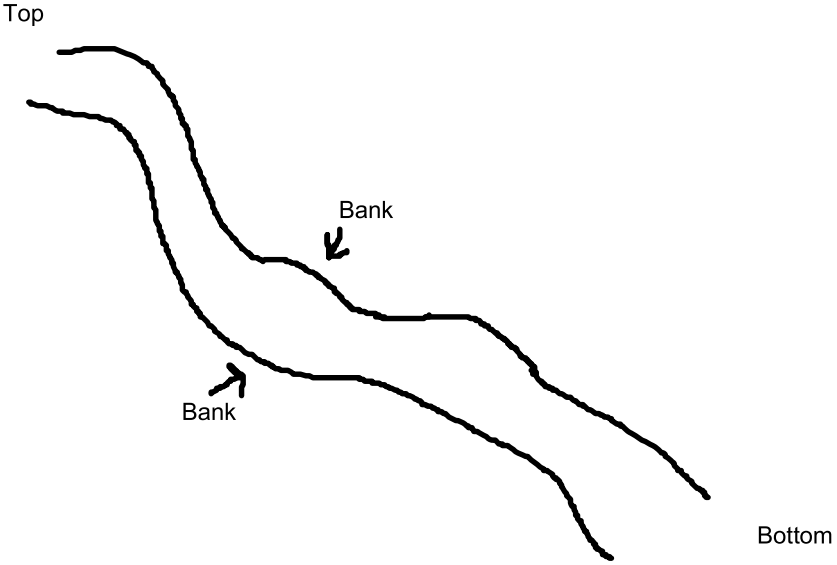
RECON

# Beta Arid West Streamflow Duration Assessment Method

## General site information

| | | |
|---|---|---|
| Project name or number: Southwest Village 8868 | | |
| Site code or identifier: Drainage K | Assessor(s): Beth Procsal and Gerry Scheid | |
| Waterway name: Drainage K | | Visit date: 8/18/21 |
| Current weather conditions (check one)<br>☐ Storm/heavy rain<br>☐ Steady rain<br>☐ Intermittent rain<br>☐ Snowing<br>☑ Cloudy (100 % cover)<br>☐ Clear/Sunny | Notes on current or recent weather conditions (e.g., precipitation in previous week): Sunny, dry | Coordinates at downstream end (decimal degrees):<br>Lat (N): 32.55418<br>Long (W): -117.02678<br>Datum: NAD83 |
| Surrounding land-use within 100 m (check one or two):<br>☐ Urban/industrial/residential<br>☐ Agricultural (farmland, crops, vineyards, pasture)<br>☐ Developed open-space (e.g., golf course)<br>☐ Forested<br>☑ Other natural<br>☐ Other: _____ | Describe reach boundaries: | |
| Mean channel width (m)<br>1.0 m | Reach length (m):<br>40x width; min 40 m; max 200 m.<br>40 m | Enter photo ID, or check if completed<br>Top down: _____ Mid down: _____<br>Mid up: _____ Bottom up: _____ |
| Disturbed or difficult conditions (check all that apply):<br>☐ Recent flood or debris flow<br>☐ Stream modifications (e.g., channelization)<br>☐ Diversions<br>☐ Discharges<br>☐ Drought<br>☐ Vegetation removal/limitations<br>☐ Other (explain in notes)<br>☑ None | Notes on disturbances or difficult site conditions: | |
| Observed hydrology:<br>0 % of reach with surface flow<br>0 % of reach with sub-surface or surface flow<br>0 # of isolated pools | Comments on observed hydrology:<br>No water or flows observed. | |

## Site sketch:



## 1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

| Species | Odd distribution? | Notes | Photo ID |
|---|---|---|---|
| | | | |
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Notes on hydrophytic vegetation:

## 2 and 3. Aquatic invertebrates

**2. How many aquatic invertebrates are quantified in a 15-minute search?**

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID:_____

**3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?**

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

## 4. Algal Cover

| **Are algae found on the streambed?** ☐ Check if *all* observed algae appear to be deposited from an upstream source. | ☑ Not detected<br>☐ Yes, < 10% cover<br>☐ Yes, ≥ 10% (check Yes in single indicator below) | Notes on algae cover: | Photo ID: |
|---|---|---|---|

## 5. Are single indicators observed?

| Indicator | Present | Notes | Photo ID |
|---|---|---|---|
| Fish | ☐ Yes<br>☑ No, no fish<br>☐ No, only non-native mosquitofish | | |
| Algae cover ≥ 10% | ☐ Yes<br>☑ No | | |

**Supplemental information** E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

## Photo log

Indicate if any other photos taken during the assessment

| Photo ID | Description |
|---|---|
| Photograph 1 | Downstream View of Drainage K, Facing South |
| Photograph 2 | Upstream View of Drainage K, Facing Southeast |
| | |
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| | |

## Additional notes about the assessment:

**Classification:** Ephemeral

| 1. Hydrophytic plant species | 2. Aquatic invertebrates | 3. EPT taxa | 4. Algae | 5. Single indicators • fish present • algae cover ≥ 10% | Classification |
|---|---|---|---|---|---|
| None | None | Absent | Absent | Absent | **Ephemeral** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | Few (1-19) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| Few (1-2) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | Absent | | **At least intermittent** |
| | | | Present | | **Intermittent** |
| Many (3+) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |
| | Many (20+) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

PHOTOGRAPH 1
Downstream View of Drainage K,
Facing South

PHOTOGRAPH 2
Upstream View of Drainage K,
Facing Southeast

RECON

# Beta Arid West Streamflow Duration Assessment Method

## General site information

| | | |
|---|---|---|
| Project name or number: Southwest Village 8868 | | |
| Site code or identifier: Drainage M | Assessor(s): Beth Procsal and Gerry Scheid | |
| Waterway name: Drainage M | | Visit date: 8/18/21 |
| Current weather conditions (check one)<br>☐ Storm/heavy rain<br>☐ Steady rain<br>☐ Intermittent rain<br>☐ Snowing<br>☑ Cloudy (100% cover)<br>☐ Clear/Sunny | Notes on current or recent weather conditions (e.g., precipitation in previous week): | Coordinates at downstream end (decimal degrees):<br>Lat (N): 32.54963<br>Long (W): -117.02183<br>Datum: NAD83 |
| Surrounding land-use within 100 m (check one or two):<br>☐ Urban/industrial/residential<br>☐ Agricultural (farmland, crops, vineyards, pasture)<br>☐ Developed open-space (e.g., golf course)<br>☐ Forested<br>☑ Other natural<br>☐ Other: _____ | Describe reach boundaries: | |
| Mean channel width (m)<br>1.5 m | Reach length (m):<br>40x width; min 40 m; max 200 m.<br>200 m | Enter photo ID, or check if completed<br>Top down: _____ Mid down: _____<br>Mid up: _____ Bottom up: _____ |
| Disturbed or difficult conditions (check all that apply):<br>☐ Recent flood or debris flow<br>☐ Stream modifications (e.g., channelization)<br>☐ Diversions<br>☐ Discharges<br>☐ Drought<br>☐ Vegetation removal/limitations<br>☐ Other (explain in notes)<br>☑ None | Notes on disturbances or difficult site conditions: | |
| Observed hydrology:<br>0 % of reach with surface flow<br>0 % of reach with sub-surface or surface flow<br>0 # of isolated pools | Comments on observed hydrology: | |

## Site sketch:

## 1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

| Species | Odd distribution? | Notes | Photo ID |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Notes on hydrophytic vegetation:

## 2 and 3. Aquatic invertebrates

**2. How many aquatic invertebrates are quantified in a 15-minute search?**

Number of individuals quantified:
☑ None
☐ 1 to 19
☐ 20 +

(Do not count mosquitos)

Photo ID:_____

**3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?**

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

## 4. Algal Cover

| **Are algae found on the streambed?** ☐ Check if *all* observed algae appear to be deposited from an upstream source. | ☑ Not detected<br>☐ Yes, < 10% cover<br>☐ Yes, ≥ 10% (check Yes in single indicator below) | Notes on algae cover: | Photo ID: |
|---|---|---|---|

## 5. Are single indicators observed?

| Indicator | Present | Notes | Photo ID |
|---|---|---|---|
| Fish | ☐ Yes<br>☑ No, no fish<br>☐ No, only non-native mosquitofish | | |
| Algae cover ≥ 10% | ☐ Yes<br>☑ No | | |

**Supplemental information** E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

None needed.

## Photo log

Indicate if any other photos taken during the assessment

| Photo ID | Description |
|---|---|
| Photograph 1 | Downstream View of Drainage M from the Center, Facing Southwest |
| Photograph 2 | Upstream View of Drainage M, Facing Northeast |
| | |
| | |
| | |
| | |
| | |

## Additional notes about the assessment:

**Classification:** Ephemeral

| 1. Hydrophytic plant species | 2. Aquatic invertebrates | 3. EPT taxa | 4. Algae | 5. Single indicators • fish present • algae cover ≥ 10% | Classification |
|---|---|---|---|---|---|
| None | None | Absent | Absent | Absent | **Ephemeral** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | Few (1-19) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| Few (1-2) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | Absent | | **At least intermittent** |
| | | | Present | | **Intermittent** |
| Many (3+) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |
| | Many (20+) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

PHOTOGRAPH 1
Downstream View of Drainage M from the Center,
Facing Southwest

PHOTOGRAPH 2
Upstream View of Drainage M,
Facing Northeast

RECON

# Beta Arid West Streamflow Duration Assessment Method

## General site information

| | | |
|---|---|---|
| Project name or number: Southwest Village 8868 | | |
| Site code or identifier: Drainage O | Assessor(s): Beth Procsal and Gerry Scheid | |
| Waterway name: Drainage O | | Visit date: 8/20/21 |
| Current weather conditions (check one)<br>☐ Storm/heavy rain<br>☐ Steady rain<br>☐ Intermittent rain<br>☐ Snowing<br>☑ Cloudy (100 % cover)<br>☐ Clear/Sunny | Notes on current or recent weather conditions (e.g., precipitation in previous week): Sunny, dry | Coordinates at downstream end (decimal degrees):<br>Lat (N):32.55789<br>Long (W):-117.03581<br>Datum:NAD83 |
| Surrounding land-use within 100 m (check one or two):<br>☑ Urban/industrial/residential<br>☐ Agricultural (farmland, crops, vineyards, pasture)<br>☐ Developed open-space (e.g., golf course)<br>☐ Forested<br>☑ Other natural<br>☐ Other: _____ | Describe reach boundaries: | |
| Mean channel width (m)<br>2 m | Reach length (m):<br>40x width; min 40 m; max 200 m. | Enter photo ID, or check if completed<br>Top down: _____ Mid down: _____<br>Mid up: _____ Bottom up: _____ |
| Disturbed or difficult conditions (check all that apply):<br>☐ Recent flood or debris flow<br>☐ Stream modifications (e.g., channelization)<br>☐ Diversions<br>☐ Discharges<br>☐ Drought<br>☐ Vegetation removal/limitations<br>☐ Other (explain in notes)<br>☑ None | Notes on disturbances or difficult site conditions: | |
| Observed hydrology:<br>0 % of reach with surface flow<br>0 % of reach with sub-surface or surface flow<br>0 # of isolated pools | Comments on observed hydrology: | |

## Site sketch:

## 1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☐ No hydrophytes in assessment area

| Species | Odd distribution? | Notes | Photo ID |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Notes on hydrophytic vegetation:
One lone Salgoo but less than 2% of AA. Scattered patches of Bacsal throughout.

## 2 and 3. Aquatic invertebrates

**2. How many aquatic invertebrates are quantified in a 15-minute search?**

Number of individuals quantified:
☑ None
☐ 1 to 19
☐ 20 +

(Do not count mosquitos)

Photo ID:_____

**3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?**

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

## 4. Algal Cover

| **Are algae found on the streambed?** ☐ Check if *all* observed algae appear to be deposited from an upstream source. | ☑ Not detected<br>☐ Yes, < 10% cover<br>☐ Yes, ≥ 10% (check Yes in single indicator below) | Notes on algae cover: | Photo ID: |
|---|---|---|---|

## 5. Are single indicators observed?

| Indicator | Present | Notes | Photo ID |
|---|---|---|---|
| Fish | ☐ Yes<br>☑ No, no fish<br>☐ No, only non-native mosquitofish | | |
| Algae cover ≥ 10% | ☐ Yes<br>☑ No | | |

**Supplemental information** E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

## Photo log

Indicate if any other photos taken during the assessment

| Photo ID | Description |
|---|---|
| Photograph 1 | Upstream View of Drainage O, Facing East |
| Photograph 2 | Downstream View of Drainage O, Facing West |
| | |
| | |
| | |
| | |
| | |

## Additional notes about the assessment:

**Classification:** Ephemeral

| 1. Hydrophytic plant species | 2. Aquatic invertebrates | 3. EPT taxa | 4. Algae | 5. Single indicators • fish present • algae cover ≥ 10% | Classification |
|---|---|---|---|---|---|
| None | None | Absent | Absent | Absent | **Ephemeral** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | Few (1-19) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| Few (1-2) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | Absent | | **At least intermittent** |
| | | | Present | | **Intermittent** |
| Many (3+) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |
| | Many (20+) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

PHOTOGRAPH 1
Upstream View of Drainage O,
Facing East

PHOTOGRAPH 2
Downstream View of Drainage O,
Facing West

RECON

# Beta Arid West Streamflow Duration Assessment Method

## General site information

| | | |
|---|---|---|
| Project name or number: Southwest Village 8868 | | |
| Site code or identifier: Drainage P | Assessor(s): Beth Procsal and Gerry Scheid | |
| Waterway name: Drainage P | | Visit date: 8/20/21 |
| Current weather conditions (check one)<br>☐ Storm/heavy rain<br>☐ Steady rain<br>☐ Intermittent rain<br>☐ Snowing<br>☑ Cloudy (100 % cover)<br>☐ Clear/Sunny | Notes on current or recent weather conditions (e.g., precipitation in previous week): Sunny, dry | Coordinates at downstream end (decimal degrees):<br>Lat (N):32.55858<br>Long (W):-117.02915<br>Datum:NAD83 |
| Surrounding land-use within 100 m (check one or two):<br>☐ Urban/industrial/residential<br>☐ Agricultural (farmland, crops, vineyards, pasture)<br>☐ Developed open-space (e.g., golf course)<br>☐ Forested<br>☑ Other natural<br>☐ Other: _____ | Describe reach boundaries: | |
| Mean channel width (m)<br>1.0 m | Reach length (m):<br>40x width; min 40 m; max 200 m. | Enter photo ID, or check if completed<br>Top down: _____ Mid down: _____<br>Mid up: _____ Bottom up: _____ |
| Disturbed or difficult conditions (check all that apply):<br>☐ Recent flood or debris flow<br>☐ Stream modifications (e.g., channelization)<br>☐ Diversions<br>☐ Discharges<br>☐ Drought<br>☐ Vegetation removal/limitations<br>☐ Other (explain in notes)<br>☑ None | Notes on disturbances or difficult site conditions: | |
| Observed hydrology:<br>0 % of reach with surface flow<br>0 % of reach with sub-surface or surface flow<br>0 # of isolated pools | Comments on observed hydrology: | |

## Site sketch:

## 1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

| Species | Odd distribution? | Notes | Photo ID |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Notes on hydrophytic vegetation:

## 2 and 3. Aquatic invertebrates

**2. How many aquatic invertebrates are quantified in a 15-minute search?**

Number of individuals quantified:
☑ None
☐ 1 to 19
☐ 20 +

(Do not count mosquitos)

Photo ID:_____

**3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?**

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

## 4. Algal Cover

| **Are algae found on the streambed?** ☐ Check if *all* observed algae appear to be deposited from an upstream source. | ☑ Not detected<br>☐ Yes, < 10% cover<br>☐ Yes, ≥ 10% (check Yes in single indicator below) | Notes on algae cover: | Photo ID: |
|---|---|---|---|

## 5. Are single indicators observed?

| Indicator | Present | Notes | Photo ID |
|---|---|---|---|
| Fish | ☐ Yes<br>☑ No, no fish<br>☐ No, only non-native mosquitofish | | |
| Algae cover ≥ 10% | ☐ Yes<br>☑ No | | |

**Supplemental information** E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

## Photo log

Indicate if any other photos taken during the assessment

| Photo ID | Description |
|---|---|
| Photograph 1 | Downstream View of Drainage P, Facing North |
| | |
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## Additional notes about the assessment:

**Classification:** Ephemeral

| 1. Hydrophytic plant species | 2. Aquatic invertebrates | 3. EPT taxa | 4. Algae | 5. Single indicators • fish present • algae cover ≥ 10% | Classification |
|---|---|---|---|---|---|
| None | None | Absent | Absent | Absent | **Ephemeral** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | Few (1-19) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| Few (1-2) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | Absent | | **At least intermittent** |
| | | | Present | | **Intermittent** |
| Many (3+) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |
| | Many (20+) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

PHOTOGRAPH 1
Downstream View of Drainage P, Facing North

RECON

# Beta Arid West Streamflow Duration Assessment Method

## General site information

| | | |
|---|---|---|
| Project name or number: Southwest Village 8868 | | |
| Site code or identifier: Drainage Q | Assessor(s): Beth Procsal and Gerry Scheid | |
| Waterway name: Drainage Q | | Visit date: 8/20/21 |
| Current weather conditions (check one)<br>☐ Storm/heavy rain<br>☐ Steady rain<br>☐ Intermittent rain<br>☐ Snowing<br>☑ Cloudy (100% cover)<br>☐ Clear/Sunny | Notes on current or recent weather conditions (e.g., precipitation in previous week): Sunny, dry | Coordinates at downstream end (decimal degrees):<br>Lat (N):32.55876<br>Long (W):-117.02799<br>Datum: NAD83 |
| Surrounding land-use within 100 m (check one or two):<br>☐ Urban/industrial/residential<br>☐ Agricultural (farmland, crops, vineyards, pasture)<br>☐ Developed open-space (e.g., golf course)<br>☐ Forested<br>☑ Other natural<br>☐ Other: _____ | Describe reach boundaries: | |
| Mean channel width (m)<br>1.0 m | Reach length (m):<br>40x width; min 40 m; max 200 m. | Enter photo ID, or check if completed<br>Top down: _____ Mid down: _____<br>Mid up: _____ Bottom up: _____ |
| Disturbed or difficult conditions (check all that apply):<br>☐ Recent flood or debris flow<br>☐ Stream modifications (e.g., channelization)<br>☐ Diversions<br>☐ Discharges<br>☐ Drought<br>☐ Vegetation removal/limitations<br>☐ Other (explain in notes)<br>☑ None | Notes on disturbances or difficult site conditions: | |
| Observed hydrology:<br>0 % of reach with surface flow<br>0 % of reach with sub-surface or surface flow<br>0 # of isolated pools | Comments on observed hydrology: | |

## Site sketch:

## 1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

| Species | Odd distribution? | Notes | Photo ID |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Notes on hydrophytic vegetation:

## 2 and 3. Aquatic invertebrates

**2. How many aquatic invertebrates are quantified in a 15-minute search?**

Number of individuals quantified:
☑ None
☐ 1 to 19
☐ 20 +

(Do not count mosquitos)

Photo ID:_____

**3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?**

Yes / No

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

## 4. Algal Cover

| **Are algae found on the streambed?** ☐ Check if *all* observed algae appear to be deposited from an upstream source. | ☑ Not detected<br>☐ Yes, < 10% cover<br>☐ Yes, ≥ 10% (check Yes in single indicator below) | Notes on algae cover: | Photo ID: |
|---|---|---|---|

## 5. Are single indicators observed?

| Indicator | Present | Notes | Photo ID |
|---|---|---|---|
| Fish | ☐ Yes<br>☑ No, no fish<br>☐ No, only non-native mosquitofish | | |
| Algae cover ≥ 10% | ☐ Yes<br>☑ No | | |

**Supplemental information** E.g., aquatic or semi-aquatic amphibians, snakes, or turtles; iron-oxidizing bacteria and fungi; etc.

## Photo log

Indicate if any other photos taken during the assessment

| Photo ID | Description |
|---|---|
| Photograph 1 | Downstream View of Drainage Q, Facing North |
| | |
| | |
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## Additional notes about the assessment:

**Classification:** Ephemeral

| 1. Hydrophytic plant species | 2. Aquatic invertebrates | 3. EPT taxa | 4. Algae | 5. Single indicators • fish present • algae cover ≥ 10% | Classification |
|---|---|---|---|---|---|
| None | None | Absent | Absent | Absent | **Ephemeral** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | Few (1-19) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| Few (1-2) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | | | **At least intermittent** |
| | Many (20+) | Absent | Absent | | **Intermittent** |
| | | | Present | | **At least intermittent** |
| | | Present | Absent | | **At least intermittent** |
| | | | Present | | **Intermittent** |
| Many (3+) | None | Absent | Absent | Absent | **Need more information** |
| | | | | Present | **At least intermittent** |
| | | | Present | | **At least intermittent** |
| | Few (1-19) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |
| | Many (20+) | Absent | | | **At least intermittent** |
| | | Present | | | **Perennial** |

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

PHOTOGRAPH 1
Downstream View of Drainage Q, Facing North

RECON

# ATTACHMENT 9

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# ATTACHMENT 6

## Wildlife Species Observed

| Attachment 6<br>Wildlife Species Observed | | | | |
|---|---|---|---|---|
| Scientific Name | Common Name | Occupied Habitat | On-Site Abundance/ Seasonality (Birds Only) | Evidence of Occurrence |
| **INVERTEBRATES** (Nomenclature for fairy shrimp from Eriksen and Belk 1999; for spiders and insects from Evans 2008; for butterflies from San Diego Natural History Museum 2002) | | | | |
| **BRANCHINECTIDAE** | **FAIRY SHRIMP** | | | |
| *Branchinecta sandiegonensis* | San Diego fairy shrimp | VP | | O |
| **STREPTOCEPHALIDAE** | **FAIRY SHRIMP** | | | |
| *Streptocephalus woottoni* | Riverside fairy shrimp | VP | | O |
| **APIDAE** | **HONEY BEES, BUMBLE BEES, AND ALLIES** | | | |
| *Apis mellifera* | honey bee (I) | MSS | | O |
| *Bombus crotchii* | Crotch's bumble bee | MSS, DMSS | | O |
| **FORMICIDAE** | **ANTS** | | | |
| *Pogonomyrmex californicus* | California harvester ant | CSS | | O |
| **POMPILIDAE** | **SPIDER WASPS** | | | |
| *Pepsis species* | tarantula hawk | MSS | | O |
| **THERAPHOSIDAE** | **TARANTULAS** | | | |
| *Aphonopelma eutylenum* | California Ebony tarantula | NNG | | O |
| **HESPERIIDAE** | **SKIPPERS** | | | |
| *Erynnis funeralis* | funereal duskywing | CSS, DL | | O |
| **PAPILIONIDAE** | **PARNASSIANS & SWALLOWTAILS** | | | |
| *Papilio zelicaon* | anise swallowtail | MSS, NNG | | O |
| **PIERIDAE** | **WHITES & SULPHURS** | | | |
| *Anthocharis cethura* | desert [=Felder's] orangetip | MSS, DMSS, NNG | | O |
| *Anthocharis sara sara* | Pacific Sara orangetip | MSS. DMSS, CSS, NNG | | O |
| *Colias eurytheme* | orange [=alfalfa] sulphur | MSS, NNG, DL | | O |
| *Pieris rapae* | cabbage white (I) | MSS, CSS, NNG, DL | | O |
| *Pontia protodice* | checkered [=common] white | CSS, NNG | | O |
| **LYCAENIDAE** | **BLUES, COPPERS, & HAIRSTREAKS** | | | |
| *Brephidium exile* | western pygmy-blue | CSS, NNG, DL | | O |

| Attachment 6<br>Wildlife Species Observed | | | | |
|---|---|---|---|---|
| Scientific Name | Common Name | Occupied Habitat | On-Site Abundance/ Seasonality (Birds Only) | Evidence of Occurrence |
| *Icaricia acmon acmon* | Acmon blue | CSS, NNG | | O |
| *Leptotes marina* | marine blue | CSS, DCSS, NNG | | O |
| RIODINIDAE | METALMARKS | | | |
| *Apodemia mormo virgulti* | Behr's metalmark | CSS, MSS, NNG | | O |
| NYMPHALIDAE | BRUSH-FOOTED BUTTERFLIES | | | |
| *Coenonympha california california* | common California ringlet | MSS | | O |
| *Euphydryas editha quino* | Quino checkerspot | NNG | | O |
| *Junonia coenia grisea* | common buckeye | MSS, DMSS, NNG | | O |
| *Nymphalis antiopa* | mourning cloak | MSS, NNG | | O |
| *Vanessa annabella* | west coast lady | MSS, NNG, DL | | O |
| *Vanessa cardui* | painted lady | MSS, NNG | | O |
| SPHINGIDAE | HAWK MOTHS AND SPHINX MOTHS | | | |
| *Hyles lineata* | white-lined sphinx moth | CSS, MSS, DMSS | | O |
| AMPHIBIANS (Nomenclature from Crother et al. 2017) | | | | |
| BUFONIDAE | TRUE TOADS | | | |
| *Anaxyrus boreas halophilus* | southern California toad | WET | | O |
| HYLIDAE | TREE FROGS | | | |
| *Pseudacris hypochondriaca* | Baja California treefrog | WET | | O |
| PELOBATIDAE | SPADEFOOT TOADS | | | |
| *Spea hammondii* | western spadefoot | WET | | O |
| REPTILES (Nomenclature from Crother 2008) | | | | |
| PHRYNOSOMATIDAE | SPINY LIZARDS | | | |
| *Phrynosoma blainvillii*<br>[= *P. coronatum* coastal population] | coast horned lizard | DCSS | | O |
| *Sceloporus occidentalis* | western fence lizard | CSS, DCSS, DL | | O |
| *Sceloporus orcutti* | granite spiny lizard | CSS, NNG | | O |
| *Uta stansburiana* | common side-blotched lizard | CSS, NNG | | O |

| Attachment 6<br>Wildlife Species Observed | | | | |
|---|---|---|---|---|
| Scientific Name | Common Name | Occupied Habitat | On-Site Abundance/ Seasonality (Birds Only) | Evidence of Occurrence |
| TEIIDAE | WHIPTAIL LIZARDS | | | |
| *Aspidoscelis hyperythra* | orange-throated whiptail | MSS | | O |
| ANGUIDAE | ALLIGATOR LIZARDS | | | |
| *Elgaria multicarinata webbii* | San Diego alligator lizard | MSS | | O |
| COLUBRIDAE | COLUBRID SNAKES | | | |
| *Pituophis catenifer catenifer* | Pacific gopher snake | MSS | | O |
| *Coluber lateralis lateralis* | California striped racer | CSS | | O |
| *Hypsiglena ochrorhyncha nuchalata* | California nightsnake | MSS | | O |
| *Lampropeltis getula californiae* | California kingsnake | MSS | | O |
| *Pituophis catenifer annectens* | San Diego gopher snake | CSS | | O |
| *Thamnophis hammondii* | two-striped gartersnake | VP | | O |
| CROTALIDAE | RATTLESNAKES | | | |
| *Crotalus ruber* | red diamond rattlesnake | CSS | | O |
| *Crotalus oreganus helleri* | southern Pacific rattlesnake | MSS | | O |
| BIRDS (Nomenclature from Chesser et al. 2021) | | | | |
| ODONTOPHORIDAE | NEW WORLD QUAIL | | | |
| *Callipepla californica californica* | California quail | MSS | C / Y | O, V |
| CATHARTIDAE | NEW WORLD VULTURES | | | |
| *Cathartes aura* | turkey vulture | MSS, DMSS | C / M, S | O |
| ACCIPITRIDAE | HAWKS, KITES, & EAGLES | | | |
| *Accipiter cooperii* | Cooper's hawk | CSS, MSS | C / Y | O, V |
| *Aquila chrysaetos* | golden eagle | DL | U / S | O |
| *Buteo jamaicensis* | red-tailed hawk | CSS, MSS | C / Y | O, V |
| *Circus hudsonius* | northern harrier | CSS, NNG | C / Y | O |
| *Elanus leucurus* | white-tailed kite | CSS, NNG | C / Y | O |
| *Haliaeetus leucocephalus* | bald eagle | DL | U / W | O |

| Attachment 6<br>Wildlife Species Observed | | | | |
|---|---|---|---|---|
| Scientific Name | Common Name | Occupied Habitat | On-Site Abundance/ Seasonality (Birds Only) | Evidence of Occurrence |
| **FALCONIDAE** | **FALCONS & CARACARAS** | | | |
| *Falco columbarius* | merlin | NNG | U / W | O |
| *Falco sparverius sparverius* | American kestrel | CSS, NNG | C / Y | O, V |
| **CHARADRIIDAE** | **LAPWINGS & PLOVERS** | | | |
| *Charadrius vociferus vociferus* | killdeer | DCSS, NNG, DL | F / Y | O, V |
| **LARIDAE** | **GULLS, TERNS, & SKIMMERS** | | | |
| *Larus occidentalis wymani* | western gull | NNG | F / Y | O |
| **COLUMBIDAE** | **PIGEONS & DOVES** | | | |
| *Streptopelia decaocto* | Eurasian collared-dove (I) | NNG | C / Y | O, V |
| *Zenaida macroura marginella* | mourning dove | CSS, MSS, DMSS, NNG | C / Y | O, V |
| **CUCULIDAE** | **CUCKOOS & ROADRUNNERS** | | | |
| *Geococcyx californianus* | greater roadrunner | MSS, CSS | C / Y | O |
| **STRIGIDAE** | **TYPICAL OWLS** | | | |
| *Athene cunicularia* | western burrowing owl | CSS | U / Y, W | O |
| **CAPRIMULGIDAE** | **GOATSUCKERS** | | | |
| *Chordeiles acutipennis texensis* | lesser nighthawk | CSS | U / S | O |
| **APODIDAE** | **SWIFTS** | | | |
| *Aeronautes saxatalis* | white-throated swift | NNG | C / Y | O, V |
| **TROCHILIDAE** | **HUMMINGBIRDS** | | | |
| *Calypte anna* | Anna's hummingbird | CSS, MSS, NNG, DL | C / Y | O, V |
| *Calypte costae* | Costa's hummingbird | MSS, NNG | C / S | O, V |
| *Selasphorus sasin* | Allen's hummingbird | MSS, CSS | U / M | O, V |
| **PICIDAE** | **WOODPECKERS & SAPSUCKERS** | | | |
| *Colaptes auratus* | northern flicker | CSS | C / Y | O, V |
| *Dryobates* [=*Picoides*] *nuttallii* | Nuttall's woodpecker | CSS | C / Y | O, V |
| **TYRANNIDAE** | **TYRANT FLYCATCHERS** | | | |
| *Empidonax difficilis* | Pacific-slope flycatcher | MSS | C / S | O, V |

| Attachment 6<br>Wildlife Species Observed | | | | |
|---|---|---|---|---|
| Scientific Name | Common Name | Occupied Habitat | On-Site Abundance/ Seasonality (Birds Only) | Evidence of Occurrence |
| *Myiarchus cinerascens cinerascens* | ash-throated flycatcher | MSS, DMSS | F / S | O |
| *Sayornis nigricans semiatra* | black phoebe | CSS, DL | C / Y | O |
| *Sayornis saya* | Say's phoebe | CSS | C / W | O |
| *Tyrannus verticalis* | western kingbird | MSS | U / S | O |
| *Tyrannus vociferans vociferans* | Cassin's kingbird | MSS, NNG | C / Y | O |
| **VIREONIDAE** | **VIREOS** | | | |
| *Vireo bellii pusillus* | least Bell's vireo | MFS | F / S | V |
| *Vireo gilvus swainsonii* | warbling vireo | MFS | F / S | O |
| **CORVIDAE** | **CROWS, JAYS, & MAGPIES** | | | |
| *Aphelocoma californica* | California scrub-jay | | C / Y | |
| *Corvus brachyrhynchos hesperis* | American crow | CSS, DCSS | C / Y | O, V |
| *Corvus corax clarionensis* | common raven | CSS, MSS | C / Y | O, V |
| **ALAUDIDAE** | **LARKS** | | | |
| *Eremophila alpestris actia* | California horned lark | DCSS, NNG | C / Y | O, V |
| **HIRUNDINIDAE** | **SWALLOWS** | | | |
| *Petrochelidon pyrrhonota tachina* | cliff swallow | NNG | C / S | O, V |
| *Stelgidopteryx serripennis* | northern rough-winged swallow | NNG | C / S | O, V |
| **AEGITHALIDAE** | **BUSHTIT** | | | |
| *Psaltriparus minimus melanurus* | bushtit | CSS, MSS | C / Y | O, V |
| **TROGLODYTIDAE** | **WRENS** | | | |
| *Salpinctes obsoletus obsoletus* | rock wren | NNG, DL | C / Y | O, V |
| *Thryomanes bewickii* | Bewick's wren | CSS, MSS, NNG | C / Y | O, V |
| *Troglodytes aedon parkmanii* | house wren | CSS, MSS, NNG | C / Y | O, V |
| **SYLVIIDAE** | **GNATCATCHERS** | | | |
| *Polioptila caerulea* | blue-gray gnatcatcher | CSS, MSS | C / Y | O, V |
| *Polioptila californica californica* | coastal California gnatcatcher | CSS, MSS | C / Y | O, V |
| **TIMALIIDAE** | **BABBLERS** | | | |
| *Chamaea fasciata henshawi* | wrentit | CSS, MSS, DMSS | C / Y | O, V |

| Attachment 6<br>Wildlife Species Observed | | | | |
|---|---|---|---|---|
| Scientific Name | Common Name | Occupied Habitat | On-Site Abundance/ Seasonality (Birds Only) | Evidence of Occurrence |
| **MIMIDAE** | **MOCKINGBIRDS & THRASHERS** | | | |
| *Mimus polyglottos polyglottos* | northern mockingbird | CSS, DCSS, MSS, NNG | C / Y | O, V |
| *Toxostoma redivivum redivivum* | California thrasher | MSS | C / Y | O, V |
| **STURNIDAE** | **STARLINGS & MYNAS** | | | |
| *Sturnus vulgaris* | European starling (I) | NNG | C / Y | O, V |
| **BOMBYCILLIDAE** | **WAXWINGS** | | | |
| *Bombycilla cedrorum* | cedar waxwing | CSS | U / W | O |
| **PARULIDAE** | **WOOD WARBLERS** | | | |
| *Cardellina* [=*Wilsonia*] *pusilla* | Wilson's warbler | CSS, MFS | F / M | O |
| *Geothlypis trichas* | common yellowthroat | CSS | F / Y | O, V |
| *Icteria virens* | yellow-breasted chat | CSS | F / Y | V |
| *Mniotilta varia* | black-and-white warbler | CSS, MFS | U / W | O |
| *Oreothlypis* [=*Vermivora*] *celata* | orange-crowned warbler | CSS, MSS, NNG | F / Y | O |
| *Setophaga [=Dendroica] coronata* | yellow-rumped warbler | MFS | U / W | O, V |
| *Setophaga* [=*Dendroica*] *nigrescens* | black-throated gray warbler | CSS | U / M | O |
| *Setophaga* [=*Dendroica*] *occidentalis* | hermit warbler | CSS, MFS | U / M | O |
| *Setophaga* [=*Dendroica*] *petechia* | yellow warbler | MFS | F / S | V |
| **EMBERIZIDAE** | **EMBERIZIDS** | | | |
| *Aimophila ruficeps canescens* | southern California rufous-crowned sparrow | CSS, NNG | C / Y | O |
| *Ammodramus savannarum* | grasshopper sparrow | CSS | F / Y | V |
| *Melospiza melodia* | song sparrow | CSS, MSS | C / Y | O |
| *Melozone* [=*Pipilo*] *crissalis* | California towhee | CSS, NNG | C / Y | O |
| *Passerculus sandwichensis nevadensis* | western savannah sparrow | CSS, DCSS, MSS | C / Y | O |
| *Pipilo maculatus* | spotted towhee | NNG | C / Y | O, V |
| *Zonotrichia leucophrys* | white-crowned sparrow | CSS, NNG | C / W | |
| **CARDINALIDAE** | **CARDINALS & GROSBEAKS** | | | |
| *Cardinalis cardinalis* | northern cardinal | DL | U / V | O |
| *Passerina caerulea salicaria* | blue grosbeak | MFS | F / S | O |
| *Passerina amoena* | lazuli bunting | CSS, MSS | U / M | O |

| Attachment 6<br>Wildlife Species Observed | | | | |
|---|---|---|---|---|
| Scientific Name | Common Name | Occupied Habitat | On-Site Abundance/ Seasonality (Birds Only) | Evidence of Occurrence |
| **ICTERIDAE** | **BLACKBIRDS & NEW WORLD ORIOLES** | | | |
| *Agelaius phoeniceus* | red-winged blackbird | MSS | C / Y | O, V |
| *Icterus cucullatus nelsoni* | hooded oriole | NNG | C / S | V |
| *Molothrus ater* | brown-headed cowbird | NNG | C / Y | V |
| *Sturnella neglecta* | western meadowlark | CSS, NNG | C / Y | O, V |
| **FRINGILLIDAE** | **FINCHES** | | | |
| *Haemorhous* [=*Carpodacus*] *mexicanus frontalis* | house finch | MSS, NNG | C / Y | O, V |
| *Spinus* [=*Carduelis*] *psaltria hesperophilus* | lesser goldfinch | NNG, DL | C / Y | O, V |
| **MAMMALS** (Nomenclature from Bradley et al. (2014) | | | | |
| **SORICIDAE** | **SHREWS** | | | |
| *Soricidae* sp. | shrew | MSS | | T |
| **LEPORIDAE** | **RABBITS & HARES** | | | |
| *Lepus californicus bennettii* | San Diego black-tailed jackrabbit | NNG, CSS | | O |
| *Sylvilagus bachmani* | brush rabbit | MSS | | O |
| *Sylvilagus audubonii* | desert cottontail | CSS, MSS, NNG, DL | | O |
| **SCIURIDAE** | **SQUIRRELS & CHIPMUNKS** | | | |
| *Spermophilus beecheyi* | California ground squirrel | CSS, DCSS, MSS, NNG | | O |
| **GEOMYIDAE** | **POCKET GOPHERS** | | | |
| *Thomomys bottae* | Botta's pocket gopher | NNG | | O |
| **HETEROMYIDAE** | **POCKET MICE & KANGAROO RATS** | | | |
| *Chaetodipus* sp. | pocket mouse | MSS | | T |
| *Dipodomys simulans* | Dulzura kangaroo rat | NNG | | T |
| **MURIDAE** | **MICE & RATS** | | | |
| *Microtus californicus* | California vole | MFS | | T |
| *Peromyscus maniculatus* | deer mouse | CSS, DCSS, MSS, NNG | | T |
| *Reithrodontomys megalotis* | western harvest mouse | MFS | | T |
| *Neotoma lepida intermedia* | San Diego desert woodrat | NNG, CSS | | O, M |

| Attachment 6<br>Wildlife Species Observed | | | | |
|---|---|---|---|---|
| Scientific Name | Common Name | Occupied Habitat | On-Site Abundance/ Seasonality (Birds Only) | Evidence of Occurrence |
| *Neotoma bryanto* | Bryant's (San Diego) woodrat | NNG | | T |
| *Neotoma macrotis* | big-eared woodrat | MFS | | S, T |
| **CANIDAE** | **CANIDS** | | | |
| *Canis familiaris* | domestic dog (I) | NNG | | T, S |
| *Canis latrans* | coyote | MFS, CSS | | O, S |
| *Urocyon cinereoargenteus* | common gray fox | MSS | | S, T |
| **PROCYONIDAE** | **PROCYONIDS** | | | |
| *Procyon lotor* | northern raccoon | CSS | | O |
| **MUSTELIDAE** | **WEASELS, OTTERS, & BADGERS** | | | |
| *Mustela frenata* | long-tailed weasel | MSS | | T |
| **MEPHITIDAE** | **SKUNKS** | | | |
| *Mephitis mephitis* | striped skunk | MSS | | T |
| **FELIDAE** | **CATS** | | | |
| *Lynx rufus* | bobcat | DL, NNG, MFS | | S, T |

## Attachment 6
## Wildlife Species Observed

(I) = Introduced species

**HABITATS**

CSS = Diegan coastal sage scrub
DCSS = disturbed Diegan coastal sage scrub
DEV = urban/developed
DL = disturbed land
DMSS = disturbed maritime succulent scrub
MFS = mule fat scrub
MSS = maritime succulent scrub
NNG = non-native grassland
SWS = southern willow scrub
VP = vernal pools
WET = wetlands

**EVIDENCE OF OCCURRENCE**

M = Midden
O = Observed
S = Scat
T = Track
V = Vocalization

**ABUNDANCE** (birds only; based on Garrett and Dunn 1981)

C = Common to abundant; almost always encountered in proper habitat, usually in moderate to large numbers
F = Fairly common; usually encountered in proper habitat, generally not in large numbers
U = Uncommon; occurs in small numbers or only locally

**SEASONALITY** (birds only)

A = Accidental; species not known to occur under normal conditions; may be an off-course migrant
M = Migrant; uses site for brief periods of time, primarily during spring and fall months
S = Spring/summer resident; probable breeder on-site or in vicinity
T = Transient; uses site regularly but unlikely to breed on-site
V = Rare vagrant
W = Winter visitor; does not breed locally
Y = Year-round resident; probable breeder on-site or in vicinity

# ATTACHMENT 7

## Sensitive Plant Species Observed or with the Potential to Occur within the Program-level and Project-level Analysis Areas

| Attachment 7<br>Sensitive Plant Species Observed or with the Potential for Occurrence within the Program-level and Project-level Analysis Areas | | | | | | | |
|---|---|---|---|---|---|---|---|
| Species' *Scientific Name*<br>Common Name | State/<br>Federal<br>Status | CNPS<br>Rank | City of San<br>Diego | Habitat/Preference/ Requirements/<br>Blooming Period | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Determination of Occurrence<br>Potential |
| **BRYOPHYTES** | | | | | | | |
| **SPHAEROCARPACEAE** | | | | | | | |
| *Geothallus tuberosus*<br>Campbell's liverwort | –/– | 1B.1 | – | Ephemeral liverwort; mesic coastal sage scrub, vernal pools; elevation below 2,000 feet. California endemic. Known from San Diego and Riverside counties. Recently reported from Camp Pendleton, likely extirpated elsewhere in urbanized San Diego County. | No | Low | This species was not observed during focused rare plant surveys. Although natural vernal pool habitat was observed within the project parcels, many of the vernal pools undergo frequent disturbance thereby making the potential for this species to occur on-site as low. |
| *Sphaerocarpos drewei*<br>bottle liverwort | –/– | 1B.1 | – | Ephemeral liverwort; openings in chaparral and coastal sage scrub; elevation 300–2,000 feet. California endemic. Known from San Diego and Riverside counties. | No | Low | This species was not observed during focused rare plant surveys. The site contains very few suitably mesic areas which are preferred by this species. Any potentially suitable locales appear to be disturbed by vehicular traffic and/or invaded by non-native plant species, thereby making the potential for this species to occur on-site as low. |
| **LYCOPODS** | | | | | | | |
| **SELAGINELLACEAE SPIKE-MOSS FAMILY** | | | | | | | |
| *Selaginella cinerascens*<br>ashy spike-moss | –/– | 4.1 | – | Perennial rhizomatous herb; chaparral, coastal scrub; elevation 65–2,100 feet. | Yes | Observed | This species was **observed** on undisturbed mesa tops within maritime succulent scrub habitat, scattered throughout the project-level areas, including the vernal pool restoration area. |

| Attachment 7<br>Sensitive Plant Species Observed or with the Potential for Occurrence within the Program-level and Project-level Analysis Areas | | | | | | | |
|---|---|---|---|---|---|---|---|
| Species' *Scientific Name*<br>Common Name | State/<br>Federal<br>Status | CNPS<br>Rank | City of San<br>Diego | Habitat/Preference/ Requirements/<br>Blooming Period | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Determination of Occurrence<br>Potential |
| **ANGIOSPERMS: DICOTS** | | | | | | | |
| **CHENOPODIACEAE GOOSEFOOT FAMILY** | | | | | | | |
| *Aphanisma blitoides*<br>aphanisma | –/– | 1B.2 | NE, MSCP | Annual herb; coastal bluff scrub, coastal sage scrub; sandy soils; blooms March–June; elevation less than 1,000 feet. | No | Low | Surveys were conducted during times when this species would have been apparent, if present, and results were negative. However, due to the presence of coastal sage scrub on-site, there is a low potential for the species to occur. |
| *Atriplex pacifica*<br>south coast saltbush/south coast saltscale | –/– | 1B.2 | – | Annual herb; coastal bluff scrub, coastal dunes, coastal sage scrub, playas; blooms March–October; elevation less than 500 feet. | Yes | Observed | This species was **observed** within the disturbed areas of the Beyer Boulevard alignment and on mesa top of the southwestern edge of the project-level analysis area within disturbed maritime succulent scrub and non-native grassland habitat. |
| **CONVOLVULACEAE MORNING-GLORY FAMILY** | | | | | | | |
| *Dichondra occidentalis*<br>western dichondra | –/– | 4.2 | – | Perennial herb; chaparral, cismontane woodland, coastal sage scrub, where it often grows hidden beneath shrubs; blooms January-July; elevation less than 1,640 feet. | Yes | High | This species was observed within the maritime succulent scrub within Phase 1b within the Beyer Boulevard alignment. |

| Attachment 7<br>Sensitive Plant Species Observed or with the Potential for Occurrence within the Program-level and Project-level Analysis Areas | | | | | | | |
|---|---|---|---|---|---|---|---|
| Species' *Scientific Name*<br>Common Name | State/<br>Federal<br>Status | CNPS<br>Rank | City of San<br>Diego | Habitat/Preference/ Requirements/<br>Blooming Period | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Determination of Occurrence<br>Potential |
| **APIACEAE CARROT FAMILY** | | | | | | | |
| *Eryngium aristulatum*<br>var. *parishii*<br>San Diego button-celery | CE/FE | 1B.1 | NE, MSCP | Biennial/perennial herb; vernal pools, mesic areas of coastal sage scrub and grasslands, blooms April–June; elevation less than 2,000 feet. Known from San Diego and Riverside counties. Additional populations occur in Baja California, Mexico. | Yes | Observed | This species was **observed** within one vernal pool on the mesa top within Phase 1b (see Figure 26.3) and within the non-native grassland, outside of a vernal pool, within the southern vernal pool restoration area. This species is also documented in the program-level area through Vernal Pool Habitat Conservation Plan (VPHCP) during City of San Diego mapping efforts. |
| **ASTERACEAE SUNFLOWER FAMILY** | | | | | | | |
| *Ambrosia chenopodiifolia*<br>San Diego bur-sage | –/– | 2B.1 | – | Perennial shrub; coastal sage scrub; cobbly loam soils; blooms April–June; elevation 150–500 feet. Known in California from fewer than 15 occurrences all of which are in San Diego County. Additional populations in Baja California, Mexico. | Yes | Observed | This species was **observed** throughout the project-level analysis area within maritime succulent scrub and Diegan coastal sage scrub habitats, as well as within disturbed areas such as roads and trails on site. |

| Attachment 7<br>Sensitive Plant Species Observed or with the Potential for Occurrence within the Program-level and Project-level Analysis Areas | | | | | | | |
|---|---|---|---|---|---|---|---|
| Species' *Scientific Name*<br>Common Name | State/<br>Federal<br>Status | CNPS<br>Rank | City of San<br>Diego | Habitat/Preference/ Requirements/<br>Blooming Period | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Determination of Occurrence<br>Potential |
| *Ambrosia pumila*<br>San Diego ambrosia | –/FE | 1B.1 | NE, MSCP | Perennial herb (rhizomatous); chaparral, coastal sage scrub, valley and foothill grasslands, creek beds, vernal pools, often in disturbed areas; blooms May–September; elevation less than 1,400 feet. Many occurrences extirpated in San Diego County. Potential habitat in San Diego County is along creek beds, seasonally dry drainages, and floodplains along the edge of willow woodland, in riverwash or sandy alluvial soils from the San Luis Rey River south to the Sweetwater River (Beauchamp 1986). | No | Low | No individuals were observed within the project-level analysis survey area during the rare plant surveys. However, there is a low potential to occur within the survey area due to the presence of coastal sage scrub, non-native grassland, and vernal pools on-site. |
| *Baccharis vanessae*<br>Encinitas baccharis<br>[=Encinitas coyote brush] | CE/FT | 1B.1 | NE, MSCP | Perennial deciduous shrub; chaparral; maritime; sandstone; blooms August–November; elevation less than 2,500 feet. San Diego County endemic. Known from fewer than 20 occurrences. Extirpated from Encinitas area. | No | Low | This species is not expected to occur as the project-level analysis area is out of the species' known range, and no individuals were observed within the survey area during rare plant and other field surveys. |
| *Bahiopsis* [=*Viguiera*] *laciniata*<br>San Diego viguiera [=San Diego County viguiera] | –/– | 4.3 | – | Perennial shrub; chaparral, coastal sage scrub; blooms February–June; elevation less than 2,500 feet. | Yes | Observed | This species was **observed** in Phase 1a and 1b, 2a and 2b. Individuals occur both scattered and in groups within maritime succulent scrub and Diegan coastal sage scrub habitats. |

| Attachment 7<br>Sensitive Plant Species Observed or with the Potential for Occurrence within the Program-level and Project-level Analysis Areas | | | | | | | |
|---|---|---|---|---|---|---|---|
| Species' *Scientific Name*<br>Common Name | State/<br>Federal<br>Status | CNPS<br>Rank | City of San<br>Diego | Habitat/Preference/ Requirements/<br>Blooming Period | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Determination of Occurrence<br>Potential |
| *Deinandra* [=*Hemizonia*] *conjugens*<br>Otay tarplant | CE/FT | 1B.1 | NE, MSCP | Annual herb; clayey soils of coastal scrub openings, valley and foothill grassland; blooms April–June, elevation less than 1,000 feet. | Yes | Observed | This species was **observed** within the maritime succulent scrub and Diegan coastal sage scrub within the Beyer Boulevard alignment Additionally, this species has been known to occur within a 1-mile buffer of the survey area (CDFW 2019a). |
| *Holocarpha virgata*<br>ssp. *elongata*<br>graceful tarplant | –/– | 4.2 | – | Annual herb; coastal sage scrub, cismontane woodland, valley and foothill grasslands, chaparral; blooms July–November; elevation 200–3,600 feet. California endemic. Known from San Diego, Riverside, and Orange counties. | No | Moderate | This species was not observed, but has a moderate potential to occur within the survey area due to the presence of coastal sage scrub and non-native grassland on-site. |
| *Isocoma menziesii*<br>var. *decumbens*<br>decumbent goldenbush | –/– | 1B.2 | – | Perennial shrub; chaparral, coastal sage scrub; sandy soils, often in disturbed areas; blooms April–November; elevation less than 500 feet. | Yes | Observed | This species was **observed** within Phase 1a. Two individuals were noted within the Diegan coastal sage scrub habitat. |
| *Microseris douglasii*<br>ssp. *platycarpha*<br>small-flowered microseris | –/– | 4.2 | – | Annual herb; Clay lenses on perennial grasslands, vernal pools, openings in coastal sage scrub; blooms March–May; elevation 50–3,500 feet. | No | Moderate | This species was not observed, but has a moderate potential to occur within the survey area due to the presence of non-native grassland on-site. |

| Attachment 7<br>Sensitive Plant Species Observed or with the Potential for Occurrence within the Program-level and Project-level Analysis Areas | | | | | | | |
|---|---|---|---|---|---|---|---|
| Species' *Scientific Name*<br>Common Name | State/<br>Federal<br>Status | CNPS<br>Rank | City of San<br>Diego | Habitat/Preference/ Requirements/<br>Blooming Period | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Determination of Occurrence<br>Potential |
| *Pentachaeta aurea* ssp. *aurea*<br>golden-ray pentachaeta | –/– | 4.2 | – | Annual herb; cismontane woodland, coastal sage scrub, lower montane coniferous forest, perennial grasslands; blooms March–July; elevation 260–6,100 feet. | Yes | High | This species was not observed within the project-level analysis area but was observed growing along the edges of the southern vernal pool restoration area within non-native grassland habitat. |
| **BORAGINACEAE BORAGE FAMILY** | | | | | | | |
| *Harpagonella palmeri*<br>Palmer's grapplinghook | –/– | 4.2 | – | Annual herb; chaparral, coastal sage scrub, valley and foothill grasslands; clay soils; blooms March–May; elevation less than 3,200 feet. Inconspicuous and easily overlooked. | Yes | Observed | This plant species was **observed** within the southern portion of the vernal pool restoration area, in non-native grassland and disturbed areas. It was frequently found to be scattered within large patches of low-growing annual flowers and along roadsides. |
| **CACTACEAE CACTUS FAMILY** | | | | | | | |
| *Cylindropuntia californica* var. *californica* [=*Opuntia parryi* var. *serpentina*]<br>snake cholla | –/– | 1B.1 | NE, MSCP | Perennial stem succulent; chaparral, coastal sage scrub; blooms April–May; elevation 100–500 feet. | Yes | Observed | This plant species was **observed** within the survey area within Moody Canyon north of the Beyer Boulevard extension and within mitigation lands in maritime succulent scrub. |
| *Ferocactus viridescens*<br>San Diego barrel cactus | –/– | 2B.1 | MSCP | Perennial stem succulent; chaparral, coastal sage scrub, valley and foothill grasslands, vernal pools; blooms May–June; elevation less than 1,500 feet. | Yes | Observed | This plant species was **observed** growing in undisturbed maritime succulent scrub habitat particularly on canyon edges within the project-level analysis area. |

| Attachment 7<br>Sensitive Plant Species Observed or with the Potential for Occurrence within the Program-level and Project-level Analysis Areas | | | | | | | |
|---|---|---|---|---|---|---|---|
| Species' *Scientific Name*<br>Common Name | State/<br>Federal<br>Status | CNPS<br>Rank | City of San<br>Diego | Habitat/Preference/ Requirements/<br>Blooming Period | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Determination of Occurrence<br>Potential |
| *Dudleya brevifolia* [=*D. blochmaniae* ssp. *brevifolia*]<br>short-leaved dudleya [short-leaved live-forever] | CE/– | 1B.1 | NE, MSCP | Perennial herb; southern maritime chaparral, coastal sage scrub on Torrey sandstone; blooms in April; elevation less than 1,000 feet. San Diego County endemic. Known from fewer than five occurrences in the Del Mar and La Jolla areas. | No | Low | This perennial species was not observed and would have been apparent at the time of field surveys, if present. However, this species has a low potential to occur due to the presence of Diegan coastal sage scrub habitat on-site. |
| *Dudleya variegata*<br>variegated dudleya | –/– | 1B.2 | NE, MSCP | Perennial herb; openings in chaparral, coastal sage scrub, grasslands, vernal pools; blooms May–June; elevation less than 1,900 feet. | Yes | Observed | This species was **observed** growing in two separate clumps, within the mitigation lands. They were located immediately north of the vernal pool restoration area and within Diegan coastal sage scrub habitat. |
| EUPHORBIACEAE SPURGE FAMILY | | | | | | | |
| *Euphorbia misera*<br>cliff spurge | –/– | 2B.2 | – | Shrub; coastal sage scrub, maritime succulent scrub, coastal bluff scrub; blooms December–August; elevation less than 2,000 feet. | Yes | Observed | This species was **observed** growing within south and west-facing slopes within maritime succulent scrub habitat within the northern part of the project-level analysis area and within the mitigation lands. |

| Attachment 7<br>Sensitive Plant Species Observed or with the Potential for Occurrence within the Program-level and Project-level Analysis Areas | | | | | | | |
|---|---|---|---|---|---|---|---|
| Species' *Scientific Name*<br>Common Name | State/<br>Federal<br>Status | CNPS<br>Rank | City of San<br>Diego | Habitat/Preference/ Requirements/<br>Blooming Period | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Determination of Occurrence<br>Potential |
| **FABACEAE LEGUME FAMILY** | | | | | | | |
| *Astragalus tener* var. *titi*<br>coastal dunes milkvetch | CE/FE | 1B.1 | NE, MSCP | Annual herb; coastal bluff scrub, coastal dunes, sandy soils, mesic coastal prairie; blooms March–May; elevation less than 200 feet. California endemic. Known from fewer than 10 occurrences in San Diego (presumed extirpated), Los Angeles (presumed extirpated), and Monterey counties. | No | Low | This species was not observed during field surveys, and not expected to occur within the survey area due to the lack of suitable habitats. |
| **LAMIACEAE MINT FAMILY** | | | | | | | |
| *Acanthomintha ilicifolia*<br>San Diego thornmint | CE/FT | 1B.1 | NE, MSCP | Annual herb; chaparral, coastal sage scrub, and grasslands; friable or broken clay soils; blooms April–June; elevation less than 3,200 feet. | No | Low | This species was not observed on-site; however, there is a low potential to occur due to the presence of clay soils, non-native grassland, and Diegan coastal sage scrub habitats. |
| *Pogogyne abramsii*<br>San Diego mesa mint | CE/FE | 1B.1 | NE, MSCP | Annual herb; vernal pools; blooms April–July; elevation 300–700 feet. San Diego County endemic. | No | Low | This species was not observed during focused rare plant surveys. Although natural vernal pool habitat was observed within the project parcels, many of the vernal pools on-site undergo frequent disturbance thereby making the potential for this species to occur as low. |

| Attachment 7<br>Sensitive Plant Species Observed or with the Potential for Occurrence within the Program-level and Project-level Analysis Areas | | | | | | | |
|---|---|---|---|---|---|---|---|
| Species' *Scientific Name*<br>Common Name | State/<br>Federal<br>Status | CNPS<br>Rank | City of San<br>Diego | Habitat/Preference/ Requirements/<br>Blooming Period | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Determination of Occurrence<br>Potential |
| *Pogogyne nudiuscula*<br>Otay mesa mint | CE/FE | 1B.1 | NE, MSCP | Annual herb; vernal pools; blooms May–July; elevation 300–820 feet. In California, known from approximately 10 occurrences in Otay Mesa in San Diego County. Additional populations occur in Baja California, Mexico. | No | Low | This species was not observed during focused rare plant surveys. Although this species has been known to occur within a 1-mile buffer of the survey area (CDFW 2019a), many of the vernal pools on-site undergo frequent disturbance thereby making the potential for this species to occur as low. |
| **MONTIACEAE MONTIA FAMILY** | | | | | | | |
| *Cistanthe* [=*Calandrinia*] *maritima*<br>seaside cistanthe | –/– | 4.2 | – | Annual herb; coastal bluff scrub, coastal sage scrub, valley and foothill grassland; blooms February–August; elevation less than 1,000 feet. | Yes | Observed | This species was **observed** within the northern portion of the project-level analysis area and the mitigation lands within maritime succulent scrub habitat. |
| **OROBANCHACEAE BROOM-RAPE FAMILY** | | | | | | | |
| *Dicranostegia orcuttiana*<br>[=*Cordylanthus orcuttianus*]<br>Orcutt's bird's-beak | –/– | 2B.1 | MSCP | Annual herb (hemiparasitic); coastal sage scrub; blooms March–September; elevation less than 1,200 feet. | No | Moderate | This species was not observed but has a moderate potential to occur within the coastal sage scrub within the project-level analysis area. |

| Attachment 7<br>Sensitive Plant Species Observed or with the Potential for Occurrence within the Program-level and Project-level Analysis Areas | | | | | | | |
|---|---|---|---|---|---|---|---|
| Species' *Scientific Name*<br>Common Name | State/<br>Federal<br>Status | CNPS<br>Rank | City of San<br>Diego | Habitat/Preference/ Requirements/<br>Blooming Period | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Determination of Occurrence<br>Potential |
| **POLEMONIACEAE PHLOX FAMILY** | | | | | | | |
| *Navarretia fossalis*<br>spreading navarretia<br>[=prostrate navarretia] | –/FT | 1B.1 | NE, MSCP | Annual herb; vernal pools, marshes and swamps, chenopod scrub; blooms April–June; elevation 100–4,300 feet. | No | Low | This species was not observed during focused rare plant surveys. Although this species has been known to occur within a one-mile buffer of the project-level analysis area (CDFW 2019a), many of the vernal pools on-site undergo frequent disturbance thereby making the potential for this species to occur as low. |
| **RHAMNACEAE BUCKTHORN FAMILY** | | | | | | | |
| *Adolphia californica*<br>California adolphia | –/– | 2B.1 | – | Perennial deciduous shrub; Diegan coastal sage scrub and chaparral; clay soils; blooms December–May; elevation 100–2,500 feet. | Yes | Observed | This species was **observed** growing within Diegan coastal sage scrub and maritime succulent scrub habitats along the southern edge of the project-level analysis area |
| **ROSACEAE ROSE FAMILY** | | | | | | | |
| *Rosa minutifolia*<br>small-leaved rose | CE/– | 2B.1 | MSCP | Perennial deciduous shrub; coastal sage scrub; blooms January–June; elevation 500–550 feet. Known in the U.S. from only one occurrence on Otay Mesa in San Diego County. This entire occurrence was transplanted to a new preserved location on Otay Mesa for mitigation in 1997. Additional populations occur in Baja California, Mexico. | No | Low | This species was not observed during focused rare plant surveys. Although this species has been known to occur within a one-mile buffer of the project-level analysis area (CDFW 2019a), it has a low potential to occur within the Diegan coastal sage scrub and maritime succulent scrub. |

| Attachment 7<br>Sensitive Plant Species Observed or with the Potential for Occurrence within the Program-level and Project-level Analysis Areas | | | | | | | |
|---|---|---|---|---|---|---|---|
| Species' *Scientific Name*<br>Common Name | State/<br>Federal<br>Status | CNPS<br>Rank | City of San<br>Diego | Habitat/Preference/ Requirements/<br>Blooming Period | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Determination of Occurrence<br>Potential |
| **SOLANACEAE NIGHTSHADE FAMILY** | | | | | | | |
| *Lycium californicum*<br>California box-thorn | –/– | 4.2 | – | Perennial shrub; coastal bluff scrub, coastal sage scrub; blooms March–August; elevation less than 500 feet. | Yes | Observed | This species was **observed** growing within maritime succulent scrub habitat along the western end of Beyer Boulevard extension footprint. |
| **ANGIOSPERMS: MONOCOTS** | | | | | | | |
| **AGAVACEAE AGAVE FAMILY** | | | | | | | |
| *Agave shawii* var. *shawii*<br>Shaw's agave | –/– | 2B.1 | NE, MSCP | Perennial leaf succulent; coastal bluff scrub, coastal sage scrub, maritime succulent scrub; blooms September–May; elevation less than 400 feet. | No | Low | This species was not observed during field surveys, and is not expected to occur within the project area since the site is out of its known range. |
| **POACEAE GRASS FAMILY** | | | | | | | |
| *Hordeum intercedens*<br>bobtail barley [=vernal barley] | –/– | 3.2 | – | Annual herb; coastal dunes, coastal sage scrub, valley and foothill grasslands, vernal pools; blooms March–June; elevation less than 3,300 feet. | Yes | Observed | This species was **observed** growing in a vernal within the pool restoration area. The project area contains vernal pools, which are a preferred habitat of this species. |

| Attachment 7<br>Sensitive Plant Species Observed or with the Potential for Occurrence within the Program-level and Project-level Analysis Areas | | | | | | | |
|---|---|---|---|---|---|---|---|
| Species' *Scientific Name*<br>Common Name | State/<br>Federal<br>Status | CNPS<br>Rank | City of San<br>Diego | Habitat/Preference/ Requirements/<br>Blooming Period | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Determination of Occurrence<br>Potential |
| *Orcuttia californica*<br>California Orcutt grass | CE/FE | 1B.1 | NE, MSCP | Annual herb; vernal pools; blooms April–August; elevation 50–2,200 feet. | No | Low | This species was not observed during focused rare plant surveys. Although this species has been known to occur within a one-mile buffer of the survey area (CDFW 2019a)many of the vernal pools on-site undergo frequent disturbance thereby making the potential for this species to occur as low (project-level areas) and low to moderate (program-level areas). |
| *Stipa diegoensis* [=*Achnatherum diegoense*]<br>San Diego needle grass | –/– | 4.2 | – | Perennial herb; rocky soils, chaparral, coastal sage scrub, often near streams; blooms February–June; elevation less than 2,600 feet. | Yes | Observed | This species was **observed** on-site within the Beyer Boulevard alignment and in the northwestern portion of the residential development area in Phase 1a. |
| THEMIDACEAE BRODIAEA FAMILY | | | | | | | |
| *Bloomeria* [=*Muilla*] *clevelandii*<br>San Diego goldenstar | –/– | 1B.1 | MSCP | Perennial herb (bulbiferous); chaparral, coastal sage scrub, valley and foothill grassland, vernal pools; clay soils; blooms May; elevation 170–1,500 feet. | No | Moderate | This plant species was not observed within the project-level analysis area, but has a moderate potential to occur within the Diegan coastal sage scrub, non-native grassland, and vernal pool habitats. |

| Attachment 7<br>Sensitive Plant Species Observed or with the Potential for Occurrence within the Program-level and Project-level Analysis Areas | | | | | | | |
|---|---|---|---|---|---|---|---|
| Species' *Scientific Name*<br>Common Name | State/<br>Federal<br>Status | CNPS<br>Rank | City of San<br>Diego | Habitat/Preference/ Requirements/<br>Blooming Period | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Determination of Occurrence<br>Potential |
| *Brodiaea filifolia*<br>thread-leaved brodiaea<br>[=thread-leaf brodiaea] | CE/FT | 1B.1 | MSCP, NE | Perennial herb (bulbiferous); cismontane woodland, coastal sage scrub, playas, valley and foothill grassland, vernal pools; often clay soils; blooms March–June; elevation less than 2,850 feet. California endemic. Known from San Diego, Riverside, Orange, Los Angeles, and San Bernardino counties. | No | Moderate | This plant species was not observed within the survey area during focused rare plant surveys, but has a moderate potential to occur within the Diegan coastal sage scrub, non-native grassland, and vernal pool habitats. |

FEDERAL CANDIDATES AND LISTED PLANTS

FE = Federally listed endangered
FT = Federally listed threatened
FC = Federal candidate for listing as endangered or threatened

STATE LISTED PLANTS

CE = State listed endangered
CR = State listed rare
CT = State listed threatened

CALIFORNIA NATIVE PLANT SOCIETY (CNPS): CALIFORNIA RARE PLANT RANKS (CRPR)

1A = Species presumed extinct.
1B = Species rare, threatened, or endangered in California and elsewhere. These species are eligible for state listing.
2A = Plants presumed extirpated in California, but more common elsewhere.
2B = Species rare, threatened, or endangered in California but more common elsewhere. These species are eligible for state listing.
3 = Species for which more information is needed. Distribution, endangerment, and/or taxonomic information is needed.
4 = A watch list of species of limited distribution. These species need to be monitored for changes in the status of their populations.
.1 = Species seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat).
.2 = Species fairly threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat).
.3 = Species not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known).
CBR = Considered but rejected

CITY OF SAN DIEGO

NE = Narrow endemic
MSCP = Multiple Species Conservation Program covered species
VPHCP = Vernal Pool Habitat Conservation Plan covered species

# ATTACHMENT 8

## Sensitive Wildlife Species Observed or with the Potential to Occur within the Program-level and Project-level Analysis Areas

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing<br>Status | Habitat Preference/<br>Requirements | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Basis for Determination of<br>Occurrence Potential |
| **INVERTEBRATES** (Nomenclature from Eriksen and Belk 1999; San Diego Natural History Museum 2002) | | | | | |
| **BRANCHINECTIDAE** **FAIRY SHRIMP** | | | | | |
| San Diego fairy shrimp<br>*Branchinecta sandiegonensis* | FE, VPHCP | Vernal pools. | Yes | Observed | This species was **observed** during focused surveys conducted during the 2017/2018 wet season and the 2018/2019 wet season. San Diego fairy shrimp were found in vernal pools within the project-level analysis area, and the vernal pool restoration area. Additionally, this species has been known to occur within one mile of the survey area (CDFW 2022e). |
| **STREPTOCEPHALIDAE** **FAIRY SHRIMP** | | | | | |
| Riverside fairy shrimp<br>*Streptocephalus woottoni* | FE, VPHCP | Vernal pools. | Yes | Observed | This species was **observed** during focused surveys conducted during the 2018/2019 wet season. This species was detected in one pool within the project-level analysis area. Additionally, this species has been known to occur within one mile of the survey area (CDFW 2022e). |

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing<br>Status | Habitat Preference/<br>Requirements | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Basis for Determination of<br>Occurrence Potential |
| APIDAE HONEY BEES, BUMBLE BEES, AND ALLIES | | | | | |
| Crotch's bumble bee<br>*Bombus crotchii* | SC | A wide range of disturbed and natural habitats including but not limited to exotic and native grasslands, sage scrub, chaparral, great basin sage scrub, and pinon-juniper woodlands with occurrences from sea level to at least 5000 feet. | Yes | Observed | This species was **observed** during habitat assessments conducted within the mitigation lands. There is a moderate potential within the project-level analysis area due to the presence of suitable grasslands, sage scrub, and chaparral habitats. |
| NYMPHALIDAE BRUSH-FOOTED BUTTERFLIES | | | | | |
| Quino checkerspot<br>*Euphydryas editha quino* | FE | Open, dry areas in foothills, mesas, lake margins. Larval host plant *Plantago erecta*. Adult emergence mid-January through April. | Yes | Observed | This species was **observed** during the 2019 focused survey effort. A single QCB was observed within the vernal pool restoration area. Additionally, this species has been known to occur within one mile of the survey area (CDFW 2022e). |

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing<br>Status | Habitat Preference/<br>Requirements | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Basis for Determination of<br>Occurrence Potential |
| **AMPHIBIANS** (Nomenclature from Crother et al. 2008) | | | | | |
| **PELOBATIDAE** **SPADEFOOT TOADS** | | | | | |
| Western spadefoot<br>*Spea hammondii* | FPT, CSC | Vernal pools, floodplains, and alkali flats within areas of open vegetation. | No | Observed | The project has many vernal pools and seasonal basins that provide an ephemeral water source for breeding. Additionally, tadpoles and amphibian eggs were **observed** during protocol wet season fairy shrimp surveys during 2017/2018 or 2018/2019. This species has been known to occur within one mile of the survey area (CDFW 2022d). |
| **REPTILES** (Nomenclature from Crother et al. 2017) | | | | | |
| **IGUANIDAE** **IGUANID LIZARDS** | | | | | |
| Coast horned lizard<br>*Phrynosoma blainvillii* [= *P. coronatum* coastal population] | CSC, MSCP | Chaparral, coastal sage scrub with fine, loose soil. Partially dependent on harvester ants for forage. | Yes | Observed | Coast horned lizards were **observed** on site during field surveys in non-native grassland habitat, and adjacent to Diegan coastal sage scrub habitat. Additionally, this species has been known to occur within one mile of the survey area (CDFW 2022d). |

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing Status | Habitat Preference/ Requirements | Detected On-Site? | Potential to Occur On-Site? | Basis for Determination of Occurrence Potential |
| **SCINCIDAE SKINKS** | | | | | |
| Coronado skink<br>*Plestiodon* [=*Eumeces*] *skiltonianus interparietalis* | CSC | Grasslands, open woodlands and forest, broken chaparral. Rocky habitats near streams. | No | Moderate | This species was not observed, but has a moderate potential to occur within the project-level analysis area due to the presence of suitable non-native grassland habitat. This species has been known to occur within one mile of the survey area (CDFW 2022d). |
| **TEIIDAE WHIPTAIL LIZARDS** | | | | | |
| Orange-throated [=Belding's orange-throated] whiptail<br>*Aspidoscelis hyperythra* | CSC, MSCP | Chaparral, coastal sage scrub with coarse sandy soils and scattered brush. | Yes | Observed | This species was **observed** within disturbed Diegan coastal sage scrub within the project-level analysis area. Additionally, this species has been known to occur within one mile of the survey area (CDFW 2022d). |
| Coastal whiptail<br>*Aspidoscelis tigris stejnegeri* | CSC | Coastal sage scrub, chaparral, woodlands, and streamsides where plants are sparsely distributed. | Yes | Observed | This species was **observed** within the project-level analysis area within the maritime succulent scrub. |
| **COLUBRIDAE COLUBRID SNAKES** | | | | | |
| Two-striped gartersnake<br>*Thamnophis hammondii* | CSC | Permanent freshwater streams with rocky bottoms. Mesic areas. | Yes | Observed | A two-striped garter snake was **observed** within a vernal pool the project-level analysis area during wet season fairy shrimp surveys in 2018. |

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing Status | Habitat Preference/ Requirements | Detected On-Site? | Potential to Occur On-Site? | Basis for Determination of Occurrence Potential |
| **CROTALIDAE** **RATTLESNAKES** | | | | | |
| Red diamond rattlesnake<br>*Crotalus ruber* | CSC | Desert scrub and riparian, coastal sage scrub, open chaparral, grassland, and agricultural fields. | Yes | Observed | This species was **observed** within the project-level analysis area in Diegan coastal sage scrub habitat. Additionally, this species has been known to occur within one mile of the survey area (CDFW 2022d). |
| **BIRDS** (Nomenclature from Chesser et al. 2021) | | | | | |
| **ACCIPITRIDAE** **HAWKS, KITES, & EAGLES** | | | | | |
| Cooper's hawk (nesting)<br>*Accipiter cooperii* | WL, MSCP | Mature forest, open woodlands, wood edges, river groves. Parks and residential areas. | Yes | Observed | This species was **observed** in several locations including the project-level analysis area, the northern portion of the vernal pool restoration area, and within the mitigation lands south of the borrow site. |
| Golden eagle<br>*Aquila chrysaetos* | WL, CFP, BEPA, MSCP | Require vast foraging areas in grassland, broken chaparral, or sage scrub. Nest in cliffs and boulders. Uncommon resident. | Yes | Observed | One juvenile was **observed** flying over the project-level analysis area. |

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing<br>Status | Habitat Preference/<br>Requirements | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Basis for Determination of<br>Occurrence Potential |
| Northern harrier (nesting)<br>*Circus hudsonius* | CSC, MSCP | Coastal lowland, marshes, grassland, agricultural fields. Migrant and winter resident, rare summer resident. | Yes | Observed | The northern harrier was **observed** during surveys within the project-level analysis area and within outfall locations in maritime succulent scrub habitat located to the southwest of the borrow site. Additionally, this species has been known to occur within one mile of the survey area (CDFW 2022d). |
| White-tailed kite (nesting)<br>*Elanus leucurus* | CFP | Nest in riparian woodland, oaks, sycamores. Forage in open, grassy areas. Year-round resident. | Yes | Observed | This species was **observed** within the project-level analysis area and the vernal pool restoration area in non-native grassland habitat. |

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing Status | Habitat Preference/ Requirements | Detected On-Site? | Potential to Occur On-Site? | Basis for Determination of Occurrence Potential |
| Bald eagle<br>*Haliaeetus leucocephalus* | (Fed. Delisted), CE, CFP, BEPA, MSCP | Rivers, lakes. rare winter visitor, rare fall migrant. Feed mainly on fish. | Yes | Occur – Observed; Nesting – not expected | This species was **observed** perching on a power pole located on a disturbed road within the project-level analysis area. As there is no nesting opportunities for this species on-site, it is assumed this bird was a fly-over. There may be foraging opportunities for this species within the coastal sage scrub and non-native grasslands, but bald eagle mainly feeds on fish and the site does not support large bodies of water. |
| FALCONIDAE FALCONS & CARACARAS | | | | | |
| Merlin<br>*Falco columbarius* | WL | Rare winter visitor. Grasslands, agricultural fields, occasionally mud flats. | Yes | Observed | This species was **observed** perched on a utility pole within the project-level analysis area in non-native grassland habitat, and another one was detected immediately east of VTM South, and within the grading footprint. |

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing Status | Habitat Preference/ Requirements | Detected On-Site? | Potential to Occur On-Site? | Basis for Determination of Occurrence Potential |
| **STRIGIDAE** **TYPICAL OWLS** | | | | | |
| Western burrowing owl (burrow sites)<br>*Athene cunicularia* | SC, MSCP | Grassland, agricultural land, coastal dunes. Require rodent burrows. Declining resident. | Yes | Moderate | This species was incidentally **observed** within the coastal sage scrub within the northern portion of the project-level analysis area during a Quino checkerspot butterfly survey. Suitable habitat occurs within VTM North and VTM South; however, this species was not detected during protocol burrowing owl breeding season surveys conducted in 2018 or 2020. This species has been known to occur within one mile of the survey area (CDFW 2022d). |
| **LANIIDAE** **SHRIKES** | | | | | |
| Loggerhead shrike<br>*Lanius ludovicianus* | CSC | Agricultural areas, parks, ponds, rivers. Rare fall and spring migrant, winter visitor, summer resident. Breeding rare. | No | Moderate | This species was not observed during surveys; however, there was a recent observation posted to a public citizen science mobile application within the project-level survey area (I-Naturalist) and there is suitable habitat present to support the species. |

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing<br>Status | Habitat Preference/<br>Requirements | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Basis for Determination of<br>Occurrence Potential |
| **VIREONIDAE VIREOS** | | | | | |
| Least Bell's vireo (nesting)<br>*Vireo bellii pusillus* | FE, CE,<br>MSCP | Willow riparian woodlands.<br>Summer resident. | Yes | Observed | Least Bell's vireo was **detected** by vocalizations within the riparian habitat on the western end of the proposed Beyer Boulevard extension. This species was also detected by vocalizations within the southeastern portion of the mitigation lands within mule fat scrub. This species has also been known to occur within one mile of the survey area (CDFW 2022e). |
| **ALAUDIDAE LARKS** | | | | | |
| California horned lark<br>*Eremophila alpestris actia* | WL | Sandy shores, mesas, disturbed areas, grasslands, agricultural lands, sparse creosote bush scrub. | Yes | Observed | This species was **observed** several times on-site during surveys including in VTM North in non-native grassland habitat and within disturbed lands in the mitigation lands. |

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing<br>Status | Habitat Preference/<br>Requirements | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Basis for Determination of<br>Occurrence Potential |
| **TROGLODYTIDAE WRENS** | | | | | |
| Coastal cactus wren<br>*Campylorhynchus brunneicapillus sandiegensis* | CSC, MSCP | Maritime succulent scrub, coastal sage scrub with *Opuntia* thickets. Rare localized resident. | No | High | This species was not observed but has a high potential to occur within the maritime succulent scrub habitat located at the western end of Beyer Boulevard. Coastal cactus wren was detected within the western end of the proposed Beyer Boulevard in 2017 (RECON 2022) and due to the high suitability of the habitat on the west end of the project and the past detections, this species is assumed present. This species has also been known to occur within one mile of the survey area (CDFW 2022d). |

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing<br>Status | Habitat Preference/<br>Requirements | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Basis for Determination of<br>Occurrence Potential |
| **SYLVIIDAE GNATCATCHERS** | | | | | |
| Coastal California gnatcatcher<br>*Polioptila californica californica* | FT, CSC,<br>MSCP | Coastal sage scrub, maritime succulent scrub. Resident. | Yes | Observed | This species was **observed** in Diegan coastal sage scrub habitat during protocol surveys performed in VTM North and the mitigation lands, and incidental sightings during general vegetation surveys along Beyer Boulevard. This species has also been known to occur within one mile of the survey area (CDFW 2022e). |
| **PARULIDAE WOOD WARBLERS** | | | | | |
| Yellow warbler (nesting)<br>*Setophaga* [=*Dendroica*] *petechia* | CSC | Breeding restricted to riparian woodland. Spring and fall migrant, localized summer resident, rare winter visitor. | Yes<br>(within mitigation lands) | Observed | A yellow warbler was detected by vocalizations along the eastern edge of the mitigation lands within the mule fat scrub habitat. There is a high potential for this species to nest within the riparian vegetation within the western end of the Beyer Boulevard extension. |

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing Status | Habitat Preference/<br>Requirements | Detected On-Site? | Potential to Occur On-Site? | Basis for Determination of Occurrence Potential |
| Yellow-breasted chat (nesting)<br>*Icteria virens* | CSC | Dense riparian woodland. Localized summer resident. | Yes | Observed | A yellow-breasted chat was **observed** within the western end of the proposed Beyer Boulevard extension and detected by vocalizations along the eastern edge of the mitigation lands within the mule fat scrub habitat. |
| **EMBERIZIDAE** **EMBERIZIDS** | | | | | |
| Southern California rufous-crowned sparrow<br>*Aimophila ruficeps canescens* | WL, MSCP | Coastal sage scrub, chaparral, grassland. Resident. | Yes | Observed | This species was **observed** several times on-site during field surveys in VTM North, in Diegan coastal sage scrub habitat within VTM South, west of VTM South, and in non-native grassland habitat within the northern vernal pool restoration area parcel. This species has been known to occur within one mile of the survey area (CDFW 2022d). |
| Grasshopper sparrow (nesting)<br>*Ammodramus savannarum* | CSC | Tall grass areas. Localized summer resident, rare in winter. | Yes | Observed | Grasshopper sparrows were **detected** by vocalizations at the northern section of VTM North in Diegan coastal sage scrub habitat and within the mitigation lands. |

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing Status | Habitat Preference/ Requirements | Detected On-Site? | Potential to Occur On-Site? | Basis for Determination of Occurrence Potential |
| Bell's sage sparrow<br>*Artemisiospiza* [=*Amphispiza*] *belli belli* | WL | Chaparral, coastal sage scrub. Localized resident. | No | Moderate | This species was not observed but has a moderate potential to occur in the Diegan coastal sage scrub and maritime succulent scrub areas within the survey area. This species has been known to occur within one mile of the survey area (CDFW 2022d). |
| **MAMMALS** (Nomenclature from Bradley et al. (2014) | | | | | |
| **VESPERTILIONIDAE** **VESPER BATS** | | | | | |
| Western red bat<br>*Lasiurus blossevillii* | CSC | Generally associated with riparian habitats, especially willows, cottonwoods, and sycamores | No | Low within mesa top areas associated with project and program level areas. Moderate within mitigation lands. | This species was not observed within the project area and not expected to due to the absence of riparian habitat. There is moderate potential for the western red bat to occur within the riparian habitats within the mitigation lands. This species has also been known to occur within one mile of the survey area (CDFW 2022d). |

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing<br>Status | Habitat Preference/<br>Requirements | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Basis for Determination of<br>Occurrence Potential |
| Townsend's [=western] big-eared bat<br>*Corynorhinus townsendii* | CSC | Caves, mines, buildings. Found in a variety of habitats, arid and mesic. Individual or colonial. Extremely sensitive to disturbance. | No | Low | This species was not observed and has a low potential to occur due to a few old homesteads remaining on site. However, minimal foraging habitat is present on site that would be expected to attract this species. Foraging is more likely to occur in longer-standing water that attracts a high density of moths and other invertebrates. This species has been known to occur within one mile of the survey area (CDFW 2022d). |
| MURIDAE OLD WORLD MICE & RATS (I) | | | | | |
| San Diego desert woodrat<br>*Neotoma lepida intermedia* | CSC | Coastal sage scrub and chaparral. | Yes | Observed | The San Diego desert woodrat and middens were **observed** in two separate locations during surveys, including along the eastern edge of VTM South in non-native grassland habitat and in the mitigation lands to the southeast of the borrow site, within Diegan coastal sage scrub habitat. |

| Attachment 8<br>Sensitive Wildlife Species Occurring or with the Potential to Occur within the Program-level and Project-level Analysis Areas | | | | | |
|---|---|---|---|---|---|
| Species' Common Name/<br>Scientific Name | Listing<br>Status | Habitat Preference/<br>Requirements | Detected<br>On-Site? | Potential to<br>Occur<br>On-Site? | Basis for Determination of<br>Occurrence Potential |
| CERVIDAE DEER | | | | | |
| Southern mule deer<br>*Odocoileus hemionus fuliginata* | MSCP | Many habitats. | No | Moderate | Although not observed, the project area and mitigation lands both provide suitable habitat for this species; however, habitat fragmentation has limited this species range. Frequent human disturbance may reduce habitat value, but this species could use the project area for foraging. |

(I) = Introduced species

STATUS CODES

Listed/Proposed

CE = Listed as endangered by the state of California
FE = Listed as endangered by the federal government
FPT = Proposed for listed as threatened by the federal government
FT = Listed as threatened by the federal government
SC = State of California candidate for listing as threatened or endangered

Other

BEPA = Bald and Golden Eagle Protection Act
CFP = California fully protected species
CSC = California Department of Fish and Wildlife species of special concern
WL = California Department of Fish and Wildlife watch list species
MSCP = City and County of San Diego Multiple Species Conservation Program covered species
VPHCP = City of San Diego Vernal Pool Habitat Conservation Plan

# ATTACHMENT 9

## Southwest Village Specific Development Project: 2023 Quino Checkerspot Butterfly Survey Report

# Southwest Village Specific Development Project: 2023 Quino Checkerspot Butterfly Survey Report
# San Diego, California

Prepared for
Tri Pointe Homes
13520 Evening Creek Drive North, Suite 300
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Prepared by
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RECON Number 8868
June 19, 2023

Beth Procsal, Senior Biologist

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# Acronyms and Abbreviations

| | |
|---|---|
| ºF | degrees Fahrenheit |
| GPS | global positioning system |
| mph | miles per hour |
| project | Southwest Village Specific Development Project |
| QCB | Quino checkerspot butterfly |
| RECON | RECON Environmental, Inc. |
| USFWS | U.S. Fish and Wildlife Service |

# 1.0 Summary

As part of early consultation with the U.S. Fish and Wildlife Service (USFWS) for the Southwest Village Specific Plan Project (project), RECON Environmental, Inc. (RECON) received the request from USFWS on March 22, 2023 to start protocol surveys for the federally listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*; QCB). As the survey season had already begun as of the third week of February and QCB had been documented to be flying in various parts of San Diego County, RECON requested a deviation from USFWS to waive the 15-day notification so that surveys could start the week of March 27, 2023 and to approve the shortened survey season. Approval for this deviation was provided by USFWS staff, David Zoutendyk via email (Attachment 1). As a result of this deviation, the survey season was shortened accordingly, and seven protocol surveys were conducted.

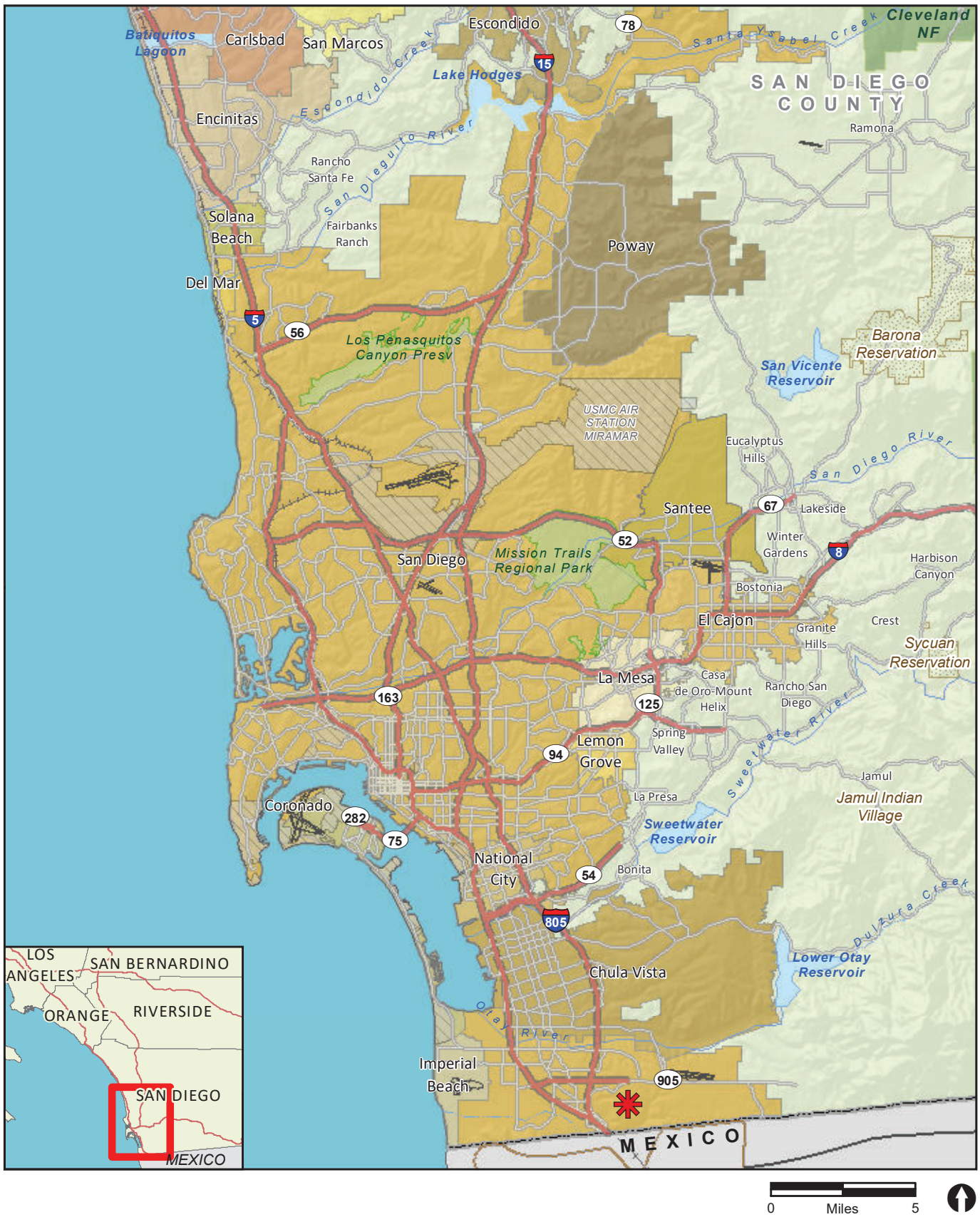
This report has been prepared for the USFWS, the City of San Diego, and Tri Pointe Homes to provide distributional data for QCB habitat management and as part of an effort to determine presence or absence of QCB and to identify mitigation opportunities and requirements for the project. The project is located within the Southwest Village Specific Plan in the city of San Diego community of Otay Mesa (Figures 1–3). The 2023 QCB survey area totaled 203.0 acres at the start of the survey. After the QCB surveys started, some trail segments (approximately 0.50 acre) were removed from the project and, therefore, these areas were eliminated from the QCB survey areas. Additionally, 2.37 acres of closed-canopy habitat was removed as these areas qualified as unsuitable for QCB, per the USFWS protocol guidelines (USFWS 2014). Once the 2.87 acres were removed, the final total survey area was 200.13 acres. This report captures all the survey data collected and discusses the trail changes in detail in Section 4.2.

During the habitat assessment, suitable host and nectar plant areas were also mapped within areas that will not be impacted, including the 100-foot-wide trail buffers and the vernal pool restoration areas. Host and nectar plants were identified so that areas with potential to support QCB could be identified and preserved as part of the mitigation for this species. As the trail buffers and vernal pool restoration areas will not be impacted, protocol surveys were not conducted there.

Through the survey efforts, two larval host plant species, dot-seed plantain (*Plantago erecta*) and Chinese houses (*Collinsia heterophylla*), were observed and numerous potential nectar plant species were present, including common goldfields (*Lasthenia gracilis*) and farinose ground-pink (*Linanthus dianthiflorus*). No larva or adult QCB were observed.

# 2.0 Introduction

The project is located in the city of San Diego, south of State Route 905 and east of Interstate 805 (see Figure 1). It lies within portions of Sections 5, 6, and 31, Township 19 South, Range 01 West; and Section 36, Township 18 South, Range 02 West of the U.S. Geological Survey 7.5-minute topographic map, Imperial Beach, California quadrangle (see Figure 2; U.S. Geological Survey 1996).




Project Location

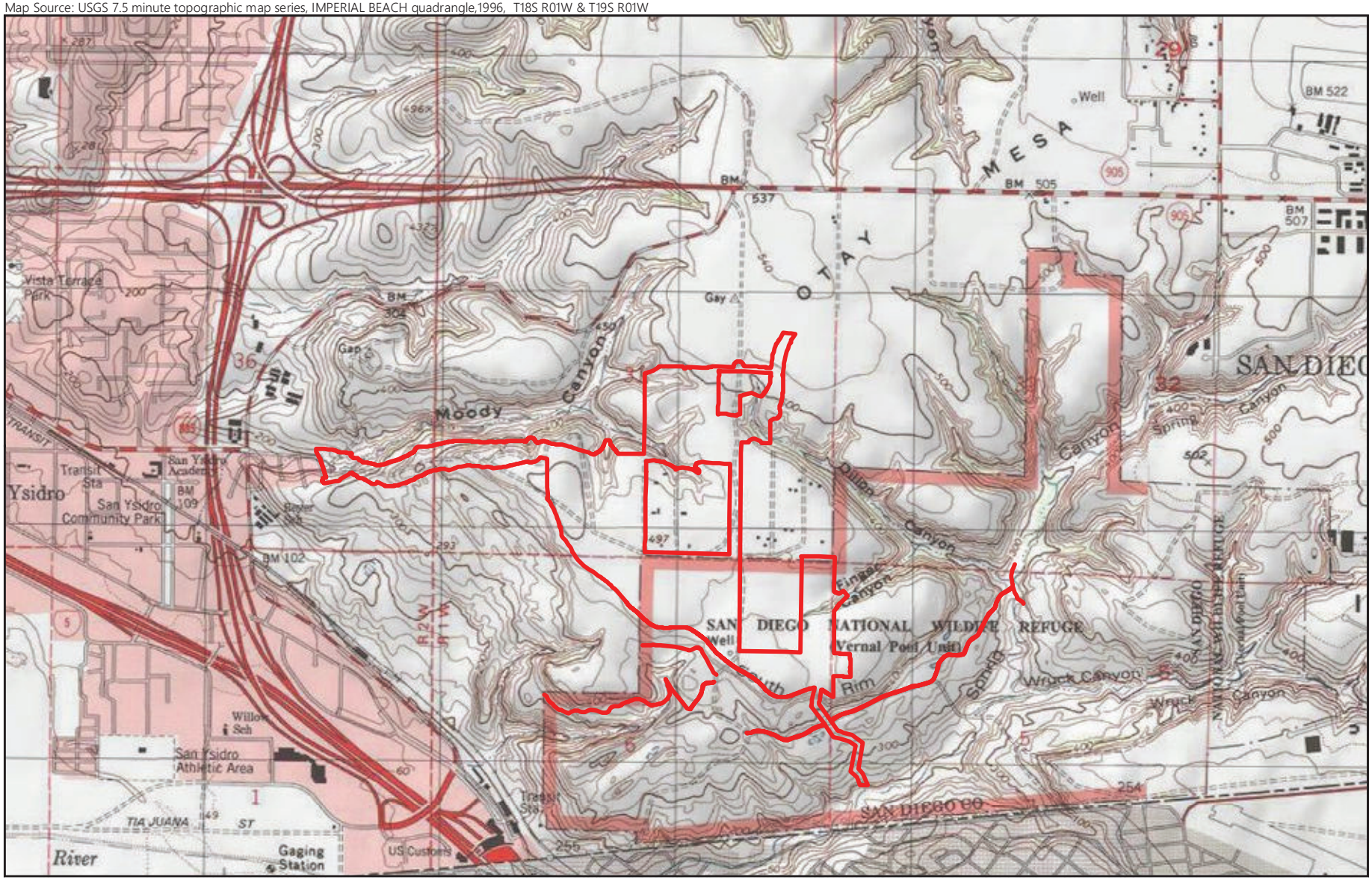
FIGURE 1

2023 QCB Survey – Regional Location

RECON

M:\JOBS5\8868\common_gis\Reports\QCB\QCB_2023post\Fig1.mxd 06/13/2023 bma

Map Source: USGS 7.5 minute topographic map series, IMPERIAL BEACH quadrangle,1996, T18S R01W & T19S R01W



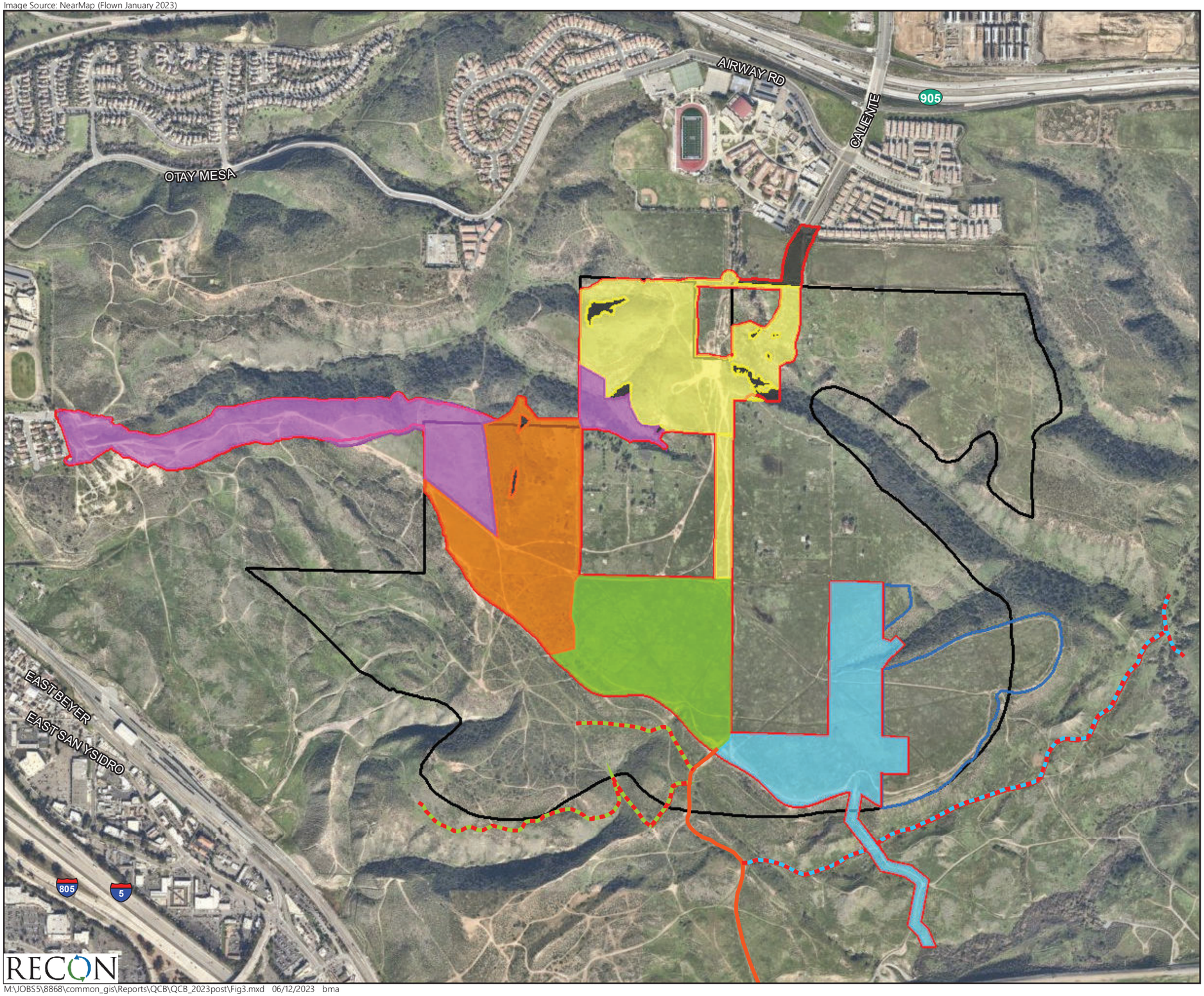

Project-Level Analysis Area
(As of the Beginning of the QCB Surveys)

FIGURE 2
2023 QCB Survey –
Project Location on USGS Map

RECON

M:\JOBS5\8868\common_gis\Reports\QCB\QCB_2023post\Fig2.mxd 06/12/2023 bma

Image Source: NearMap (Flown January 2023)




Project-Level Analysis Area
Vernal Pool Restoration Areas
Specific Plan Boundary
Primitive Trail Alignment as of the Beginning of the QCB Surveys
Existing Utility Road to Remain
Excluded From Survey

**QCB Survey**

Area 1
Area 2
Area 3
Area 4
Area 5

0 Feet 800

M:\JOBS5\8868\common_gis\Reports\QCB\QCB_2023post\Fig3.mxd 06/12/2023 bma

FIGURE 3
2023 QCB Survey –
Project Location on Aerial Photograph

The project is bounded by residential and commercial development to the north and undeveloped land to the east, west, and south (see Figure 3). The 2023 survey included portions of the following Assessor's Parcel Numbers:

Portions of 64508116, 64506032 , 64506034, 64506035, 63807074, 64507314, 64507313, 64507312, 64507311, 64507310, 64507309, 64507308, 64507425, 64507424, 64507504, 64507423, 64507422, 64507421, 64507503, 64507502, 64507501, 64507426, 64507406, 64507405, 64507404, 64507403, 64507402, 64506105, 66704013, 64507105, 64507104, 64507103, 64507102, 64507101, 64506106, 64506107, 64506108, 64507107, 64507106, 64506109, 64507201, 64507114, 64506102, 64506104, 66701031, 66701015, 66701019, 66701020, 66701021, 66701014, 66701006, 64507301, 64507214, 63807071, 63807068, 64506110, 66701030 and 66701034.

At the start of the 2023 surveys, the survey area totaled 203.0 acres and lies mostly within the Southwest Village Specific Plan. The QCB survey area includes a mix of maritime succulent scrub, coastal sage scrub, non-native grassland, and disturbed land interspersed with a series of dirt trails and roads. The survey area is topographically varied, ranging from flat mesa tops to steep canyon slopes and drainage bottoms. Elevations on the survey areas range from 178 feet above mean sea level at the westernmost edge, to 524 feet on the mesa top in the northeast portion of the survey area. As discussed in Sections 4.1 and 4.2, a total of 2.87 acres were removed from the survey area; therefore, the final total survey area was 200.13 acres.

# 3.0 Quino Checkerspot Butterfly Biology

QCB, a member the brush-footed butterfly family (Nymphalidae), was federally listed as endangered in January 1997 (USFWS 1997). It is one of 26 subspecies of *Euphydryas editha* and was formerly known as *E. e. wrightii* (Faulkner and Klein 2012).

## 3.1 Distribution

Historically, QCB ranged from Los Angeles and western San Bernardino counties; south through Orange, western Riverside, and San Diego counties; and into northern Baja California, Mexico. Currently, QCB only occurs in portions of southwestern Riverside County, southern San Diego County, and northern Baja California (Mattoni et al. 1997). QCB's range has been affected negatively by development, invasive non-native vegetation, overgrazing, fire, drought, over-collection by enthusiasts, and off-road vehicle use (USFWS 1997).

## 3.2 Habitat

In coastal San Diego County, the distribution of QCB is determined by its primary larval host plant, dot-seed plantain. Later stage larvae can also feed on purple owl's clover (*Castilleja exserta* ssp. *exserta*), which serves as a secondary host plant. At inland and higher elevation sites, QCB larvae also feed on woolly plantain (*Plantago patagonia*), white snapdragon (*Antirrhinum coulterianum*), and thread-leaved bird's-beak (*Cordylanthus rigidus* ssp. *setigerus*) (USFWS 2014). Chinese houses (*Collinsia concolor* and *C. heterophylla*) are also used by QCB larvae (Pratt and Pierce 2010; Parmesan et al. 2014).

Adult QCB will nectar on a variety of wildflower species, including (but not limited to) goldfields (*Lasthenia* spp.) and other members of Asteraceae, popcornflower (*Cryptantha* spp. and *Plagiobothrys* spp.), farinose ground-pink, chia (*Salvia columbariae*), wild onion (*Allium* spp.), goldenstar (*Bloomeria* spp.), common fiddleneck (*Amsinckia menziesii*), blue dicks (*Dipterostemon capitatus*), and California buckwheat (*Eriogonum fasciculatum*; USFWS 2002; Faulkner and Klein 2012). QCB will use a variety of sparsely vegetated habitats, including maritime succulent scrub, coastal sage scrub, vernal pool complexes, oak woodland, grasslands, and desert pinyon-juniper woodland. The thermoregulatory needs of QCB make heavily shaded, and thus, densely vegetated, areas largely unsuitable (Mattoni et al. 1997; Osborne and Redak 2000; USFWS 2002).

## 3.3 Life Cycle

QCB typically has one full generation per year, with a four- to six-week flight period between late February and May (Emmel and Emmel 1973), depending on rainfall and temperature, which can be affected by elevation.

Gravid females typically oviposit on dot-seed plantain or other host plants, and eggs hatch in several weeks. Larvae feed on the host plant until it dries up, typically by May, when the larvae enter diapause. Larvae exit diapause following winter rains in the ensuing January or February, and feed on the new crop of host plant. After several weeks, the larvae will pupate, and adults will emerge in 10 to 14 days. If the primary host plant dries before the post-diapause larvae pupate, they may feed on purple owl's clover.

Adult life span averages 10 to 14 days and emergence is staggered (USFWS 2002). Adult QCBs balance their time between searching for mates, feeding on nectar, defending territories, and searching for host plants on which to oviposit (USFWS 2002).

# 4.0 Methods

RECON conducted a habitat assessment and focused surveys in 2023. Butterfly nomenclature used in this report conforms to the Checklist of Butterflies of San Diego (San Diego Natural History Museum 2002).

The survey area for the habitat assessment and weekly presence/absence surveys is based on the currently proposed project footprint, plus project-level trails, immediately south of the project. To accurately assess whether QCB is present or absent within the project, the entire impact footprint was surveyed in 2023.

## 4.1 Habitat Assessment

A preliminary habitat assessment of the survey area and all of the project trails was conducted on March 24, 2023, by RECON biologists Anna Leavitt, Beth Procsal, Andrew Smisek, Kayo Valenti, and JR Sundberg (under USFWS Permit TE-797665), and on March 28, 2023, within the vernal pool restoration areas and vicinity by Beth Procsal, assisted by Jade Woll. The habitat assessments were conducted to identify suitable QCB survey areas, as defined in the USFWS survey guidelines and the

QCB Recovery Plan (USFWS 2014 and 2003, respectively). Suitability for QCB was evaluated and populations of larval host plants and nectar plants were mapped using a handheld tablet paired with a sub-meter-accuracy global positioning system (GPS) receiver. Per the USFWS survey guidelines, the only areas allowed to be excluded from QCB surveys include orchards, developed areas, small in-fill parcels, active/in-use agricultural fields, and areas of closed-canopy woody vegetation (USFWS 2014). As shown on Figure 3, 2.37 acres of closed-canopy habitat were excluded from the survey area which included dense lemonade berry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*).

## 4.2 Focused Surveys

Presence/absence adult flight season surveys (focused surveys) for QCB were conducted in accordance with the QCB Survey Guidelines (USFWS 2014) by qualified biologists Anna Leavitt, Beth Procsal, Wendy Loeffler, Andrew Smisek, Christopher Thomson, JR Sundberg, Kayo Valenti, and Alex Fromer under recovery permit TE-797665. A total of seven surveys were conducted beginning the week of March 27, 2023 (per the approved deviation) and ending the second Saturday in May, with surveys conducted no fewer than four days apart (Table 1). Due to the large number of acreage to be surveyed, the survey area was broken into five portions: Survey Areas 1 through 5 (Figure 4).

Per the USFWS survey protocol, the surveyors walked throughout the survey area at a slow pace (fewer than 10 acres per hour). Surveys were conducted when ground temperatures were at least 60 degrees Fahrenheit (ºF) on sunny days or 70ºF during overcast conditions, with sustained wind speeds below 15 miles per hour. Surveyors recorded all butterflies and flowering plants observed during the surveys, mapped primary and secondary host plant locations, and mapped locations of significant patches of nectar plants using GPS enabled tablet computers. Copies of field notes are included as Attachment 2.

After the surveys began, several areas of primitive trail alignments that are part of the project-level analysis area were eliminated from the scope of the project; and therefore, QCB surveys were discontinued for those trail segments (see Figure 4). A large portion of the southern trail associated with Survey Area 4 (0.31 acre) was eliminated on April 21, 2023, and QCB surveys were discontinued before the 5th survey. The western half of the northern trail alignment associated with Survey Area 4 (0.19) was deleted from the project-level analysis area on May 4, 2023, and QCB surveys were discontinued before the 6th survey.

It should be noted that the remaining piece of the northern trail for Survey Area 4 (0.10) and the most eastern trail segment, associated with Survey Area 5 (0.06 acre) were deleted from the project-level analysis area on May 19, 2023, after the seventh and final QCB survey was completed. Therefore, these acreages, totaling 0.16 acre, are included in our survey totals.

| Table 1<br>2020 Quino Checkerspot Butterfly Survey Dates, Personnel, Times, Conditions, and Acres Surveyed per Hour | | | | | | |
|---|---|---|---|---|---|---|
| Survey Number (Total Survey Acreage) | Date | Personnel | Survey Subarea | Beginning Time and Conditions | Ending Time and Conditions | Acres/ Hour |
| Habitat Assessment (203 acres) | 3/24/2023 | Andrew Smisek | 1 | - | - | n/a |
| | | Kayo Valenti | 2 | - | - | n/a |
| | | Anna Leavitt | 3 | - | - | n/a |
| | | Beth Procsal | 4 | - | - | n/a |
| | | JR Sundberg | 5 | - | - | n/a |
| | 3/28/2023 | Beth Procsal | Vernal pool restoration areas | - | - | n/a |
| | | Jade Woll | | - | - | n/a |
| 1 (200.63 acres) | 3/27/2023 | Andrew Smisek | 1 | 10:25 a.m.; 68°F; winds 6 mph; 35% cloud cover | 2:15 p.m.; 71°F; winds 6 mph; 1% cloud cover | 9.88 |
| | | Wendy Loeffler | 2 | 11:10 a.m.; 66°F; winds 4-8 mph; 30% cloud cover | 3:28 p.m.; 75°F; winds 3-6 mph; 1% cloud cover | 9.23 |
| | | Beth Procsal | 3 | 11:01 a.m.; 66°F; winds 4-7 mph; 30% cloud cover | 3:40 p.m.; 66°F; winds 2-6 mph; 0% cloud cover | 9.42 |
| | | Christopher Thomson | 4 | 10:58 a.m.; 72°F; winds 6-11 mph; 30% cloud cover | 3:46 p.m.; 75°F; winds 5-9 mph; 0% cloud cover | 7.95 |
| | | JR Sundberg | 5 | 10:06 a.m.; 62°F; winds 7 mph; 30% cloud cover | 3:22 p.m.; 72°F; winds 4 mph; 1% cloud cover | 6.99 |
| 2 (200.63 acres) | 4/5/2023 | Andrew Smisek | 1 | 9:49 a.m.; 61°F; winds 2 mph; 0% cloud cover | 2:16 p.m.; 64°F; winds 7 mph; 0% cloud cover | 9.48 |
| | | Kayo Valenti | 2 | 10:25 a.m.; 70°F; winds 3-5 mph; 0% cloud cover | 2:31 p.m.; 68°F; winds 4-7 mph 0% cloud cover | 9.68 |
| | | Anna Leavitt | 3 | 10:15 a.m.; 70°F; winds 3-5 mph; 0% cloud cover | 2:41 p.m.; 66°F; winds 6-9 mph 0% cloud cover | 9.89 |
| | | Christopher Thomson | 4 | 10:16 a.m.; 60°F; winds 3 mph; 0% cloud cover | 2:21 p.m.; 69°F; winds 7 mph 0% cloud cover | 9.34 |
| | | Beth Procsal | 5 | 9:59 a.m.; 62°F; winds 3-4 mph; 0% cloud cover | 1:41 p.m.; 66°F; winds 7-14 mph 0% cloud cover | 9.95 |
| 3 (200.63 acres) | 4/10/2023 | Andrew Smisek | 1 | 10:40 a.m.; 66°F; winds 3 mph; 0% cloud cover | 3:12 p.m.; 69°F; winds 2-5 mph 0% cloud cover | 9.32 |
| | 4/11/2023 | Wendy Loeffler | 2 | 11:49 a.m.; 70°F; winds 2-4 mph; 10% cloud cover | 4:09 p.m.; 70°F; winds 4-6 mph 30% cloud cover | 9.17 |
| | 4/10/2023 | Christopher Thomson | 3 | 11:13 a.m.; 68°F; winds 2 mph; 0% cloud cover | 3:32 p.m.; 71°F; winds 6 mph 0% cloud cover | 9.6 |

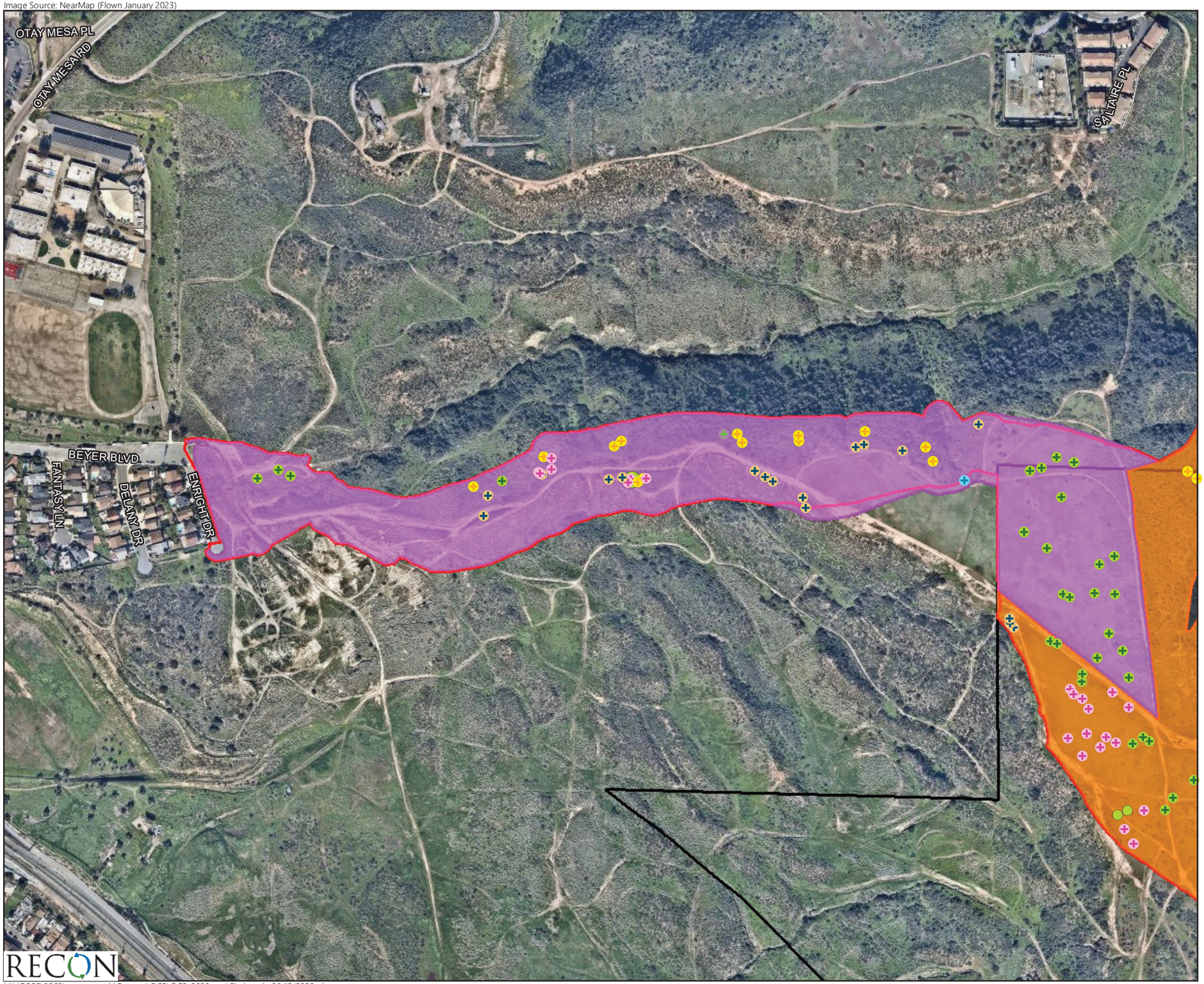
| Table 1<br>2020 Quino Checkerspot Butterfly Survey Dates, Personnel, Times, Conditions, and Acres Surveyed per Hour | | | | | | |
|---|---|---|---|---|---|---|
| Survey Number (Total Survey Acreage) | Date | Personnel | Survey Subarea | Beginning Time and Conditions | Ending Time and Conditions | Acres/ Hour |
| | 4/10/2023 | Beth Procsal | 3* | 3:13 p.m.; 66°F; winds 4-8 mph; 0% cloud cover | 3:30 p.m.; 66°F; winds 3-8 mph 0% cloud cover | 8.29 |
| | 4/11/2023 | Christopher Thomson | 4 | 11:47 a.m.; 68°F; winds 2 mph; 0% cloud cover | 4:01 p.m.; 74°F; Winds 4 mph; 15% cloud cover | 9.01 |
| | 4/10/2023 | Beth Procsal | 5 | 10:52 a.m.; 69°F; winds 2-5 mph; 0% cloud cover | 2:45 p.m.; 66°F; Winds 4-8 mph; 0% cloud cover | 9.48 |
| 4 (200.63 acres) | 4/20/2023 | Kayo Valenti | 1 | 9:55 a.m.; 73°F; winds 1-3 mph; 0% cloud cover | 2:17 p.m.; 84°F; winds 2-5 mph; <5% cloud cover | 9.66 |
| | 4/20/2023 | Andrew Smisek | 2 | 10:19 a.m.; 71°F; winds 5 mph; 0% cloud cover | 2:33 p.m.; 78°F; winds 5 mph; 5% cloud cover | 9.39 |
| | 4/20/2023 | Beth Procsal | 3 | 10:02 a.m.; 70°F; winds 0-1 mph; 0% cloud cover | 2:29 p.m.; 75°F; winds 4-6 mph; 0% cloud cover | 9.84 |
| | 4/20/2023 | Christopher Thomson | 4 | 10:06 a.m.; 72°F; winds 2 mph; 0% cloud cover | 2:09 p.m.; 75°F; winds 7 mph; 1% cloud cover | 9.41 |
| | 4/20/2023 | JR Sundberg | 5 | 9:53 a.m.; 68°F; winds 1 mph; 0% cloud cover | 2:40 p.m.; 75°F; winds 4 mph; 2% cloud cover | 7.7 |
| 5 (200.32 acres, a trail segment removed within Survey Area 4) | 4/25/2023 | Andrew Smisek | 1 | 11:29 a.m.; 70°F; winds 1 mph; 35% cloud cover | 3:55 p.m.; 76°F; winds 4 mph; 85% cloud cover | 9.53 |
| | 4/25/2023 | Wendy Loeffler | 2 | 11:57 a.m.; 72°F; winds 3-6 mph; 40% cloud cover | 3:30 p.m.; 75°F; winds 3-8 mph; 30% cloud cover | 9.41 |
| | 4/25/2023 | Beth Procsal | 3* | 11:39 a.m.; 72°F; winds 0-4 mph; 15% cloud cover | 3:57 p.m.; 70°F; winds 3-6 mph; 80% cloud cover | 9.6 |
| | 4/25/2023 | Wendy Loeffler | 3* | 3:43 p.m.; 70°F; winds 1-5 mph; 85% cloud cover | 4:01 p.m.; 70°F; winds 3-6 mph 80% cloud cover | 7.5 |
| | 4/25/2023 | Christopher Thomson | 4* | 11:45 a.m.; 72°F; winds 3 mph; 30% cloud cover | 3:43 p.m.; 72°F; winds 6 mph; 80% cloud cover | 9.17 |
| | 4/28/2023 | Alex Fromer | 4* | 11:10 a.m.; 68°F; winds 1-4 mph; 10% cloud cover | 11:20 a.m.; 68°F; winds 1-4 mph; 10% cloud cover | 1.18 |
| | 4/25/2023 | JR Sundberg | 5 | 11:36 a.m.; 72°F; winds 1 mph; 20% cloud cover | 3:58 p.m.; 74°F; winds 5 mph; 80% cloud cover | 8.42 |

Table 1
2020 Quino Checkerspot Butterfly Survey Dates, Personnel, Times, Conditions, and Acres Surveyed per Hour

| Survey Number (Total Survey Acreage) | Date | Personnel | Survey Subarea | Beginning Time and Conditions | Ending Time and Conditions | Acres/ Hour |
|---|---|---|---|---|---|---|
| 6 (200.13 acres, a trail segment removed within Survey Areas 4) | 5/5/2023 | Andrew Smisek | 1 | 11:05 a.m.; 73°F; winds 1 mph; 95% cloud cover | 3:19 p.m.; 71°F; winds 3 mph; 85% cloud cover | 9.98 |
| | 5/5/2023 | Wendy Loeffler | 2 | 11:43 a.m.; 70°F; winds 3-7 mph; 90% cloud cover | 3:49 p.m.; 71°F; winds 3 mph; 85% cloud cover | 9.73 |
| | 5/5/2023 | Alex Fromer | 3* | 11:34 a.m.; 70°F; winds 3-5 mph; 95% cloud cover | 4:00 p.m.; 70°F; winds 4-8 mph; 80% cloud cover | 8.87 |
| | 5/5/2023 | Christopher Thomson | 3* | 3:12 p.m.; 702°F; winds 4 mph; 80% cloud cover | 3:42 p.m.; 70°F; winds 5 mph; 75% cloud cover | 9.0 |
| | 5/5/2023 | Christopher Thomson | 4 | 11:09 a.m.; 74°F; winds 1 mph; 95% cloud cover | 3:09 p.m.; 70°F; winds 4 mph; 80% cloud cover | 9.53 |
| | 5/5/2023 | JR Sundberg | 5 | 11:13 a.m.; 74°F; winds 1 mph; 95% cloud cover | 3:34 p.m.; 71°F; winds 4 mph; 80% cloud cover | 8.46 |
| 7 (200.13 acres) | 5/12/2023 | Andrew Smisek | 1 | 11:03 a.m.; 74°F; winds 2 mph; 000% cloud cover | 3:18 p.m.; 76°F; winds 6 mph; 30% cloud cover | 9.93 |
| | 5/12/2023 | Wendy Loeffler | 2 | 10:59 a.m.; 74°F; winds 3-7 mph; 100% cloud cover | 3:05 p.m.; 72°F; winds 3-7 mph; 40% cloud cover | 9.68 |
| | 5/12/2023 | Christopher Thomson | 3 | 10:39 a.m.; 71°F; winds 3 mph; 100% cloud cover | 3:18 p.m.; 72°F; winds 5 mph; 40% cloud cover | 9.42 |
| | 5/12/2023 | Kayo Valenti | 4 | 11:03 a.m.; 73°F; winds 2-4 mph; 100% cloud cover | 3:07 p.m.; 72°F; winds 5-7 mph; 40% cloud cover | 9.36 |
| | 5/12/2023 | JR Sundberg | 5 | 10:59 a.m.; 72°F; winds 2 mph; 100% cloud cover | 3:17 p.m.; 76°F; winds 3 mph; 40% cloud cover | 8.56 |

°F = degrees Fahrenheit at ground level; mph = miles per hour; % = percent
* = An additional biologist helped survey this area.

Image Source: NearMap (Flown January 2023)




Project-Level Analysis Area

Specific Plan Boundary

**QCB Survey**

Area 1

Area 2

Excluded From Survey

**Host Plants**

**Nectar Plants**

- Goldfields (*Lasenthia* spp.)
- Farinose Ground Pink (*Linanthus dianthiflorus*)
- Blue Dicks (*Dipterostemon capitatus*)
- Early Onion (*Allium praecox*)
- Common Fiddleneck (*Amsinckia menziesii*)
- Popcornflower (*Plagiobothrys* sp. and *Cryptantha* sp.)

Dot-seed Plantain (*Plantago erecta*)

- 1 - 99
- 100 - 499

0 Feet 400

RECON

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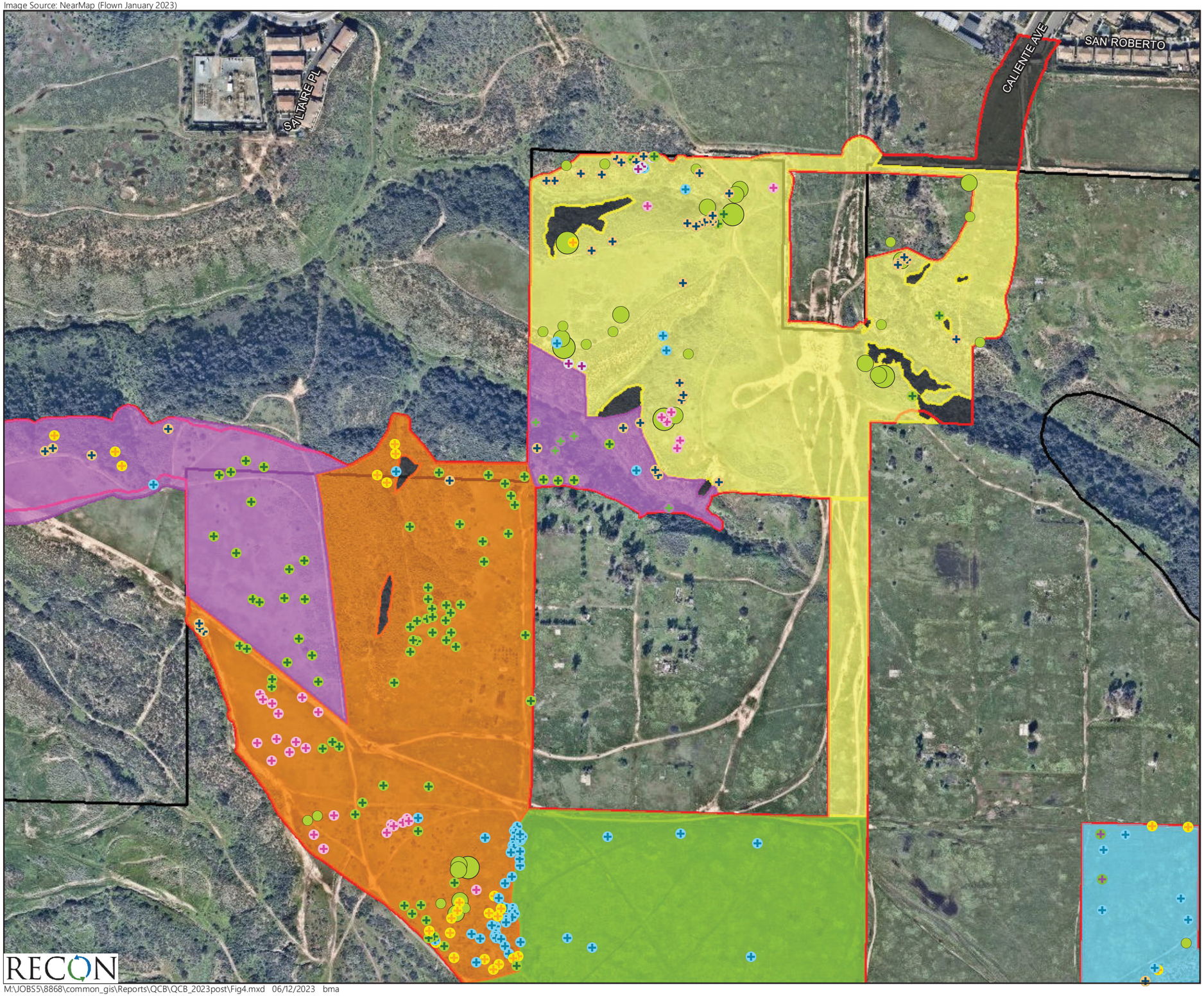
FIGURE 4.1

2023 QCB Survey – Host Plant and Notable Nectar Plant Locations

Image Source: NearMap (Flown January 2023)




Project-Level Analysis Area
Specific Plan Boundary

**QCB Survey**
- Area 1
- Area 2
- Area 3
- Area 4
- Area 5
- Excluded From Survey

**Host Plants**
**Nectar Plants**
- Goldfields (*Lasenthia* spp.)
- Farinose Ground Pink (*Linanthus dianthiflorus*)
- Blue Dicks (*Dipterostemon capitatus*)
- Early Onion (*Allium praecox*)
- Common Fiddleneck (*Amsinckia menziesii*)
- Dwarf Brodiaea (*Brodiaea terrestris* ssp. *kernensis*)
- Caterpillar Phacelia (*Phacelia cicutaria*)
- Popcornflower (*Plagiobothrys* sp. and *Cryptantha* sp.)

Dot-seed Plantain (*Plantago erecta*)
- 1 - 99
- 100 - 499
- 500 +

0 Feet 400

RECON

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FIGURE 4.2
2023 QCB Survey – Host Plant and Notable Nectar Plant Locations

Image Source: NearMap (Flown January 2023)

This trail segment was deleted from the project-level analysis area on May 4, 2023 and QCB surveys were discontinued before the 6th survey.

This trail segment was deleted from the project-level analysis area on May 19, 2023 after the 7th survey and all QCB surveys were complete by this time.

This trail segment was deleted from the project-level analysis area on April 21, 2023 and QCB surveys were discontinued before the 5th survey.

RAIL GT

RECON

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Project-Level Analysis Area
Specific Plan Boundary
Primitive Trail Alignment
Existing Utility Road to Remain

**QCB Survey**
Area 2
Area 4
Area 5

**Habitat Assessment Only**
*No Impacts in These Locations*
Vernal Pool Restoration Areas and Immediate Vicinity
100-foot Trail Buffer

**Host Plants**
Chinese Houses (*Collinsia heterophylla*)
1 - 99

**Nectar Plants**
Goldfields (*Lasenthia* spp.)
Farinose Ground Pink (*Linanthus dianthiflorus*)
Blue Dicks (*Dipterostemon capitatus*)
Early Onion (*Allium praecox*)
Common Fiddleneck (*Amsinckia menziesii*)
Common Goldenstar (*Bloomeria crocea*)
Dwarf Brodiaea (*Brodiaea terrestris* ssp. *kernensis*)
Popcornflower (*Plagiobothrys* sp. and *Cryptantha* sp.)

Dot-seed Plantain (*Plantago erecta*)
1 - 99
100 - 499
500 +

0 Feet 400

FIGURE 4.3
2023 QCB Survey – Host Plant and Notable Nectar Plant Locations

Image Source: NearMap (Flown January 2023)

This trail segment was deleted from the project-level analysis area on May 19, 2023 after the 7th survey and all QCB surveys were complete by this time.

Project-Level Analysis Area
Specific Plan Boundary
Primitive Trail Alignment
Existing Utility Road to Remain

**QCB Survey**
Area 5

**Habitat Assessment Only**
*No Impacts in These Locations*
Vernal Pool Restoration Areas and Immediate Vicinity
100-foot Trail Buffer

**Host Plants**
Chinese Houses (*Collinsia heterophylla*)
1 - 99

**Nectar Plants**
Goldfields (*Lasenthia* spp.)
Farinose Ground Pink (*Linanthus dianthiflorus*)
Blue Dicks (*Dipterostemon capitatus*)
Early Onion (*Allium praecox*)
Common Goldenstar (*Bloomeria crocea*)
Dwarf Brodiaea (*Brodiaea terrestris* ssp. *kernensis*)
Popcornflower (*Plagiobothrys* sp. and *Cryptantha* sp.)
Dot-seed Plantain (*Plantago erecta*)
1 - 99
100 - 499
500 +

0 Feet 400

RECON

M:\JOBS5\8868\common_gis\Reports\QCB\QCB_2023post\Fig4.mxd 06/12/2023 bma

FIGURE 4.4
2023 QCB Survey – Host Plant and Notable Nectar Plant Locations

# 5.0 Results

## 5.1 Habitat Assessment Results

There is disturbance from unauthorized off-road vehicle activity throughout much of the mesa top, creating a series of dirt roads throughout the survey area, particularly on the mesa tops. Other sources of disturbance include an established, authorized dirt access road extending north-south along a San Diego Gas & Electric distribution line and Border Patrol activity throughout the area.

Vegetation communities (per Holland 1986 as updated by Oberbauer et al. 2008) mapped as potentially suitable QCB habitat during the site assessment are maritime succulent scrub (including disturbed), Diegan coastal sage scrub, non-native grassland, and disturbed land. In general, the mesa tops throughout the survey areas contain either non-native grassland or disturbed land, and the canyon slopes and drainages contain maritime succulent scrub and Diegan coastal sage scrub. Vegetation communities included in the survey areas are described in detail below.

Maritime succulent scrub within the survey area is dominated by San Diego bur-sage (*Ambrosia chenopodifolia*), jojoba (*Simmondsia chinensis*), California sagebrush (*Artemisia californica*), bladderpod (*Peritoma arborea*), and San Diego County viguiera (*Bahiopsis laciniata*). Other species found within this habitat type include San Diego barrel cactus (*Ferocactus viridescens*), cliff spurge (*Euphorbia misera*), and fish-hook cactus (*Mammillaria dioica*). This vegetation community occurs on most of the canyons and hillsides throughout the survey area. Vegetation cover in the maritime succulent scrub ranged from 25 to 75 percent.

Diegan coastal sage scrub within the survey areas varies in shrub cover, ranging from 25 to 60 percent on south-facing slopes, to nearly 100 percent on north-facing slopes. Dominant plant species throughout this habitat include California sagebrush, California buckwheat, California encelia (*Encelia californica*), and laurel sumac (*Malosma laurina*), with a mix of native and non-native annuals in shrub openings. The denser north-facing slopes contain a large proportion of lemonade berry. Annual plant cover was generally low. Portions of Diegan coastal sage scrub contain undisturbed biotic soil crusts with ashy spike-moss (*Selaginella cinerascens*).

Non-native grassland is the dominant vegetation community on the mesa tops throughout the survey area. This vegetation community is dominated, to varying degrees, by non-native grasses, filaree (*Erodium* spp.), crown daisy (*Glebionis coronaria*), and Russian thistle (*Salsola tragus*), with scattered natives including California sagebrush, California buckwheat, and California encelia, as well as native annuals including fascicled tarplant (*Deinandra fasciculata*), blue dicks, and star lily (*Toxicoscordion* sp.).

Disturbed land occurs primarily along dirt access roads, off-road vehicle trails, and artificial earthen berms, as well as some areas of dense broad-leaved non-native forbs. Most of the dirt roads and trails are sparsely vegetated with non-native species, such as pineapple weed (*Matricaria discoidea*), crown daisy, filaree, and sow-thistle (*Sonchus* spp.). Disturbed land can be found throughout the survey area.

## 5.2 Focused Survey Results

As discussed in Sections 4.1 and 4.2, changes to the survey areas including removing dense, closed-canopy habitats and trail segments that were eliminated from the project resulted in a reduced survey area of 200.13 acres. Two larval host plant species, dot-seed plantain and Chinese houses, were observed during the surveys. Dot-seed plantain was found in all vegetation communities within the survey area in patches ranging from approximately 5 to over 10,000 individuals. The majority of the individuals were found on the top of the mesa, with a lesser number found on the upper slopes of the canyons. Only one patch of Chinese houses was found at the toe of a slope in the central portion of the survey area (see Figure 4).

Numerous nectar plant species were present throughout the survey area, including goldfields, farinose ground-pink, blue dicks, early onion, common fiddleneck, common goldenstar (*Bloomeria crocea*), dwarf brodiaea (*Brodiaea terrestris* ssp. *kernensis*), and popcornflower (see Figure 4). Flowering shrubs such as California buckwheat and San Diego viguiera are found throughout the project site (see Attachment 2).

A total of 29 butterfly species were recorded during the focused surveys (Table 2). The most common butterfly species observed were Behr's metalmark (*Apodemia mormo virgulti*), cabbage white (*Pieris rapae*), common California ringlet (*Coenonympha californica californica*), funereal duskywing (*Erynnis funeralis*), and Pacific Sara orangetip (*Anthocharis sara sara*). Other observed butterfly species were observed infrequently and sporadically throughout the survey period (see Attachment 2).

No QCB were detected during the 2023 presence/absence surveys, although habitat was generally suitable for QCB, with an abundance of host and nectar species present. The highest quality habitat occurs on the mesa edges and the adjacent upper slopes leading into the canyons within Survey Areas 3 and 5.

| Table 2<br>Butterflies Observed within the 2023 Survey Areas | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Scientific Name | Common Name | Number of Observations by Survey Number | | | | | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| *Icaricia acmon* | acmon blue | | | | | X | | X |
| *Papilio zelicaon* | anise swallowtail | X | | | X | | | |
| *Apodemia mormo virgulti* | Behr's metalmark | X | X | X | X | X | X | X |
| *Pieris rapae* | cabbage white | X | X | X | X | X | X | X |
| *Junonia coenia* | common buckeye | | | X | X | X | X | |
| *Coenonympha californica californica* | common California ringlet | X | X | X | X | X | X | X |
| *Erynnis funeralis* | funereal duskywing | | X | X | X | X | X | |
| *Strymon melinus pudica* | gray hairstreak | | | | | | X | |
| *Leptotes marina* | marine blue | | | | | | | X |
| *Nymphalis antiopa* | mourning cloak | | | | | | | X |
| *Anthocharis sara sara* | Pacific Sara orangetip | X | X | X | X | X | X | X |
| *Papilio eurymedon* | pale swallowtail | | | | X | | | X |
| *Pontia sisymbrii* | spring white | | | | | X | | X |
| *Pontia protodice* | checkered white | X | X | X | X | | | X |
| *Vanessa atalanta rubria* | red admiral | | X | | | | | |
| *Vanessa annabella* | west coast lady | | | | X | X | | |
| *Vanessa cardui* | painted lady | X | | X | | | | |
| *Brephidium exile* | western pygmy-blue | | | | X | | | X |
| *Hyles lineata* | white-lined sphinx | X | | X | X | | | |
| *Colias harfordii* | Harford's sulphur | X | X | X | | | | |
| *Phoebis sennae* | cloudless sulphur | | | | X | | | |
| *Pyrgus communis* | common checkered-skipper | | | X | X | X | | |
| *Hylephila phyleus* | fiery skipper | | | | | X | X | |
| *Poanes melane* | umber skipper | | | | | | | X |
| *Ochlodes agricola* | rural skipper | | | | | | | X |
| *Erynnis* sp. | unidentified duskywing | X | X | | | | | X |
| N/A | unidentified blue | | | | | | X | |
| N/A | unidentified sulphur | | | X | | X | | |
| N/A | unidentified white | | X | X | | X | X | |
| NOTE: Nomenclature is from the San Diego Natural History Museum's Butterflies of San Diego County (2002). | | | | | | | | |

# 6.0 Certification

I certify that the information in this survey report, including attached exhibits, fully and accurately represents my work.

Date: 6/19/24 Signed: _____

Beth Procsal
USFWS Permit TE-797665
Report Author and Surveyor

Other Surveyors:

Anna Leavitt
USFWS Permit TE-797665

Andrew Smisek
USFWS Permit TE-797665

Alex Fromer
USFWS Permit TE-797665

JR Sundberg
USFWS Permit TE-797665

Wendy Loeffler
USFWS Permit TE-797665

Kayo Valenti
USFWS Permit TE-797665

Christopher Thomson
USFWS Permit TE-797665

# 7.0 References Cited

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Parmesan, C., A. Williams-Anderson, M. Moskowik, A. S. Mikheyev, and M. C. Singer
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1996 Imperial Beach, California Quadrangle 7.5-Minute Topographic Map.

# ATTACHMENTS

# ATTACHMENT 1

Approval for Survey Protocol Deviation Provided by USFWS

**From:** Zoutendyk, David <David_Zoutendyk@fws.gov>
**Sent:** Friday, March 24, 2023 3:11 PM
**To:** Jennifer Campos
**Cc:** Eng, Anita M; Beth Procsal; Allen Kashani
**Subject:** Re: [EXTERNAL] Southwest Village - Pre-Survey Notification and Deviation Request for 2023 Quino checkerspot butterfly surveys
**Attachments:** SouthwestVillage_2023_preQCB.pdf

Jennifer,

We approve the deviation request. thx

David

David Zoutendyk (He/His/Him)
Division Supervisor

U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008
(760) 431-9440 x222
david_zoutendyk@fws.gov
I am currently working from home and infrequently checking my office voicemail. Please email me if you'd like to schedule a phone call or meeting.

---

**From:** Jennifer Campos <jcampos@reconenvironmental.com>
**Sent:** Friday, March 24, 2023 11:17 AM
**To:** Love, Stacey <stacey_love@fws.gov>
**Cc:** allen.kashani@tripointehomes.com <allen.kashani@tripointehomes.com>; Beth Procsal <bprocsal@reconenvironmental.com>; Eng, Anita M <anita_eng@fws.gov>
**Subject:** [EXTERNAL] Southwest Village - Pre-Survey Notification and Deviation Request for 2023 Quino checkerspot butterfly surveys

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Stacey,
RECON is providing the attached pre-survey notification and deviation request to initiate Quino checkerspot butterfly surveys starting next week (week of March 27, 2023). We have been engaged with USFWS on the Southwest Village Project including early consultation for impacts to QCB. David Zoutendyk requested that we complete surveys this year via email (see below) and we have included that correspondence with our notification letter. Due to the short timeline,

we are scheduled to proceed with surveys based on the email authorization from David but would appreciate your acknowledgement of our official notification and deviation request.

Thank you,


## Jennifer Campos
**Project Director**

**RECON Environmental, Inc.**
3111 Camino del Rio North, Suite 600
San Diego, CA 92108-5726
O (619) 308-4210 x 123
C (619) 840-5359
CA SB | SBA SB
Website | Instagram | Twitter | Facebook | LinkedIn


---

**From:** Zoutendyk, David <David_Zoutendyk@fws.gov>
**Sent:** Thursday, March 23, 2023 1:13 PM
**To:** Jennifer Campos <jcampos@reconenvironmental.com>
**Cc:** Mayer, David@Wildlife <david.mayer@wildlife.ca.gov>; allen.kashani@tripointehomes.com; Beth Procsal <bprocsal@reconenvironmental.com>; Eng, Anita M <anita_eng@fws.gov>
**Subject:** Re: [EXTERNAL] Southwest Village - Request for Section 7/10 Early Consultation for Quino Checkerspot Butterfly

Jennifer,

Thanks for the quick reply and agreeing to the surveys. Yes we will agree that you can deviate from protocol and start surveys Monday, 3/27, in advance of the required 15-day notification.

David


David Zoutendyk (He/His/Him)
Division Supervisor

U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008
(760) 431-9440 x222
david_zoutendyk@fws.gov
I am currently working from home and infrequently checking my office voicemail. Please email me if you'd like to schedule a phone call or meeting.


---

**From:** Jennifer Campos <jcampos@reconenvironmental.com>
**Sent:** Thursday, March 23, 2023 1:03 PM
**To:** Zoutendyk, David <David_Zoutendyk@fws.gov>
**Cc:** Mayer, David@Wildlife <david.mayer@wildlife.ca.gov>; allen.kashani@tripointehomes.com <allen.kashani@tripointehomes.com>; Beth Procsal <bprocsal@reconenvironmental.com>; Eng, Anita M <anita_eng@fws.gov>
**Subject:** RE: [EXTERNAL] Southwest Village - Request for Section 7/10 Early Consultation for Quino Checkerspot Butterfly

David,
Thanks for the response. We are submitting a request for a waiver of protocol requirements so that we can start surveys on Monday (next week) to take advantage of this year's rain. Can you please respond with your agreement that we can deviate from protocol and start surveys Monday, 3/27, in advance of the required 15-day notification? We will be sending our notification and request to Stacey Love also, but your authorization will help expedite our request.

While we do have prior Quino surveys (2018-2022) including surveys in a good rain year (2020), we understand this updated survey would provide additional support to facilitate our Section 7/10 process.

Regarding the vernal pool design, the mitigation plan currently accounts for avoidance of quino host and nectar plants and we will be sure to verify and update that mapping as needed this year. We coordinate with Anita to get a follow up consultation meeting scheduled.

Thank you,

**Jennifer Campos**
**Project Director**

**RECON Environmental, Inc.**
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San Diego, CA 92108-5726
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---

**From:** Zoutendyk, David <David_Zoutendyk@fws.gov>
**Sent:** Wednesday, March 22, 2023 2:25 PM
**To:** Jennifer Campos <jcampos@reconenvironmental.com>
**Cc:** Mayer, David@Wildlife <david.mayer@wildlife.ca.gov>; allen.kashani@tripointehomes.com; Beth Procsal <bprocsal@reconenvironmental.com>; Eng, Anita M <anita_eng@fws.gov>
**Subject:** Re: [EXTERNAL] Southwest Village - Request for Section 7/10 Early Consultation for Quino Checkerspot Butterfly

Jennifer,

Thanks for contacting us on early consultation for Quino. Given past surveys were spotty and/or done during bad rainfall years and the good rainfall this year, to complete consultation we will need updated Quino and nectar/host plant surveys and recommend they be done this year for the entire project site. Anita Eng (cc'd) is the staff lead for this now. Based on past surveys, we will also need to design the vernal pool restoration to avoid impacts to Quino and its habitat. We can arrange a meeting to discuss consultation and mitigation further. thx

David

David Zoutendyk (He/His/Him)
Division Supervisor

U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008
(760) 431-9440 x222
david_zoutendyk@fws.gov
I am currently working from home and infrequently checking my office voicemail. Please email me if you'd like to schedule a phone call or meeting.

---

**From:** Jennifer Campos <jcampos@reconenvironmental.com>
**Sent:** Friday, January 13, 2023 11:58 AM
**To:** Zoutendyk, David <David_Zoutendyk@fws.gov>; Gower, Patrick <patrick_gower@fws.gov>
**Cc:** Mayer, David@Wildlife <david.mayer@wildlife.ca.gov>; allen.kashani@tripointehomes.com <allen.kashani@tripointehomes.com>; Beth Procsal <bprocsal@reconenvironmental.com>
**Subject:** [EXTERNAL] Southwest Village - Request for Section 7/10 Early Consultation for Quino Checkerspot Butterfly

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David and Patrick,

RECON is requesting early consultation with USFWS regarding proposed impacts to Quino checkerspot butterfly on behalf of Tri Pointe Homes' Southwest Village project. We understand Quino mitigation would be finalized during the Section 7 or 10 process; however, we would like to gain conceptual approval of the proposed mitigation approach at this time to facilitate future permitting. We also understand from CDFW that Quino could be listed at the State level within the time span of this project, as a result we are including Dave Mayer to participate in early coordination.

A memo detailing survey findings, impacts, and proposed habitat-based mitigation for Quino is available at the link below. As we have presented in prior meetings, Quino mitigation is proposed within the project's vernal pool restoration area. All post-survey reports (2018-2022) are included as attachments to the memo.

While our priority is obtaining agency concurrence on the boundary line adjustment in coordination with the City of San Diego, we would like to get a Quino early coordination meeting on the calendar with you. Please provide us some dates and times that would work on your end so that I can set up a meeting. We look forward to discussing further.

**QCB Request for Early Consultation Letter 011223.pdf** (23.46 MB):
https://recon-us.filegenius.com/downloadPublic/mx9elrtz1qosvmr

Thank you,

**Jennifer Campos**
**Project Director**

**RECON Environmental, Inc.**
3111 Camino del Rio North, Suite 600
San Diego, CA 92108-5726
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# ATTACHMENT 2

Field Notes

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 327817 |
| Survey Date | 03/27/2023 |
| User | Beth Procsal |
| Type of Visit | QCB Survey |

### Survey Info

| | |
|---|---|
| Which survey area are you working within? | Survey Area 1 |
| Survey Number | 1 |
| Survey Date | 03/27/2023 |
| Permitted Surveyor(s) | Andy Smisek TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 42.2 |

### Starting Conditions

| | |
|---|---|
| Time | 10:25 AM |
| Temp (°F) | 68 |
| Cloud Cover (%) | 35 |
| Wind Speed (avg. mph) | 6 |

### Host Plant Species 1

| | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Full Bloom |

### Potential Host Plant Species 1

| | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

### Nectar Plant Species 1

| | |
|---|---|
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Full Bloom |

### Nectar Plant Species 2

| | |
|---|---|
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |

### Nectar Plant Species 3

| | |
|---|---|
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Full Bloom |

### Nectar Plant Species 4

| | |
|---|---|
| Nectar Plant Species | *Other* / |

| | |
|---|---|
| Other Species | |
| Other Nectar Plant Species | Gilia sp |
| Phenology | Full Bloom |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Lasthenia coronaria* / Royal goldfields, Crowned or royal goldfields |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 6** | |
| Nectar Plant Species | *Eriogonum fasciculatum* / California buckwheat, California buckwheat |
| Phenology | Full Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 4 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Papilio zelicaon* / Anise Swallowtail |
| Number Observed | 3 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Vanessa cardui* / Painted Lady |
| Number Observed | 2 |
| **Butterfly Species 4** | |
| Butterfly Species Observed | *Pontia protodice* / Checkered White |
| Number Observed | 4 |
| **Butterfly Species 5** | |
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 2 |
| **Ending Conditions** | |
| Time | 02:41 PM |
| Temp (°F) | 71 |
| Cloud Cover (%) | 1 |
| Wind Speed (avg. mph) | 6 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.27 |
| Acres Surveyed per Hour | 9.88 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 327824 |
| Survey Date | 03/27/2023 |
| User | Beth Procsal |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Survey Area 2 |
| Survey Number | 1 |
| Survey Date | 03/27/2023 |
| Permitted Surveyor(s) | Wendy Loeffler TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 39.7 |
| **Starting Conditions** | |
| Time | 11:10 AM |
| Temp (°F) | 66 |
| Cloud Cover (%) | 30 |
| Wind Speed (avg. mph) | 4-8 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Full Bloom |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Full Bloom |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Full Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |

| | |
|---|---|
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | white sp. |
| Number Observed | 2 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Dusky sp. |
| Number Observed | 1 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | sphinx moth |
| Number Observed | 1 |
| **Ending Conditions** | |
| Time | 03:28 PM |
| Temp (°F) | 75 |
| Cloud Cover (%) | 1 |
| Wind Speed (avg. mph) | 3-6 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.3 |
| Acres Surveyed per Hour | 9.23 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 327825 |
| Survey Date | 03/27/2023 |
| User | Beth Procsal |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Survey Area 3 |
| Survey Number | 1 |
| Survey Date | 03/27/2023 |
| Permitted Surveyor(s) | Elizabeth Procsal TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 43.8 |
| **Starting Conditions** | |
| Time | 11:01 AM |

| | |
|---|---|
| Temp (°F) | 66 |
| Cloud Cover (%) | 30 |
| Wind Speed (avg. mph) | 4-7 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Full Bloom |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Full Bloom |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Full Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Pieris rapae* / Cabbage White |
| Number Observed | 3 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 1 |
| **Ending Conditions** | |
| Time | 03:40 PM |
| Temp (°F) | 66 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 2-6 |
| Quino Checkerspot Butterfly Observed | NO |

| | |
|---|---|
| Total Hours Surveyed | 4.65 |
| Acres Surveyed per Hour | 9.42 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 325983 |
| Survey Date | 03/27/2023 |
| User | Chris Thomson |
| Type of Visit | QCB Survey |

### Survey Info

| | |
|---|---|
| Which survey area are you working within? | Survey Area 4 |
| Survey Number | 1 |
| Survey Date | 03/27/2023 |
| Permitted Surveyor(s) | Chris Thomson TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 38.14 |

### Starting Conditions

| | |
|---|---|
| Time | 10:58 AM |
| Temp (°F) | 71.5 |
| Cloud Cover (%) | 30 |
| Wind Speed (avg. mph) | 6-11 |

### Host Plant Species 1

| | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Full Bloom |

### Potential Host Plant Species 1

| | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

### Nectar Plant Species 1

| | |
|---|---|
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |

### Nectar Plant Species 2

| | |
|---|---|
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |

### Nectar Plant Species 3

| | |
|---|---|
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Full Bloom |

| | |
|---|---|
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |

### Butterfly Species 1

| | |
|---|---|
| Butterfly Species Observed | *Vanessa cardui* / Painted Lady |
| Number Observed | 2 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 1 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Colias harfordii* / Harford's Sulphur |
| Number Observed | 2 |
| **Butterfly Species 4** | |
| Butterfly Species Observed | *Pontia protodice* / Checkered White |
| Number Observed | 1 |
| **Ending Conditions** | |
| Time | 03:46 PM |
| Temp (°F) | 75 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 5-9 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.8 |
| Acres Surveyed per Hour | 7.95 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 325961 |
| Survey Date | 03/27/2023 |
| User | JR Sundberg |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Survey Area 5 |
| Survey Number | 1 |
| Survey Date | 03/27/2023 |
| Permitted Surveyor(s) | Jason Sundberg TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 36.82 |
| **Starting Conditions** | |
| Time | 10:06 AM |
| Temp (°F) | 62 |
| Cloud Cover (%) | 30 |
| Wind Speed (avg. mph) | 7 |

| | |
|---|---|
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Full Bloom |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Dichelostemma capitatum* / Blue dicks |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Eriogonum fasciculatum* / California buckwheat, California buckwheat |
| Phenology | Vegetative |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Starting to Bloom |
| **Nectar Plant Species 6** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Starting to Bloom |
| **Nectar Plant Species 7** | |
| Nectar Plant Species | *Allium sp.* / |
| Phenology | Full Bloom |
| Notes | From 12-2 winds picked to average 8 mph. |
| Photos | |

Areas along the trail portion.

looking like good quality habitat along the finger canyon.

| Butterfly Species 1 | |
|---|---|
| Butterfly Species Observed | *Pieris rapae* / Cabbage White |
| Number Observed | 2 |

| Butterfly Species 2 | |
|---|---|
| Butterfly Species Observed | *Coenonympha californica californica* / Common California Ringlet |
| Number Observed | 6 |

| Butterfly Species 3 | |
|---|---|
| Butterfly Species Observed | *Vanessa cardui* / Painted Lady |
| Number Observed | 4 |

| Butterfly Species 4 | |
|---|---|
| Butterfly Species Observed | *Papilio eurymedon* / Pale Swallowtail |
| Number Observed | 2 |

| Butterfly Species 5 | |
|---|---|
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 3 |

| Ending Conditions | |
|---|---|
| Time | 03:22 PM |
| Temp (°F) | 72 |
| Cloud Cover (%) | 1 |
| Wind Speed (avg. mph) | 4 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 5.27 |
| Acres Surveyed per Hour | 6.99 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 328195 |
| Survey Date | 04/05/2023 |

| | |
|---|---|
| User | Andrew Smisek |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Survey Area 1 |
| Survey Number | 2 |
| Survey Date | 04/05/2023 |
| Permitted Surveyor(s) | Andy Smisek TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 42.2 |
| **Starting Conditions** | |
| Time | 09:49 AM |
| Temp (°F) | 61 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 2 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Full Bloom |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Phacelia cicutaria* / Caterpillar phacelia |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Full Bloom |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Full Bloom |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Allium sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 6** | |

| | |
|---|---|
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |
| | |
| Nectar Plant Species | *Other* / |
| Other Species | *Lasthenia coronaria* / Royal goldfields, Crowned or royal goldfields |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Fruits and Flowers |
| | |
| Nectar Plant Species | *Eriogonum fasciculatum* / California buckwheat, California buckwheat |
| Phenology | Vegetative |
| Notes | Very little PLAERE within survey area. Very few butterflies observed. Many areas with nectar plants also pretty dense with shrubs or grasses. |
| Photos | None |
| Butterfly Species 1 | |
| Butterfly Species Observed | *Pontia protodice* / Checkered White |
| Number Observed | 7 |
| | |
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 1 |
| | |
| Time | 02:16 PM |
| Temp (°F) | 64 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 6.7 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.45 |
| Acres Surveyed per Hour | 9.48 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 328228 |
| Survey Date | 04/05/2023 |
| User | Kayo Valenti |
| Type of Visit | QCB Survey |
| | |
| Which survey area are you working within? | Survey Area 2 |

| | |
|---|---|
| Survey Number | 2 |
| Survey Date | 04/05/2023 |
| Permitted Surveyor(s) | Kayo Valenti TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 39.7 |

| Starting Conditions | |
|---|---|
| Time | 10:25 AM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 3-5 |

| Host Plant Species 1 | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Fruits and Flowers |

| Potential Host Plant Species 1 | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

| Nectar Plant Species 1 | |
|---|---|
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Fruits and Flowers |

| Nectar Plant Species 2 | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | |
| Other Nectar Plant Species | Lasthenia sp. |
| Phenology | Full Bloom |

| Nectar Plant Species 3 | |
|---|---|
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Fruits and Flowers |

| Nectar Plant Species 4 | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Encelia californica* / Bush sunflower |
| Other Nectar Plant Species | |
| Phenology | Fruits and Flowers |

| Nectar Plant Species 5 | |
|---|---|
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Full Bloom |

| Nectar Plant Species 6 | |
|---|---|
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Fruits and Flowers |

| | |
|---|---|
| **Nectar Plant Species 7** | |
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Fruits and Flowers |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 3 |
| | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Duskywing sp. |
| Number Observed | 6 |
| | |
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 2 |
| | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Pontia sp. |
| Number Observed | 3 |
| | |
| Butterfly Species Observed | *Vanessa atalanta rubria* / Red Admiral |
| Number Observed | 1 |
| | |
| Time | 02:31 PM |
| Temp (°F) | 68 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 4-7, gusts to 10 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.1 |
| Acres Surveyed per Hour | 9.68 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 328216 |
| Survey Date | 04/05/2023 |
| User | Anna Leavitt |
| Type of Visit | QCB Survey |

| Survey Info | |
|---|---|
| Which survey area are you working within? | Survey Area 3 |
| Survey Number | 2 |
| Survey Date | 04/05/2023 |
| Permitted Surveyor(s) | Anna Leavitt TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 43.8 |

| Starting Conditions | |
|---|---|
| Time | 10:15 AM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 3-5 |

| Host Plant Species 1 | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Full Bloom |

| Potential Host Plant Species 1 | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

| Nectar Plant Species 1 | |
|---|---|
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Full Bloom |

| Nectar Plant Species 2 | |
|---|---|
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |

| Nectar Plant Species 3 | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Bahiopsis laciniata* / San diego county viguiera, San diego viguiera |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |

| Nectar Plant Species 4 | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Phacelia cicutaria* / Caterpillar phacelia |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |

| Nectar Plant Species 5 | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Oncosiphon piluliferum* / Stinknet |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |

| Nectar Plant Species 6 | |
|---|---|
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Full Bloom |
| **Nectar Plant Species 7** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Hypochaeris glabra* / Smooth cats ear, Smooth cat's-ear |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 8** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Full Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 10 |
| | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | White |
| Number Observed | 3 |
| | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Duskywing |
| Number Observed | 1 |
| | |
| Time | 02:41 PM |
| Temp (°F) | 66 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 6-9 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.43 |
| Acres Surveyed per Hour | 9.89 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 328392 |
| Survey Date | 04/05/2023 |

| | |
|---|---|
| User | Chris Thomson |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Survey Area 4 |
| Survey Number | 2 |
| Survey Date | 04/05/2023 |
| Permitted Surveyor(s) | Chris Thomson TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 38.1 |
| **Starting Conditions** | |
| Time | 10:16 AM |
| Temp (°F) | 60 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 3 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Post-bloom |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | |
| Phenology | |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | |
| Phenology | |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | |

PLAERE patch

| Butterfly Species 1 | |
|---|---|
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 2 |

| Butterfly Species 2 | |
|---|---|
| Butterfly Species Observed | *Erynnis funeralis* / Funereal Duskywing |
| Number Observed | 1 |

| Butterfly Species 3 | |
|---|---|
| Butterfly Species Observed | *Coenonympha californica californica* / Common California Ringlet |
| Number Observed | 1 |

| Butterfly Species 4 | |
|---|---|
| Butterfly Species Observed | *Pontia protodice* / Checkered White |
| Number Observed | 1 |

| Butterfly Species 5 | |
|---|---|
| Butterfly Species Observed | *Colias harfordii* / Harford's Sulphur |
| Number Observed | 1 |

| Ending Conditions | |
|---|---|
| Time | 02:21 PM |
| Temp (°F) | 69 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 7 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.08 |
| Acres Surveyed per Hour | 9.34 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 328209 |
| Survey Date | 04/05/2023 |

| | |
|---|---|
| User | Beth Procsal |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Survey Area 5 |
| Survey Number | 2 |
| Survey Date | 04/05/2023 |
| Permitted Surveyor(s) | Elizabeth Procsal TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 36.8 |
| **Starting Conditions** | |
| Time | 09:59 AM |
| Temp (°F) | 62 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 3-4 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Full Bloom |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Full Bloom |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Full Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Pieris rapae* / Cabbage White |
| Number Observed | 1 |
| **Butterfly Species 2** | |

| | |
|---|---|
| Butterfly Species Observed | *Coenonympha californica californica* / Common California Ringlet |
| Number Observed | 1 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 1 |
| **Butterfly Species 4** | |
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 3 |
| **Ending Conditions** | |
| Time | 01:41 PM |
| Temp (°F) | 66 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 7-14 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 3.7 |
| Acres Surveyed per Hour | 9.949999999999999 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 329455 |
| Survey Date | 04/10/2023 |
| User | Chris Thomson |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Other |
| Survey Number | 3 |
| Survey Date | 04/10/2023 |
| Permitted Surveyor(s) | Chris Thomson TE 797665 |
| Under Supervision Surveyor(s) | Completed the whole Survey Area #3 area with the exception of the lower half of the north-side road within the southwestern corner of the survey area. |
| Acreage | 41.48 |
| **Starting Conditions** | |
| Time | 11:13 AM |
| Temp (°F) | 68 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 2 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Fruits and Flowers |

| Potential Host Plant Species 1 | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

| Nectar Plant Species 1 | |
|---|---|
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |

| Nectar Plant Species 2 | |
|---|---|
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |
| Notes | Beth did small portion at the end of survey, noted on a separate Wildnote form. |
| Photos | None |

| Butterfly Species 1 | |
|---|---|
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 5 |

| Butterfly Species 2 | |
|---|---|
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 7 |

| Butterfly Species 3 | |
|---|---|
| Butterfly Species Observed | *Erynnis funeralis* / Funereal Duskywing |
| Number Observed | 5 |

| Butterfly Species 4 | |
|---|---|
| Butterfly Species Observed | *Pontia protodice* / Checkered White |
| Number Observed | 2 |

| Ending Conditions | |
|---|---|
| Time | 03:32 PM |
| Temp (°F) | 71 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 6 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.32 |
| Acres Surveyed per Hour | 9.6 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 329861 |
| Survey Date | 04/10/2023 |
| User | Beth Procsal |
| Type of Visit | QCB Survey |

| Survey Info |
|---|

| | |
|---|---|
| Which survey area are you working within? | Other |
| Survey Number | 3 |
| Survey Date | 04/10/2023 |
| Permitted Surveyor(s) | Elizabeth Procsal TE 797665 |
| Under Supervision Surveyor(s) | I surveyed the lower half of the north-south road within Survey Area #3 to help Chris (approx 2.32 acres) |
| Acreage | 2.32 |
| **Starting Conditions** | |
| Time | 03:13 PM |
| Temp (°F) | 66 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 4-8 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Full Bloom |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Pieris rapae* / Cabbage White |
| Number Observed | 1 |
| **Ending Conditions** | |
| Time | 03:30 PM |
| Temp (°F) | 66 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 3-8 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 0.28 |
| Acres Surveyed per Hour | 8.29 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 329409 |
| Survey Date | 04/10/2023 |
| User | Andrew Smisek |
| Type of Visit | QCB Survey |

### Survey Info

| | |
|---|---|
| Which survey area are you working within? | Survey Area 1 |
| Survey Number | 3 |
| Survey Date | 04/10/2023 |
| Permitted Surveyor(s) | Andy Smisek TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 42.2 |

### Starting Conditions

| | |
|---|---|
| Time | 10:40 AM |
| Temp (°F) | 66 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 3 |

### Host Plant Species 1

| | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Full Bloom |

### Potential Host Plant Species 1

| | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

### Nectar Plant Species 1

| | |
|---|---|
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Full Bloom |

### Nectar Plant Species 2

| | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Phacelia cicutaria* / Caterpillar phacelia |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |

### Nectar Plant Species 3

| | |
|---|---|
| Nectar Plant Species | *Eriogonum fasciculatum* / California buckwheat, California buckwheat |
| Phenology | Starting to Bloom |

### Nectar Plant Species 4

| | |
|---|---|
| Nectar Plant Species | *Allium sp.* / |
| Phenology | Post-bloom |

| | |
|---|---|
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 6** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |
| **Nectar Plant Species 7** | |
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Full Bloom |
| **Nectar Plant Species 8** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 9** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Full Bloom |
| **Nectar Plant Species 10** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Lasthenia coronaria* / Royal goldfields, Crowned or royal goldfields |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| Notes | Areas with nectar plants mostly very shrubby and with grasses, few areas of suitably open habitat with host and nectar plants. |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 7 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Erynnis funeralis* / Funereal Duskywing |
| Number Observed | 6 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Vanessa cardui* / Painted Lady |
| Number Observed | 3 |
| **Butterfly Species 4** | |
| Butterfly Species Observed | *Pontia protodice* / Checkered White |
| Number Observed | 4 |
| **Butterfly Species 5** | |
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 6 |
| **Ending Conditions** | |

| | |
|---|---|
| Time | 03:12 PM |
| Temp (°F) | 71 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 7 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.53 |
| Acres Surveyed per Hour | 9.32 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 329415 |
| Survey Date | 04/10/2023 |
| User | Beth Procsal |
| Type of Visit | QCB Survey |

### Survey Info

| | |
|---|---|
| Which survey area are you working within? | Survey Area 5 |
| Survey Number | 3 |
| Survey Date | 04/10/2023 |
| Permitted Surveyor(s) | Elizabeth Procsal TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 36.8 |

### Starting Conditions

| | |
|---|---|
| Time | 10:52 AM |
| Temp (°F) | 69 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 2-5 |

### Host Plant Species 1

| | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Full Bloom |

### Potential Host Plant Species 1

| | |
|---|---|
| Potential Host Plant Species | *Collinsia heterophylla* / Chinese houses |
| Phenology | Full Bloom |

### Nectar Plant Species 1

| | |
|---|---|
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |

### Nectar Plant Species 2

| | |
|---|---|
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Full Bloom |

| | |
|---|---|
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Full Bloom |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Eriophyllum confertiflorum* / Yellow yarrow, Golden-yarrow, Yellow-yarrow |
| Phenology | Full Bloom |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 6** | |
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 7** | |
| Nectar Plant Species | *Allium sp.* / |
| Phenology | Post-bloom |
| **Nectar Plant Species 8** | |
| Nectar Plant Species | *Sanicula sp.* / |
| Phenology | Starting to Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 4 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Erynnis funeralis* / Funereal Duskywing |
| Number Observed | 2 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Pieris rapae* / Cabbage White |
| Number Observed | 4 |
| **Butterfly Species 4** | |
| Butterfly Species Observed | *Junonia coenia* / Common Buckeye |
| Number Observed | 1 |
| **Butterfly Species 5** | |
| Butterfly Species Observed | *Coenonympha californica californica* / Common California Ringlet |
| Number Observed | 2 |
| **Butterfly Species 6** | |
| Butterfly Species Observed | *Pyrgus communis* / Common Checkered-Skipper |
| Number Observed | 1 |

| Ending Conditions | |
|---|---|
| Time | 02:45 PM |
| Temp (°F) | 66 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 4-8 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 3.88 |
| Acres Surveyed per Hour | 9.48 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 329916 |
| Survey Date | 04/11/2023 |
| User | Wendy Loeffler |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Survey Area 2 |
| Survey Number | 3 |
| Survey Date | 04/11/2023 |
| Permitted Surveyor(s) | Wendy Loeffler TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 39.7 |
| **Starting Conditions** | |
| Time | 11:49 AM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 10 |
| Wind Speed (avg. mph) | 2-4 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Full Bloom |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Full Bloom |

| | |
|---|---|
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Post-bloom |
| **Nectar Plant Species 6** | |
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Full Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Sphinx moth |
| Number Observed | 1 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Duskywing sp |
| Number Observed | 1 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | White sp |
| Number Observed | 3 |
| **Butterfly Species 4** | |
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 3 |
| **Butterfly Species 5** | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Sulfur sp |
| Number Observed | 1 |

| Ending Conditions | |
|---|---|
| Time | 04:09 PM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 30 |
| Wind Speed (avg. mph) | 4-6 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.33 |
| Acres Surveyed per Hour | 9.17 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 329892 |
| Survey Date | 04/11/2023 |
| User | Chris Thomson |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Survey Area 4 |
| Survey Number | 3 |
| Survey Date | 04/11/2023 |
| Permitted Surveyor(s) | Chris Thomson TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 38.1 |
| **Starting Conditions** | |
| Time | 11:47 AM |
| Temp (°F) | 68 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 2 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Fruits and Flowers |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |

| Butterfly Species 1 | |
|---|---|
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 7 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 9 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Erynnis funeralis* / Funereal Duskywing |
| Number Observed | 7 |
| **Butterfly Species 4** | |
| Butterfly Species Observed | *Pontia protodice* / Checkered White |
| Number Observed | 6 |
| **Butterfly Species 5** | |
| Butterfly Species Observed | *Colias harfordii* / Harford's Sulphur |
| Number Observed | 1 |
| **Ending Conditions** | |
| Time | 04:01 PM |
| Temp (°F) | 74 |
| Cloud Cover (%) | 15 |
| Wind Speed (avg. mph) | 4 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.23 |
| Acres Surveyed per Hour | 9.01 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 333408 |
| Survey Date | 04/20/2023 |
| User | Kayo Valenti |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Survey Area 1 |
| Survey Number | 4 |
| Survey Date | 04/20/2023 |
| Permitted Surveyor(s) | Kayo Valenti TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 42.2 |
| **Starting Conditions** | |

| | |
|---|---|
| Time | 09:55 AM |
| Temp (°F) | 73 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 1-3 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Fruits and Flowers |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Glebionis coronaria* / Crown daisy, Garland or crown daisy |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Bahiopsis laciniata* / San diego county viguiera, San diego viguiera |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 6** | |
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Full Bloom |
| **Nectar Plant Species 7** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Phacelia cicutaria* / Caterpillar phacelia |
| Other Nectar Plant Species | |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 8** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |

| | |
|---|---|
| Phenology | Full Bloom |
| **Nectar Plant Species 9** | |
| Nectar Plant Species | *Allium sp.* / |
| Phenology | Post-bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 4 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Pontia sp. |
| Number Observed | 16 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 13 |
| **Butterfly Species 4** | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Duskywing sp. |
| Number Observed | 3 |
| **Butterfly Species 5** | |
| Butterfly Species Observed | *Vanessa annabella* / West Coast Lady |
| Number Observed | 2 |
| **Butterfly Species 6** | |
| Butterfly Species Observed | *Coenonympha californica californica* / Common California Ringlet |
| Number Observed | 1 |
| **Butterfly Species 7** | |
| Butterfly Species Observed | *Pieris rapae* / Cabbage White |
| Number Observed | 1 |
| **Butterfly Species 8** | |
| Butterfly Species Observed | *Brephidium exila* / Western Pygmy-Blue |
| Number Observed | 1 |
| **Ending Conditions** | |
| Time | 02:17 PM |
| Temp (°F) | 84 |
| Cloud Cover (%) | <5 |

| | |
|---|---|
| Wind Speed (avg. mph) | 2-5 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.37 |
| Acres Surveyed per Hour | 9.66 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 333425 |
| Survey Date | 04/20/2023 |
| User | Andrew Smisek |
| Type of Visit | QCB Survey |

### Survey Info

| | |
|---|---|
| Which survey area are you working within? | Survey Area 2 |
| Survey Number | 4 |
| Survey Date | 04/20/2023 |
| Permitted Surveyor(s) | Andy Smisek TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 39.7 |

### Starting Conditions

| | |
|---|---|
| Time | 10:19 AM |
| Temp (°F) | 71 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 5 |

### Host Plant Species 1

| | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Post-bloom |

### Potential Host Plant Species 1

| | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

### Nectar Plant Species 1

| | |
|---|---|
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |

### Nectar Plant Species 2

| | |
|---|---|
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | |

### Nectar Plant Species 3

| | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Nuttallanthus texanus* / Blue toadflax |

| | |
|---|---|
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 6** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Gilia angelensis* / Chaparral gilia |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 7** | |
| Nectar Plant Species | *Eriogonum fasciculatum* / California buckwheat, California buckwheat |
| Phenology | Vegetative |
| **Nectar Plant Species 8** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 9** | |
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Full Bloom |
| **Nectar Plant Species 10** | |
| Nectar Plant Species | *Eriophyllum confertiflorum* / Yellow yarrow, Golden-yarrow, Yellow-yarrow |
| Phenology | Starting to Bloom |
| Notes | Very few and small areas of host plant. Also, nectar plants limited in most areas and absent in some. Habitat mostly very grassy, but also large patches of dense CSS. |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Pontia protodice* / Checkered White |
| Number Observed | 6 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 9 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Erynnis funeralis* / Funereal Duskywing |
| Number Observed | 3 |
| **Butterfly Species 4** | |
| Butterfly Species Observed | *Phoebis sennae* / Cloudless Sulphur |

| | |
|---|---|
| Number Observed | 1 |
| | |
| Time | 02:33 PM |
| Temp (°F) | 78 |
| Cloud Cover (%) | 5 |
| Wind Speed (avg. mph) | 5 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.23 |
| Acres Surveyed per Hour | 9.39 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 333414 |
| Survey Date | 04/20/2023 |
| User | Beth Procsal |
| Type of Visit | QCB Survey |

### Survey Info

| | |
|---|---|
| Which survey area are you working within? | Survey Area 3 |
| Survey Number | 4 |
| Survey Date | 04/20/2023 |
| Permitted Surveyor(s) | Elizabeth Procsal TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 43.8 |

### Starting Conditions

| | |
|---|---|
| Time | 10:02 AM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 0-1 |

### Host Plant Species 1

| | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Post-bloom |

### Host Plant Species 2

| | |
|---|---|
| Host Plant Species | |
| Phenology | |

### Potential Host Plant Species 1

| | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

### Nectar Plant Species 1

| | |
|---|---|
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |
| | |
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Full Bloom |
| | |
| Nectar Plant Species | *Other* / |
| Other Species | *Phacelia cicutaria* / Caterpillar phacelia |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Full Bloom |
| | |
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Full Bloom |
| | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Full Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Pieris rapae* / Cabbage White |
| Number Observed | 3 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Erynnis funeralis* / Funereal Duskywing |
| Number Observed | 2 |
| **Ending Conditions** | |
| Time | 02:29 PM |
| Temp (°F) | 75 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 4-6 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.45 |
| Acres Surveyed per Hour | 9.84 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 333382 |

| | |
|---|---|
| Survey Date | 04/20/2023 |
| User | Chris Thomson |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Survey Area 4 |
| Survey Number | 4 |
| Survey Date | 04/20/2023 |
| Permitted Surveyor(s) | Chris Thomson TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 38.1 |
| **Starting Conditions** | |
| Time | 10:06 AM |
| Temp (°F) | 71.5 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 2 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Fruits and Flowers |
| **Host Plant Species 2** | |
| Host Plant Species | |
| Phenology | |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Fruits and Flowers |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 7 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Pontia protodice* / Checkered White |
| Number Observed | 5 |

| Butterfly Species 3 | |
|---|---|
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 11 |

| Butterfly Species 4 | |
|---|---|
| Butterfly Species Observed | *Papilio zelicaon* / Anise Swallowtail |
| Number Observed | 1 |

| Butterfly Species 5 | |
|---|---|
| Butterfly Species Observed | *Coenonympha californica californica* / Common California Ringlet |
| Number Observed | 2 |

| Ending Conditions | |
|---|---|
| Time | 02:09 PM |
| Temp (°F) | 75 |
| Cloud Cover (%) | 1 |
| Wind Speed (avg. mph) | 7 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.05 |
| Acres Surveyed per Hour | 9.41 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 333416 |
| Survey Date | 04/20/2023 |
| User | JR Sundberg |
| Type of Visit | QCB Survey |

| Survey Info | |
|---|---|
| Which survey area are you working within? | Survey Area 5 |
| Survey Number | 4 |
| Survey Date | 04/20/2023 |
| Permitted Surveyor(s) | Jason Sundberg TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 36.8 |

| Starting Conditions | |
|---|---|
| Time | 09:53 AM |
| Temp (°F) | 68 |
| Cloud Cover (%) | 0 |
| Wind Speed (avg. mph) | 1 |

| Host Plant Species 1 | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Fruits and Flowers |

| Potential Host Plant Species 1 | |
|---|---|
| Potential Host Plant Species | *Collinsia heterophylla* / Chinese houses |
| Phenology | Full Bloom |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Allium sp.* / |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Bloomeria crocea* / Golden stars, Common goldenstar |
| Phenology | Starting to Bloom |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 6** | |
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 7** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Post-bloom |
| Notes | Warm, sunny day with active insect life. Many wildflowers and flowering shrubs are near peak bloom.<br>Honeybees and several species of native bees were observed nectaring on the blooms. I flushed many sphinx moths, and grasshoppers walking through low brush. Rattlesnakes were basking on the roads. |
| Photos | |

Habitat along trail section.

Lower section of storm drain route dominated by non-native grasses and weeds.

On the Mesa, the edges provide the best habitat.

Middle of the Mesa is dominated by dense non-native grass.

| Butterfly Species 1 | |
|---|---|
| Butterfly Species Observed | *Pieris rapae* / Cabbage White |
| Number Observed | 7 |

| Butterfly Species 2 | |
|---|---|
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 8 |

| Butterfly Species 3 | |
|---|---|
| Butterfly Species Observed | *Coenonympha californica californica* / Common California Ringlet |
| Number Observed | 8 |

| Butterfly Species 4 | |
|---|---|
| Butterfly Species Observed | *Junonia coenia* / Common Buckeye |
| Number Observed | 2 |

| Butterfly Species 5 | |
|---|---|
| Butterfly Species Observed | *Pyrgus communis* / Common Checkered-Skipper |
| Number Observed | 1 |

| Butterfly Species 6 | |
|---|---|
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 4 |

| Butterfly Species 7 | |
|---|---|
| Butterfly Species Observed | *Papilio eurymedon* / Pale Swallowtail |
| Number Observed | 2 |

| Butterfly Species 8 | |
|---|---|
| Butterfly Species Observed | *Erynnis funeralis* / Funereal Duskywing |
| Number Observed | 4 |

| Ending Conditions | |
|---|---|
| Time | 02:40 PM |
| Temp (°F) | 75 |
| Cloud Cover (%) | 2 |
| Wind Speed (avg. mph) | 4 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.78 |
| Acres Surveyed per Hour | 7.7 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 335047 |
| Survey Date | 04/25/2023 |
| User | Chris Thomson |
| Type of Visit | QCB Survey |

| Survey Info | |
|---|---|
| Which survey area are you working within? | Other |
| Survey Number | 5 |
| Survey Date | 04/25/2023 |
| Permitted Surveyor(s) | Chris Thomson TE 797665 |
| Under Supervision Surveyor(s) | Modified Survey Area #4 |
| Acreage | 36.4 |

| Starting Conditions | |
|---|---|
| Time | 11:45 AM |
| Temp (°F) | 72 |
| Cloud Cover (%) | 30 |
| Wind Speed (avg. mph) | 3 |

| Host Plant Species 1 | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Fruits and Flowers |

| | |
|---|---|
| **Host Plant Species 2** | |
| Host Plant Species | |
| Phenology | |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Potential Host Plant Species 2** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Fruits and Flowers |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 7 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Junonia coenia* / Common Buckeye |
| Number Observed | 2 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Pontia protodice* / Checkered White |
| Number Observed | 6 |
| **Butterfly Species 4** | |
| Butterfly Species Observed | *Erynnis funeralis* / Funereal Duskywing |
| Number Observed | 4 |
| **Butterfly Species 5** | |
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 3 |
| **Butterfly Species 6** | |
| Butterfly Species Observed | *Pontia sisymbrii* / Spring White |
| Number Observed | 2 |

| Ending Conditions | |
|---|---|
| Time | 03:43 PM |
| Temp (°F) | 72 |
| Cloud Cover (%) | 80 |
| Wind Speed (avg. mph) | 6 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 3.97 |
| Acres Surveyed per Hour | 9.17 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 335110 |
| Survey Date | 04/25/2023 |
| User | Beth Procsal |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Other |
| Survey Number | 5 |
| Survey Date | 04/25/2023 |
| Permitted Surveyor(s) | Elizabeth Procsal TE 797665 |
| Under Supervision Surveyor(s) | Survey Area 3 + Wendy finished up the southern half of the north-south road segment in Survey Area #3. |
| Acreage | 41.3 |
| **Starting Conditions** | |
| Time | 11:39 AM |
| Temp (°F) | 72 |
| Cloud Cover (%) | 15 |
| Wind Speed (avg. mph) | 0-4 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Post-bloom |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | *Antirrhinum nuttallianum* / Nuttall's snapdragon |
| Phenology | Full Bloom |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Oncosiphon piluliferum* / Stinknet |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |

| | |
|---|---|
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Full Bloom |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Allium sp.* / |
| Phenology | Post-bloom |
| **Nectar Plant Species 6** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Bahiopsis laciniata* / San diego county viguiera, San diego viguiera |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 7** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Sidalcea malviflora* / Wild hollyhock, Checkerbloom, Checkermallow |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Vanessa cardui* / Painted Lady |
| Number Observed | 1 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Pieris rapae* / Cabbage White |
| Number Observed | 2 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 3 |
| **Butterfly Species 4** | |
| Butterfly Species Observed | *Icaricia acmon acmon* / Acmon Blue |
| Number Observed | 1 |
| **Butterfly Species 5** | |
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 4 |

| Butterfly Species 6 | |
|---|---|
| Butterfly Species Observed | *Erynnis funeralis* / Funereal Duskywing |
| Number Observed | 1 |

| Ending Conditions | |
|---|---|
| Time | 03:57 PM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 80 |
| Wind Speed (avg. mph) | 3-6 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.3 |
| Acres Surveyed per Hour | 9.6 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 335111 |
| Survey Date | 04/25/2023 |
| User | Wendy Loeffler |
| Type of Visit | QCB Survey |

| Survey Info | |
|---|---|
| Which survey area are you working within? | Other |
| Survey Number | 5 |
| Survey Date | 04/25/2023 |
| Permitted Surveyor(s) | Wendy Loeffler TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 33.41 |

| Starting Conditions | |
|---|---|
| Time | 11:57 AM |
| Temp (°F) | 72 |
| Cloud Cover (%) | 40 |
| Wind Speed (avg. mph) | 3-6 |

| Host Plant Species 1 | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Full Bloom |

| Potential Host Plant Species 1 | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

| Nectar Plant Species 1 | |
|---|---|
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |

| Nectar Plant Species 2 | |
|---|---|
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Full Bloom |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Phacelia cicutaria* / Caterpillar phacelia |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 6** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Full Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | White sp |
| Number Observed | 2 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Erynnis funeralis* / Funereal Duskywing |
| Number Observed | 1 |
| **Ending Conditions** | |
| Time | 03:30 PM |
| Temp (°F) | 75 |
| Cloud Cover (%) | 30 |
| Wind Speed (avg. mph) | 3-8 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 3.55 |
| Acres Surveyed per Hour | 9.41 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 335213 |

| | |
|---|---|
| Survey Date | 04/25/2023 |
| User | Wendy Loeffler |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Other |
| Survey Number | 5 |
| Survey Date | 04/25/2023 |
| Permitted Surveyor(s) | Wendy Loeffler TE 797665 |
| Under Supervision Surveyor(s) | Wendy finished the southern half of the north-south road segment of Survey Area 3. |
| Acreage | 2.25 |
| **Starting Conditions** | |
| Time | 03:43 PM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 85 |
| Wind Speed (avg. mph) | 1-5 |
| **Host Plant Species 1** | |
| Host Plant Species | |
| Phenology | |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Full Bloom |
| Notes | Surveyed part of north south road for Beth |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | |
| Number Observed | |
| **Ending Conditions** | |
| Time | 04:01 PM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 80 |
| Wind Speed (avg. mph) | 3-6 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 0.3 |
| Acres Surveyed per Hour | 7.5 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 335101 |
| Survey Date | 04/25/2023 |
| User | Andrew Smisek |
| Type of Visit | QCB Survey |

### Survey Info

| | |
|---|---|
| Which survey area are you working within? | Survey Area 1 |
| Survey Number | 5 |
| Survey Date | 04/25/2023 |
| Permitted Surveyor(s) | Andy Smisek TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 42.2 |

### Starting Conditions

| | |
|---|---|
| Time | 11:29 AM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 35 |
| Wind Speed (avg. mph) | 1 |

### Host Plant Species 1

| | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Fruits and Flowers |

### Potential Host Plant Species 1

| | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

### Nectar Plant Species 1

| | |
|---|---|
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Fruits and Flowers |

### Nectar Plant Species 2

| | |
|---|---|
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Post-bloom |

### Nectar Plant Species 3

| | |
|---|---|
| Nectar Plant Species | *Eriogonum fasciculatum* / California buckwheat, California buckwheat |
| Phenology | Starting to Bloom |

### Nectar Plant Species 4

| | |
|---|---|
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Fruits and Flowers |

### Nectar Plant Species 5

| | |
|---|---|
| Nectar Plant Species | *Other* / |

| | |
|---|---|
| Other Species | *Gilia angelensis* / Chaparral gilia |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |

| Nectar Plant Species 6 | |
|---|---|
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Full Bloom |

| Nectar Plant Species 7 | |
|---|---|
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Full Bloom |

| Nectar Plant Species 8 | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Lasthenia coronaria* / Royal goldfields, Crowned or royal goldfields |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |

| Nectar Plant Species 9 | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Achillea millefolium* / Yarrow |
| Other Nectar Plant Species | |
| Phenology | Starting to Bloom |

| | |
|---|---|
| Notes | Mid-survey weather check at 1:15 when cloud cover above 50. Temp is 77, wind 3-4 mph. |

Photos

high cover of nectar plants in css

moderate proportion of nectar plants in css

| Butterfly Species 1 |
|---|

| | |
|---|---|
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 12 |
| | |
| Butterfly Species Observed | |
| Number Observed | 11 |
| | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Sulpher (probably cloudless) |
| Number Observed | 1 |
| | |
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 4 |
| | |
| Time | 03:55 PM |
| Temp (°F) | 76 |
| Cloud Cover (%) | 85 |
| Wind Speed (avg. mph) | 4 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.43 |
| Acres Surveyed per Hour | 9.529999999999999 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 335115 |
| Survey Date | 04/25/2023 |
| User | JR Sundberg |
| Type of Visit | QCB Survey |

### Survey Info

| | |
|---|---|
| Which survey area are you working within? | Survey Area 5 |
| Survey Number | 5 |
| Survey Date | 04/25/2023 |
| Permitted Surveyor(s) | Jason Sundberg TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 36.8 |

### Starting Conditions

| | |
|---|---|
| Time | 11:36 AM |
| Temp (°F) | 72 |

| | |
|---|---|
| Cloud Cover (%) | 20 |
| Wind Speed (avg. mph) | 1 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Post-bloom |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Allium sp.* / |
| Phenology | Post-bloom |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Post-bloom |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Bloomeria crocea* / Golden stars, Common goldenstar |
| Phenology | Starting to Bloom |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 6** | |
| Nectar Plant Species | *Eriogonum fasciculatum* / California buckwheat, California buckwheat |
| Phenology | Starting to Bloom |
| **Nectar Plant Species 7** | |
| Nectar Plant Species | *Eriophyllum confertiflorum* / Yellow yarrow, Golden-yarrow, Yellow-yarrow |
| Phenology | Starting to Bloom |
| **Nectar Plant Species 8** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 9** | |
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 10** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Desiccated |

| | |
|---|---|
| Notes | Also observed moths, native bees, hover flies, grasshoppers, and honeybees. Peak bloom is over but there are still abundant nectar sources. |

Photos

Better habitat along edges of finger canyon.

Large expan

| Butterfly Species 1 | |
|---|---|
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 11 |

| Butterfly Species 2 | |
|---|---|
| Butterfly Species Observed | *Coenonympha californica californica* / Common California Ringlet |
| Number Observed | 4 |

| Butterfly Species 3 | |
|---|---|
| Butterfly Species Observed | *Pyrgus communis* / Common Checkered-Skipper |
| Number Observed | 2 |

| Butterfly Species 4 | |
|---|---|
| Butterfly Species Observed | *Pieris rapae* / Cabbage White |
| Number Observed | 2 |

| Butterfly Species 5 | |
|---|---|
| Butterfly Species Observed | *Junonia coenia* / Common Buckeye |
| Number Observed | 2 |

| Butterfly Species 6 | |
|---|---|
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 1 |

| Ending Conditions | |
|---|---|
| Time | 03:58 PM |
| Temp (°F) | 74 |
| Cloud Cover (%) | 80 |
| Wind Speed (avg. mph) | 5 |
| Quino Checkerspot Butterfly Observed | NO |

| | |
|---|---|
| Total Hours Surveyed | 4.37 |
| Acres Surveyed per Hour | 8.42 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 341508 |
| Survey Date | 04/28/2023 |
| User | Beth Procsal |
| Type of Visit | QCB Survey |

### Survey Info

| | |
|---|---|
| Which survey area are you working within? | Other |
| Survey Number | 5 |
| Survey Date | 04/28/2023 |
| Permitted Surveyor(s) | Alex Fromer TE 797665 |
| Under Supervision Surveyor(s) | western half of northern trail within Survey Area 4 |
| Acreage | 0.2 |

### Starting Conditions

| | |
|---|---|
| Time | 11:10 AM |
| Temp (°F) | 68 |
| Cloud Cover (%) | 10 |
| Wind Speed (avg. mph) | 1-4 |

### Host Plant Species 1

| | |
|---|---|
| Host Plant Species | |
| Phenology | |

### Potential Host Plant Species 1

| | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

### Nectar Plant Species 1

| | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Deinandra fasciculata* / Clustered tarweed |
| Other Nectar Plant Species | |
| Phenology | Starting to Bloom |

### Nectar Plant Species 2

| | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Glebionis coronaria* / Crown daisy, Garland or crown daisy |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |

### Nectar Plant Species 3

| | |
|---|---|
| Nectar Plant Species | *Eriogonum fasciculatum* / California buckwheat, California buckwheat |

| | |
|---|---|
| Phenology | Starting to Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 1 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Vanessa annabella* / West Coast Lady |
| Number Observed | 1 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Pontia sp. |
| Number Observed | 2 |
| **Butterfly Species 4** | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Sulpher sp. |
| Number Observed | 1 |
| **Ending Conditions** | |
| Time | 11:20 AM |
| Temp (°F) | 68 |
| Cloud Cover (%) | 10 |
| Wind Speed (avg. mph) | 1-4 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 0.17 |
| Acres Surveyed per Hour | 1.18 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 339871 |
| Survey Date | 05/05/2023 |
| User | Alex Fromer |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Other |
| Survey Number | 6 |
| Survey Date | 05/05/2023 |

| | |
|---|---|
| Permitted Surveyor(s) | Alex Fromer TE 797665 |
| Under Supervision Surveyor(s) | Survey Area 3 minus the 4.5 acre north-south road piece |
| Acreage | 39.3 |

| Starting Conditions | |
|---|---|
| Time | 11:34 AM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 95 |
| Wind Speed (avg. mph) | 3-5 |

| Host Plant Species 1 | |
|---|---|
| Host Plant Species | |
| Phenology | |

| Potential Host Plant Species 1 | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

| Nectar Plant Species 1 | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Glebionis coronaria* / Crown daisy, Garland or crown daisy |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |

| Nectar Plant Species 2 | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Bahiopsis laciniata* / San diego county viguiera, San diego viguiera |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |

| Nectar Plant Species 3 | |
|---|---|
| Nectar Plant Species | *Eriophyllum confertiflorum* / Yellow yarrow, Golden-yarrow, Yellow-yarrow |
| Phenology | Full Bloom |

| Nectar Plant Species 4 | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Oncosiphon piluliferum* / Stinknet |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |

| Nectar Plant Species 5 | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Sisyrinchium bellum* / Blue eyed grass, Western blue-eyed-grass |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |

| Nectar Plant Species 6 | |
|---|---|
| Nectar Plant Species | *Other* / |

| | |
|---|---|
| Other Species | *Sidalcea malviflora ssp. malviflora* / Checker mallow |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 7** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 8** | |
| Nectar Plant Species | *Eriogonum fasciculatum* / California buckwheat, California buckwheat |
| Phenology | Starting to Bloom |
| **Nectar Plant Species 9** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Encelia californica* / Bush sunflower |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 10** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Nuttallanthus texanus* / Blue toadflax |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 11** | |
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Full Bloom |
| **Nectar Plant Species 12** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Full Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Blue sp. |
| Number Observed | 1 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | White sp. |
| Number Observed | 1 |
| **Butterfly Species 3** | |

| | |
|---|---|
| Butterfly Species Observed | *Hylephila phyleus* / Fiery Skipper |
| Number Observed | 1 |

| Ending Conditions | |
|---|---|
| Time | 04:00 PM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 80 |
| Wind Speed (avg. mph) | 4-8 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.43 |
| Acres Surveyed per Hour | 8.87 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 340194 |
| Survey Date | 05/05/2023 |
| User | Chris Thomson |
| Type of Visit | QCB Survey |

| Survey Info | |
|---|---|
| Which survey area are you working within? | Other |
| Survey Number | 6 |
| Survey Date | 05/05/2023 |
| Permitted Surveyor(s) | Chris Thomson TE 797665 |
| Under Supervision Surveyor(s) | north-south road piece in Survey Area 3 |
| Acreage | 4.5 |

| Starting Conditions | |
|---|---|
| Time | 03:12 PM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 80 |
| Wind Speed (avg. mph) | 4 |

| Host Plant Species 1 | |
|---|---|
| Host Plant Species | |
| Phenology | |

| Potential Host Plant Species 1 | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

| Nectar Plant Species 1 | |
|---|---|
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Fruits and Flowers |

| | |
|---|---|
| Notes | Survey area 3 road |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | |
| Number Observed | |
| **Ending Conditions** | |
| Time | 03:42 PM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 75 |
| Wind Speed (avg. mph) | 5 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 0.5 |
| Acres Surveyed per Hour | 9 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 339820 |
| Survey Date | 05/05/2023 |
| User | Andrew Smisek |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Survey Area 1 |
| Survey Number | 6 |
| Survey Date | 05/05/2023 |
| Permitted Surveyor(s) | Andy Smisek TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 42.2 |
| **Starting Conditions** | |
| Time | 11:05 AM |
| Temp (°F) | 73 |
| Cloud Cover (%) | 95 |
| Wind Speed (avg. mph) | 1 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Post-bloom |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |

| Nectar Plant Species 1 | |
|---|---|
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Eriophyllum confertiflorum* / Yellow yarrow, Golden-yarrow, Yellow-yarrow |
| Phenology | Full Bloom |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Lasthenia coronaria* / Royal goldfields, Crowned or royal goldfields |
| Other Nectar Plant Species | |
| Phenology | Post-bloom |
| **Nectar Plant Species 6** | |
| Nectar Plant Species | *Eriogonum fasciculatum* / California buckwheat, California buckwheat |
| Phenology | Starting to Bloom |
| **Nectar Plant Species 7** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Gilia angelensis* / Chaparral gilia |
| Other Nectar Plant Species | |
| Phenology | Post-bloom |
| **Nectar Plant Species 8** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Post-bloom |
| **Nectar Plant Species 9** | |
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Post-bloom |
| Notes | At 12:30 cloud cover dropped below 50% |
| Photos | |

PLAERE drying up

| Butterfly Species 1 | |
|---|---|
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Pontia sp. |
| Number Observed | 3 |

| Butterfly Species 2 | |
|---|---|
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 3 |

| Butterfly Species 3 | |
|---|---|
| Butterfly Species Observed | *Hylephila phyleus* / Fiery Skipper |
| Number Observed | 1 |

| Butterfly Species 4 | |
|---|---|
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 1 |

| Ending Conditions | |
|---|---|
| Time | 03:19 PM |
| Temp (°F) | 71 |
| Cloud Cover (%) | 85 |
| Wind Speed (avg. mph) | 3 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.23 |

| | |
|---|---|
| Acres Surveyed per Hour | 9.98 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 339888 |
| Survey Date | 05/05/2023 |
| User | Wendy Loeffler |
| Type of Visit | QCB Survey |

### Survey Info

| | |
|---|---|
| Which survey area are you working within? | Survey Area 2 |
| Survey Number | 6 |
| Survey Date | 05/05/2023 |
| Permitted Surveyor(s) | Wendy Loeffler TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 39.7 |

### Starting Conditions

| | |
|---|---|
| Time | 11:43 AM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 90 |
| Wind Speed (avg. mph) | 3-7 |

### Host Plant Species 1

| | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Post-bloom |

### Potential Host Plant Species 1

| | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

### Nectar Plant Species 1

| | |
|---|---|
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Post-bloom |

### Nectar Plant Species 2

| | |
|---|---|
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Post-bloom |

### Nectar Plant Species 3

| | |
|---|---|
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Full Bloom |

### Nectar Plant Species 4

| | |
|---|---|
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |

### Nectar Plant Species 5

| | |
|---|---|
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Post-bloom |
| Notes | Things really drying up. Hard to find any of the nectar plants blooming. Removal areas are dominated by mallau and rhuint |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Junonia coenia* / Common Buckeye |
| Number Observed | 0 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Strymon melinus pudica* / Gray Hairstreak |
| Number Observed | 1 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | White sp |
| Number Observed | 1 |
| **Ending Conditions** | |
| Time | 03:49 PM |
| Temp (°F) | 71 |
| Cloud Cover (%) | 85 |
| Wind Speed (avg. mph) | 3 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.1 |
| Acres Surveyed per Hour | 9.73 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 339559 |
| Survey Date | 05/05/2023 |
| User | Chris Thomson |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Survey Area 4 |
| Survey Number | 6 |
| Survey Date | 05/05/2023 |
| Permitted Surveyor(s) | Chris Thomson TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 38.1 |

| Starting Conditions | |
|---|---|
| Time | 11:09 AM |
| Temp (°F) | 74 |
| Cloud Cover (%) | 95 |
| Wind Speed (avg. mph) | 1 |

| Host Plant Species 1 | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Fruits and Flowers |

| Potential Host Plant Species 1 | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

| Nectar Plant Species 1 | |
|---|---|
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Fruits and Flowers |

| Nectar Plant Species 2 | |
|---|---|
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Fruits and Flowers |

| Nectar Plant Species 3 | |
|---|---|
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Fruits and Flowers |

| | |
|---|---|
| Notes | (details on QCB, habitats, photographs, etc.) |

Photos

grassy mesa

southern Area 4 trail

northern Area 4 trail

Northern Area 4 trail

southern Area 4 trail

| Butterfly Species 1 | |
|---|---|
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 4 |

| Butterfly Species 2 | |
|---|---|
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 7 |

| Butterfly Species 3 | |
|---|---|
| Butterfly Species Observed | *Junonia coenia* / Common Buckeye |
| Number Observed | 1 |

| Butterfly Species 4 | |
|---|---|
| Butterfly Species Observed | *Erynnis funeralis* / Funereal Duskywing |
| Number Observed | 1 |

| Ending Conditions | |
|---|---|
| Time | 03:09 PM |
| Temp (°F) | 70 |
| Cloud Cover (%) | 80 |

| | |
|---|---|
| Wind Speed (avg. mph) | 4 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4 |
| Acres Surveyed per Hour | 9.529999999999999 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 339796 |
| Survey Date | 05/05/2023 |
| User | JR Sundberg |
| Type of Visit | QCB Survey |

### Survey Info

| | |
|---|---|
| Which survey area are you working within? | Survey Area 5 |
| Survey Number | 6 |
| Survey Date | 05/05/2023 |
| Permitted Surveyor(s) | Jason Sundberg TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 36.8 |

### Starting Conditions

| | |
|---|---|
| Time | 11:13 AM |
| Temp (°F) | 74 |
| Cloud Cover (%) | 95 |
| Wind Speed (avg. mph) | 1 |

### Host Plant Species 1

| | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Post-bloom |

### Potential Host Plant Species 1

| | |
|---|---|
| Potential Host Plant Species | *Collinsia heterophylla* / Chinese houses |
| Phenology | Fruits and Flowers |

### Nectar Plant Species 1

| | |
|---|---|
| Nectar Plant Species | *Allium sp.* / |
| Phenology | Post-bloom |

### Nectar Plant Species 2

| | |
|---|---|
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Post-bloom |

### Nectar Plant Species 3

| | |
|---|---|
| Nectar Plant Species | *Bloomeria crocea* / Golden stars, Common goldenstar |
| Phenology | Starting to Bloom |

| | |
|---|---|
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Eriogonum fasciculatum* / California buckwheat, California buckwheat |
| Phenology | Starting to Bloom |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Eriophyllum confertiflorum* / Yellow yarrow, Golden-yarrow, Yellow-yarrow |
| Phenology | Full Bloom |
| **Nectar Plant Species 6** | |
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 7** | |
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 8** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Desiccated |
| **Nectar Plant Species 9** | |
| Nectar Plant Species | *Sanicula sp.* / |
| Phenology | Starting to Bloom |
| Notes | Low butterfly activity today. Other insects such as bees, dragonflies, wasps, and pollinating flies were somewhat active. Many of the nectar sources are available but are less than in previous weeks. |

Photos

Non-native grassland is low quality habitat for Quino generally but has a few nectar sources such as Bloomeria, Brodiaea, and Dichelostemma.

The canyon rim has good habitat quality with open areas, soil crusts, nectar sources, and host plants.

Most host plant is drying up but a small percentage is still green.

Some Plantago erecta is still green but is done flowering.

Much of the trail section consists of a two track access road with non-native grassland and CSS on either side.

| Butterfly Species 1 | |
|---|---|
| Butterfly Species Observed | *Erynnis funeralis* / Funereal Duskywing |
| Number Observed | 3 |

| Butterfly Species 2 | |
|---|---|
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 1 |

| Butterfly Species 3 | |
|---|---|
| Butterfly Species Observed | *Coenonympha californica californica* / Common California Ringlet |
| Number Observed | 2 |

| Butterfly Species 4 | |
|---|---|
| Butterfly Species Observed | *Pieris rapae* / Cabbage White |
| Number Observed | 1 |

| Ending Conditions | |
|---|---|
| Time | 03:34 PM |
| Temp (°F) | 71 |
| Cloud Cover (%) | 80 |
| Wind Speed (avg. mph) | 4 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.35 |
| Acres Surveyed per Hour | 8.460000000000001 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 343018 |
| Survey Date | 05/12/2023 |
| User | Andrew Smisek |
| Type of Visit | QCB Survey |

| Survey Info | |
|---|---|
| Which survey area are you working within? | Survey Area 1 |
| Survey Number | 7 |
| Survey Date | 05/12/2023 |
| Permitted Surveyor(s) | Andy Smisek TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 42.2 |

| Starting Conditions | |
|---|---|
| Time | 11:03 AM |
| Temp (°F) | 74 |
| Cloud Cover (%) | 100 |
| Wind Speed (avg. mph) | 2 |

| Host Plant Species 1 | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Desiccated |

| Potential Host Plant Species 1 | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

| Nectar Plant Species 1 | |
|---|---|
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Fruits and Flowers |

| Nectar Plant Species 2 | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Phacelia cicutaria* / Caterpillar phacelia |
| Other Nectar Plant Species | |
| Phenology | Fruits and Flowers |

| Nectar Plant Species 3 | |
|---|---|
| Nectar Plant Species | *Eriogonum fasciculatum* / California buckwheat, California buckwheat |
| Phenology | Starting to Bloom |

| Nectar Plant Species 4 | |
|---|---|
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Fruits and Flowers |

| Nectar Plant Species 5 | |
|---|---|
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Fruits and Flowers |

| Nectar Plant Species 6 | |
|---|---|
| Nectar Plant Species | *Other* / |
| Other Species | *Lasthenia coronaria* / Royal goldfields, Crowned or royal goldfields |
| Other Nectar Plant Species | |
| Phenology | Fruits and Flowers |

| Nectar Plant Species 7 | |
|---|---|
| Nectar Plant Species | *Eriophyllum confertiflorum* / Yellow yarrow, Golden-yarrow, Yellow-yarrow |
| Phenology | Full Bloom |

| Nectar Plant Species 8 | |
|---|---|
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Post-bloom |

| Nectar Plant Species 9 | |
|---|---|
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Desiccated |

| Nectar Plant Species 10 | |
|---|---|
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Desiccated |

| Nectar Plant Species 11 | |
|---|---|
| Nectar Plant Species | *Allium sp.* / |
| Phenology | Desiccated |

| | |
|---|---|
| Notes | |
| Photos | |

dried up PLAERE

| Butterfly Species 1 | |
|---|---|
| Butterfly Species Observed | *Pieris rapae* / Cabbage White |
| Number Observed | 2 |

| Butterfly Species 2 | |
|---|---|
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 3 |

| Butterfly Species 3 | |
|---|---|
| Butterfly Species Observed | *Pontia protodice* / Checkered White |
| Number Observed | 3 |

| Butterfly Species 4 | |
|---|---|
| Butterfly Species Observed | *Brephidium exila* / Western Pygmy-Blue |
| Number Observed | 3 |

| Butterfly Species 5 | |
|---|---|
| Butterfly Species Observed | *Pontia sisymbrii* / Spring White |
| Number Observed | 2 |

| Butterfly Species 6 | |
|---|---|
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 7 |

| Butterfly Species 7 | |
|---|---|
| Butterfly Species Observed | *Ochlodes agricola* / Rural Skipper |
| Number Observed | 5 |

| Ending Conditions | |
|---|---|
| Time | 03:18 PM |
| Temp (°F) | 76 |
| Cloud Cover (%) | 30 |
| Wind Speed (avg. mph) | 6 |
| Quino Checkerspot Butterfly Observed | NO |

| | |
|---|---|
| Total Hours Surveyed | 4.25 |
| Acres Surveyed per Hour | 9.93 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 342729 |
| Survey Date | 05/12/2023 |
| User | Wendy Loeffler |
| Type of Visit | QCB Survey |

### Survey Info

| | |
|---|---|
| Which survey area are you working within? | Survey Area 2 |
| Survey Number | 7 |
| Survey Date | 05/12/2023 |
| Permitted Surveyor(s) | Wendy Loeffler TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 39.7 |

### Starting Conditions

| | |
|---|---|
| Time | 10:59 AM |
| Temp (°F) | 74 |
| Cloud Cover (%) | 100 |
| Wind Speed (avg. mph) | 3-7 |

### Host Plant Species 1

| | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Post-bloom |

### Potential Host Plant Species 1

| | |
|---|---|
| Potential Host Plant Species | |
| Phenology | |

### Nectar Plant Species 1

| | |
|---|---|
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Post-bloom |

### Nectar Plant Species 2

| | |
|---|---|
| Nectar Plant Species | *Lasthenia gracilis* / Needle goldfields, Common goldfields |
| Phenology | Post-bloom |

### Nectar Plant Species 3

| | |
|---|---|
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Post-bloom |

### Nectar Plant Species 4

| | |
|---|---|
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Post-bloom |

| Nectar Plant Species 5 | |
|---|---|
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Full Bloom |
| Notes | (details on QCB, habitats, photographs, etc.) everything drying up, not much blooming. Deinandra just starting to bloom, calochortus still in bloom. Canchalagua in bloom Clouds breaking up noonish |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Pieris rapae* / Cabbage White |
| Number Observed | 3 |
| **Butterfly Species 2** | |
| Butterfly Species Observed | *Icaricia acmon acmon* / Acmon Blue |
| Number Observed | 1 |
| **Ending Conditions** | |
| Time | 03:05 PM |
| Temp (°F) | 72 |
| Cloud Cover (%) | 40 |
| Wind Speed (avg. mph) | 3-7 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.1 |
| Acres Surveyed per Hour | 9.68 |

## 8868 - QCB Focused Survey v6

| Project | 8868 - Southwest Village |
|---|---|
| ID | 342696 |
| Survey Date | 05/12/2023 |
| User | Chris Thomson |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Survey Area 3 |
| Survey Number | 7 |
| Survey Date | 05/12/2023 |
| Permitted Surveyor(s) | Chris Thomson TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 43.8 |
| **Starting Conditions** | |
| Time | 10:39 AM |
| Temp (°F) | 70.5 |
| Cloud Cover (%) | 100 |

| | |
|---|---|
| Wind Speed (avg. mph) | 3 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Desiccated |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Fruits and Flowers |
| Notes | (details on QCB, habitats, photographs, etc.) |

Photos

overview from north end of survey area facing southwest

northeastern portion of survey area facing south

old Pla patch at east end of survey area

central portion of survey area facing southwest

northern canyon facing west

north canyon slope facing north

west end of survey area facing east

central canyon south-facing slope facing east

old plantago patch at southern end of survey area facing south

area 3 road facing south

| Butterfly Species 1 | |
|---|---|
| Butterfly Species Observed | *Pontia sisymbrii* / Spring White |
| Number Observed | 3 |

| Butterfly Species 2 |
|---|

| | |
|---|---|
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 6 |
| **Butterfly Species 3** | |
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 3 |
| **Butterfly Species 4** | |
| Butterfly Species Observed | *Poanes melane* / Umber Skipper |
| Number Observed | 1 |
| **Butterfly Species 5** | |
| Butterfly Species Observed | *Leptotes marina* / Marine Blue |
| Number Observed | 4 |
| **Butterfly Species 6** | |
| Butterfly Species Observed | *Nymphalis antiopa* / Mourning Cloak |
| Number Observed | 1 |
| **Butterfly Species 7** | |
| Butterfly Species Observed | *Ochlodes agricola* / Rural Skipper |
| Number Observed | 11 |
| **Ending Conditions** | |
| Time | 03:18 PM |
| Temp (°F) | 72 |
| Cloud Cover (%) | 40 |
| Wind Speed (avg. mph) | 5 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.65 |
| Acres Surveyed per Hour | 9.42 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 342731 |
| Survey Date | 05/12/2023 |
| User | Kayo Valenti |
| Type of Visit | QCB Survey |
| **Survey Info** | |
| Which survey area are you working within? | Survey Area 4 |
| Survey Number | 7 |
| Survey Date | 05/12/2023 |
| Permitted Surveyor(s) | Kayo Valenti TE 797665 |
| Under Supervision Surveyor(s) | |

| | |
|---|---|
| Acreage | 38.1 |
| **Starting Conditions** | |
| Time | 11:03 AM |
| Temp (°F) | 73 |
| Cloud Cover (%) | 100 |
| Wind Speed (avg. mph) | 2-4 |
| **Host Plant Species 1** | |
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Post-bloom |
| **Potential Host Plant Species 1** | |
| Potential Host Plant Species | |
| Phenology | |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Eriogonum fasciculatum* / California buckwheat, California buckwheat |
| Phenology | Full Bloom |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Glebionis coronaria* / Crown daisy, Garland or crown daisy |
| Other Nectar Plant Species | |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Bahiopsis laciniata* / San diego county viguiera, San diego viguiera |
| Other Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Other* / |
| Other Species | *Deinandra fasciculata* / Clustered tarweed |
| Other Nectar Plant Species | |
| Phenology | Starting to Bloom |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Eriophyllum confertiflorum* / Yellow yarrow, Golden-yarrow, Yellow-yarrow |
| Phenology | Fruits and Flowers |
| Notes | unsuitable for QCB. Only a tiny patch of plaere. Mostly grasslands with avena dom, and with fesper and Brodia subdominant. Only south slopes contained shrubs/herbs with flowers. |
| Photos | None |
| **Butterfly Species 1** | |
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 3 |

| Butterfly Species 2 | |
|---|---|
| Butterfly Species Observed | *Other* / |
| Other Species | |
| Other Butterfly Species | Duskywing sp. |
| Number Observed | 1 |

| Butterfly Species 3 | |
|---|---|
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 2 |

| Ending Conditions | |
|---|---|
| Time | 03:07 PM |
| Temp (°F) | 72 |
| Cloud Cover (%) | 40 |
| Wind Speed (avg. mph) | 5-7 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.07 |
| Acres Surveyed per Hour | 9.359999999999999 |

## 8868 - QCB Focused Survey v6

| | |
|---|---|
| Project | 8868 - Southwest Village |
| ID | 342818 |
| Survey Date | 05/12/2023 |
| User | JR Sundberg |
| Type of Visit | QCB Survey |

| Survey Info | |
|---|---|
| Which survey area are you working within? | Survey Area 5 |
| Survey Number | 7 |
| Survey Date | 05/12/2023 |
| Permitted Surveyor(s) | Jason Sundberg TE 797665 |
| Under Supervision Surveyor(s) | |
| Acreage | 36.8 |

| Starting Conditions | |
|---|---|
| Time | 10:59 AM |
| Temp (°F) | 72 |
| Cloud Cover (%) | 100 |
| Wind Speed (avg. mph) | 2 |

| Host Plant Species 1 | |
|---|---|
| Host Plant Species | *Plantago erecta* / California plantain |
| Phenology | Fruits and Flowers |

| Potential Host Plant Species 1 | |
|---|---|
| Potential Host Plant Species | *Collinsia heterophylla* / Chinese houses |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 1** | |
| Nectar Plant Species | *Allium sp.* / |
| Phenology | Post-bloom |
| **Nectar Plant Species 2** | |
| Nectar Plant Species | *Amsinckia sp.* / |
| Phenology | Desiccated |
| **Nectar Plant Species 3** | |
| Nectar Plant Species | *Bloomeria crocea* / Golden stars, Common goldenstar |
| Phenology | Starting to Bloom |
| **Nectar Plant Species 4** | |
| Nectar Plant Species | *Cryptantha sp.* / |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 5** | |
| Nectar Plant Species | *Dichelostemma capitatum* / Blue dicks |
| Phenology | Fruits and Flowers |
| **Nectar Plant Species 6** | |
| Nectar Plant Species | *Eriogonum fasciculatum* / California buckwheat, California buckwheat |
| Phenology | Starting to Bloom |
| **Nectar Plant Species 7** | |
| Nectar Plant Species | |
| Phenology | Full Bloom |
| **Nectar Plant Species 8** | |
| Nectar Plant Species | *Linanthus dianthiflorus* / Fringed linanthus |
| Phenology | Post-bloom |
| **Nectar Plant Species 9** | |
| Nectar Plant Species | *Plagiobothrys sp.* / |
| Phenology | Desiccated |
| **Nectar Plant Species 10** | |
| Nectar Plant Species | *Sanicula sp.* / |
| Phenology | Fruits and Flowers |
| Notes | (details on QCB, habitats, photographs, etc.) |
| Photos | |

Much of the storm drain route is now dry annual grasses.

On the Mesa edge, nectar sources such as Lasthenia are still present but are declining.

North facing slope of the finger canyon provide good late season necta sources.

| Butterfly Species 1 | |
|---|---|
| Butterfly Species Observed | *Pieris rapae* / Cabbage White |
| Number Observed | 4 |

| Butterfly Species 2 | |
|---|---|
| Butterfly Species Observed | *Coenonympha californica californica* / Common California Ringlet |
| Number Observed | 2 |

| Butterfly Species 3 | |
|---|---|
| Butterfly Species Observed | *Anthocharis sara sara* / Pacific Sara Orangetip |
| Number Observed | 2 |

| Butterfly Species 4 | |
|---|---|
| Butterfly Species Observed | *Papilio eurymedon* / Pale Swallowtail |
| Number Observed | 1 |

| Butterfly Species 5 | |
|---|---|
| Butterfly Species Observed | *Leptotes marina* / Marine Blue |
| Number Observed | 1 |

| Butterfly Species 6 | |
|---|---|
| Butterfly Species Observed | *Apodemia mormo virgulti* / Behr's Metalmark |
| Number Observed | 7 |

| Butterfly Species 7 | |
|---|---|
| Butterfly Species Observed | *Brephidium exila* / Western Pygmy-Blue |
| Number Observed | 2 |

| Ending Conditions | |
|---|---|
| Time | 03:17 PM |
| Temp (°F) | 76 |
| Cloud Cover (%) | 40 |
| Wind Speed (avg. mph) | 3 |
| Quino Checkerspot Butterfly Observed | NO |
| Total Hours Surveyed | 4.3 |
| Acres Surveyed per Hour | 8.56 |

# ATTACHMENT 10

## U.S. Fish and Wildlife Service Letters

# ATTACHMENT 10a

U.S. Fish and Wildlife Service Letter to City of San Diego, Dated January 31, 2025

*Multi-Habitat Planning Area Boundary Line Adjustment and Biologically Superior Option Wetland Deviation for the Southwest Village Specific Plan, Project 614791, San Diego, California*

**United States Department of the Interior**
U.S. FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

In Reply Refer To:
2024-0139005-S7-TA-SD

January 31, 2025
*Sent Electronically*

Dan Monroe
Senior Planner, Biodiverse SD
City of San Diego
Planning Department
1222 First Ave.
San Diego, California 92101

Subject: Multi-Habitat Planning Area Boundary Line Adjustment and Biologically Superior Option Wetland Deviation for the Southwest Village Specific Plan, Project 614791, San Diego, California

Dear Dan Monroe:

The U.S. Fish and Wildlife Service (Service) has reviewed the City of San Diego's (City) October 28, 2024, email request for concurrence on a Multi-Habitat Planning Area (MHPA) Boundary Line Adjustment (BLA) pursuant to its Multiple Species Conservation Program (MSCP) Subarea Plan (SAP), and a Biologically Superior Option (BSO) wetland deviation pursuant to Section III.A.2.ii.C. of its Land Development Manual-Biology Guidelines, for the Southwest Village Specific Plan, Project 614791 (Project). The Service has also reviewed the Biological Resources Report (BRR) for the Southwest Village Specific Plan Project, San Diego, California (RECON 2024), the Vernal Pool and Quino Checkerspot Butterfly Mitigation Plan for the Southwest Village Specific Plan (BRR Attachment 14), and the Wetland Mitigation Plan for the Southwest Village Specific Plan Project (BRR Attachment 18). The Project details referenced here are based on information provided in those documents and on information from prior meetings and correspondence between the Service, the California Department of Fish and Wildlife (CDFW), the City, representatives of Tri Pointe Homes, RECON Environmental, Inc., and Schaefer Ecological Solutions.

The primary concern and mandate of the Service is the protection of fish and wildlife resources and their habitats. The Service has legal responsibility for the welfare of migratory birds, anadromous fish, and threatened and endangered animals and plants occurring in the United States. The Service is also responsible for administering the Federal Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*), including habitat conservation plans (HCPs) developed under section 10(a)(l)(B) of the Act. The City participates in the HCP Program by implementing its approved SAP, Implementing Agreement, and Vernal Pool Habitat Conservation Plan (VPHCP).

The BRR includes both project-level analysis of Specific Plan components, and program-level analysis of remaining components. Future development proposed within the areas analyzed to the program level will require future project-specific impact analysis. The project-level area covers approximately 219 acres and includes grading for development in the northwest, southwest, and southeast portions of the Specific Plan area; improvements to the southern emergency vehicle access (EVA) road; and future infrastructure and improvements including the Spring Canyon drainage outfall, the southeastern sewer pump station, and primitive trails. Off-site improvements that are part of the project-level analysis include extensions of Caliente Avenue and Beyer Boulevard.

**Boundary Line Adjustment**

The Service has reviewed the BLA as described in Section 6.2.1.1 and depicted in Figures 36.2 and 36.3 of the BRR, provided herein as Figures 1 and 2. The BLA includes deletions of the MHPA for Phase 1 and 4 of residential development and associated infrastructure (Areas A and D), the Spring Canyon drainage outfall associated with Phase 2 (Area C), the EVA road (Area E), and the western end of the Beyer Boulevard extension (Area B; Figure 1). Except for wildlife crossings, our analysis does not include the Beyer Boulevard extension into the 100 percent conserved West Otay Mesa A and B parcels, which will be addressed by a major amendment to the VPHCP. Thus, our analysis of the Beyer Boulevard deletion is limited to the portion of the roadbed and manufactured slopes that is outside West Otay Mesa A and B parcels and overlaps with MHPA (Area B; Figure 1). A 0.37-acre area was excluded from the BLA based on the City's interpretation of its Environmentally Sensitive Land (ESL) regulations to implement the SAP that the roadway segment of Beyer Boulevard with linear utilities qualifies for an exception from the development area requirements of the OR-1-2 zone (§143.0111 Limited Exceptions from ESL Regulations). Based on that interpretation, 14.88 acres will be deleted from the MHPA, including 12.82 acres of sensitive vegetation (BRR Table 7a, provided herein as Table 1).

To offset the deletions, a total of 18.08 acres will be added to the MHPA, including 16.88 acres of sensitive habitats comprised of maritime succulent scrub, disturbed maritime succulent scrub, Diegan coastal sage scrub, disturbed coastal sage scrub, non-native grassland, natural flood channel, disturbed wetland, and vernal pool (Table 1 and Figure 2). This represents a net gain of 3.19 acres overall and of 4.06 acres of sensitive vegetation communities into the MHPA. A 0.3-acre portion of 1.20 acres of disturbed lands that will be added to MHPA and restored is considered in our analysis. In addition, 0.08 acre of the disturbed wetland that will be added to the MHPA and restored to vernal pool habitat is also considered in our analysis. All lands added to the MHPA will be conserved, managed, and monitored in perpetuity.

The BLA also includes measures to address impacts to SAP-covered species and their habitats, including restoration of Otay tarplant (*Deinandra conjugens*), translocation of San Diego barrel cactus (*Ferocactus viridescens*) and snake cholla (*Cylindropuntia californica* var. *californica*), and habitat enhancements for Quino checkerspot butterfly (*Euphydryas editha quino*) and coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*). Four wildlife crossings and vegetated slopes will be incorporated to support north-south movement along the Beyer

Boulevard alignment (BRR Figure 14.2). In relation to MHPA deletion Area B, one culvert undercrossing is sited directly west on the City's Beyer Park property (Figure 3), and two culvert undercrossings and one overcrossing are sited east on the 100 percent conserved West Otay Mesa A and B parcels. The BLA includes additions to the MHPA on the Beyer Park property that will connect to the western undercrossing and widen the MHPA for wildlife movement (Figure 3); these additions are recent commitments by the City and, therefore, are not included in Table 1 or in the summary of the MHPA additions provided in the previous paragraph. Along the west side of Beyer Boulevard where vehicular access is needed for a San Diego Gas and Electricity easement, a gate will be added to allow for vehicular entry while keeping wildlife from entering the roadway. Additionally, fencing will be installed at Beyer Park along the interface of active park uses to prevent access to the western crossing and along both sides of Beyer Boulevard to funnel wildlife to the crossings and prevent wildlife mortality.

The limited exception from the City's ESL regulations for linear utilities was provided because these features by themselves were not expected to significantly impact wildlife movement or other ecological functions of the MHPA. Roads were not provided a similar exception because they could significantly impact wildlife movement or other ecological functions of the MHPA. Therefore, we do not agree that linear utilities in roads qualify for a limited exception from the City's ESL regulations. However, we still concur with the BLA because it adds sufficient lands to the MHPA even accounting for the 0.37-acre area for the road segment of Beyer Boulevard with linear utilities not included in the BLA.

**Biologically Superior Option**

The Service has also reviewed the BSO wetland deviation as described in Section 7.1.2.4.b and depicted in Figures 45.4 and 45.5 of the BRR. The BSO includes impacts to <0.01 acre (90 square feet) of low-quality mule fat scrub, 0.12 acre of disturbed wetlands, and 0.03 acre of low-quality vernal pool habitat within the MHPA associated with the EVA road (BRR Table 12). Impacts to the 90 square feet of low-quality mule fat scrub will be mitigated at a 2:1 ratio by restoring 180 square feet of high-quality wetland within a portion of a 2.18-acre wetland mitigation area in Spring Canyon (BRR Attachment 18). Impacts to 0.12 acre of disturbed wetland and 0.03 acre of low-quality vernal pool habitat will be mitigated at a 2:1 ratio by restoring a total of 0.30 acre of high-quality vernal pools within a portion of a 33.71-acre vernal pool restoration area (BRR Attachment 14). The restoration areas will conserved, managed, and monitored in perpetuity.

Based on the above, the Service concurs with the BLA and BSO wetland deviation. As stated previously, except for wildlife crossings this concurrence does not include the Beyer Boulevard extension into the 100 percent conserved West Otay Mesa A and B parcels, which will be addressed by a major amendment to the VPHCP.

The Service appreciates the City's and partnership in implementation of the SAP and VPHCP and look forward to our continued coordination. We request a meeting with the City and the CDFW regarding the exception of linear utilities in roads so that all parties can come to agreement on this issue should it arise with future projects.

If you have questions or comments regarding this letter, please contact Anita Eng[1] of the Service at 571-547-3203.

Sincerely,

JONATHAN SNYDER

Digitally signed by JONATHAN SNYDER
Date: 2025.01.31 09:36:04 -08'00'

Jonathan D. Snyder
Assistant Field Supervisor

cc:
David Zoutendyk, USFWS
Glen Lubcke, CDFW
Melanie Burlaza, CDFW
Heather Schmalbach, CDFW
Tait Galloway, City of San Diego
Dawna Marshall, City of San Diego
Elizabeth Shearer-Nguyen, City of San Diego
Allen Kashani, Tri Point Homes

## LITERATURE CITED

[RECON] RECON Environmental, Inc. 2024. Biological Resources Report for the Southwest Village Specific Plan, San Diego, California, Project No. 614791. October 23.

[1] Anita_Eng@fws.gov.

**Table 1**
**Summary of Proposed MHPA BLA within the Project level Areas**
**(acres)**

| Vegetation Communities/ Land Cover Types | Habitat Tier | MHPA Allowed Use | Proposed Encroachment (MHPA Deletion – see Figure 1) | Proposed MHPA Addition (Area A - see Figure 2) | Net Change of Proposed MHPA with BLA |
|---|---|---|---|---|---|
| Maritime Succulent Scrub | I | - | -7.19 | +7.59 | +0.40[1] |
| Disturbed Maritime Succulent Scrub | I | 0.13 | -0.44 | +0.11 | -0.33 |
| Diegan Coastal Sage Scrub | II | - | -3.76 | +7.34 | +3.58 |
| Disturbed Coastal Sage Scrub | II | - | -0.83 | +0.34 | -0.49 |
| Non-native Grassland | IIIB | - | -0.50 | +1.35 | +0.85 |
| *Subtotal Sensitive Upland Vegetation* | | 0.13 | -12.73 | +16.73 | +4.01[1] |
| Natural Flood Channel | - | - | -0.08 | +0.07 | -0.01 |
| Tamarisk Scrub | | - | -0.01 | - | -0.01 |
| Disturbed Wetland | - | - | - | +0.08[2] | +0.08[2] |
| Vernal Pool | - | - | -0.01 | - | -0.01 |
| Vernal Pool with fairy shrimp | - | - | - | - | - |
| *Subtotal Wetland Vegetation* | | - | -0.09 | +0.15 | +0.05 |
| **Total Sensitive Vegetation Communities** | | **0.13** | **-12.82** | **+16.88** | **+4.06**[2,3] |
| Disturbed Land[3] | IV | 0.24 | -2.02 | +1.20 | -0.82 |
| Developed[3] | IV | - | -0.05 | - | -0.05 |
| **Total with Disturbed and Developed Land** | | 0.37 | -14.88 | +18.08 | **+3.19** |

NOTE: Totals may not add due to rounding.
[1]0.30 acre of disturbed lands within Area A (Figure 2) would be restored to maritime succulent scrub as part of the trails restoration (see BRR Attachment 1) providing an additional 0.3 increase of Tier I vegetation communities after restoration.
[2]0.08 acre of disturbed wetland (0.07 acre of 0.08 acre contain fairy shrimp) being added to the MHPA would be enhanced to be vernal pools through weed removal and addition of common vernal pool plant species as part of the proposed trail restoration effort. This will ultimately result in the addition of a 0.08-acre vernal pool as part of the MHPA addition area.
[3]The deletions and additions of disturbed and developed lands is not counted toward the MHPA BLA equivalency analysis but the addition of 1.20 acres of disturbed lands (0.30 acre of which would be restored) would ultimately be part of the MHPA addition area.

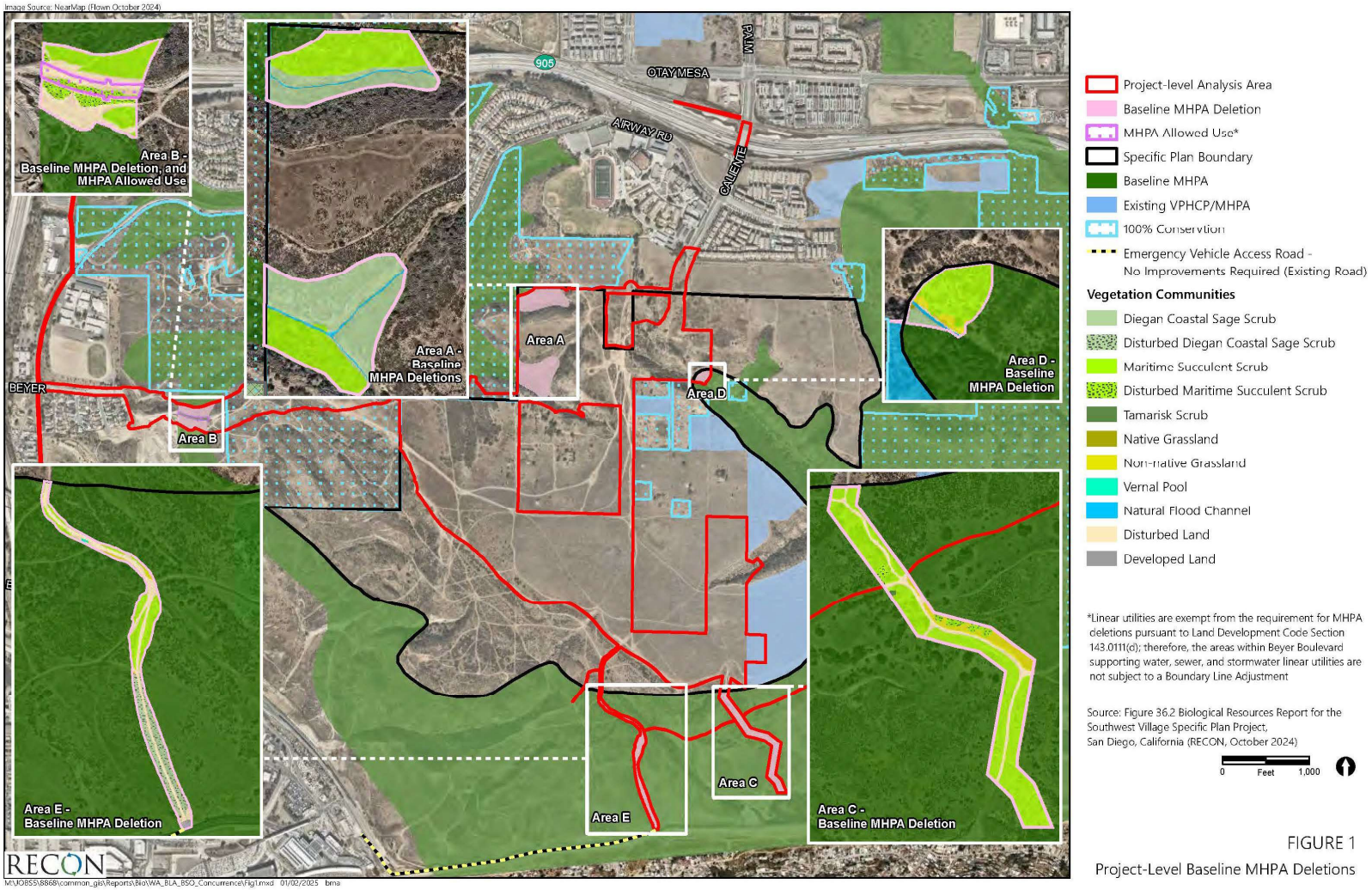


**Figure 1.** Project-Level Baseline MHPA Deletions.

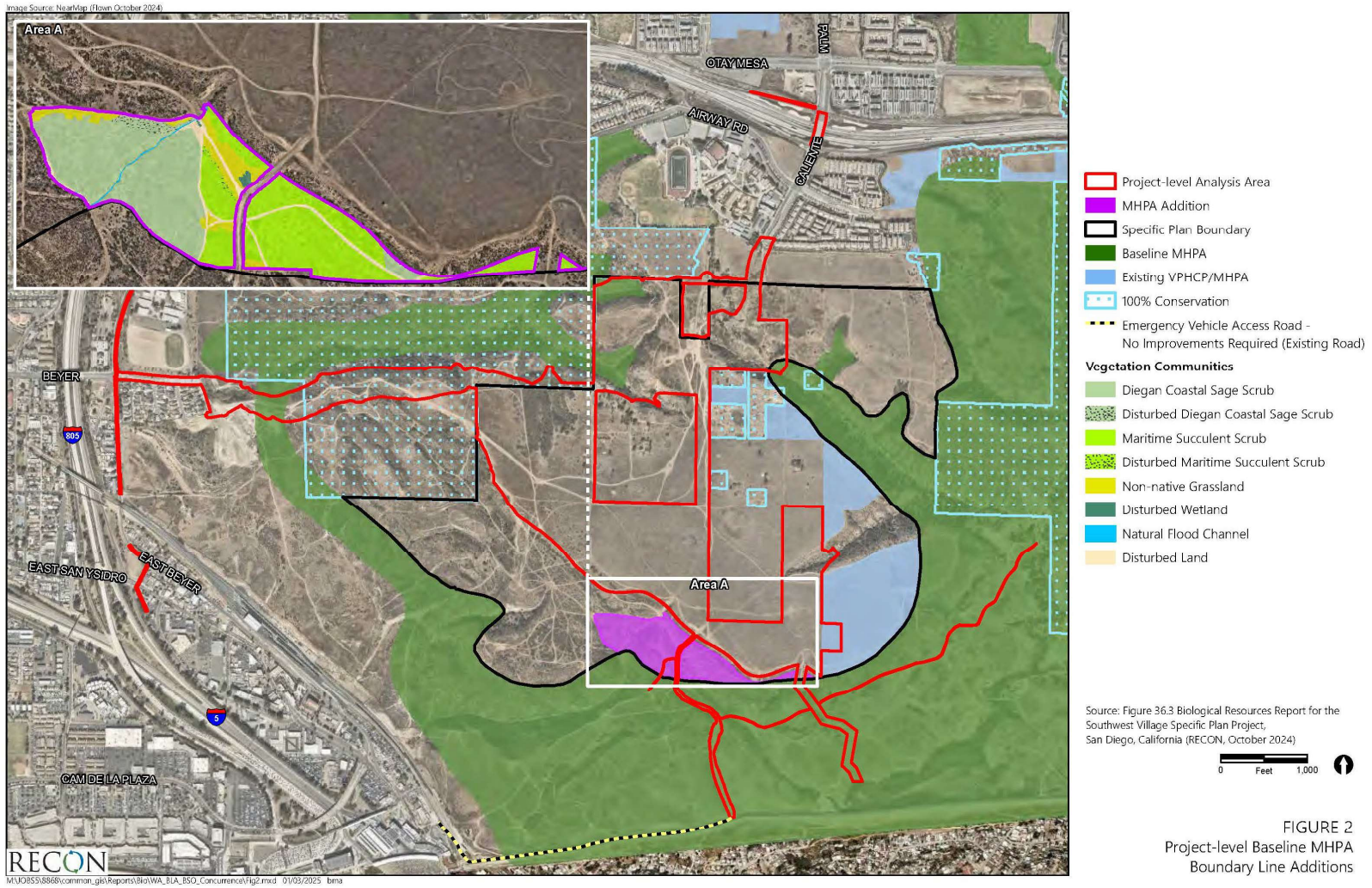


**Figure 2.** Project-Level Baseline MHPA Boundary Line Addition

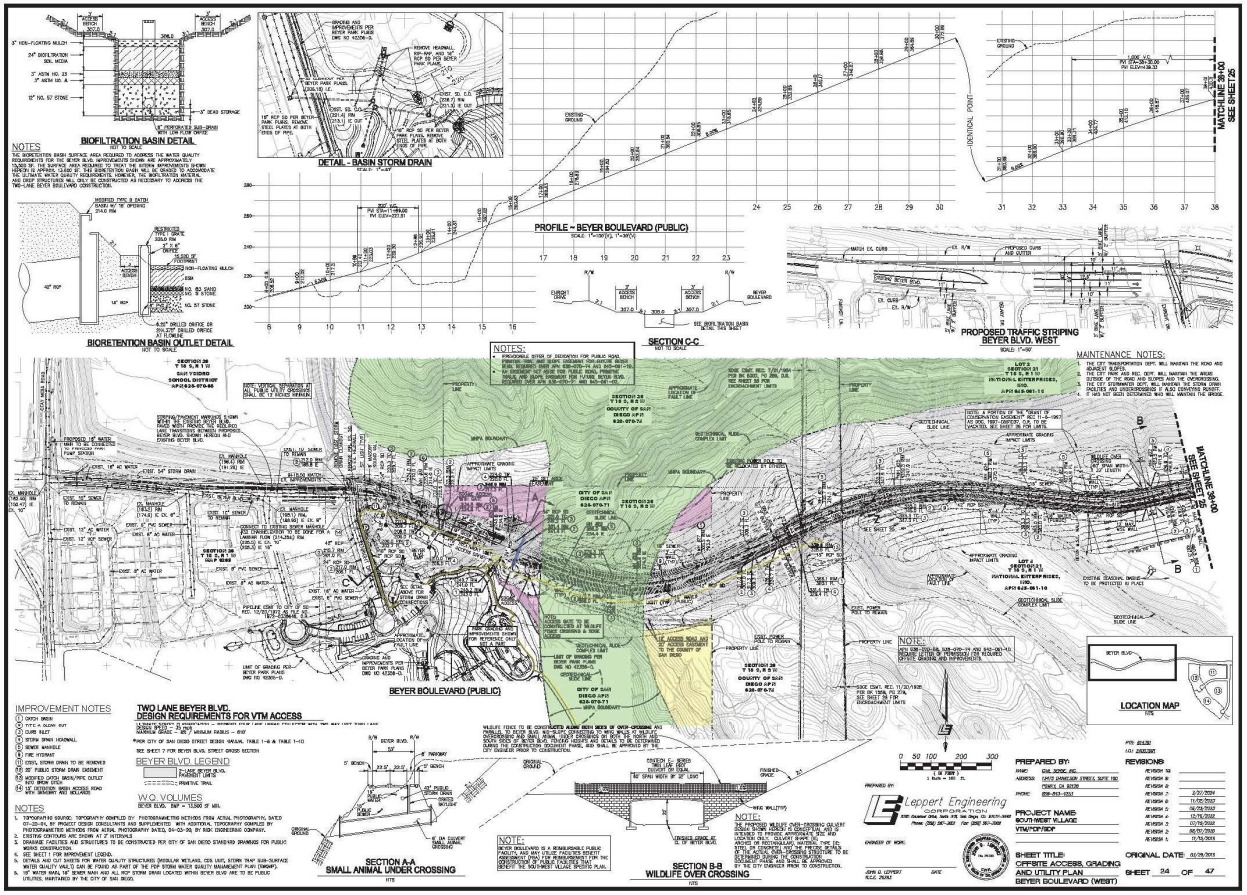


**Figure 3.** Baseline MHPA Boundary Line Addition on the Beyer Park Property – Pink and Yellow Areas are Proposed Additions to the MHPA not included in the 2024 BRR.

# ATTACHMENT 10b

U.S. Fish and Wildlife Service Letter to City of San Diego, Dated September 4, 2024

*Conceptual Conservation Strategy and Regulatory Approach for the Tri Pointe Homes Southwest Village Specific Plan Project in the City of San Diego, California*

**United States Department of the Interior**
U.S. FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

In Reply Refer to:
2024-0139005-HCP-TA-SD

September 4, 2024
*Sent Electronically*

Heidi Vonblum
Planning Director
City of San Diego
City Planning Department
202 C Street, M.S. 413
San Diego, California 92101

Allen Kashani
Senior Project Manager
Tri Point Homes
13520 Evening Creek Drive North, Suite 300
San Diego, California 92128

Erinn Wilson-Olgin
Regional Manager
South Coast Region
California Department of Fish and Wildlife
3030 Old Ranch Parkway, Suite 400
Seal Beach, California 90740

Subject: Conceptual Conservation Strategy and Regulatory Approach for the Tri Pointe Homes Southwest Village Specific Plan Project in the City of San Diego, California

Dear Heidi Vonblum, Allen Kashani, and Erinn Wilson-Olgin:

This letter documents a conceptual conservation strategy and scope for a Major Amendment to the City of San Diego's (City) Vernal Pool Habitat Conservation Plan (VPHCP) addressing impacts to federally listed species and their habitat within 100 percent conserved lands in the West Otay A and West Otay B properties and Furby-North Preserve due to the Beyer Boulevard extension associated with the Tri Pointe Homes Southwest Village Specific Plan project (the Southwest Village project). The conservation strategy includes project elements and conservation commitments identified in the Biological Resources Report submitted to the U.S. Fish and Wildlife Service (Service) and California Department of Fish and Wildlife (CDFW) in October 2023 (RECON 2023) and new conservation commitments discussed between the Service, CDFW, City, and Tri Pointe Homes (see "Conservation Strategy"). In addition to identifying new conservation, Tri Pointe Homes has also identified new project elements, including an emergency access road and grading within the multi-habitat planning area (MHPA) established by the City's Multiple Species Conservation Plan (MSCP) Subarea Plan (SAP), that were not included in the October 2023 Biological Resources Report. These project elements

were described in a memo from RECON Environmental distributed on July 12, 2024 (RECON 2024, see "Emergency Access Road" below).

## BACKGROUND

### West Otay A and West Otay B

Both the West Otay A and West Otay B parcels are protected by conservation easements held by CDFW. These easements have no provision for the Beyer Boulevard extension and prohibit any development inconsistent with the conservation intent of the easements. Additionally, the West Otay B easement requires Service approval (pursuant to a mitigation bank agreement with the City) before any modifications can be made. Both properties serve as mitigation sites accepted by the City, the Service, and the CDFW for impacts from prior projects within the City's jurisdiction. All available credits within these banks have been used to offset project-related impacts, and most of the projects that used these credits were subject to section 7 consultations with the Service pursuant to the Endangered Species Act (Act), as amended (16 U.S.C. 1531 *et seq.*). The West Otay A and West Otay B parcels are also identified as 100 percent conserved lands in the City's VPHCP.

### Furby-North Preserve

In addition, the County of San Diego (County) purchased and owns the Furby-North Preserve, which is contiguous with the West Otay A and B properties and contributes to the County's MSCP Preserve pursuant to the County's South County Plan. The Furby-North Preserve was established to protect onsite natural resources, and the property includes habitat that supports protected species and facilitates wildlife movement. The Furby-North Preserve is also identified as 100 percent conserved lands in the City's VPHCP.

In 2021, the County identified several concerns regarding the proposed Beyer Boulevard extension, including the project's potential to impact conserved County owned land, and requested being included in conversations between the City, CDFW, and Service regarding the proposed MSCP mitigation related to impacts to the Furby-North Preserve (County 2021). The Service understands that the County has been apprised of the conservation strategy described below and recommends that the City obtain written concurrence from the County once the conservation strategy has been finalized in an updated Biological Resources Report.

## MAJOR AMENDMENT

The Southwest Village project includes project components that are largely consistent with the City's existing SAP and VPHCP and do not require a Major Amendment to the VPHCP. However, the extension of Beyer Boulevard would impact existing 100 percent conserved lands within West Otay A and West Otay B properties and the Furby-North Preserve. In 1997, the City's SAP was approved by the Service and the CDFW. In 2017, the Service approved the City's VPHCP. Both plans designated areas as MHPA that would be established as biological preserves as developments were entitled, while also identifying areas of permanently conserved lands. Infrastructure such as roads and utilities are allowed uses in the MHPA[1] consistent with

[1] MHPA is defined as "the area within which the Preserve will be established" (VPHCP, p. xi).

established guidelines; however, permanently conserved lands (defined as Preserve[2] lands or Conserved[3] lands/100 percent conserved lands in the SAP and VPHCP) are not anticipated or authorized to be impacted by development, including infrastructure. A Major Amendment to the VPHCP is required to address impacts to modeled vernal pool habitat and vernal pools that were assumed to be 100 percent conserved under the VPHCP from the proposed extension of Beyer Boulevard through portions of the West Otay A and West Otay B properties and Furby-North Preserve.

**Impacts to Vernal Pools**

Construction of Beyer Boulevard through existing conserved lands within West Otay A and West Otay B properties and Furby-North Preserve would fragment habitat, impair wildlife movement, and directly impact vernal pool modeled habitat and vernal pools occupied by the federally endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*), which is a covered species under the VPHCP. Since 2020, the Service and CDFW have been working with the City and Tri Pointe Homes to identify alternatives to the Beyer Boulevard extension that would avoid and/or minimize impacts to the conserved lands within West Otay A and West Otay B properties and Furby-North Preserve. No feasible alternative has been identified to date; however, the Beyer Boulevard extension within West Otay A and West Otay B properties and Furby-North Preserve was reduced from 6 to 2 lanes and now includes wildlife crossings and walls and 10 years of monitoring and long-term management of the crossings and surrounding manufactured slopes. These modifications would reduce the project-related impacts to modeled vernal pool habitat and vernal pools and to wildlife movement, but Beyer Boulevard extension would still affect these resources and fragment Conserved lands within West Otay A and West Otay B properties and the Furby-North Preserve.

**Additional Species**

***Quino and Spadefoot***

The proposed Southwest Village project would also impact the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino* (=*E. e. wrighti*); Quino) and western spadefoot (*Spea hammondii*; spadefoot), which is a proposed federally threatened species, and neither species is covered under the SAP or the VPHCP. Therefore, impacts to these species and their habitats and incidental take of these species was not anticipated, analyzed, or authorized in our biological opinion for the VPHCP or the City's VPHCP permit (Service 2018a, 2018b). Potential impacts to these species should be addressed consistent with the Act and, if there is not a Federal nexus for a consultation pursuant to section 7 of the Act, an HCP could serve as both a Major Amendment to the VPHCP and address anticipated impacts to Quino and spadefoot pursuant to section 10 of the Act.

[2] The Preserve is defined as "areas within the MHPA that have been conserved and existing baseline conservation areas" (VPHCP, p. xi).

[3] Conserved lands are defined as "Lands with 100 percent hardline conservation (no development is permitted)" (VPHCP, p. x).

***Crotch's Bumble Bee***

The project would also impact the State-Candidate Crotch's bumble bee (*Bombus crotchii*), so impacts to this species should be addressed consistent with the California Endangered Species Act. It is the Service's understanding that Tri Pointe Homes intends to address potential impacts to the Crotch's bumble bee through a California Endangered Species Act Incidental Take Permit.

**Scope**

Since the proposed Beyer Boulevard extension would impact conserved lands, including modeled vernal pool habitat and vernal pools, within West Otay A and West Otay B properties and the Furby-North Preserve that are identified in the VPHCP as 100 percent conserved lands intended to protect and enhance vernal pool habitat and covered species in perpetuity, the proposed Beyer Boulevard extension would "reduce conservation commitments in the VPHCP." Therefore, the Service is recommending a project-specific Major Amendment to the VPHCP to address impacts to conserved lands within West Otay A and West Otay B properties and the Furby-North Preserve due to the proposed Beyer Boulevard extension. As noted above, the Southwest Village project outside the area needed for the Beyer Boulevard extension does not require a Major Amendment to the VPHCP. In addition, the Major Amendment to the VPHCP would not include any other areas within Otay Mesa or the City other than those described in the October 2023 Biological Resources Report for the project or identified in this letter (Figure 1).

As described in Section 8.4.4 of the VPHCP, Major Amendments to the VPHCP to address impacts within West Otay A and West Otay B properties and the Furby-North Preserve due to the proposed Beyer Boulevard extension shall require detailed analyses of the anticipated effects of the proposed action on the MHPA and Conserved lands, covered species, sensitive habitats, and species not addressed in the VPHCP, and the additional conservation to be provided through the Major Amendment process. Major Amendment to the VPHCP to address impacts within West Otay A and West Otay B properties and the Furby-North Preserve due to the proposed Beyer Boulevard extension shall be processed as a Permit Amendment in accordance with all applicable Federal and State statutory and regulatory requirements, including NEPA and CEQA. The Service will provide technical assistance to the City during the VPHCP Major Amendment process to address impacts within West Otay A and West Otay B properties and the Furby-North Preserve due to the proposed Beyer Boulevard extension. The Major Amendments to the VPHCP shall be memorialized through an addendum to the VPHCP and a Permit Amendment and shall be documented in the Annual Report.

**Duration**

The Service cannot make specific commitments about the timeframe for completing the permitting process for a Major Amendment to the VPHCP, particularly since we have not yet received a draft HCP for the project. However, please note that since Tri Pointe Homes is proposing to proceed with an HCP to address Quino and spadefoot, the overall permitting process is expected to be similar, even with inclusion of a Major Amendment to the VPHCP. The Service is willing to work with the City and Tri Pointe Homes to establish a timeline with milestones for processing the Major Amendment to the VPHCP as part of the project-specific HCP.

## CONSERVATION EASEMENT AMENDMENT PROCESS

In addition, impacts from the proposed Beyer Boulevard extension to lands on West Otay A and B that are protected by conservation easements held by CDFW must be addressed. Any impact to the conservation easement lands requires written concurrence from both Wildlife Agencies. Regional CDFW staff are currently coordinating with the Wildlife Conservation Board and Office of General Counsel on a process to amend the conservation easements (i.e., through "friendly condemnation") with the understanding that the conservation strategy described in this letter will be implemented. As part of the "friendly condemnation," a replacement conservation easement would be granted to the CDFW of equal or greater acreage than that being impacted (exact location and acreage within the overall mitigation area to be determined). The process involves submittal to the CDFW of a Resolution of Necessity from the City after finalization of CEQA documents, a legal description of the limits of grading for where the proposed Beyer Boulevard extension will cross the conservation easements, and title due diligence on the lands proposed to be included within the offset conservation easement(s). The Resolution of Necessity would serve as the formal prompt for the CDFW and Wildlife Conservation Board to amend the conservation easements under threat of condemnation. The replacement conservation easement(s) must be recorded prior to or at the same time as the conservation easements on West Otay A and B are amended.

## CONSERVATION STRATEGY

The Service recommended additional conservation relative to what was proposed in the October 2023 Biological Resources Report because mitigation banks and other conserved lands held under conservation easements are intended to be protected from impacts in perpetuity, so any proposal to encroach into existing Preserve lands should result in a clearly superior conservation outcome. Proposed activities associated with the Beyer Boulevard extension that are inconsistent with CDFW-held conservation easements must also be analyzed, addressed, and offset.

Therefore, to offset the impacts from the proposed the Beyer Boulevard extension within West Otay A and West Otay B properties and the Furby-North Preserve, the City, Tri Pointe Homes, the CDFW, and the Service have identified an approach that includes the conservation proposed in the October 2023 Biological Resources Report as well as conservation of an additional 66 acres owned by Tri Pointe Homes immediately south of the Southwest Village development and restoration and long-term management of 0.403 acre of vernal pool habitat on a degraded mesa top on the West Otay B property (Figure 1). The proposed conservation does not include any privately owned properties within the Southwest Village Specific Plan area other than the property owned by Tri Pointe Homes.

## EMERGENCY ACCESS ROAD

Tri Pointe Homes has identified the need for a paved emergency access road (separate from the Beyer Boulevard extension) that runs through MHPA lands proposed as mitigation for the project between the development footprint and the U.S./Mexico Border. A potential need for remedial grading within the MHPA has also been identified at another location. If these project elements are needed, the direct and indirect impacts associated with these modifications (including potential effects from traffic, noise, and lighting) should be included as part of the Southwest Village project, analyzed, and appropriately mitigated separate from the Major Amendment to the VPHCP for the Beyer Road extension.

With respect to the emergency access road, it is the Service's understanding that a public access road could not be constructed to the south of Southwest Village project footprint due to geotechnical concerns. The Service also understands that an emergency access road may be constructed in an area that a public access road could not. However, we are concerned that if an emergency access road is created and formalized in this area, future geotechnical instability would result in an expectation or requirement for repairs and associated remedial grading within the newly conserved habitat. We acknowledge that RECON's July 12, 2024, memo provides additional information regarding the proposed emergency access road, but we anticipate further coordination with the City, the CDFW, and Tri Pointe Homes to ensure that the updated Biological Resources Report includes a detailed analysis of the projected duration of use for the emergency access road, the potential for future landslide, an assessment of how unauthorized access to the emergency access road and adjacent Preserve lands would be controlled, and anticipated maintenance, remediation, and mitigation for the emergency access road.

## CONCLUSION

The Service sincerely appreciates the ongoing coordination by the City and Tri Pointe Homes on the Southwest Village/Beyer Boulevard extension project and the City's continued efforts to implement the SAP and VPHCP. We look forward to working collaboratively with all parties to move through the VPHCP Major Amendment and HCP process described above, including continued coordination with the CDFW regarding the scope, timeline, and milestones for the VPHCP Major Amendment as well as the process needed to modify the conservation easements for West Otay A and B properties and coordination with the County to address any outstanding questions or concerns related to proposed impacts to the Furby-North Preserve due to the Beyer Boulevard extension. Please contact David Zoutendyk[4] or Jonathan Snyder[5] if you have any questions or need clarification on our recommendations in this letter.

Sincerely,

Jonathan D. Snyder
Assistant Field Supervisor

cc:
Glen Lubcke, CDFW
Melanie Burlaza, CDFW
Alison Kalinowski, CDFW
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## LITERATURE CITED

[County] County of San Diego. 2021. Letter from Brian Albright, Director, County of San Diego Department of Parks and Recreation to Elyse Lowe, Director, City of San Diego Development Services Department. December 13, 2021.

[RECON] RECON Environmental, Inc. 2023. Biological Resources Report for the Southwest Village Specific Plan, San Diego, California. Project No. 614791. June. Prepared for the City of San Diego on behalf of Tri Pointe Homes.

[RECON] RECON Environmental, Inc. 2024. City of San Diego Multi-Habitat Planning Area Boundary Line Adjustment and Biologically Superior Option Wetland Deviation – Summary of Results and Request for Wildlife Agency Concurrence (RECON Number 8868). July 12, 2024. Prepared for the City of San Diego on behalf of Tri Pointe Homes.

[Service] U.S. Fish and Wildlife Service. 2018a. Intra-Service Formal Section 7 Consultation for Issuance of an Endangered Species Act Section 10(a)(1)(B) Permit (TE 97791C) for the City of San Diego Vernal Pool Habitat Conservation Plan, San Diego County, California. June 25, 2018.

[Service] U.S. Fish and Wildlife Service. 2018b. Native Endangered and Threatened Sp. Habitat Conservation Plan, Endangered & Threatened Wildlife. Permit TE97791C-0. August 3, 2018.

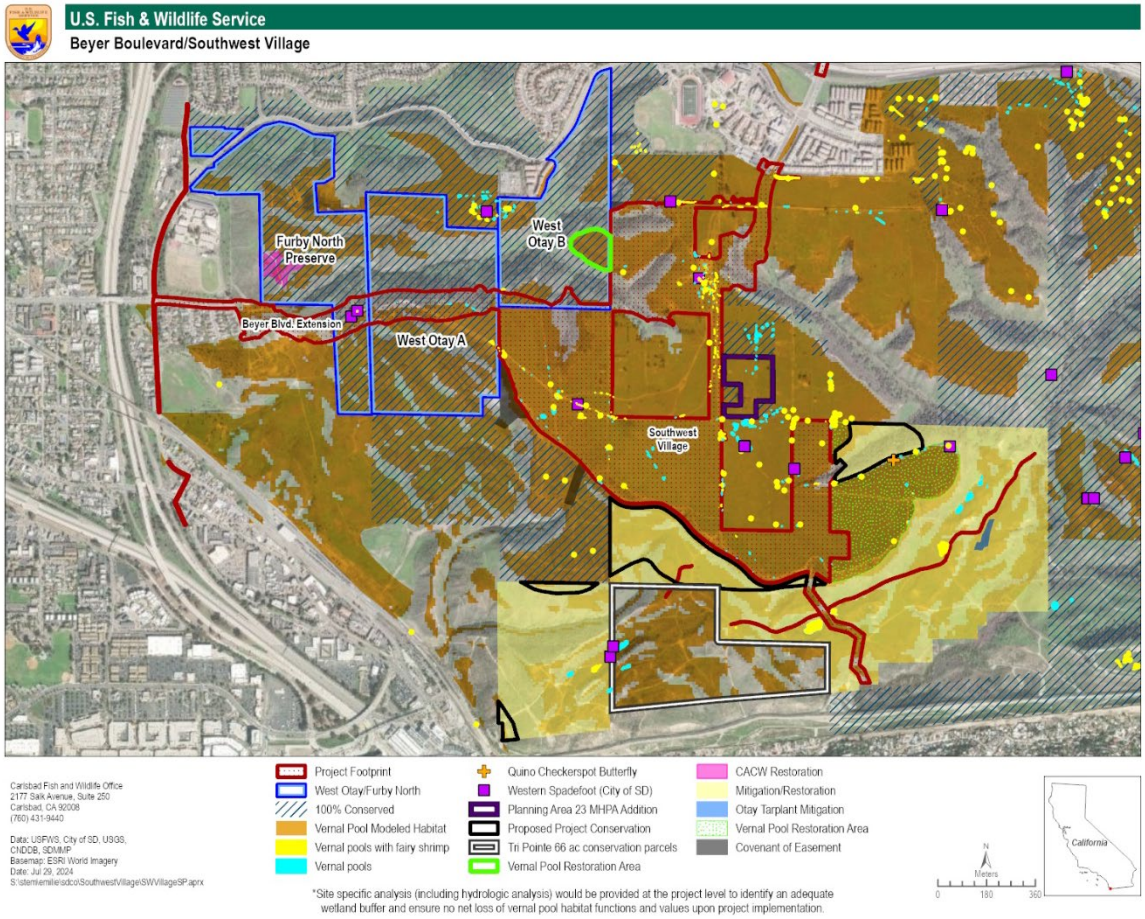


**Figure 1.** Southwest Village/Beyer Boulevard Project Impacts and Conceptual Conservation Strategy.

# ATTACHMENT 11

## Southwest Village Specific Plan – Beyer Boulevard Alternatives Analysis Update Memo

# Beyer Boulevard Alternatives Analysis
# Southwest Village Specific Plan
# San Diego, California
# Project No. 614791

Prepared for
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Prepared by
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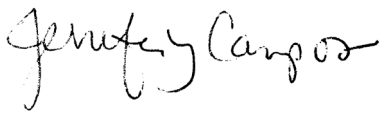
RECON Number 8868
April 2, 2024



Jennifer Campos, Project Director

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## ATTACHMENTS

A-1: Geotechnical Investigation Excerpt on Landslide Deposits
A-2: Geotechnical Constraints Letter and Landslide Exhibit
B: Transportation Assessment for Old Otay Mesa Road Alternative
C: City of San Diego November 13, 2021 Letter to Wildlife Agencies

# Acronyms and Abbreviations

| | |
|---|---|
| CDFW | California Department of Fish and Wildlife |
| City | City of San Diego |
| County | County of San Diego |
| FEIR | Final Environmental Impact Report |
| MHPA | Multi-Habitat Planning Area |
| OMCP | Otay Mesa Community Plan |
| RECON | RECON Environmental, Inc. |
| Specific Plan | Southwest Village Specific Plan |
| TET | The Environmental Trust |
| VPHCP | Vernal Pool Habitat Conservation Plan |

# 1.0 Introduction

The purpose of this report is to document the various alternatives and design modifications that have been evaluated for the City of San Diego's (City's) proposed Beyer Boulevard extension, a public roadway planned to connect the community of San Ysidro to the proposed Southwest Village Specific Plan (Specific Plan) in Otay Mesa. This alternatives analysis is needed to ensure that the most biologically preferred and reduced impact alternative has been selected due to the fact that the proposed roadway extension would cross both Multi-Habitat Planning Area (MHPA) and Vernal Pool Habitat Conservation Plan (VPHCP) 100 percent conserved lands. As detailed herein, the proposed Beyer Boulevard alignment has been reduced substantially from the original design, resulting in substantially reduced environmental impacts compared to prior design alternatives.

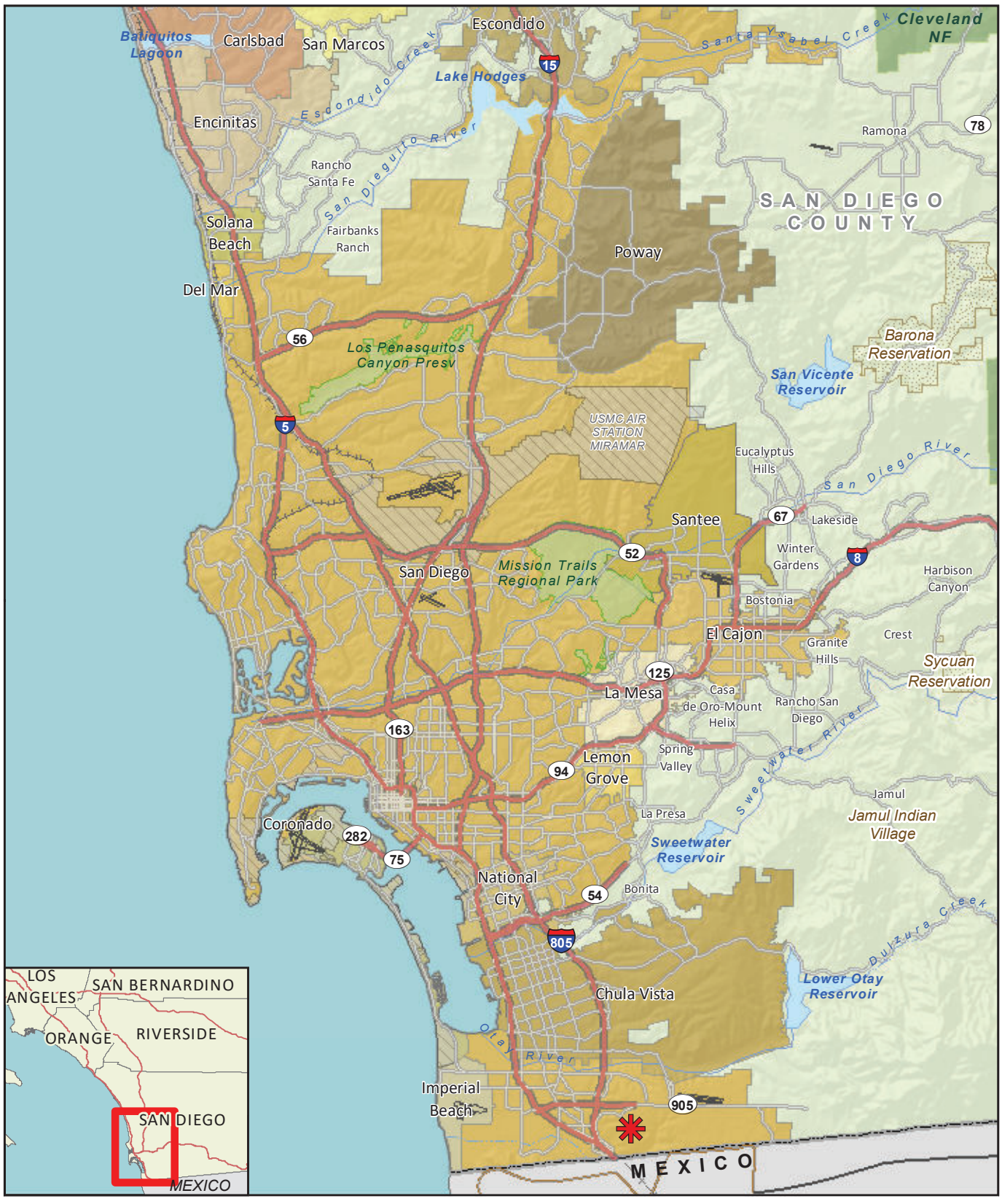
## 1.1 Otay Mesa Community Plan

The City approved an update to the Otay Mesa Community Plan (OMCP) in 2014. The 2014 OMCP update identified a planned village known as the Southwest Village Specific Plan. The OMCP envisioned the Specific Plan to include 1,400 single-family residential units, 4,480 multi-family units, public facilities, commercial uses, and open space. Additionally, the OMCP identified a planned extension of Beyer Boulevard, a mobility element network roadway serving the San Ysidro and Otay Mesa communities and providing access to the Specific Plan.

The mobility network in the OMCP identified a future Beyer Boulevard extension that would generally follow the alignment of Moody Canyon, connecting to the current terminus of Beyer Boulevard in San Ysidro. This roadway connection was included in order to both serve the Specific Plan in addition to providing regional mobility connections between San Ysidro and Otay Mesa. Refer to Figure 1 for the regional location and Figure 2 for the general location of the Specific Plan area and the proposed Beyer Boulevard extension.

The Final Environmental Impact Report (FEIR) for the OMCP programmatically evaluated impacts associated with construction of the Specific Plan and Beyer Boulevard. The OMCP FEIR identified the general location of the Beyer Boulevard alignment, planned to follow Moody Canyon and additionally acknowledged that the roadway would cross several conserved lands (Figure 3). At a programmatic level, the OMCP FEIR concluded that Beyer Boulevard compliance with applicable Multiple Species Conservation Program (MSCP) Subarea Plan policies would reduce impacts to less than significant. Specifically, the MSCP Subarea Plan includes policies applicable to Circulation/Mobility Element roads planned in the MHPA that when implemented, would reduce significant adverse impacts to less than significant. Applicable MSCP policies that are aimed at protecting the integrity of the wildlife corridors include:

- Minimizing disruption caused by construction and staging areas;
- Avoiding canyon bottoms and allowing wildlife movement through use of bridges or culverts where roads cross the MHPA;
- Narrowing of roads to minimize habitat fragmentation and disruption of wildlife movement; and
- Placing roads in lower quality habitat or disturbed areas to the extent possible.




Project Location

RECON

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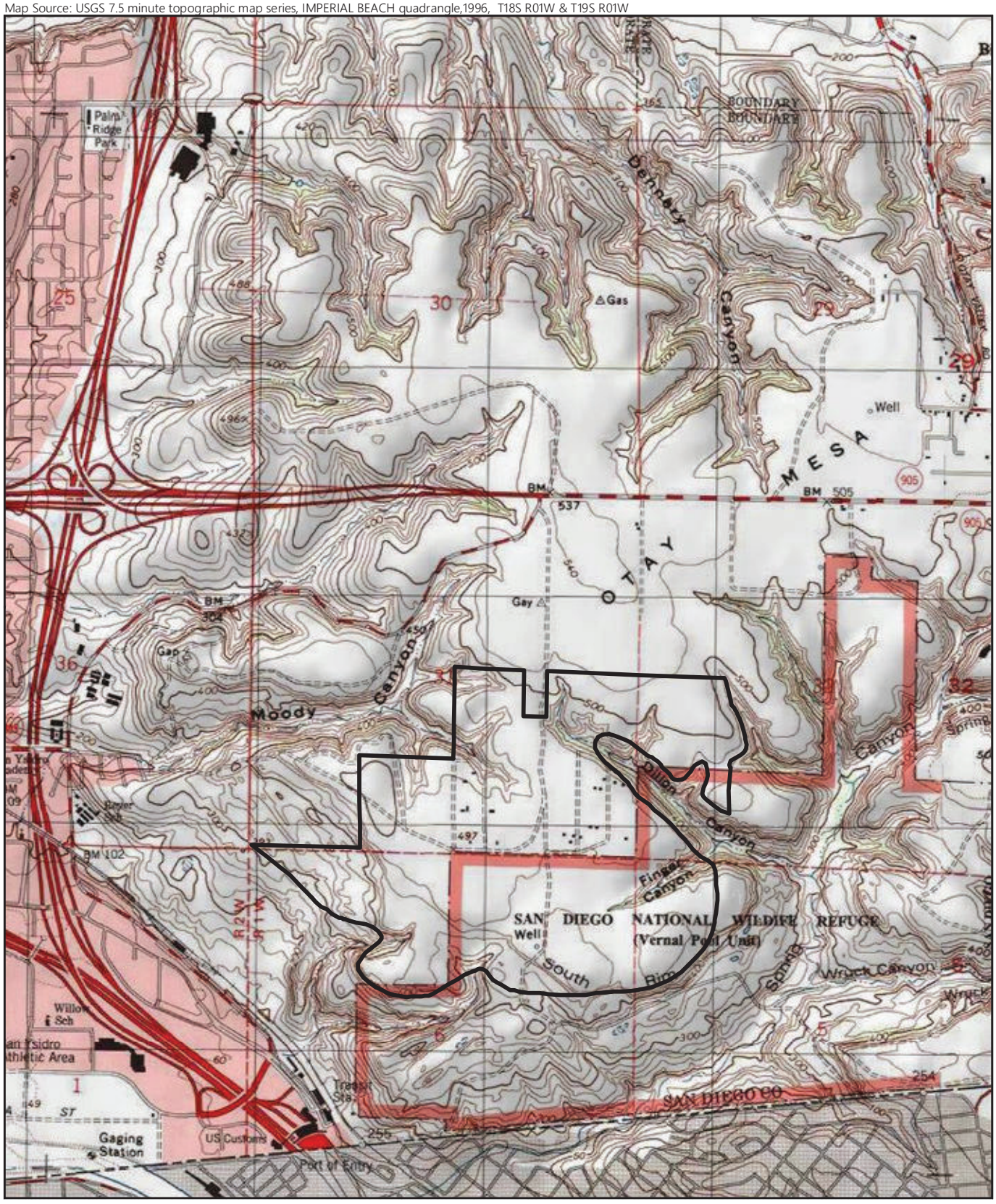
FIGURE 1
Regional Location

Map Source: USGS 7.5 minute topographic map series, IMPERIAL BEACH quadrangle,1996, T18S R01W & T19S R01W




Specific Plan Boundary

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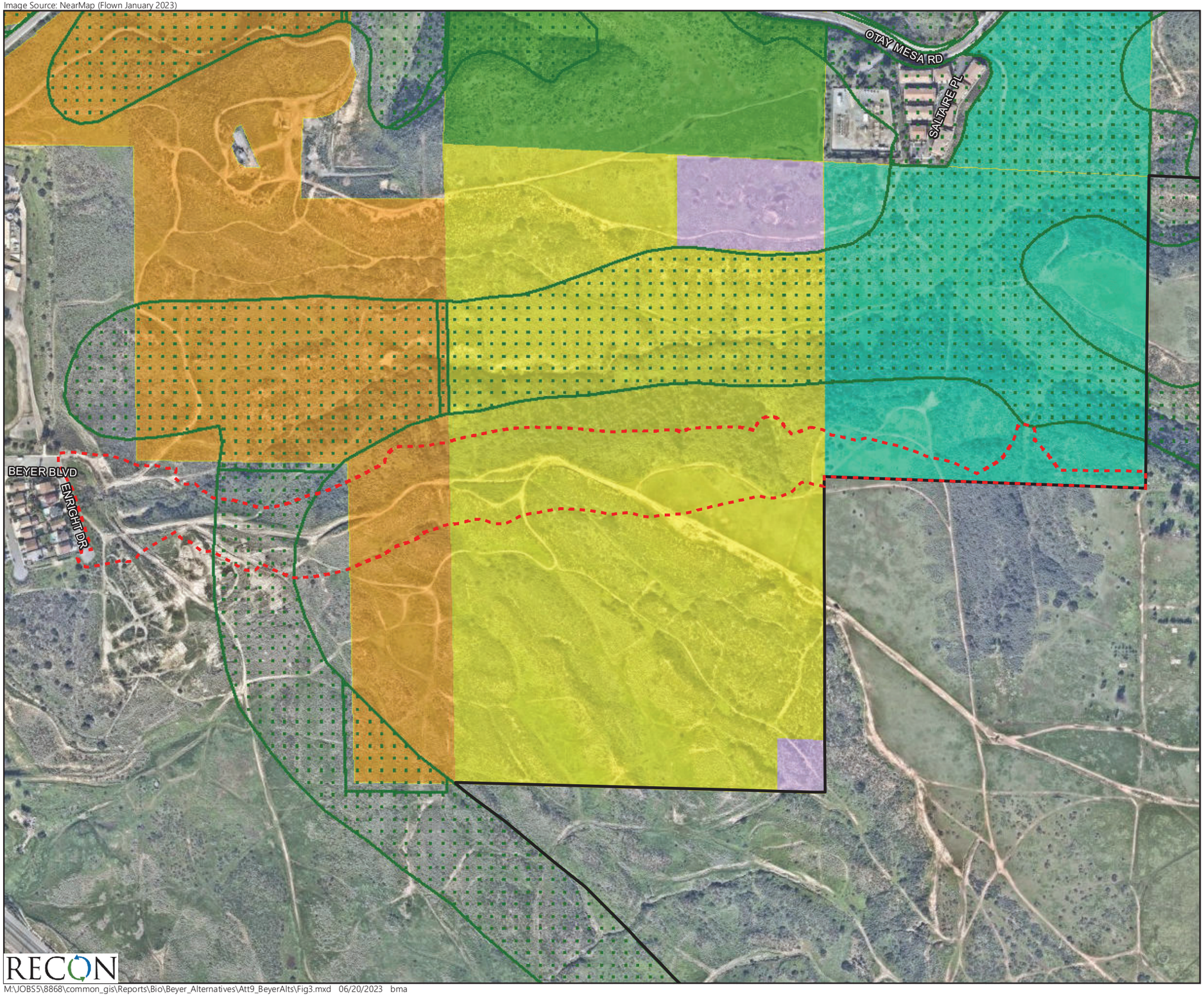
FIGURE 2
Project Location on USGS Map

Image Source: NearMap (Flown January 2023)




Specific Plan Boundary

Planned Beyer Boulevard

City of SD MHPA

**VPHCP 100 Percent Conservation Lands**

West Otay A
(Private/CDFW Easement Holder)

West Otay A
(Caltrans)

West Otay B
(City of SD, CDFW Easement Holder)

West Otay C
(City of SD)

County of San Diego
Furby North Preserve

0 Feet 400

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FIGURE 3
Beyer Boulevard in Relation to
VPHCP and MHPA Preserve Lands

All of the above policies were taken into consideration in the process of identifying a roadway alignment that would minimize impacts, ensuring consistency with the MSCP.

## 1.2 Vernal Pool Habitat Conservation Plan

The proposed Beyer Boulevard extension would traverse lands that are considered 100 percent conserved by the City's VPHCP. These 100 percent conserved lands are equivalent to MHPA lands. However, the VPHCP includes allowances for circulation element roads through conserved lands.

The VPHCP Section 4.1.4 allows for circulation element roads to cross conserved lands. The VPHCP states that development of new roads needed to accommodate existing and planned land use consistent with the circulation/mobility element of the City's General Plan and the corresponding Community Plans are identified as covered projects because they are considered conditionally compatible with the MHPA. As detailed in VPHCP Table 4-1,

> New roads may not impact vernal pools within the MHPA unless no other feasible alternative exists. If avoidance is not feasible, the project must demonstrate that impacts have been minimized to the maximum extent practicable. The project must evaluate the need for the road expansion pursuant to the Community Plan and evaluate alternate development proposals (e.g., reduced medians, reduction in road width/classification). The City would document all of these steps as part of its determination of consistency with the VPHCP. Mitigation consistent with the VPHCP and project approval through the City's discretionary process would be required for all unavoidable impacts.

In accordance with the VPHCP allowance for mobility element roads within the MHPA, the Beyer Boulevard alternatives analysis took into account the following requirements of the VPHCP for roads crossing the MHPA and VPHCP 100 percent conservation lands:

- If avoidance not feasible, project must demonstrate impacts have been minimized to the maximum extent practicable
- Project must evaluate need for the road expansion pursuant to the Community Plan
- Project must evaluate alternate development proposals (e.g., reduced medians, reduction in road width/classification)
- Mitigation required for all unavoidable impacts

## 1.3 Conserved Lands

The conserved lands that would be affected by the proposed Beyer Boulevard extension are described below and depicted on Figure 3.

1. The County of San Diego (County) Furby North Preserve (Assessor's Parcel Number 6380707400) – The 83-acre Furby North Preserve was acquired by the County Department of Parks and Recreation in 2003 to contribute to the conservation of core habitat and contribute to the MSCP preserve system consistent with the City MSCP Subarea Plan. The

Furby North Preserve is subject to a Resource Management Plan, which provides management directives pursuant to the requirements of the City MSCP Subarea Plan and the Framework Resource Management Plan.

2. A privately owned parcel known as "West Otay A" that has a California Department of Fish and Wildlife (CDFW) easement (former The Environmental Trust [TET] easement DOC#1997-0561037; Assessor's Parcel Number 6450611000). The conservation easement is now held by CDFW and contributes to the MHPA consistent with the VPHCP.

3. A City-owned parcel with a conservation easement held by CDFW known as "West Otay B." This parcel was previously owned by TET (DOC# 1997-561037, 1998-0131991, 1999-0672696). With the dissolution of TET, the City took over ownership of the Otay B parcel and the conservation easement is now held by CDFW. The conservation easement is now held by CDFW and contributes to the MHPA consistent with the VPHCP.

# 1.4 Project Description

## 1.4.1 Specific Plan

The project consists of the Specific Plan, which would provide a comprehensive policy framework to guide future development within the Specific Plan area (Figure 4), consistent with the land use and mobility framework outlined in the OMCP. The Specific Plan boundary encompasses approximately 490 acres, would allow up to 5,130 attached and detached residences, and would facilitate creation of a new village anchored by up to 175,000 square feet of commercial and retail uses in a mixed-use Village Core. The Specific Plan would provide public facilities including construction of two pump stations supporting sewer services in the planning area, dedication of a new elementary school, developed parks, trails, natural open space, habitat restoration, and habitat conservation. Access to the Specific Plan area would be via two main access points, Caliente Avenue to the north and from an extension of Beyer Boulevard to the west, connecting the Specific Plan area to San Ysidro. While the Specific Plan boundary includes 490 acres, the project area includes improvements outside of the Specific Plan boundary such as additional access improvements for Beyer Boulevard and Caliente Avenue, water and sewer facilities, as well as trails, and stormwater infrastructure including drainage outfalls.

Map Source: Placeworks

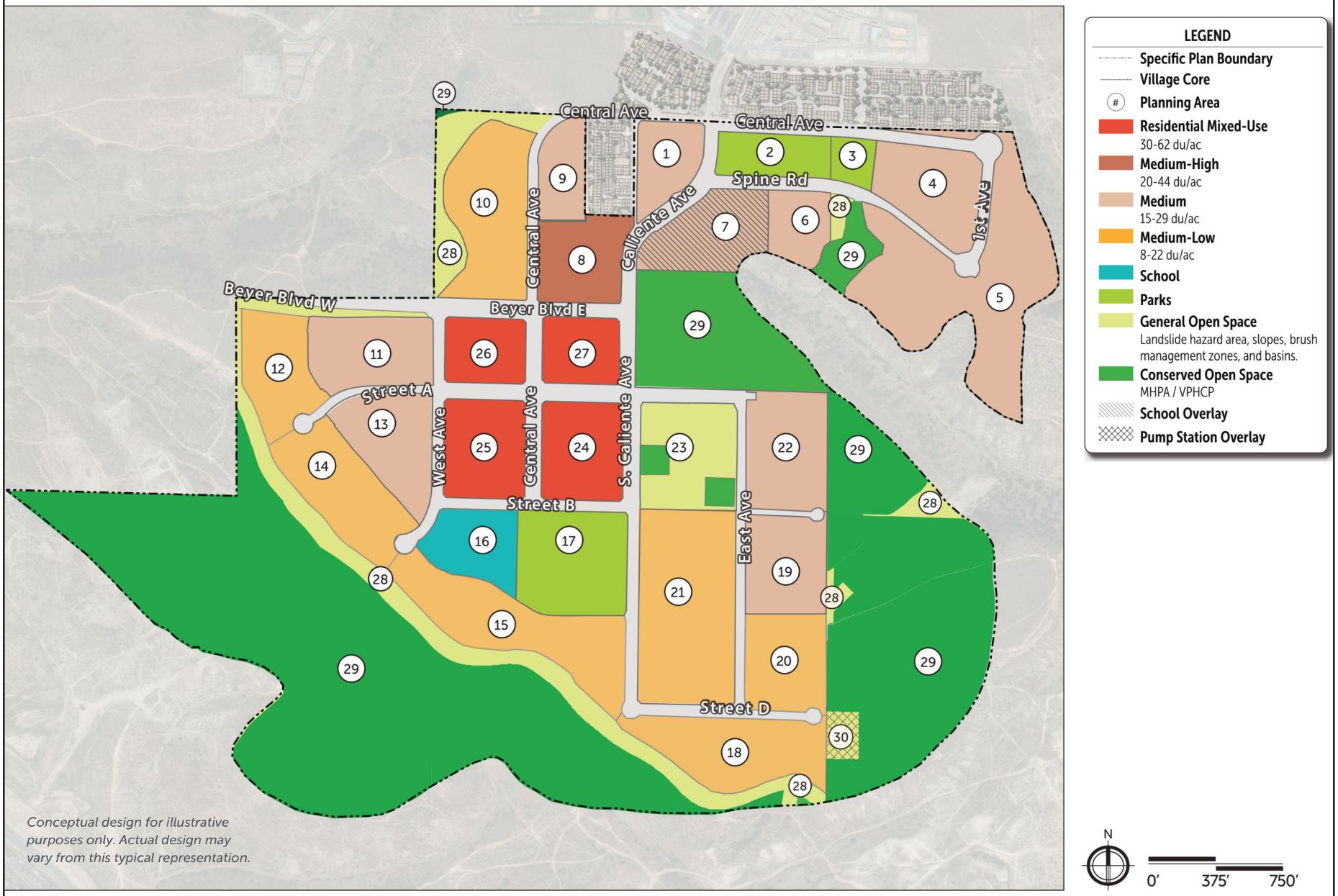


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FIGURE 4
Specific Plan Development Concept

## 1.4.2 Proposed Beyer Boulevard

The proposed Beyer Boulevard extension is the focus of this report as it would cross conserved lands, warranting focused consideration in light of MSCP and VPHCP policies that require mobility element roads crossing conserved lands to demonstrate impacts have been minimized to the extent feasible. The following description of Beyer Boulevard represents the proposed alignment, after impact minimization and consideration of all other alternatives. Construction of Beyer Boulevard would require dedication of right-of-way from the City, if necessary, CDFW easement amendment through the State Wildlife Conservation Board process to identify Beyer Boulevard and its slopes as an allowed use within the easement.

Additionally, the County would need to provide land within their Furby North Preserve to allow for the road to cross County property.

### 1.4.2.1 Roadway Cross Section

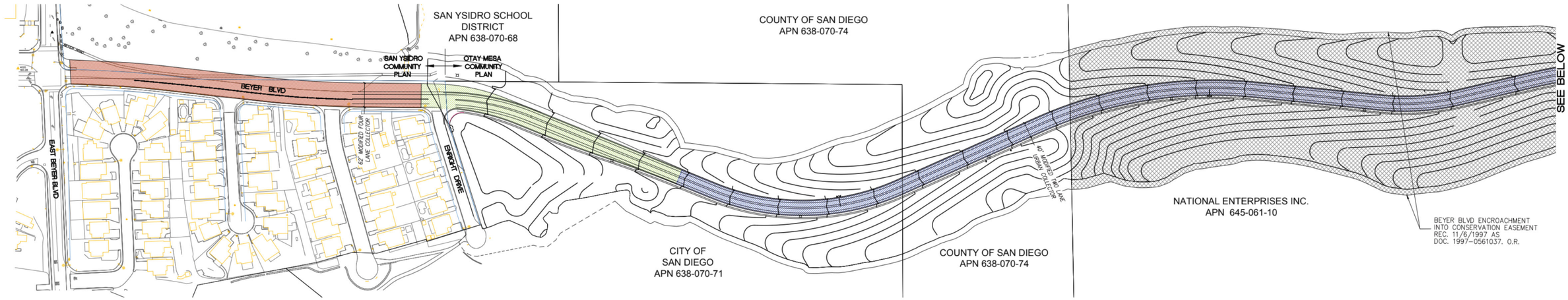
The extension of Beyer Boulevard West of the Specific Plan from Enright Drive to West Avenue is planned as a modified 4-lane Urban Collector. However, the Specific Plan notes that this segment would be built with two lanes due to environmental constraints as this portion of the roadway traverses environmentally sensitive and conserved lands. Within these conserved areas, Beyer Boulevard would narrow to a two-lane road as detailed in Figure 5. All manufactured slopes surrounding Beyer Boulevard would be revegetated with native plant species consistent with the surrounding habitats.

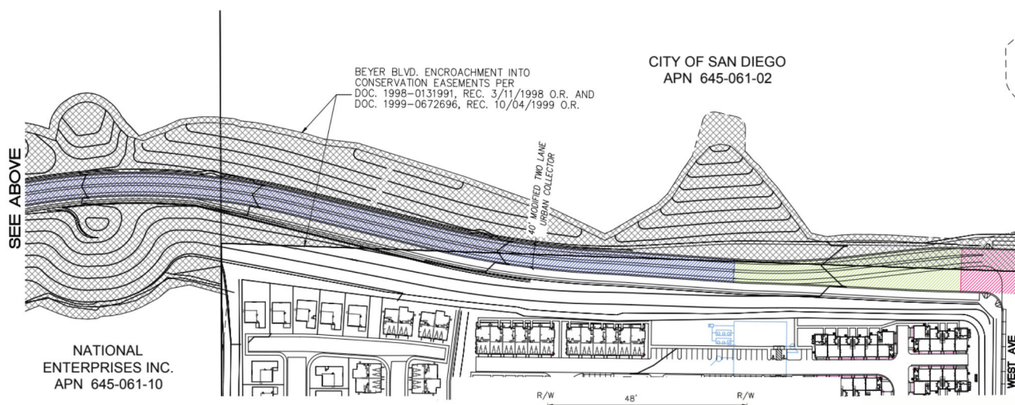
The proposed cross section for Beyer Boulevard west of the Specific Plan area is shown in Figure 6. As shown, the constrained portion of the roadway would be constructed with two lanes and minimal mobility features. Total roadway right-of-way would be 53 feet including a 4-foot sidewalk on one side of the street for pedestrians and two on-street bike lanes.

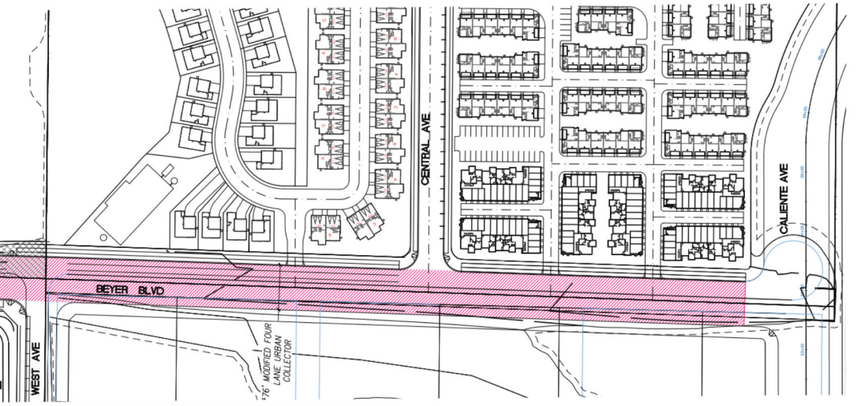
### 1.4.2.2 Wildlife Movement Features

Due to the open space lands surrounding the planned Beyer Boulevard extension, the roadway is designed to allow for wildlife movement through culverts and a wildlife overcrossing. A 32-foot-wide by 60-foot-long wildlife overcrossing is proposed in the location of one of the highest wildlife use areas. The overcrossing is sited and designed to mimic the existing topographic conditions and convey animals in the location of existing wildlife movement patterns at a high use drainage swale area. Each end of the overcrossing is designed to include flared entrances to encourage wildlife entry. Surrounding slopes would be revegetated with native vegetation to match surrounding habitats. Wildlife fencing would be incorporated, as discussed further below.

Map Source: Civil Sense, Inc.



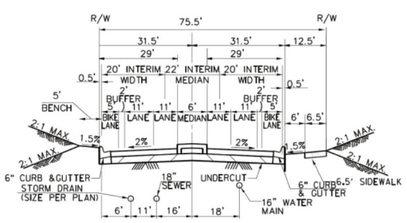




## LEGEND

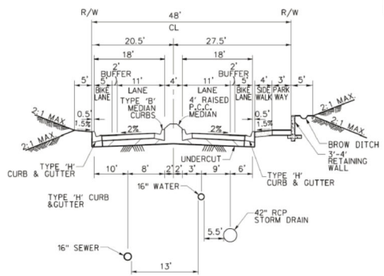
- FOUR LANE COLLECTOR WITHIN SAN YSIDRO COMMUNITY PLAN
- TRANSITION AREA TO FOUR LANES WHEN WARRANTED
- MODIFIED 4 LANE URBAN COLLECTOR CONSTRUCTED WITH TWO LANES DUE TO ENVIRONMENTALLY SENSITIVE HABITAT
- FOUR LANE URBAN MAJOR
- APPROXIMATE LIMITS OF CONSERVATION EASEMENT VACATION

TOTAL LENGTH OF BEYER BLVD (FROM EAST BEYER BLVD TO CALIENTE AVE) = 6,800 FEET

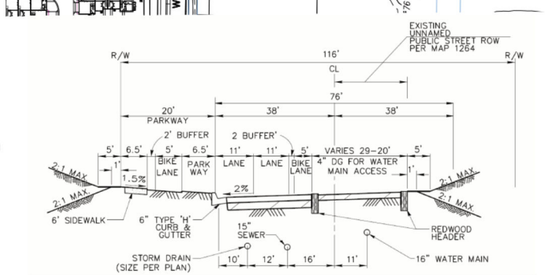
TOTAL LENGTH OF 2 LANE SECTION (FROM END OF TRANSITION EAST OF ENRIGHT DRIVE TO START OF TRANSITION WEST OF WEST AVE) = 3,500 FEET




MODIFIED 4 LANE URBAN COLLECTOR
CITY SUPPORTED MODIFIED BEYER BLVD SECTION
(FROM ENRIGHT DRIVE TO WEST AVE)
NOT TO SCALE




MODIFIED 4 LANE URBAN COLLECTOR
PROPOSED BEYER BLVD SECTION
(FROM ENRIGHT DRIVE TO WEST AVE)
NOT TO SCALE




4 LANE URBAN MAJOR
INTERIM BEYER BLVD EAST SECTION
(FROM WEST AVE TO CALIENTE AVE)
NOT TO SCALE

RECON

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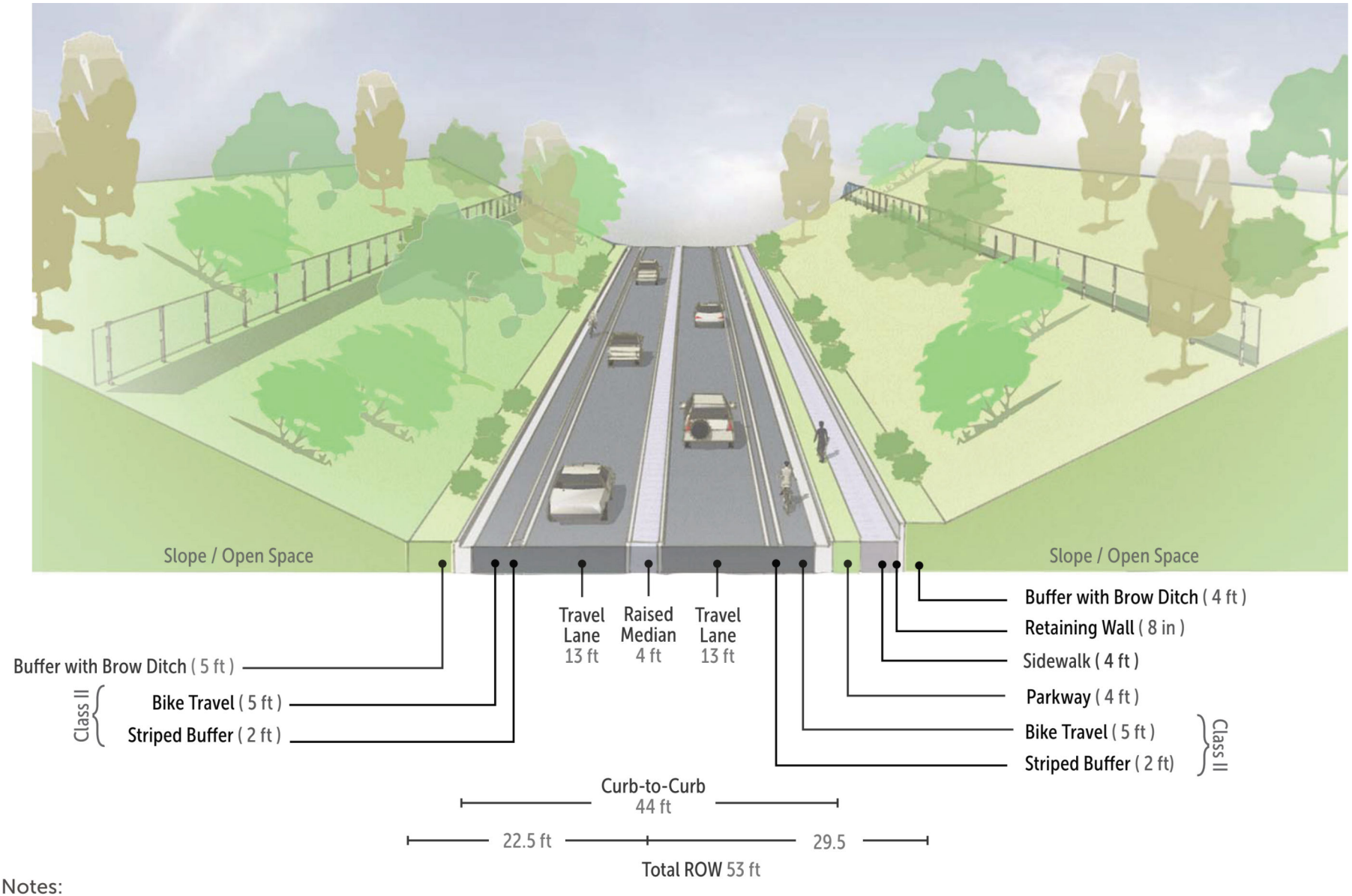
FIGURE 5
Beyer Boulevard Constrained Segment

Source: City of San Diego




Notes:
*1. Includes 6-inch curb.*
** Section represents typical condition.*

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FIGURE 6
Beyer Boulevard Cross Section

In addition to the wildlife overcrossing, three additional small animal crossing opportunities have been designed as part of the Beyer Boulevard extension where it crosses conserved lands. Three 6-foot-tall culverts, ranging from 103-105 feet in length, would be installed to provide passage opportunities for small mammals between Moody Canyon and habitat areas to the south. These culvert undercrossings would provide multiple opportunities for small animal movement and incorporate wildlife passage into the roadway design. The culvert crossings would also be designed with a flare at the ends to encourage entry. While the culverts are designed to convey drainage during rain events, the drainage design would ensure a flood free crossing for animals during rain events.

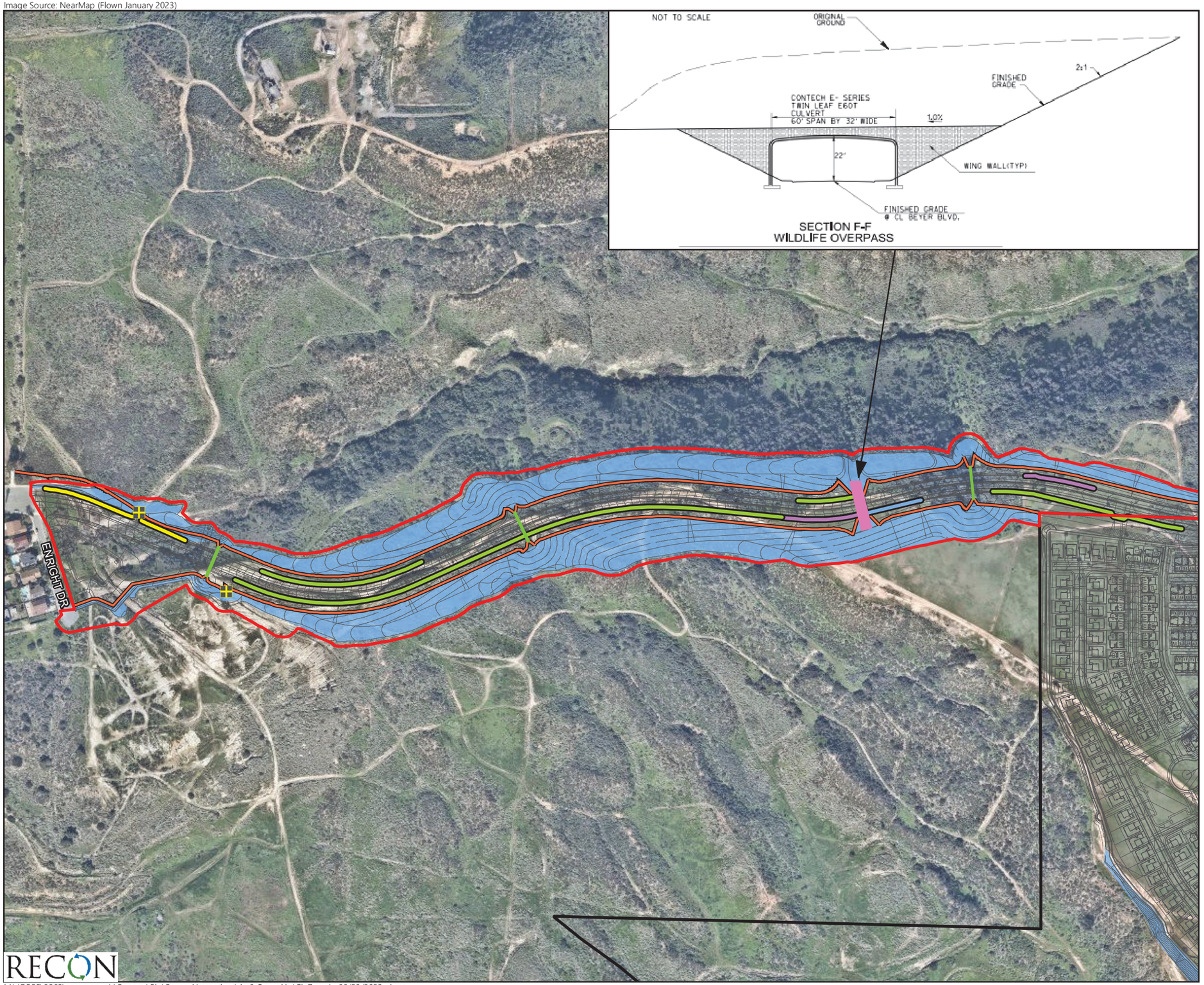
Fencing is proposed along the length of Beyer Boulevard on both the north and south sides to prevent wildlife crossings along the roadway and to funnel wildlife toward the wildlife crossings. Fencing on the north side of Beyer Boulevard is estimated to be installed for an approximately 3,997-foot length, while fencing along the south side of Beyer Boulevard would extend approximately 3,112 feet. Wildlife crossings and fencing locations are depicted on Figure 7.

The following are key design features related to the proposed wildlife overcrossing and the three small animal undercrossings that would be implemented, as recommended by the project's wildlife movement study (Wildlife Tracking Institute 2022):

- Chain link fencing shall be installed along the length of Beyer Boulevard. Fencing would funnel wildlife toward the culvert undercrossings and the wildlife overcrossing, while preventing wildlife from crossing the roadway.
- Fencing on the north side of the road shall be 6-feet high. Fencing on the south side of the road shall be 8 feet high. Fence heights takes into account the topographic conditions in relation to animal movement. Fencing shall be buried 6 inches to prevent animals from burrowing under. Additionally, a fine mesh shall be installed along the bottom two feet of the fence to prevent small animal movement through the fence.
- The wildlife overcrossing surface shall be planted with native plants and native soil, approximately 3 feet deep. Soils for the overcrossing shall originate from the surface layer of surrounding native soils.
- Native bushes (such as lemonade berry and laurel sumac) found in the area that attain 6- to 8-foot heights should be placed along the sides of the overcrossing to screen the road and provide refugia.
- Micro-refugia (e.g., rock structures) shall be incorporated onto the overcrossing and undercrossing surface for small animal stopping points/shelters.
- Native plant landscaping on the southern slope at the wildlife overcrossing shall be designed with vegetation that would grow in a dense manner to deter human views toward the overcrossing and deter human use. Native cactus and other uninviting species shall be selected to deter human access.

The efficacy of the wildlife movement features described above are evaluated in detail in the project Biological Resources Report (RECON Environmental, Inc. [RECON] 2023).

Image Source: NearMap (Flown January 2023)




Planned Beyer Boulevard

Specific Plan Boundary

4-foot Retaining Wall

6-foot Masonry Noise Wall

0 - 8-foot Retaining Wall

12-foot Retaining Wall

SDG&E Access Gate

Wildlife Fence

Critter Crossing Culvert (6' dia.)

Wildlife Overcrossing (32' wide by 60' long)

Site Plan

Manufactured Slopes to be Revegetated with Native Species

0 Feet 300

RECON

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FIGURE 7
Beyer Boulevard Wildlife Crossings, Wildlife Fencing, and Retaining Walls

# 2.0 Alternatives Analysis

A primary requirement of the MSCP and VPCHP for roads crossing conserved land is reducing impacts to the maximum extent practical. Alternate development proposals such as reduced medians, reduction in road width/classification and alternative locations must also be considered. Additionally, the MSCP calls for roads to avoid canyon bottoms and allow wildlife movement through the use of bridges or culverts where roads cross the MHPA. Roads should be placed in lower quality habitat or disturbed areas to the extent possible.

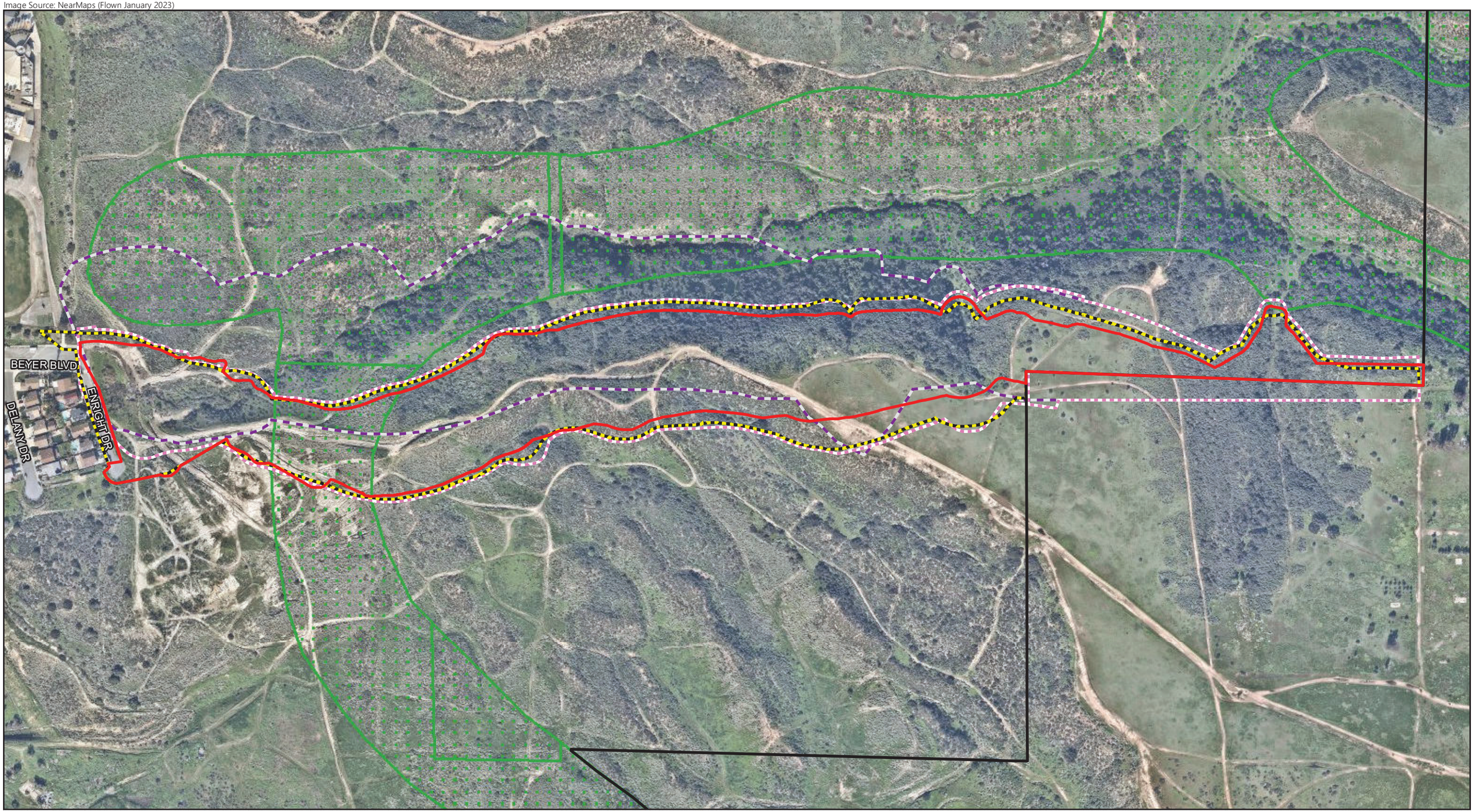
The following alternatives were evaluated and considered over an approximately two-year period between 2000 and 2022. Each of these alternatives were presented to the City, County, and Wildlife Agencies in various formats and memos, which are noted in the references. This report serves to consolidate and summarize the alternatives considered over the prior years to demonstrate that the current proposed alignment has minimized impacts to the maximum extent feasible consistent with the MSCP and VPHCP.

## 2.1 Alternatives Fully Evaluated

The following alternatives were fully evaluated alternatives over the process of refining the proposed roadway alignment. The impact footprints of each of these alternatives, in addition to the proposed Beyer Boulevard alignment is presented on Figure 8. Figure 8 shows the outer impact footprint of each roadway alignment. It should be noted that a majority of the impact is related to required grading for manufactured slopes necessary to support the roadway.

- Original Beyer Boulevard Alignment – The Original Beyer Boulevard Alignment represents the first iteration of the Beyer Boulevard grading footprint. This alignment most closely followed the location that was envisioned by the OMCP Mobility Element but had substantial impacts within Moody Canyon, including impacts to drainages within the bottom of Moody Canyon.
- Southern Alignment – The Southern Alignment was developed in an effort to reduce impacts and avoid impacts to canyon bottoms by shifting the road to the south, out of the canyon, which reduced required grading buttressing. This southern shift of the roadway substantially reduced impacts to sensitive biological resources and avoided canyon bottom drainage impacts. The Southern Alignment, however, still included a 4-lane cross section with substantial mobility features as envisioned by the OMCP.
- Reduced Roadway Width – The Reduced Roadway Width Alternative was proposed as a compromise between environmental constraints and mobility needs for the roadway. This alternative eliminated many of the original substantial mobility features such as dual bike lanes and other pedestrian features. This allowed for narrowing the roadway cross section but still retained four lanes.
- Proposed Beyer Boulevard – The proposed Beyer Boulevard (proposed alignment), incorporated further reductions in the roadway cross section, reflecting a narrowing of the proposed 4-lane Beyer Boulevard, down to a two-lane segment where the roadway crosses conserved land. Additionally, the proposed alignment incorporates an approximately 5-foot-tall retaining wall along the entire south side of the roadway, in addition to additional retaining walls along portions of the north side to further reduce impacts.

Image Source: NearMaps (Flown January 2023)




Proposed Beyer Boulevard Alignment
Specific Plan Boundary
City of SD MHPA
Beyer Reduced Roadway Width Alternative
Beyer Southern Alignment
Beyer Boulevard Original Alignment

RECON

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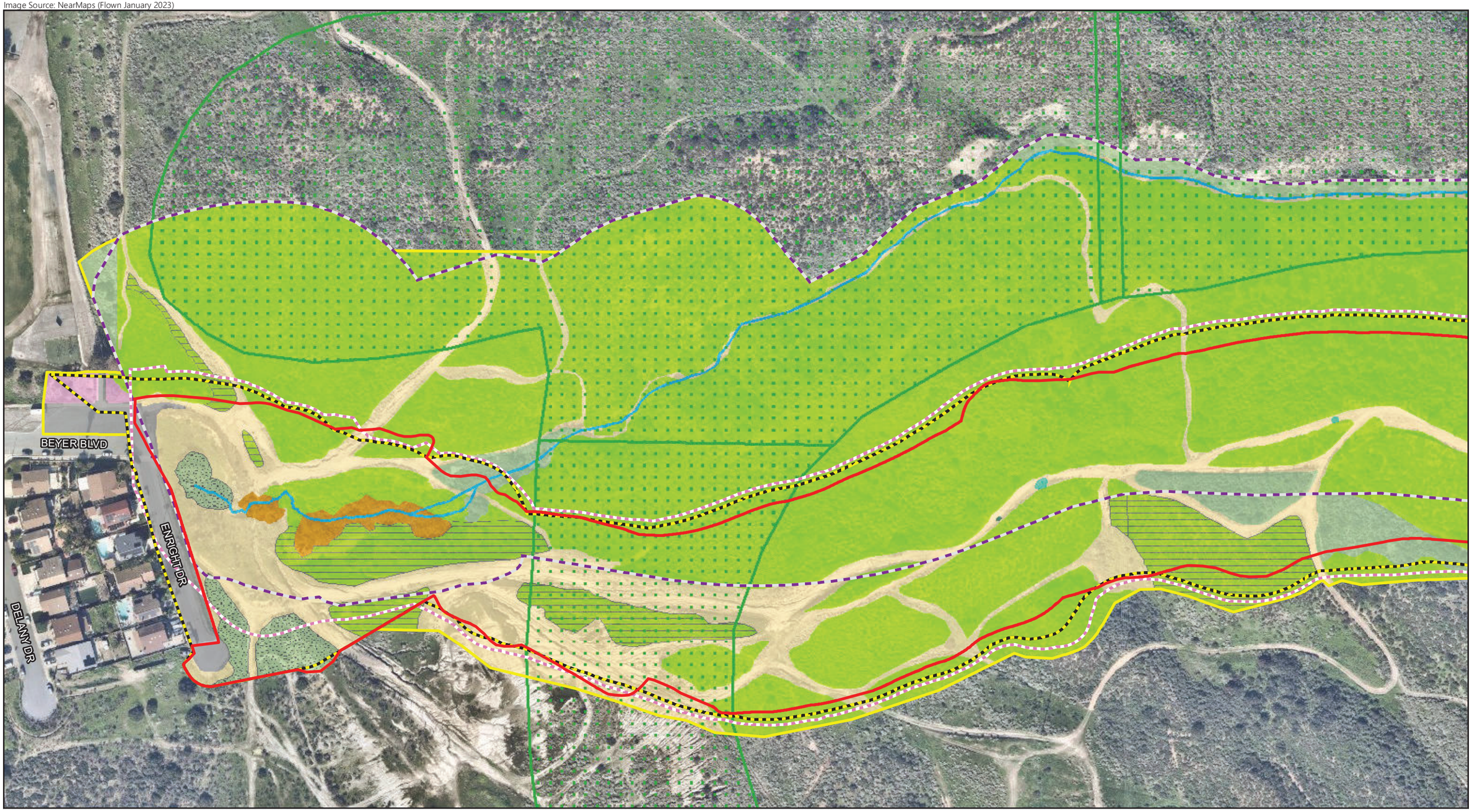
FIGURE 8
Beyer Boulevard Alignment
Alternatives on Aerial Photograph

Each of these revised alignments resulted in substantial impact reductions. Impacts to vegetation communities and sensitive plant in relation to each alignment is presented on Figures 9 and 10. With substantial time and effort, the impact footprint of the proposed Beyer Boulevard extension has been refined and minimized to the maximum extent possible. Details of the impact reductions to MHPA, Otay tarplant (*Deinandra conjugens*), sensitive vegetation communities, drainages, vernal pools, seasonal basins and wetlands are shown in Table 1. Details of the impact reductions to sensitive vegetation communities for each alternative is presented in Table 2. In addition to the impact reductions, substantial roadway features are proposed to ensure wildlife movement north and south of the road, as detailed in Section 1.4.2.

Image Source: NearMaps (Flown January 2023)




- Proposed Beyer Boulevard Alignment
- Survey Area
- City of SD MHPA
- Beyer Reduced Roadway Width Alternative
- Beyer Southern Alignment
- Beyer Boulevard Original Alignment

**Southwest Village Vegetation**

- Diegan Coastal Sage Scrub
- Disturbed Diegan Coastal Sage Scrub
- Maritime Succulent Scrub
- Disturbed Maritime Succulent Scrub
- Mule Fat Scrub
- Vernal Pool
- Disturbed Wetland
- Natural Flood Channel
- Ornamental
- Disturbed Land
- Developed Land

0 Feet 150

RECON

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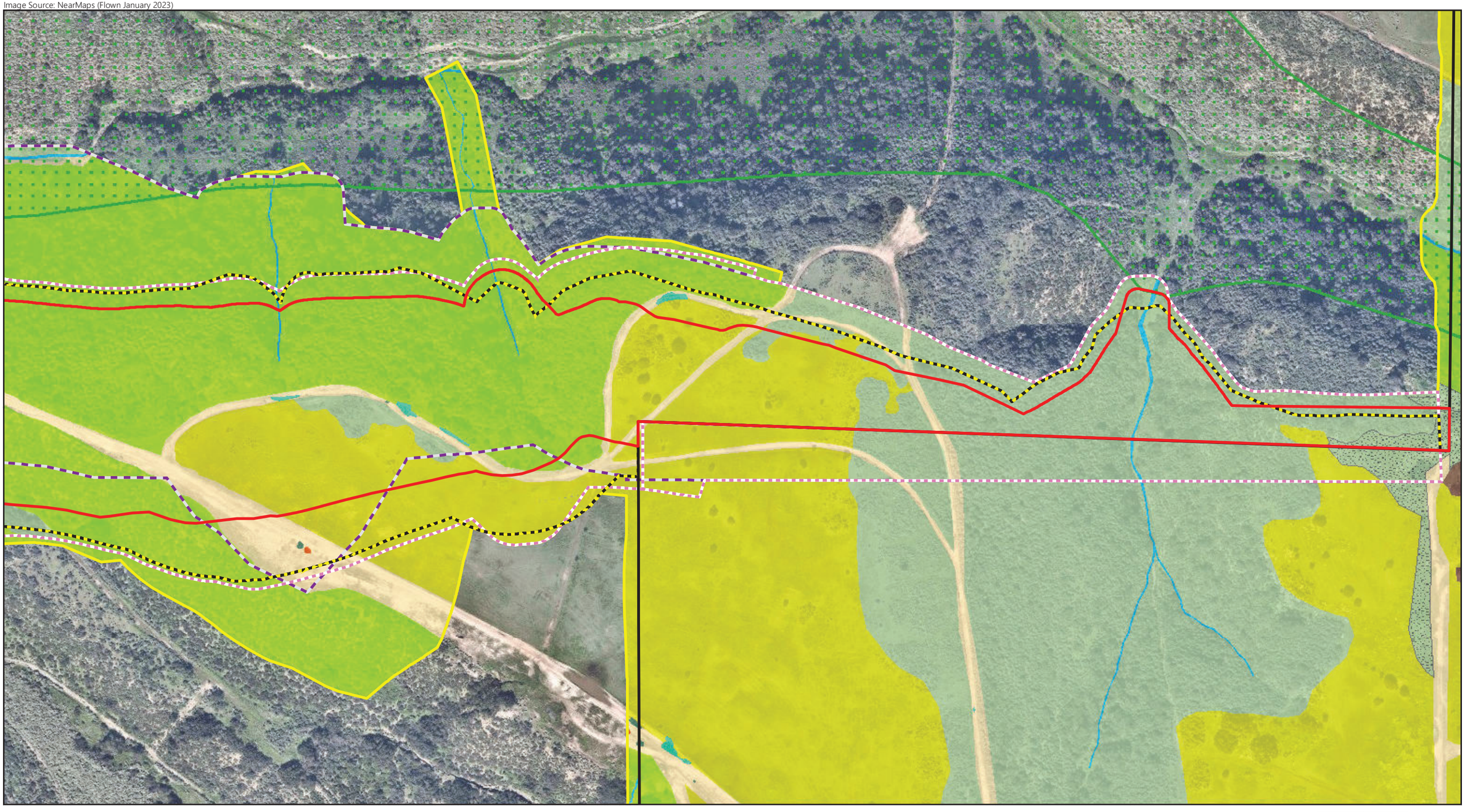
FIGURE 9a
Beyer Boulevard Alternatives - Vegetation Communities

Image Source: NearMaps (Flown January 2023)



Proposed Beyer Boulevard Alignment
Specific Plan Boundary
Survey Area
City of SD MHPA

Beyer Reduced Roadway Width Alternative
Beyer Southern Alignment
Beyer Boulevard Original Alignment

**Southwest Village Vegetation**

Diegan Coastal Sage Scrub
Disturbed Diegan Coastal Sage Scrub
Eucalyptus Woodland
Maritime Succulent Scrub
Non-native Grassland
Vernal Pool
Disturbed Wetland
Seasonal Basin
Natural Flood Channel
Disturbed Land

0 Feet 150

RECON

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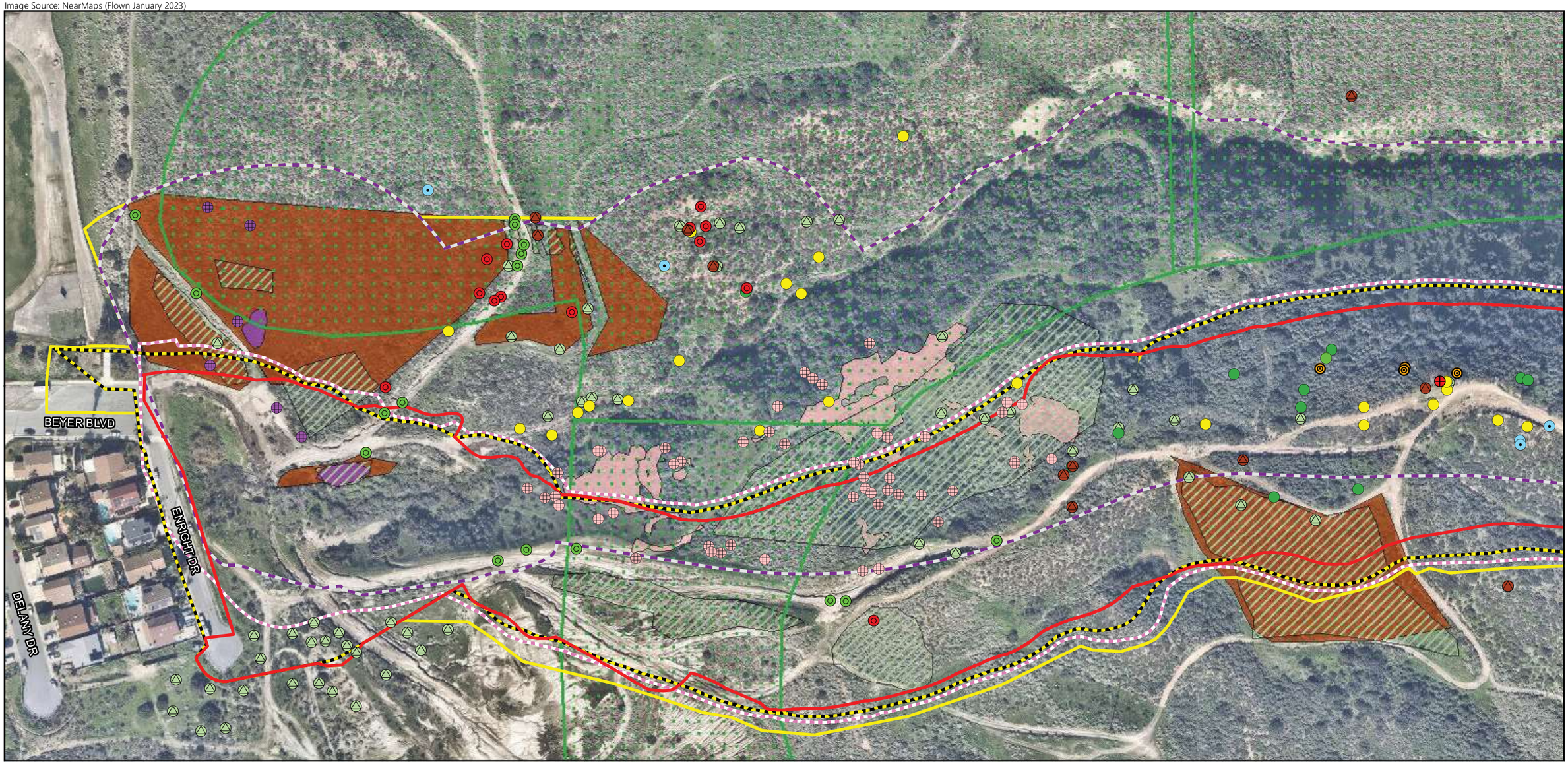
FIGURE 9b
Beyer Boulevard Alternatives -
Vegetation Communities

Image Source: NearMaps (Flown January 2023)




Proposed Beyer Boulevard Alignment
Survey Area
City of SD MHPA
Beyer Reduced Roadway Width Alternative
Beyer Southern Alignment
Beyer Boulevard Original Alignment

**Sensitive Plants**

- San Diego Bur-sage (*Ambrosia chenopodiifolia*)
- Ashy Spike-moss (*Selaginella cinerascens*)
- California Boxthorn (*Lycium californicum*)
- Cliff Spurge (*Euphorbia misera*)
- Otay Tarplant (*Deinandra conjugens*)
- San Diego Barrel Cactus (*Ferocactus viridescens*)
- San Diego County Viguiera (*Bahiopsis laciniata*)
- Decumbent Goldenbush (*Isocoma menziesii* var. *decumbens*)
- Western Dichondra (*Dichondra occidentalis*)
- San Diego County Needle Grass (*Stipa diegoensis*)
- Snake Cholla (*Cylindropuntia californica* var. *californica*)
- South Coast Saltscale (*Atriplex pacifica*)

0 Feet 150

RECON

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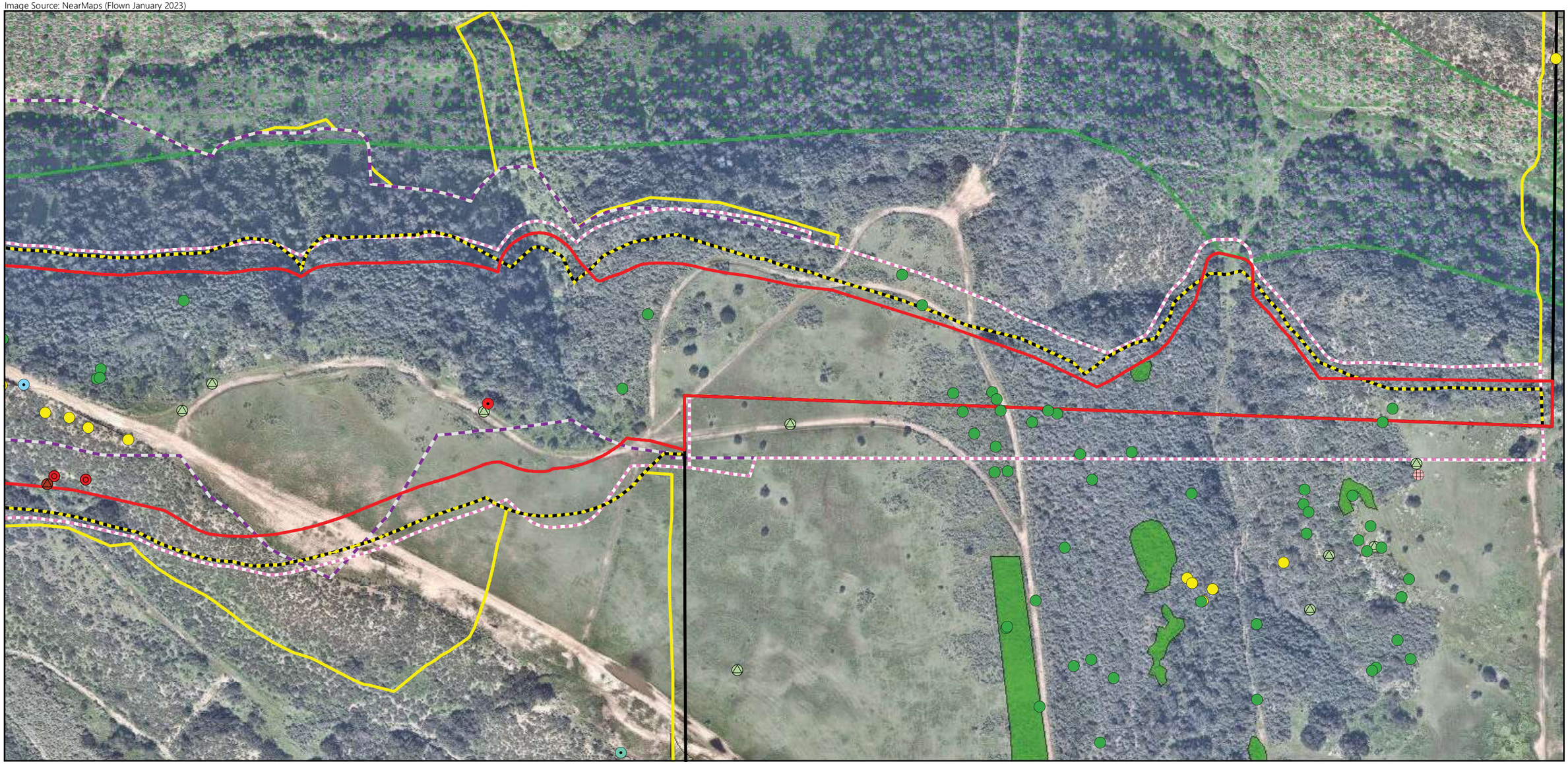
FIGURE 10a
Beyer Boulevard Alternatives - Sensitive Plants

Image Source: NearMaps (Flown January 2023)



Proposed Beyer Boulevard Alignment
Specific Plan Boundary
Survey Area
City of SD MHPA

Beyer Reduced Roadway Width Alternative
Beyer Southern Alignment
Beyer Boulevard Original Alignment

**Sensitive Plants**

San Diego Bur-sage
(*Ambrosia chenopodiifolia*)
Ashy Spike-moss
(*Selaginella cinerascens*)
Cliff Spurge
(*Euphorbia misera*)
Otay Tarplant
(*Deinandra conjugens*)
San Diego Barrel Cactus
(*Ferocactus viridescens*)
San Diego County Viguiera
(*Bahiopsis laciniata*)
Bigelow's Moss Fern
(*Selaginella bigelovii*)
Coastal Plantain
(*Plantago elongata*)
San Diego County Needle Grass
(*Stipa diegoensis*)
Snake Cholla
(*Cylindropuntia californica* var. *californica*)

0 Feet 150

RECON

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FIGURE 10b
Beyer Boulevard Alternatives -
Sensitive Plants

| Table 1<br>Biological Resources Impact Comparison for Beyer Boulevard Alternatives | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Biological Resource | Original Beyer Alignment Impact (acres) | Southern Alignment Impact (acres) | Southern Alignment Impact Reduction | | Beyer Reduced Roadway Width Impact (acres)[1] | Impact Reduction Compared to Southern Alignment | | Proposed Beyer Boulevard Impact (acres) | Impact Reduction Compared to Reduced Roadway Width | |
| | | | acres | % change | | acres | % change | | acres | % change |
| MHPA | 14.47 | 2.6 | -11.9 | - 82% | 2.4 | -0.02 | - 7.7% | 2.2 | -0.2 | -8.3% |
| Otay tarplant | 0.86 | 0.25 | -0.6 | - 71% | 0.22 | -0.03 | - 15.4% | 0.25 | +0.02 | 13.6% |
| Sensitive Vegetation Communities[1] | 43.35 | 30.94 | - 12.4 | - 29% | 26.21 | -4.73 | - 15.3% | 22.84 | -3.37 | -28.8 |
| Drainages | 0.23 | 0.09 | -0.14 | - 61% | 0.08 | -0.01 | - 11.1% | 0.08 | no change | |
| Vernal Pools (with and without fairy shrimp) | 0.04 | 0.04 | no change | | 0.04 | no change | | 0.03 | - 0.01 | -25% |
| Seasonal Basins | 0.01 | 0.01 | +0.002 | +40% | 0.01 | no change | | 0.01 | no change | |
| Wetlands | 0.35 | 0.35 | no change | | 0.35 | no change | | 0.31 | -0.04 | -11.4 |
| [1]Sensitive vegetation communities includes sensitive uplands habitats only, aquatic resources reported separately. | | | | | | | | | | |

| Table 2<br>Vegetation Community Impact Comparison for Beyer Boulevard Alternatives | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Biological Resource | Original Beyer Alignment Impact (acres) | Southern Alignment Impact (acres) | Impact Reduction Compared to Original Beyer Alignment | | Beyer Reduced Roadway Width Impact (acres)[1] | Impact Reduction Compared to Southern Alignment | | Proposed Beyer Boulevard Impact (acres) | Impact Reduction Compared to Reduced Roadway Width | |
| | | | acres | % change | | acres | % change | | Acres | % change |
| Diegan Coastal Sage Scrub | 5.44 | 5.40 | -0.04 | - 1% | 3.36 | -2.04 | -37.7% | 3.01 | -0.35 | -10.4% |
| Disturbed Coastal Sage Scrub | 0.41 | 0.52 | 0.10 | +25% | 0.55 | +0.03 | +3.0% | 0.62 | +.07 | +12.7 |
| Disturbed Land | 4.39 | 6.33 | 1.94 | +44% | 5.98 | -0.35 | -5.5% | 5.58 | -0.34 | -6.7 |
| Disturbed Maritime Succulent Scrub | 0.81 | 2.15 | 1.33 | +164% | 2.13 | -0.02 | -0.9% | 1.91 | -0.22 | -10.33 |
| Maritime Succulent Scrub | 32.34 | 17.70 | -14.64 | - 45% | 16.27 | -1.43 | -8.1% | 14.14 | -2.13 | -13.09 |
| Mule Fat Scrub | 0.30 | 0.30 | no change | | 0.30 | no change | | 0.30 | no change | |
| Natural Flood Channel | 0.23 | 0.09 | -0.14 | -61% | 0.08 | -0.01 | -11.1% | 0.08 | no change | |
| Non-native Grassland | 3.78 | 4.75 | 0.97 | +26% | 3.85 | -0.90 | -18.9% | 3.15 | -0.07 | -18.18% |
| Seasonal Basin | 0.0042 | 0.0040 | -0.002 | - 4% | 0.01 | +0.003 | +20% | 0.01 | no change | |
| Urban/Developed (including ornamental) | 0.05 | 0.31 | 0.26 | +511% | 0.62 | +0.31 | +50% | 0.05 | -0.57 | -91.9% |
| Vernal Pool | 0.04 | 0.04 | no change | | 0.04 | no change | | 0.04 | | |
| Impact Area Total | 47.78 | 37.58 | -10.20 | -21% | 33.19 | -4.39 | -11.7% | 28.89 | -4.3 | -12.96 |
| **Sensitive Vegetation Community Total[2]** | **43.35** | **30.94** | **-12.41** | **-29%** | **26.57** | **-8.8** | **-20.9%** | **23.26** | **-3.3** | **-12.45%** |

[1]Proposed Project
[2]Urban/Developed and Disturbed Land are removed from the Sensitive Vegetation Community Total.

## 2.2 Roadway Cross Section Reductions

One of the components of the impact reductions for Beyer Boulevard was evaluating the ability to narrow the road and eliminate some desired mobility features for pedestrian and bicyclists in order to narrow the impact footprint. Compared to the original Beyer Boulevard cross section which incorporated all of the City's desired mobility features for a multi-modal roadway, the ultimate cross section has been significantly reduced, by nearly 50 percent compared to the original alignment. Details of the cross section and mobility feature reductions are shown in Table 3.

Table 3
Beyer Boulevard Alternatives Cross Section Reductions

| Roadway Feature | Original Beyer Alignment | Southern Alignment | Beyer Reduced Roadway Width | Proposed Beyer Boulevard |
|---|---|---|---|---|
| Right-of-Way | 104 feet | 104 feet | 75.5 feet | 53 feet |
| Travel Lanes | 2 – 11-foot-wide lanes in both directions | 2 – 11-foot-wide lanes in both directions | 2 – 11-foot-wide lanes in both directions | 1 – 13-foot-wide travel lane in each direction |
| On-Road Bike Lanes | 6-foot bike lane with 2-foot buffer | 6-foot bike lane with 2-foot buffer | 5-foot bike lane with 2-foot buffer | 5-foot bike lane with 2-foot buffer |
| Off-Road Bike Lanes | 5-foot off-road bike lane separated by 6.5-foot parkway | 5-foot off-road bike lane separated by 6.5-foot parkway | N/A | N/A |
| Parkways | 6.5-foot planted parkway on both sides. Adjacent slopes planted with natives. | 6.5-foot planted parkway on both sides. Adjacent slopes planted with natives. | 6-foot parkway with street trees on south side only. Adjacent slopes planted with natives | 4-foot parkway with street trees on south side only. Adjacent slopes planted with natives |
| Sidewalks | 5-foot sidewalks separated from off-road bike lane by 2-foot buffer | 5-foot sidewalks separated from off-road bike lane by 2-foot buffer | 6.5-foot sidewalk on south side only, separated from road by 6-foot parkway. | 4-foot sidewalk on south side only, separated from road by 4-foot parkway. |

## 2.3 Other Alternatives Considered

### 2.3.1 Alignment Avoiding Conserved Parcels

An alignment that would avoid the VPHCP 100 percent conserved parcels was considered previously (detailed in the RECON June 7, 2022 memorandum). This alignment would need to veer south at the current terminus of Beyer Boulevard. This alignment was determined to not be feasible or preferred from a biological perspective because it would result in a longer road, more grading and a greater overall impact footprint. Most importantly a number of existing constraints would make this alternative infeasible as detailed below:

- Historic Landslide Areas – The proposed alignment of Beyer Boulevard has been carefully located to avoid, to the greatest extent feasible, a landslide complex known as the San Ysidro

Landslide, which dates from the late Pleistocene era, approximately 200,000 years ago. The location of the landslide areas in relation to the proposed roadway alignment is shown in Figure 11. Attachment A-1 provides an excerpt from the project's Geotechnical Investigation dated March 28, 2019, which describes the technical details about this landslide complex and implications of grading within it. Attachment A-2 includes a Geotechnical Letter dated February 22, 2022, regarding the infeasibility of relocating Beyer Boulevard including an exhibit of the landslide a. As detailed therein, a shift of the roadway into the landslide area would require significant embankments and geotechnical mitigation to provide geologic stability. This effort would require a significant impact footprint, well beyond the footprint for the proposed Beyer Boulevard alignment and would increase the instability of the landslide complex.

- Beyer Park – The City is in the final design stages for a new public park that will be constructed just south of the current terminus of Beyer Boulevard. This park has long been planned, funded, and included in City planning documents. Refer to Figure 3 for the location of the park at the existing terminus of Beyer Boulevard. Due to the location of the park, the proposed Beyer Boulevard alignment cannot immediately turn south to allow for avoidance of the Furby North Preserve. Furthermore, the area just east of the Beyer Park Development footprint and just west of the Furby North Preserve is City MHPA and the planned mitigation land for the proposed Beyer Park Development.

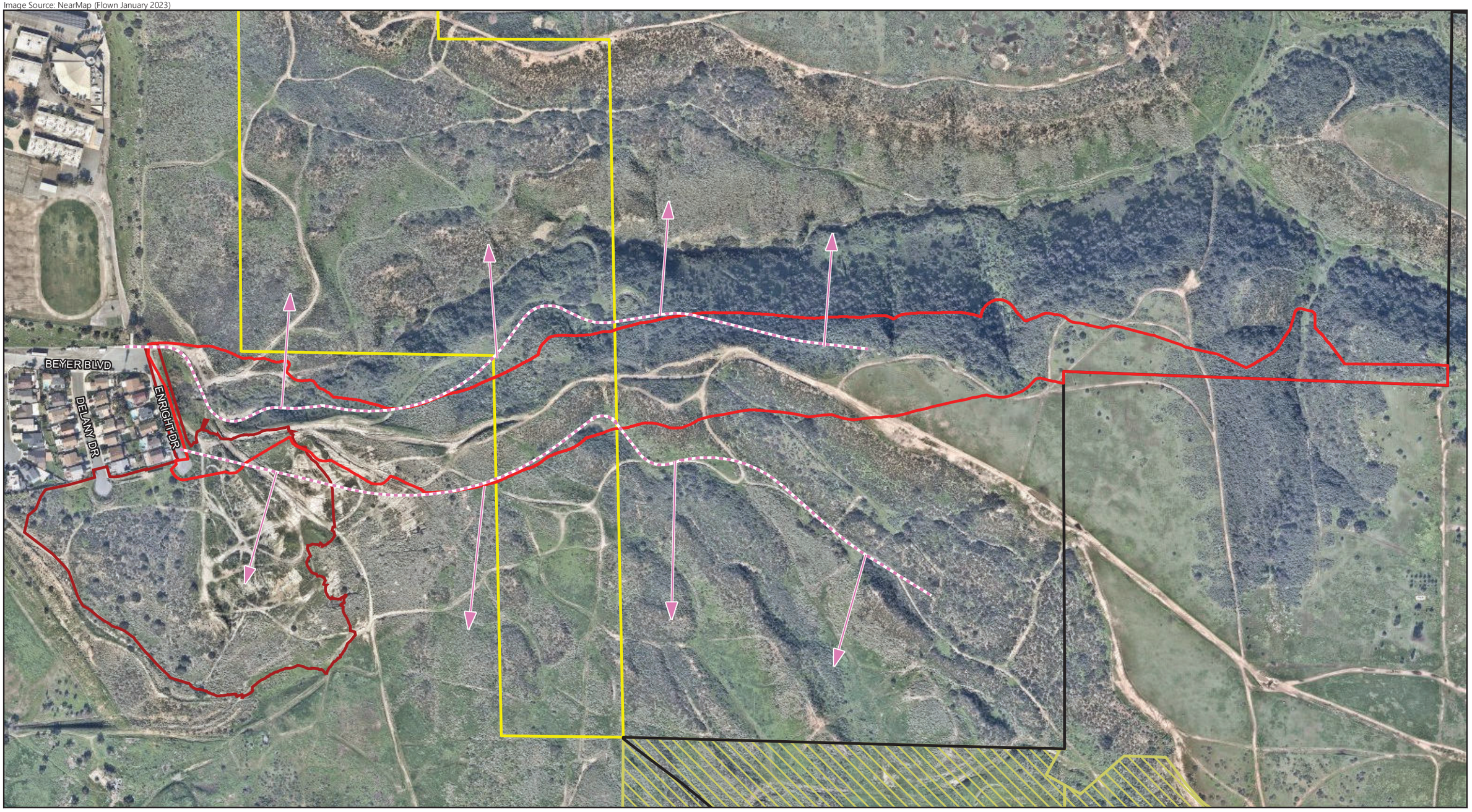
- Design Standards Cannot Be Met – A roadway that veers south to avoid conserved lands would not be able to meet City design standards and geometries needed for a circulation element roadway.

- Conflicts with other Conservation Lands – Another constraint to a roadway alignment that veers south is the presence of other conserved lands immediately south of the VPHCP 100 percent conservation lands. Due to the location of the Pipitone conservation easement (see Figure 3) no feasible roadway alignment to the south exists that could avoid all existing conserved lands.

### 2.3.2 Old Otay Mesa Road Alignment

At the request of the Wildlife Agencies, consideration was given to eliminating the Beyer Boulevard extension altogether and instead providing access via an expansion of the existing Old Otay Mesa Road. Additionally, consideration was given to widening Old Otay Mesa Road and making the Beyer Boulevard extension a fire only access road. Since elimination of the roadway altogether was rejected early on by the City (see Section 3.0 for details), the focus of this alternative analysis was on widening Old Otay Mesa Road and making the Beyer Boulevard extension a fire only access road. A depiction of this alternative is shown in Figure 12. A transportation assessment (Attachment B) was completed to identify the minimum roadway width needed along Old Otay Mesa Road to accommodate the shift in trips from Beyer Boulevard. As detailed in that memo, a 6-lane arterial roadway would be required for the road to function at Level of Service C.

Image Source: NearMap (Flown January 2023)

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Proposed Beyer Boulevard Alignment
Beyer Park Development Project
Historic Landslide
Specific Plan Boundary
County Furby Preserve
Pipitone Conservation Easement

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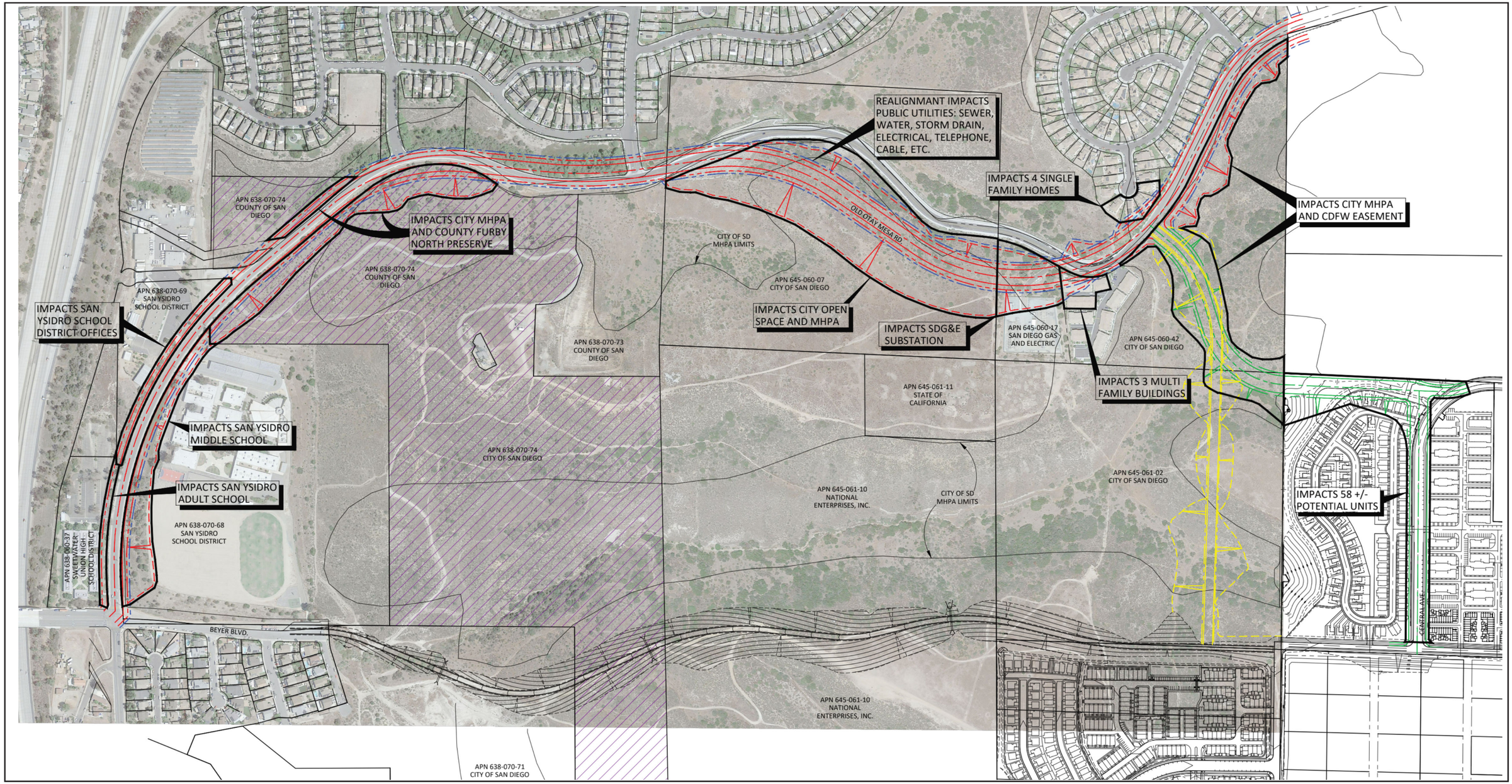
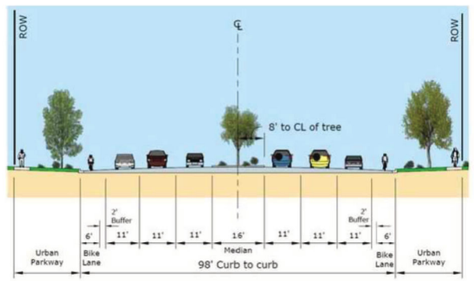
FIGURE 11
Beyer Boulevard in Relation to Area Constraints

Map Source: LOS Engineering, Inc.

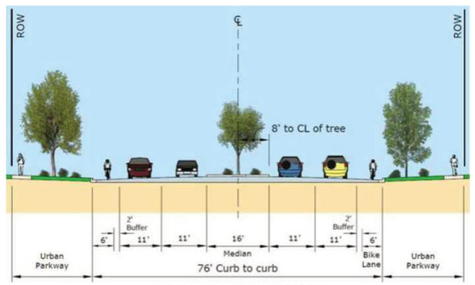



**LEGEND:**

- Old Otay Mesa Road 4-Lane Major Alternative
- Old Otay Mesa Road 6-Lane Prime Arterial Alternative
- Central Ave Realignment and Expansion to 4-Lane Major
- Beyer Road Northerly Alternative
- County of San Diego Furby North Preserve
- Parcels Affected by Old Otay Mesa Road Widening




PROPOSED OLD OTAY MESA ROAD
6-LANE PRIME ARTERIAL




PROPOSED OLD OTAY MESA ROAD
4-LANE MAJOR

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FIGURE 12
Old Otay Mesa Road with
Beyer Boulevard as Fire Access Only

This alternative was presented to the Wildlife Agencies at the batching meeting held on November 18, 2022. As shown on Figure 13 an improved Old Otay Mesa Road Alignment would still require substantial grading along the Beyer Boulevard alignment even for a fire only access road. Additionally, grading to expand Old Otay Mesa Road would require substantial disturbance into sensitive vegetation communities and conserved lands south of Old Otay Mesa Road. Although a fire-only Beyer Boulevard access road would slightly reduce impacts as shown in Figure 12, grading required for Old Otay Mesa Road would require substantial impacts to sensitive vegetation communities. Overall, this alternative would increase impacts to sensitive vegetation communities by approximately 18 acres and would increase impacts to conserved lands (see Figures 13 and 14).

Additionally, the Old Otay Mesa Road improvement would impact three schools, four single-family homes, a San Diego Gas and Electric substation, and three multi-family buildings. This alternative would also create safety risks due to inadequate fire and emergency access routes for the surrounding communities.

For these reasons, the Old Otay Mesa Road alignment was rejected from further consideration. The City additionally documented their reasons an Old Otay Mesa Road alignment should be rejected in their November 13, 2020 memo to the Wildlife Agencies (Attachment C).

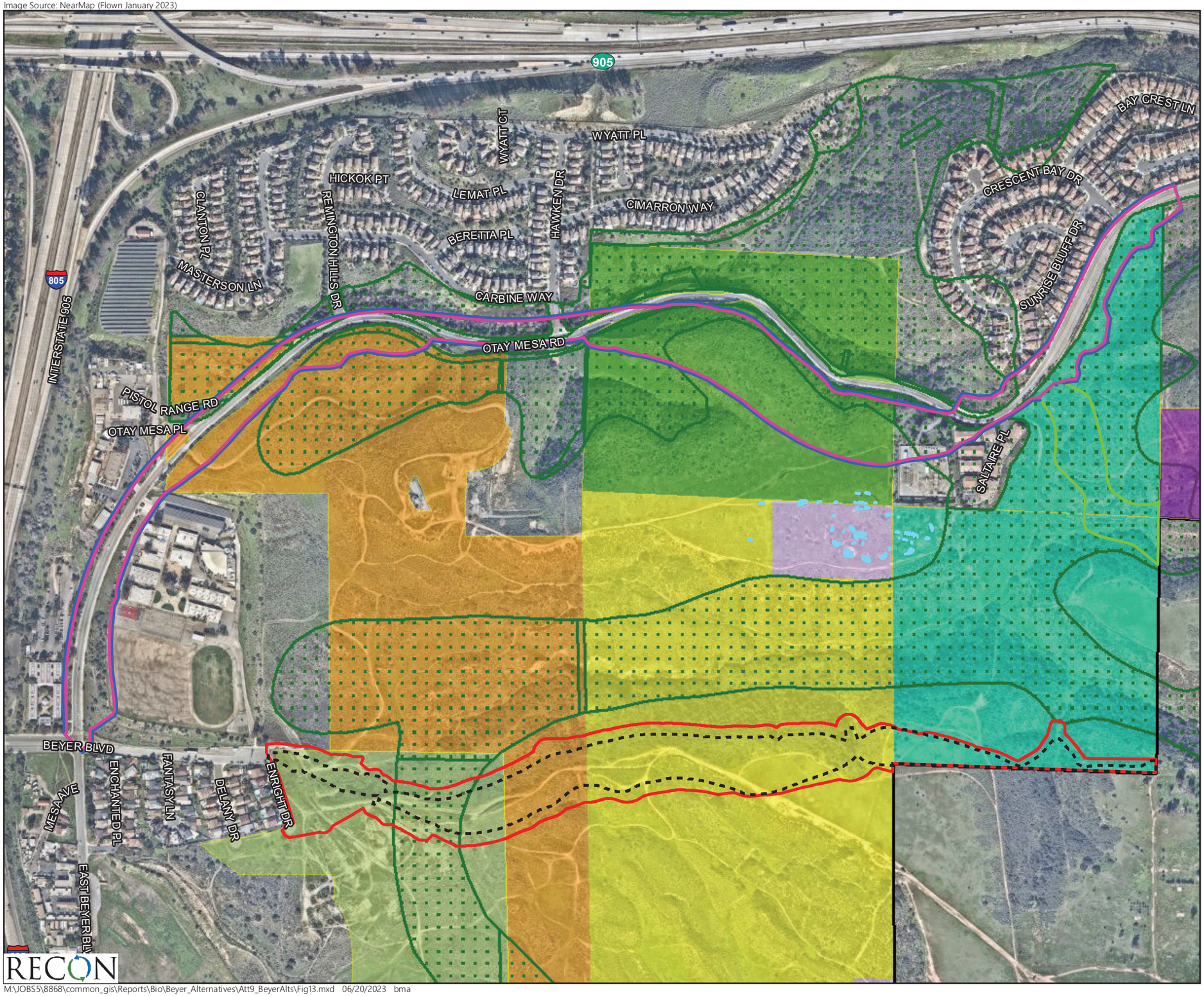
## 2.4 Proposed Beyer Boulevard Impact Summary

A summary of vegetation community impacts associated with the proposed Beyer Boulevard, broken down by conserved parcel are shown in Table 4. All impacts are outside of the MHPA after the boundary line adjustment is approved. Vegetation community impacts are depicted on Figure 15.

**Table 4**
**Beyer Boulevard Impact Summary Assuming a MHPA Boundary Line Adjustment (acres)**

| Vegetation Communities | VPHCP 100% Conserved | | | Total |
|---|---|---|---|---|
| | Furby North | Otay A | Otay B | |
| Maritime Succulent Scrub | 3.12 | 8.03 | - | 11.52 |
| Disturbed Maritime Succulent Scrub | 0.04 | 0.61 | - | 0.65 |
| Diegan Coastal Sage Scrub | - | 0.91 | 2.18 | 3.09 |
| Disturbed Coastal Sage Scrub | - | - | 0.12 | 0.12 |
| Non-native Grassland | - | 1.38 | 1.09 | 2.47 |
| Disturbed Land | 0.55 | 1.16 | 0.11 | 1.82 |
| Urban/Developed | - | - | - | - |
| Natural Flood Channel | - | 0.01 | 0.02 | 0.03 |
| Mule Fat Scrub | - | - | - | - |
| Disturbed Wetland | - | - | - | - |
| Vernal Pool | 0.01 | 0.02 | - | 0.03 |
| Vernal Pool with Fairy Shrimp | 0.01 | - | - | 0.01 |
| **Total** | **3.73** | **12.12** | **3.52** | **19.37** |
| Note: Totals may not add due to rounding | | | | |

Image Source: NearMap (Flown January 2023)




- Old Otay Mesa Rd 4-lane Alignment
- Old Otay Mesa Rd 6-lane Alignment
- Central Avenue Connected Re-alignment
- Fire Access Only Beyer Blvd
- Planned Beyer Boulevard
- Specific Plan Boundary
- City of SD MHPA
- VPHCP Complex J32
- West Otay A (Private/CDFW Easement Holder)
- West Otay A (Caltrans)
- West Otay B (City of SD, CDFW Easement Holder)
- West Otay C (City of SD, CDFW Easement Holder)
- County of San Diego Furby North Preserve
- Planned Candlelight Preserve
- City of San Diego Planned Beyer Park

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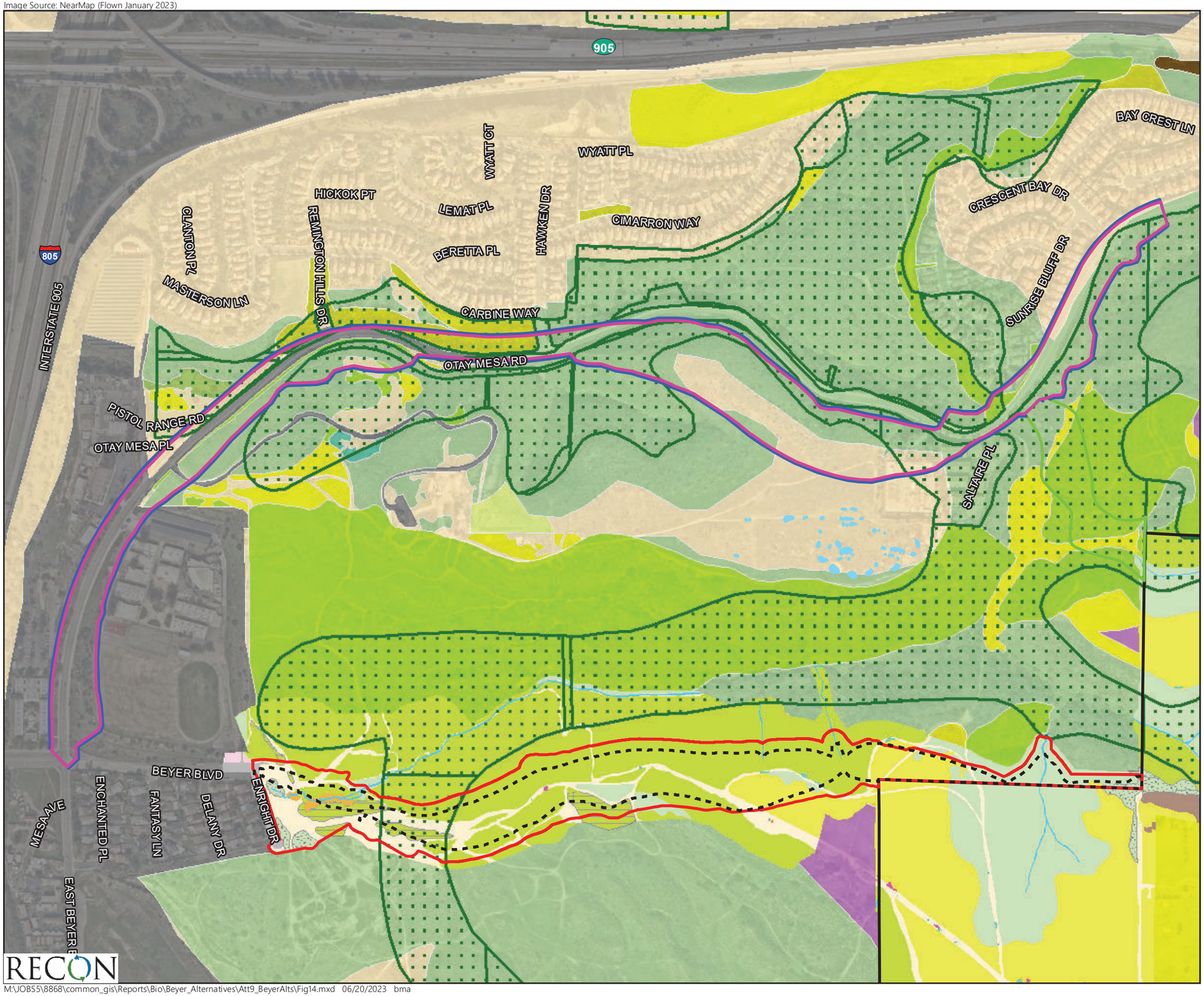
FIGURE 13
Old Otay Mesa Road Alternative
in Relation to MHPA, Preserved Land,
and Open Space

Image Source: NearMap (Flown January 2023)




- Old Otay Mesa Rd 4-lane Alignment
- Old Otay Mesa Rd 6-lane Alignment
- Central Avenue Connected Re-alignment
- Fire Access Only Beyer Blvd
- Planned Beyer Boulevard
- Specific Plan Boundary
- City of SD MHPA
- VPHCP Complex J32

**Vegetation Communities**

- Disturbed Habitat
- Urban/Developed
- Extensive Agriculture - Field/Pasture, Row Crops
- Coastal Scrub
- Maritime Succulent Scrub
- Diegan Coastal Sage Scrub
- Valley and Foothill Grassland
- Non-Native Grassland
- Riparian Scrubs
- Disturbed Diegan Coastal Sage Scrub
- Eucalyptus Woodland
- Disturbed Maritime Succulent Scrub
- Mule Fat Scrub
- Vernal Pool
- Vernal Pool with Fairy Shrimp
- Disturbed Wetland
- Seasonal Basin
- Natural Flood Channel
- Ornamental

0 Feet 500

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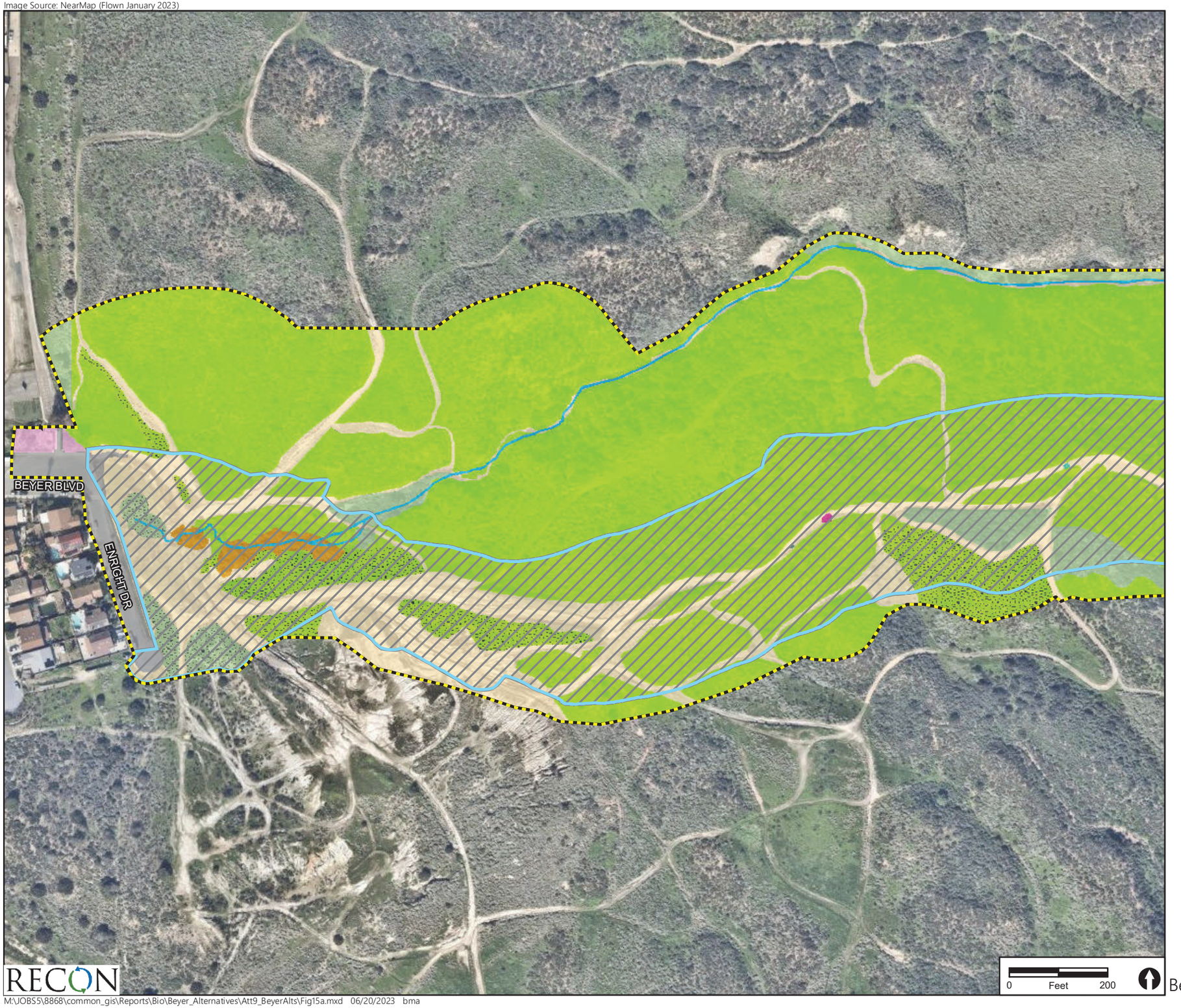
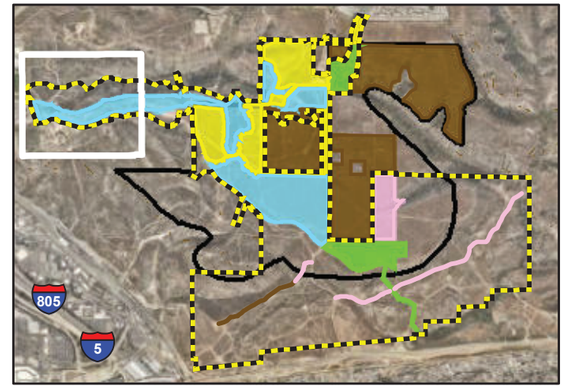
FIGURE 14
Old Otay Mesa Road Alternative - Sensitive Resources

Image Source: NearMap (Flown January 2023)




Impacts
Specific Plan Boundary
Project-Level Survey Area

**Project-Level Impacts**
Phase 1a
Phase 1b
Phase 2a
Phase 2b

**Program-Level Impacts**
Phases 3-7

**Southwest Village Vegetation**
Diegan Coastal Sage Scrub
Disturbed Diegan Coastal Sage Scrub
Maritime Succulent Scrub
Disturbed Maritime Succulent Scrub
Mule Fat Scrub
Vernal Pool
Vernal Pool with Fairy Shrimp
Disturbed Wetland
Natural Flood Channel
Ornamental
Disturbed Land
Developed Land

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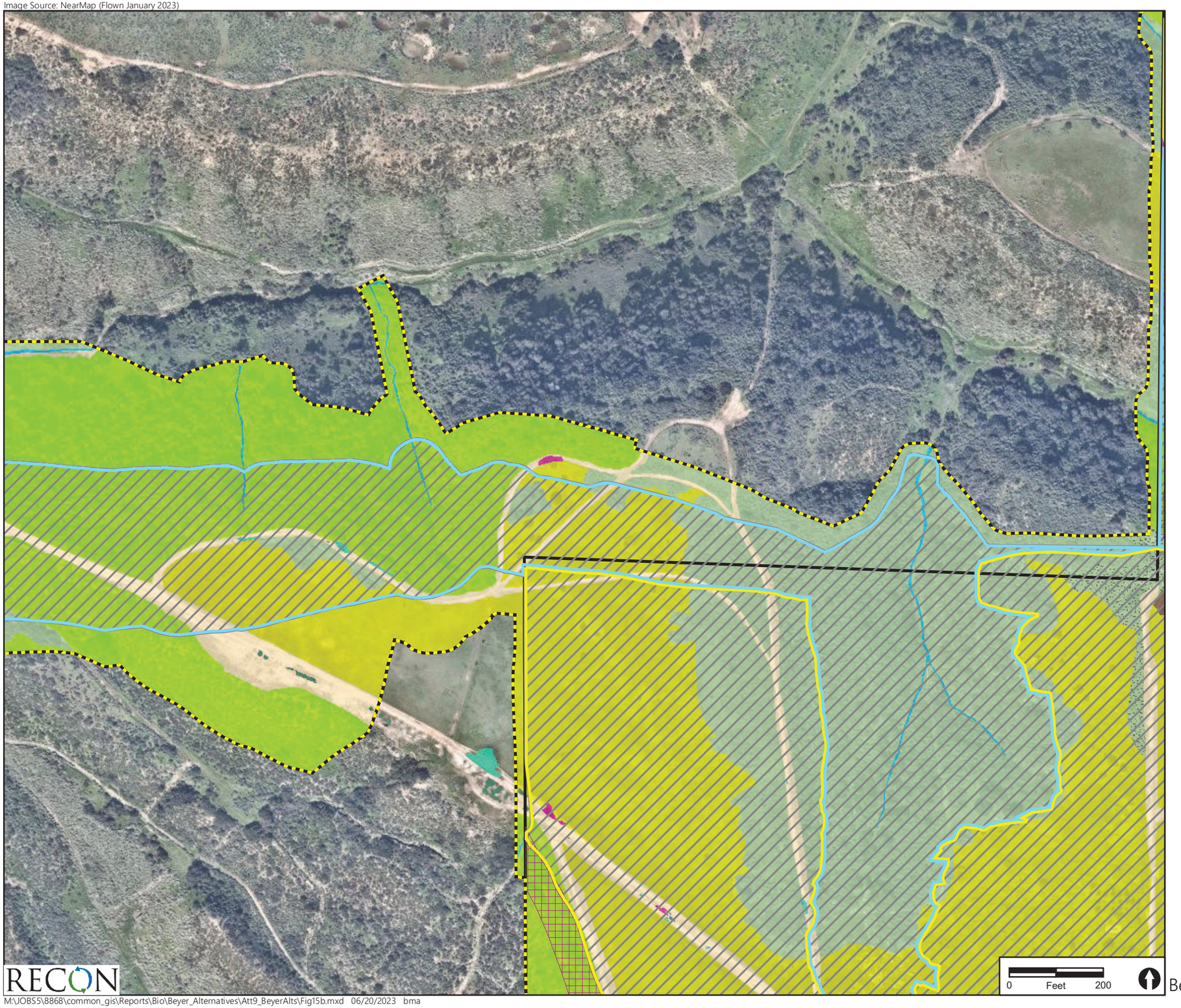
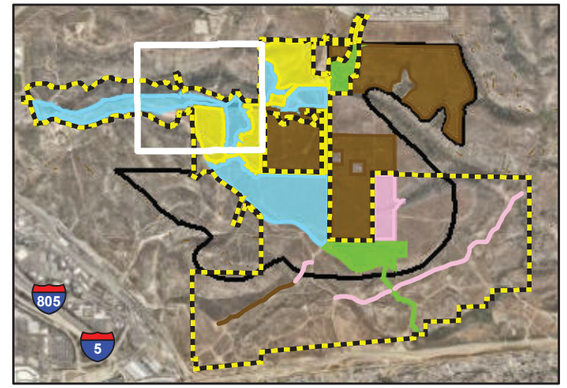
FIGURE 15a
Beyer Boulevard Vegetation Community Impacts

Image Source: NearMap (Flown January 2023)






- Impacts
- Brush Management Zone 2
- Specific Plan Boundary
- Project-Level Survey Area

**Project-Level Impacts**

- Phase 1a
- Phase 1b
- Phase 2a
- Phase 2b

**Program-Level Impacts**

- Phases 3-7

**Southwest Village Vegetation**

- Diegan Coastal Sage Scrub
- Disturbed Diegan Coastal Sage Scrub
- Eucalyptus Woodland
- Maritime Succulent Scrub
- Non-native Grassland
- Vernal Pool
- Vernal Pool with Fairy Shrimp
- Disturbed Wetland
- Natural Flood Channel
- Disturbed Land

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FIGURE 15b
Beyer Boulevard Vegetation Community Impacts

# 3.0 Need for the Roadway Expansion

The need for the proposed Beyer Boulevard extension was originally established with the City's long range planning efforts for the Otay Mesa Community associated with adoption of the OMCP in 2014. The City's November 13, 2020 memo to the Wildlife Agencies (see Attachment C) also outlined key reasons the roadway is needed including emergency access, inter-connectivity/multi-modal connectivity, and because it is a critical access road needed to support housing development within the planned Southwest Village. At the November 18, 2022 Wildlife Agency batching meeting, City planning staff further detailed the need for the Beyer Boulevard extension including the following key points:

- The roadway is needed for adequate fire and emergency response.
- The roadway is a planned Mobility Element roadway needed for regional circulation.
- The roadway would support efficient vehicle trips and reductions in vehicle miles traveled which is necessary to align with the City's Climate Action Plan and greenhouse gas emission reductions.
- The roadway is needed to support the City's regional housing goals as it would support development of up to 5,130 residential units.

The need for the proposed Beyer Boulevard extension is well established.

# 4.0 Mitigation Provided for Unavoidable Impacts

Mitigation for all Beyer Boulevard related impacts have been fully mitigated as detailed in the project Biological Resources Report (RECON 2023). Additionally, where the roadway crosses VPHCP 100 percent conserved lands, mitigation has been proposed at three times the standard mitigation ratio due to the conservation status of those lands, in addition to the fact that they were conserved previously as mitigation for other projects.[1] Mitigation details for all impacts within these conserved lands are provided in the project's Biological Resources Report (Tables 15a, 15b and 15c in RECON 2023).

# 5.0 Compliance with VPHCP and MSCP General Planning Policies and Design Guidelines

Section 1.4.2 of the MSCP provides general planning and design guidelines for road and utility projects as they relate to the MHPA, and provides recommendations for fencing, lighting, and signage within the MHPA. The relevant guidelines are summarized and addressed as follows. Section 5.1.2 of the VPHCP references these MSCP guidelines; therefore, compliance with the MSCP Subarea

[1]Most of the Furby North Preserve was not set aside as mitigation; but the triple mitigation is provided nonetheless, Otay A and Otay B were conserved for mitigation purposes.

Plan also results in compliance with the VPHCP. Table 5 describes specifically how the proposed Beyer Boulevard alignment complies with both plans.

Table 5
Beyer Boulevard Consistency with the VPHCP and MSCP Subarea Plan

| MSCP Planning Policy and Design Guidelines | Consistency Discussion |
|---|---|
| Roads and Utilities - Construction and Maintenance:<br><br>1. All proposed utility lines (e.g., sewer, water, etc.) should be designed to avoid or minimize intrusion into the MHPA. These facilities should be routed through developed or developing areas rather than the MHPA, where possible. If no other routing is feasible, then the lines should follow previously existing roads, easements, rights-of-way and disturbed areas, minimizing habitat fragmentation. | Utilities would be located within/under the proposed Beyer Boulevard alignment. All areas of the MHPA that fall within the impacts of the project would be adjusted out of the MHPA through the boundary line adjustment process. However, roads through the MHPA are allowed when they are identified as part of the Community Plan; therefore, the MHPA is not being adjusted out where Beyer Boulevard crosses it. Despite the MHPA not being deleted in that area; all portions of the MHPA and VPHCP 100 percent conservation lands are being replaced by adding non-conserved lands to the MHPA. Refer to the Biological Resources Report (RECON 2023) for additional details on the proposed MHPA and VPHCP Boundary Line Adjustment. |
| 2. All new development for utilities and facilities within or crossing the MHPA shall be planned, designed, located and constructed to minimize environmental impacts. All such activities must avoid disturbing the habitat of MSCP covered species, and wetlands. If avoidance is infeasible, mitigation will be required. | The design of the Beyer Boulevard alignment has reduced MHPA impacts from the original 14.47 acres to 2.24 acres with the proposed alignment. All impacts within the MHPA and VPHCP 100 percent conserved lands would be mitigated to ensure replacement of equal or higher value habitat. Additionally, addition of land to the MHPA is proposed to off-set impacts to the MHPA and VPHCP. |
| 3. Temporary construction areas and roads, staging areas, or permanent access roads must not disturb existing habitat unless determined to be unavoidable. All such activities must occur on existing agricultural lands or in other disturbed areas rather than in habitat. If temporary habitat disturbance is unavoidable, then restoration of, and/or mitigation for, the disturbed area after project completion will be required. | Temporary construction staging areas for Beyer Boulevard construction would be maintained within the existing development footprint or within existing disturbed areas to avoid unnecessary habitat disturbance. The project does not include any temporary roads or staging areas outside the assessed permanent impact footprints. All disturbed slopes adjacent to habitat will be revegetated with native plantings. |
| 4. Construction and maintenance activities in wildlife corridors must avoid significant disruption of corridor usage. Environmental documents and mitigation monitoring and reporting programs covering such development must clearly specify how this will be achieved, and construction plans must contain all the pertinent information and be readily available to crews in the field. Training of construction crews and field workers must be conducted to ensure that all conditions are met. A responsible party must be specified. | The project would include a requirement that all construction activities for the Beyer Boulevard alignment would occur during daytime hours to minimize disruption of wildlife movement during the most active night hours. Prior to construction, all construction personnel would be trained on the sensitive resources present in the area and measures required to be implemented to ensure compliance with all applicable conditions of approval. All staging areas and construction disturbance would occur within the identified limits of disturbance for the roadway.<br>These measures would serve to protect existing wildlife movement patterns; however, the project area is not considered a major wildlife corridor in the region. |

| Table 5<br>Beyer Boulevard Consistency with the VPHCP and MSCP Subarea Plan | |
|---|---|
| MSCP Planning Policy and Design Guidelines | Consistency Discussion |
| 5. Roads in the MHPA will be limited to those identified in Community Plan Circulation Elements, collector streets essential for area circulation, and necessary maintenance/emergency access roads. Local streets should not cross the MHPA except where needed to access isolated development areas. | The proposed Beyer Boulevard is identified in the OMCP Mobility Element as a 4-Lane Major Arterial. This roadway is planned to provide a critical connection between Otay Mesa and San Ysidro and will be a publicly maintained road once constructed. Options were considered to reduce the roadway down to a fire road only; however, the City has determined the roadway is necessary for area circulation and requires two lanes in both directions for a functioning circulation system. Impacts to the MHPA from the roadway have been minimized to the maximum extent feasible. |
| 6. Development of roads in canyon bottoms should be avoided whenever feasible. If an alternative location outside the MHPA is not feasible, then the road must be designed to cross the shortest length possible of the MHPA in order to minimize impacts and fragmentation of sensitive species and habitat. If roads cross the MHPA, they should provide for fully-functional wildlife movement capability. Bridges are the preferred method of providing for movement, although culverts in selected locations may be acceptable. Fencing, grading and plant cover should be provided where needed to protect and shield animals, and guide them away from roads to appropriate crossings. | As part of the proposed Beyer Boulevard extension, the canyon bottom and associated ephemeral drainages have been avoided. The width of the proposed road right-of way has also been reduced from the original 104 feet to 53 feet as described in Table 4. A wildlife movement corridor (15 feet tall by 30 feet wide) has been included in the alignment design. Additionally, three 6-by-6-foot culverts will cross through the road providing additional access for small wildlife to cross. In order to avoid wildlife vehicular collisions, chain link fencing is proposed along the entire length of Beyer Boulevard, on both the north and south sides of the road, with openings to direct animals into the wildlife crossing and culverts. |
| 7. Where possible, roads within the MHPA should be narrowed from existing design standards to minimize habitat fragmentation and disruption of wildlife movement and breeding areas. Roads must be located in lower quality habitat or disturbed areas to the extent possible. | As detailed in this report, various roadway designs were considered to minimize impacts to the extent feasible. While the OMCP identifies the planned Beyer Alignment as a 4-lane Major Arterial, the project includes a modified 4-lane Major Arterial that reduces the overall right-of-way and mobility features in order to minimize impacts to sensitive resources. |
| Fencing, Lighting, and Signage:<br>1. Fencing or other barriers will be used where it is determined to be the best method to achieve conservation goals and adjacent to land uses incompatible with the MHPA. For example, use chain link or cattle wire to direct wildlife to appropriate corridor crossings, natural rocks/boulders or split rail fencing to direct public access to appropriate locations, and chain link to provide added protection of certain sensitive species or habitats (e.g., vernal pools). | Temporary orange fencing and silt fencing would be installed during construction to prevent unauthorized encroachment into the adjacent MHPA. Additionally, proposed wildlife fencing will also prevent unauthorized human access into the adjacent MHPA. Overall, the project is not expected to increase human or domestic animal access to the adjacent MHPA. Following construction, temporary fencing would be removed. |
| 2. Lighting shall be designed to avoid intrusion into the MHPA and effects on wildlife. Lighting in areas of wildlife crossings should be of low sodium or similar lighting. Signage will be limited to access and litter control and educational purposes. | All construction would occur during the day and would not require nighttime lighting. Lighting adjacent to MHPA will be required to comply with MHPA land use adjacency guidelines to ensure avoidance of lighting impacts to adjacent habitat. The project would include signage at the trail heads and where the project is adjacent to the MHPA for access control and/or educational purposes. |

# 6.0 References Cited

RECON Environmental, Inc. (RECON)

2021 Southwest Village Specific Plan Alternatives Analysis for Beyer Boulevard (RECON Number 8868). June 17.

2023 Biological Resources Report for the Southwest Village Specific Plan San Diego, California Project No. 614791. June.

San Diego, City of

2020 Otay Mesa Southwest Village – Beyer Boulevard Alternative Alignments Analysis. November 13.

# ATTACHMENTS

# ATTACHMENT A-1

## Geotechnical Investigation Excerpt on Landslide Deposits

### 3.3 Alluvium (Qal)

Alluvium exists in the bottom of the major drainages of Moody Canyon, and is anticipated to extend into smaller canyon tributaries. Exploratory trench excavations T-11, T-12 and T-13 and exploratory Boring LB-1A in the portion of Beyer Boulevard alignment crossing Moody Canyon encountered loose alluvial soils varying in thickness from 4 feet to greater than 10 feet. The alluvium generally consists of loose, porous light to dark brown very gravelly sands.

Although no exploratory excavations have been conducted in the drainages within the subdivision area, previous investigations in the Otay Mesa area indicate that alluvial deposits in tributary canyons can be on the order of 15 to 20 feet thick. Alluvial soils are porous and compressible, and will require removal and recompaction.

### 3.4 Topsoil (unmapped)

A relatively thin layer of topsoil (typically on the order of 1 to 2 feet in thickness) blankets the natural mesa surface and is generally comprised of stiff, humid to damp, dark brown sandy clay or silty sand. The topsoil is compressible in its present condition and will require removal and recompaction within areas of planned development.

### 3.5 Landslide Debris (Older with symbol Qls1 and Younger with symbol Qls2)

A deep-seated landslide complex (Qls1) has been identified along the western and southern mesa rim by Tan (1995), the City of San Diego Seismic Safety Element (2008, Sheets 2 and 3) and by this study (see Geologic Map, Figures No. 2 through 6). This landslide complex, also known as the *San Ysidro Landslide*, is located west of the property and partially extends across the proposed Beyer Boulevard alignment. Large-diameter exploratory borings were performed along the mesa rim during previous field investigations to establish the position of the landslide headscarp. Two of these borings are located within or adjacent to the Vesting Tentative Map area. A third boring is located adjacent to the northwest corner. Additional borings were performed outside of the VTM covered by this study.

After down-hole logging of each boring by an engineering geologist, all borings, without exception, were found to have encountered an intact, approximately horizontal succession of sedimentary strata. In general, the borings encountered Pleistocene-age Terrace Deposits underlain by Tertiary-age San Diego Formation and Otay Formation. This stratigraphic sequence and structure is very similar in elevation and location to that described in the same area by Kennedy and Tan (1977) and Tan (1995). Boring locations and the headscarp of the landslide were field surveyed to determine the precise



location of the landslide with respect to the proposed development setback limit line. The surveyed location of the landslide headscarp is shown on the Geologic Map (Figure 2, Map Pocket).

Down-hole logging indicated massive to horizontal, or approximately horizontal bedding within the sedimentary units. Bedding plane shears, clayseams, adversely oriented fractures, continuous jointing or fracturing were not encountered in any of the borings.

In our opinion, landslides or landslide-related geologic structures should not adversely impact the proposed subdivision east of the headscarp of the San Ysidro landslide. However, due to the relatively steep headscarp, a 50-foot development setback is recommended to provide a buffer zone in the event that surficial sloughages occur.

With respect to Beyer Boulevard extension, additional borings were performed along the roadway extension alignment to verify the position of the primary landslide backscarp of the San Ysidro Landslide (Older, with symbol Qls1) and to outline other secondary landslides (Younger, with symbol Qls2), scarps, or any slide-related shear zones that could impact proposed cut slopes (see Geologic Map, Figures 2 and 3 and Geologic Cross-sections on Figures 7 through 10). After down-hole logging of each large-diameter boring and logging of exploratory trenches by an engineering geologist, Borings LB-1A, LB-3A through LB-10A, Trenches T-3A through T25A, and Trench T-27A were found to have encountered landslide debris (see Geologic Map and Geologic Cross-sections A-A' through I-I').

Exploratory Trenches T-4A, T-10A, and T-20A and possibly large-diameter Borings LB-4A and LB-9A encountered the principal (or primary) backscarp fissure and/or basal slip-surfaces of the San Ysidro Landslide complex (see trench and boring-logs in Appendix B). The backscarp fissure encountered in the trenches strikes approximately N40W and dips from 50 to 70 degrees to the southwest, separating undisturbed Pleistocene-age and Tertiary-age formations on the east from fractured and rotated formational blocks of landslide-debris on the west (see Geologic Map and Geologic Cross-sections A-A' and C-C', map pocket). The backscarp fissure is very irregular in width, varying from approximately 12 inches in Trench T-4A to 30 inches in Trench T-10A and has been in-filled mostly by pebbles and cobbles. There is also a pronounced darker (secondary) reddish-brown iron oxide staining (epigenetic cementation) in the fissure immediately east (up-section) in undisturbed Pleistocene terrace deposits. Since there is no shearing or displacement of the oxide coatings in the footwall (or hanging wall) of the fissure, which suggests little or no recent movement of the San Ysidro Landslide; this is because it takes a very long time for such epigenetic oxide rinds to form in arid climates (over 10,000 years according to Birkeland, 1984). This is also suggested by Geocon, in a previous investigation where horizontally-bedded fluvial terrace deposits and the Bay Point Formation were deposited against tilted blocks of the San Ysidro Landslide (Geocon, 2001).



Additional borings (second field investigation phase for Beyer Boulevard performed in January 2006) drilled through landslide remnants and basal slip-surfaces within Beyer Boulevard were of significant help in understanding regional stratigraphy of the bentonitic zones that provided the failure-surfaces at the base of the San Ysidro landslide complex. Elevations of the top of the lowest bentonite zone taken from 4 different borings (this included two borings on other projects thousands of feet offsite to the south) that bracket the central portion of the landslide, were used to calculate strike and dip. Possible 3-point problem combinations indicated strike that varied from approximately N85 degrees E to N63 degrees W; dips varied from approximately 3 degrees to 5 degrees dip in either a southeastern or southwestern direction. Average strike was calculated at N80W with a dip of 4 degrees southwest. The main channel of the Tijuana River nearly parallels the strike and likely undercut the bentonite (adversely dipping southward out of the channel slope) 5,000 to 10,000 years ago, or older, during the last major sea level fluctuations (K. R. Lajoie, J.P. Kern, *et al.*, 1979, in item No. 2, *List of References*).

Some geologic studies within the Otay Mesa area have interpreted the backscarp of the San Ysidro Landslide as a possible fault. There is no evidence of compression or extensive shearing due to tectonic faulting, or any definite correlatable strata indicating total displacement. However, in Trench T-4A that extends across the backscarp, the western landslide-block has a cap of gravelly clay juxtaposed against the scarp-fissure and the approximately horizontal Terrace Deposit Gravel (Lindavista Formation). If the clayey layer represents the bottom of the thick Terrace Deposit Clay (also equivalent to the Lindavista Formation) typically capping the Otay Mesa not far to the east, the vertical slide-displacement could exceed 50 feet). Subsequent to Kennedy and Tan (1977), after physical testing via trenching (where Trenches T-4A and T-10A define the character and linearity of the backscarp fissure) and still other geological investigations such as those of Michael J. Hart (1977, after the Kennedy-Tan mapping), whose study and paper, *Landsliding, And Alternative to Faulitng in San Ysidro, California*, in item No. 10, *List of References*). provide confirmation of this opinion. There may be local occurrences of ancient inactive or potentially active faults that strike northwest-to southeast within the Pliocene-age Otay Formation, but there is no direct evidence of coincidence of these ruptures with the scarps within the landslide debris.

Linear strike-measurements of the primary backscarp fissure of the San Ysidro Landslide encountered in exploratory Trenches T-4A and T-10A compares closely to the proximity and trend of the nearby linear bluff along the west edge of Otay Mesa, as well as linear trends in the same area observed in aerial stereo-photographs and the City of San Diego Seismic Safety Study maps. Extension of the strike-direction of the backscarp-fissure crosses the proposed Beyer Boulevard alignment between Stations 21+00 and 23+00. The proposed 80- to 100-foot-high cuts will likely expose highly fractured and weathered landslide debris in the areas of the alignment to the west of Station 25+00. This condition will require remedial grading in the form of stability fills and



associated keyways westward to approximately Station 13+00 (see Geologic Cross-Sections A-A', B-B', C-C' and D-D'). Based on information obtained from our second phase of field investigation, the roadway in the vicinity of Cross-Section A-A' was shifted northward to enable the entire roadway being beyond the mapped backscarp of the San Ysidro landslide. Based on the northward roadway shift and construction of the stability fills, the proposed roadway alignment in the area of the backscarp should be stable.

The mapped location of the San Ysidro Landslides (mapped as Qls1, designating older landslide debris) is shown on the Geologic Maps (Figures 2 and 3). Geologic cross sections (A-A' through J-J', Figures 7 through 10) depict geologic profiles based on interpretation of subsurface data.

Relatively shallow secondary landslides along the alignment will require remedial measures in the form of removal and recompaction. Because of the typically complex structure of the landslide debris, final design and/or modification of as-graded remedial excavations would depend on the observations of our engineering geologist during grading. A summary of remedial slope recommendations is presented in the *Conclusions and Recommendations* section of this report.

It is known that late in Pleistocene time, approximately 200,000 years ago, Sea Level began to lower, dropping 100 feet or more, below present Sea Level by about 150,000 years ago (K. R. Lajoie and J. P. Kern, 1979). This would have caused the ancient Tijuana River drainage to incise through a widespread coastal pediment (pre-Otay Mesa), and undercut weak bentonite layers in the Pliocene-age Otay Formation siltstones. This was an unusually large Sea Level fluctuation that could have initiated the failure of the main body of the San Ysidro landslide (Qls1, undercutting exposed out of slope dipping weak bentonite zones). After this, there was an equally rapid rise in Sea Level over about 50,000 years that allowed deposition of Quaternary-age fluvial and shallow marine deposits of the Bay Point Formation against the toe of the main landslide blocks. In addition, a whole succession (up to about 9) of terrace deposits may have been incised into the rotated blocks of Qls1 (K. R. Lajoie and J. P. Kern, *et al.*, 1979). Later still, after a Holocene Sea Level drop, Moody Canyon was incised through the previously eroded Qls1 and a zone of thin, interbedded bentonite beds in the Otay Formation siltstone member. The erosion of Moody Canyon undercut both the remnant Qls1 and at least two bentonitic layers, causing the secondary landslide movements. Erosion, however, has removed most of the landslide debris (both Qls1 and Qls2) on the south side of Moody Canyon (see Geologic Cross Sections B-B', D-D', G-G', H-H', I-I', and J-J'). Wedges of Qls1 that dip away from the proposed Beyer Boulevard cuts to the south can be mitigated with stability fills above and/or buttressing. Based on all this information, it is the opinion of Geocon Incorporated that the primary mechanism for failure of the landslides is associated with Sea Level changes (and base-levels) resulting in canyon erosion that undercut bentonite layers in the Otay Formation.

# ATTACHMENT A-2

## Geotechnical Constraints Letter and Landslide Exhibit

GEOCON
INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. 06847-42-05
February 22, 2022

Tri Point Homes
13400 Sabre Springs Parkway, Suite 200
San Diego, California 92128

Attention: Mr. Jimmy Ayala

Subject: OPINION REGARDING THE FEASIBILITY OF ROADWAY RELOCATION
SOUTHWEST VILLAGE
PROPOSED BEYER BOULEVARD STATION 9 THROUGH 53
SAN YSIDRO, CALIFORNIA

Dear Mr. Ayala,

We have prepared this correspondence to provide our opinion regarding the feasibility of relocating the currently proposed alignment of future Beyer Boulevard, that is planned from Station 9 through 53, which would provide access to the proposed Southwest Village project. Specifically, we understand that County of San Diego is requesting documentation as to the feasibility of shifting the right-of-way from its presently proposed location in order to fully avoid the Furby-North Preserve. The map attached shows the preserve, proposed road alignment, and landslide areas. The landslide areas are highlighted in yellow.

The Southwest Village development is planned in the vicinity of geologically complex terrain. The San Ysidro Landslide is located adjacent to the project footprint and has been the topic of academic research since the early 1970's. This feature is one of the largest landslides in San Diego County and is recognized as a "type location" for the study of large-scale block-glide ground failures. Our recent exploration revealed that the landslide thickness adjacent to the proposed project is 400 feet and the overall slide mass encompasses at least 300 acres. The currently proposed Beyer Boulevard alignment has been selected to primarily follow a spine of bedrock along the northwest flank of the main landslide complex, which would avoid creating slope instability of the overall slide mass.

If the alignment of Beyer Boulevard is shifted southeast onto the San Ysidro Landslide Complex, portions of the alignment will not meet industry standards with respect to slope stability and will not be approved by the local jurisdiction unless significant mitigation is applied, which to our knowledge would be heavy significant and costly. In addition, embankments required to grade the road would lower the overall stability of the landslide that extends beneath the adjacent developed portions of San Ysidro. Due to its size and multiple property ownerships, it is our opinion that it will be economically and geotechnically infeasible to mitigate the slide to achieve an acceptable factor of safety. Our opinion is supported by that fact that any repair techniques would require encroachment/easements on multiple properties and the elevation of the ground water table along the southwestern slide margin precludes implementation of conventional geotechnical mitigation procedures.



If the alignment of Beyer Boulevard is shifted north of its currently proposed location, embankments required to construct the roadway will be underlain by a series of landslides and bedrock shear zones that comprise the north-facing slope of Moody Canyon. To mitigate the instability resulting from these features will require infilling portions of Moody Canyon to buttress the weak zones since they toe-out near the drainage at the base of the slope. This mitigation technique would be prohibited due to the environmentally sensitive nature of the drainage area.

In summary, our recent and previous geotechnical studies have focused on avoiding the geologic hazards associated with the San Ysidro Landslide Complex and Moody Canyon landslide features. It is our opinion that relocation of the currently proposed alignment of Beyer Boulevard either northward into Moody Canyon, or southward onto the San Ysidro Landslide Complex, will lower the overall stability of the slides and create a significant risk for the roadway and adjacent properties. It is also our opinion that analyzing and mitigating these conditions will be economically, environmentally and geotechnically infeasible.

If you have any questions regarding this correspondence, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

David B. Evans
CEG 1860

Rodney C. Mikesell
GE 2533

DBE:RCM:am

(e-mail) Addressee

PROFESSIONAL GEOLOGIST
DAVID B. EVANS
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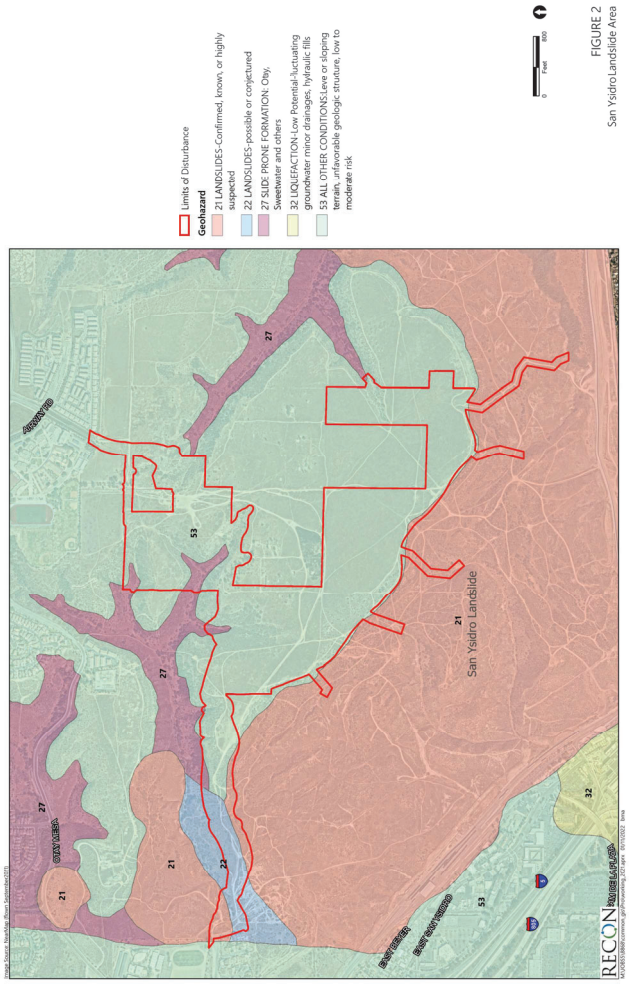
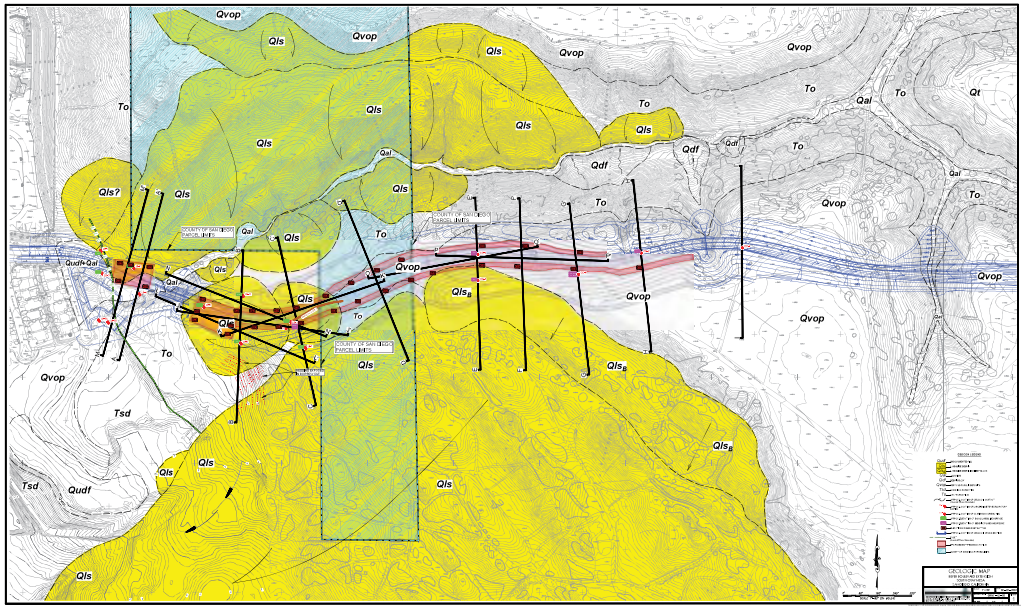
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
RODNEY C. MIKESELL
No. 2533
GEOTECHNICAL
STATE OF CALIFORNIA



# Landslide Area Exhibits

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# ATTACHMENT B

## Transportation Assessment for Old Otay Mesa Road Alternative

**LOS Engineering, Inc.**
**Traffic and Transportation**

**DRAFT**

11622 El Camino Real, Suite 100, San Diego, CA 92130
Phone 619-890-1253, Email: Justin@LOSengineering.com

November 4, 2022

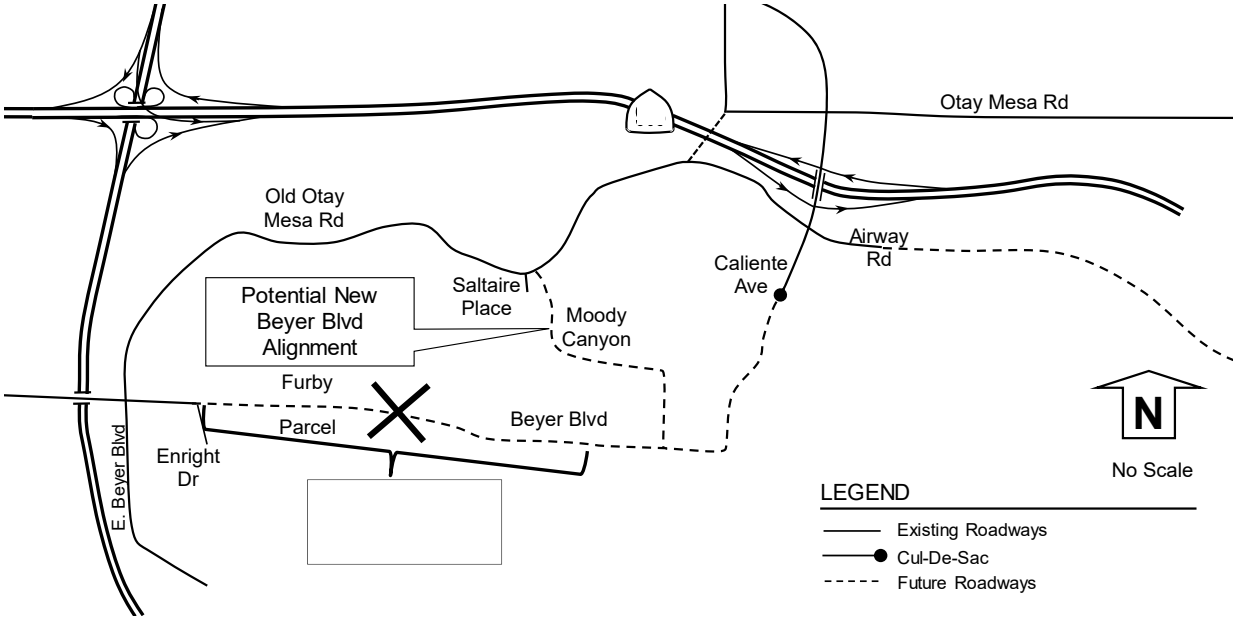
Ms. Ann Gonsalves, P.E.
City of San Diego
1222 First Ave, MS 501
San Diego, CA 92101

SUBJECT: Beyer Blvd Traffic Shift to Old Otay Mesa Rd Operational Assessment

Dear Ms. Gonsalves:

The purpose of this assessment is to provide an overview of potential operational roadway and multi-modal challenges if the currently adopted Otay Mesa Community Plan Update Beyer Blvd alignment between San Ysidro and Caliente Ave would be modified to avoid crossing the Furby parcel to avoid sensitive habitat. The potential alignment change is the shift the Beyer Blvd extension westerly from Caliente Ave to a northerly direction crossing what is known as Moody Canyon to connect with Old Otay Mesa Road in the vicinity of Saltaire Place as shown in **Figure 1**.

**Figure 1: Potential Beyer Blvd Realignment**



SEGMENT LEVEL OF SERVICE ALONG OLD OTAY MESA ROAD

A segment Level of Service (LOS) was calculated using the Otay Mesa Community Plan Update Horizon Year 2062 Alternative 3B volumes to match the current community plan alignment of Beyer Blvd. If Beyer Blvd alignment is shifted and connected to Old Otay Mesa Rd as shown in Figure 1, then the Beyer Blvd 31,000 ADT would be moved to Old Otay Mesa Rd. The Horizon Year 2062 volume for Old Otay Mesa Rd is 16,000 ADT. Otay Mesa CPU TIA excerpts documenting the Horizon Year 2062 volumes are included in **Attachment A.** Adding the shifted Beyer Blvd 31,000 ADT and the existing 16,000 ADT on Old Otay Mesa Rd results in a total of 47,000 ADT on Old Otay Mesa Rd. Old Otay Mesa Rd with a realignment of Beyer Blvd is calculated to operate at LOS F with a significant Volume to Capacity Ratio (V/C) of 5.8 times the roadway capacity as shown in **Table 1**.

**Table 1: Horizon Year 2062 Segment LOS**

| Segment | Functional Capacity | LOS E Capacity | Horizon Year 2062 Daily Volume | V/C | LOS |
|---|---|---|---|---|---|
| Community Plan Update | | | | | |
| Old Otay Mesa Rd | 2 Lane Collector | 8,000 | 16,000 | 2.000 | F |
| Beyer Blvd | 4 Lane Major | 40,000 | 31,000 | 0.775 | D |
| With Realignment of Beyer Blvd | | | | | |
| Old Otay Mesa Rd | 2 Lane Collector | 8,000 | 47,000* | 5.875 | F |
| Beyer Blvd | 4 Lane Major | | Connection Removed | | |

Notes: 4U+TWLTL = 4 un-divided lanes + two way left turn lane. Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity Ratio. *Addition of 16,000 and 31,000 from above.

The improve the LOS to acceptable levels, Old Otay Mesa Rd will need to be widened. Widening to a 4 Lane Major results in LOS F at 1.175 V/C while widening to a 6 Lane Prime results in an acceptable LOS C as shown in **Table 2**.

**Table 2: Old Otay Mesa Rd Horizon Year2062 Segment LOS with Improvements**

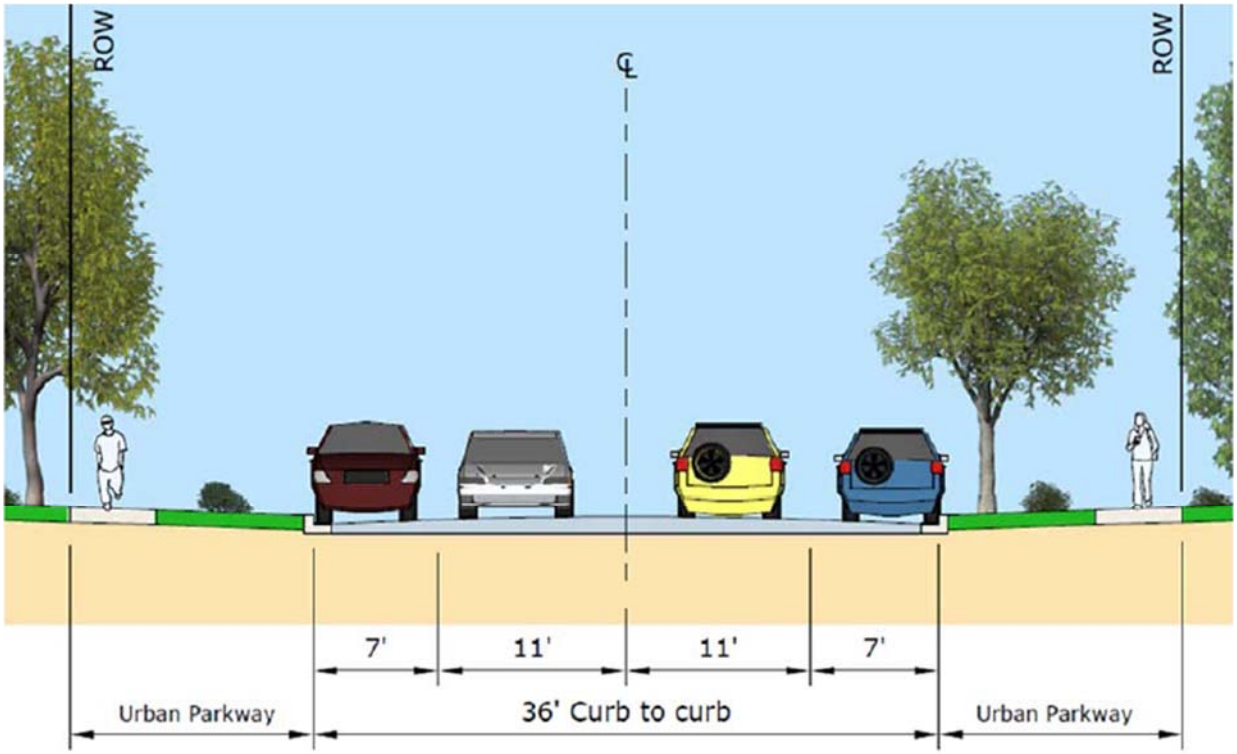
| Segment | Functional Capacity | LOS E Capacity | Horizon Year 2062 Daily Volume | V/C | LOS |
|---|---|---|---|---|---|
| With Realignment of Beyer Blvd | | | | | |
| Old Otay Mesa Rd | 2 Lane Collector | 8,000 | 47,000* | 5.875 | F |
| Old Otay Mesa Rd | 4 Lane Major | 40,000 | 47,000* | 1.175 | F |
| Old Otay Mesa Rd | 6 Lane Prime Arterial | 60,000 | 47,000* | 0.783 | C |

Notes: 4U+TWLTL = 4 un-divided lanes + two way left turn lane. Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity Ratio. *Addition of 16,000 and 31,000 from above.

An alternative arterial analysis can be applied to some types of roadways as a supplemental analysis to the segment capacity analysis noted above. An arterial analysis was applied to Beyer Blvd between Enright Dr and West Ave to support a 2-lane configuration only because the study section has no intermediate driveways or intersections. An arterial analysis cannot be applied in the same manner to Old Otay Mesa Road because there are multiple driveways and intersections along Old Otay Mesa Rd.

CITY OF SAN DIEGO ROADWAY SPECIFICATIONS

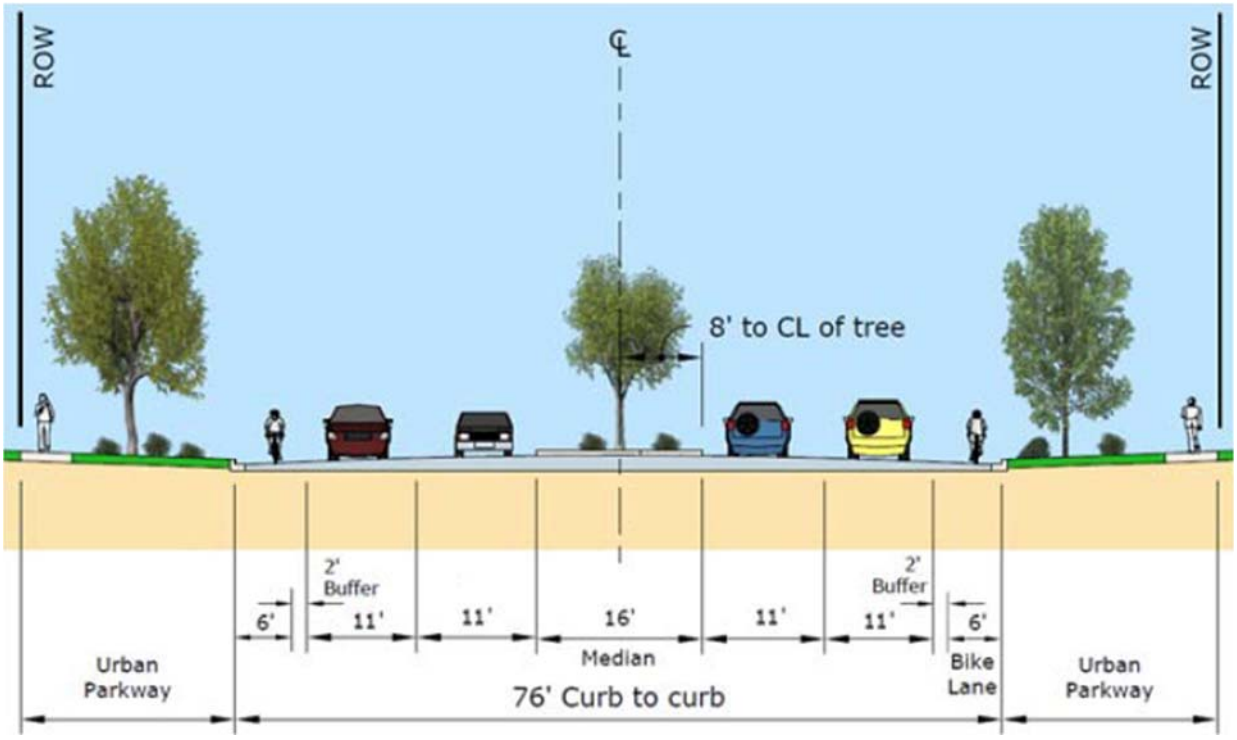
Old Otay Mesa Rd is classified as a 2 Lane Collector. The City of San Diego *Street Design Manual*, March 2017 documents the following Right-Of-Way (ROW) and design requirements for a 2 Lane Collector.




| | |
|---|---|
| **Width, Right-of-Way**<br>**(with added bike lanes)** | 60 ft. – 86 ft.<br>70 ft. – 96 ft. |
| **Design ADT**<br>**LOS C**<br>**LOS D** | <br>5,000<br>6,500 |
| **Design Speed** | 30 mph |
| **Width, Curb-to-Curb**<br>**(with added bike lanes)** | 36 ft.<br>46 ft. |
| **Maximum Grade** | 10% (8% in commercial area) |
| **Minimum Curve Radius** | 500 ft. above 6% grade<br>450 ft. at or below 6% grade |
| **Land Use**<br><br>**Parkway Options** | Large Lot Single Dwelling Residential – no front yards, Single Dwelling Residential – no front yards, Low Density Multiple Dwelling Residential – no front yards, Open Space-Park<br>Urban Parkway Configurations see Figure 5–3, 5–4 |
| **Land Use**<br>**Parkway Options** | Commercial, School, Church, or Public Building<br>Urban Parkway Configurations see Figure 5–6 through 5–9 |

Source: Page 1-19 City of San Diego *Street Design Manual*

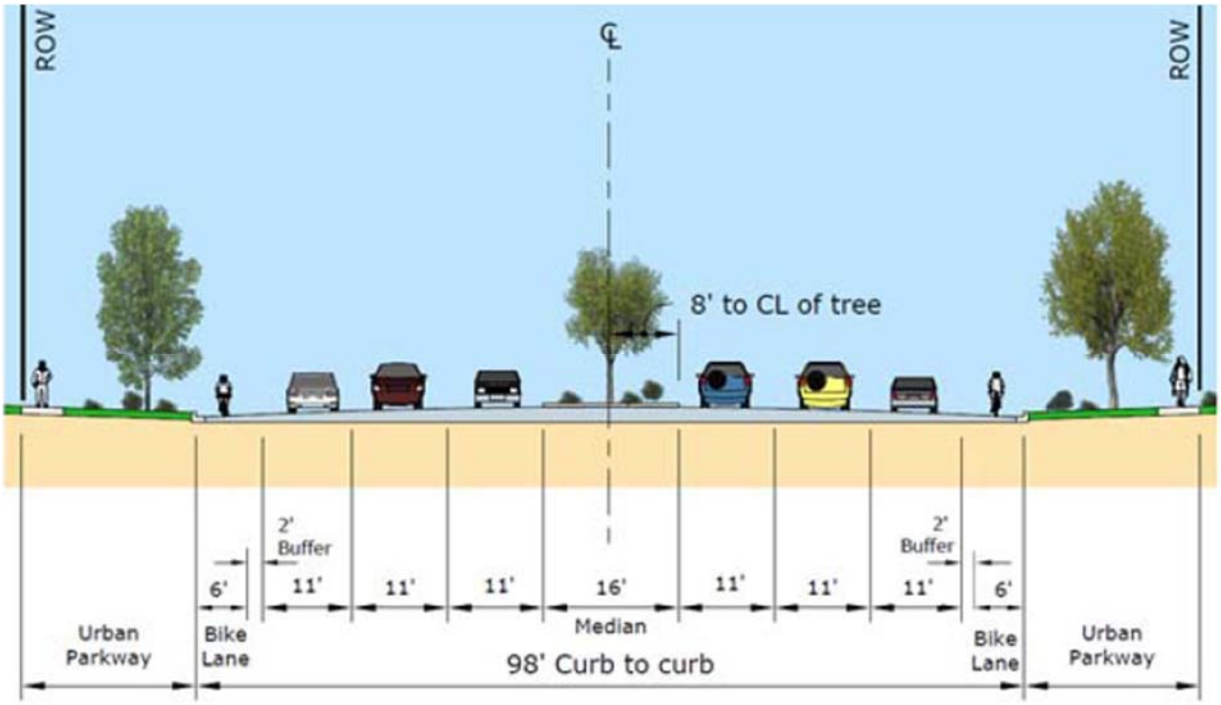
A 4 Lane Major would not provide adequate capacity and would operate at LOS F to support 47,000 ADT. The City of San Diego *Street Design Manual*, March 2017 documents the following ROW and design requirements for a 4 Lane Major.




| | |
|---|---|
| **Width, Right-of-Way** | 120 ft. |
| **Design ADT**<br>LOS C<br>LOS D | <br>30,000<br>35,000 |
| **Design Speed** | 55 mph |
| **Width (includes bike lanes and 16 ft. raised center median), Curb-to-Curb[1]** | 76 ft. |
| **Maximum Grade** | 7% |
| **Minimum Curve Radius** | 1,850 ft. with no superelevation<br>1,350 ft. with 2% (min.) superelevation<br>880 ft. with 10% (max.) superelevation |
| **Land Use** | Single Dwelling Residential – no front or side yards, Multiple Dwelling Residential – no front or side yards, Community Commercial – no front yards, Regional Commercial, Commercial Office, Visitor Commercial, Church, Public Building, Industrial, Open Space |
| **Parkway Options** | Urban Parkway Configuration see Figure 5–5 |

Source: Page 1-29 City of San Diego *Street Design Manual*

A 6 Lane Prime Arterial is required for acceptable LOS to support 47,000 ADT. The City of San Diego *Street Design Manual*, March 2017 documents the following ROW and design requirements for 6 Lane Prime Arterial.




| | |
|---|---|
| **Width, Right-of-Way** | 142 ft. |
| **Design ADT**<br>LOS C<br>LOS D | <br>50,000<br>55,000 |
| **Design Speed** | 55 mph |
| **Width (includes bike lanes and 16 ft. [raised center median), Curb-to-Curb[1]** | 98 ft. |
| **Maximum Grade** | 6% |
| **Minimum Curve Radius** | 1,850 ft. with no superelevation<br>1,350 ft. with 2% (min.) superelevation<br>880 ft. with 10% (max.) superelevation |
| **Land Use** | Large Lot Single Dwelling Residential – no front or side yards, Single Dwelling Residential – no front or side yards, Multiple Dwelling Residential – no front or side yards, Community Commercial – no front yards, Regional Commercial, Commercial Office, Visitor Commercial, Church – no front yards, Public Building – no front yards, Industrial – no front yards, Open Space |
| **Parkway Options** | Urban Parkway Configuration see Figure 5–5 |

Source: Page 1-33 City of San Diego *Street Design Manual*

A comparison of the design requirements for the different roadways is shown in **Table 3**.

**Table 3: Roadway Design Elements**

| Roadway Classification | ROW | Design Speed | Max Grade | Minimum Curve Radius |
|---|---|---|---|---|
| 2 Lane Collector | 60 to 96 ft | 30 MPH | 10% | 500 ft above 6% grade<br>450 ft at or below 6% grade |
| 4 Lane Major | 120 ft | 55 MPH | 7% | 1,850 ft with no superelevation<br>1,350 ft with 2% superelevation<br>880 ft with 10% superelevation |
| 6 Lane Prime Arterial | 142 ft | 55 MPH | 6% | 1,850 ft with no superelevation<br>1,350 ft with 2% superelevation<br>880 ft with 10% superelevation |

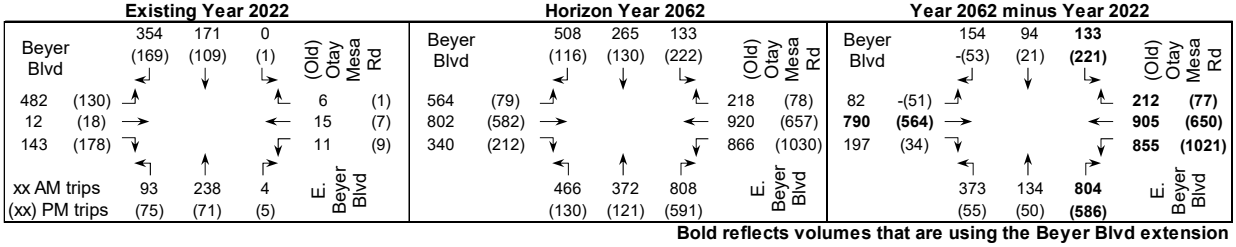
Source: City of San Diego *Street Design Manual* , March 2017

OLD OTAY MESA RD AT BEYER BLVD INTERSECTION VOLUMES

In addition to a redistribution of segment volumes, the intersection of Old Otay Mesa Rd at Beyer Blvd will see a significant change in traffic patterns that will significantly change the balance of intersection volumes and will require significant widening on the north leg to accommodate the volume shift.

The existing intersection volumes at Old Otay Mesa Rd/Beyer Blvd reflect a dead-end Beyer Blvd at Enright Dr. The CPU Horizon Year 2062 volumes reflect the extension of Beyer Blvd between Enright Dr in San Ysidro and Caliente Ave in Otay Mesa. **Figure 2** shows the existing, horizon year 2062, and the difference between the two volume sets.

**Figure 2: Existing, Horizon Year, and Difference in AM & PM Peak Hour Volumes**

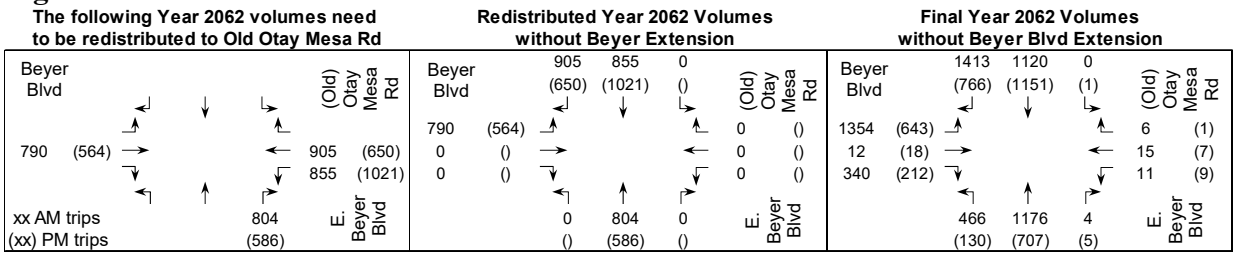



**Bold reflects volumes that are using the Beyer Blvd extension**

As shown above, the volumes from Year 2062 minus Year 2022 show a large increase as shown in bold that are using the Beyer Blvd extension. The eastbound through volumes will be redirected to eastbound left turns to Old Otay Mesa Rd. The westbound through volumes will be redirected along Old Otay Mesa Rd and become southbound right turns. The northbound right turn volumes will be redirected to northbound through volumes. The westbound left turn volumes will be redirected along Old Otay Mesa Rd and become southbound through volumes. The southbound lefts and westbound rights will no longer be required to go through this intersection as they will have been shifted to Old Otay Mesa Rd east of this location.

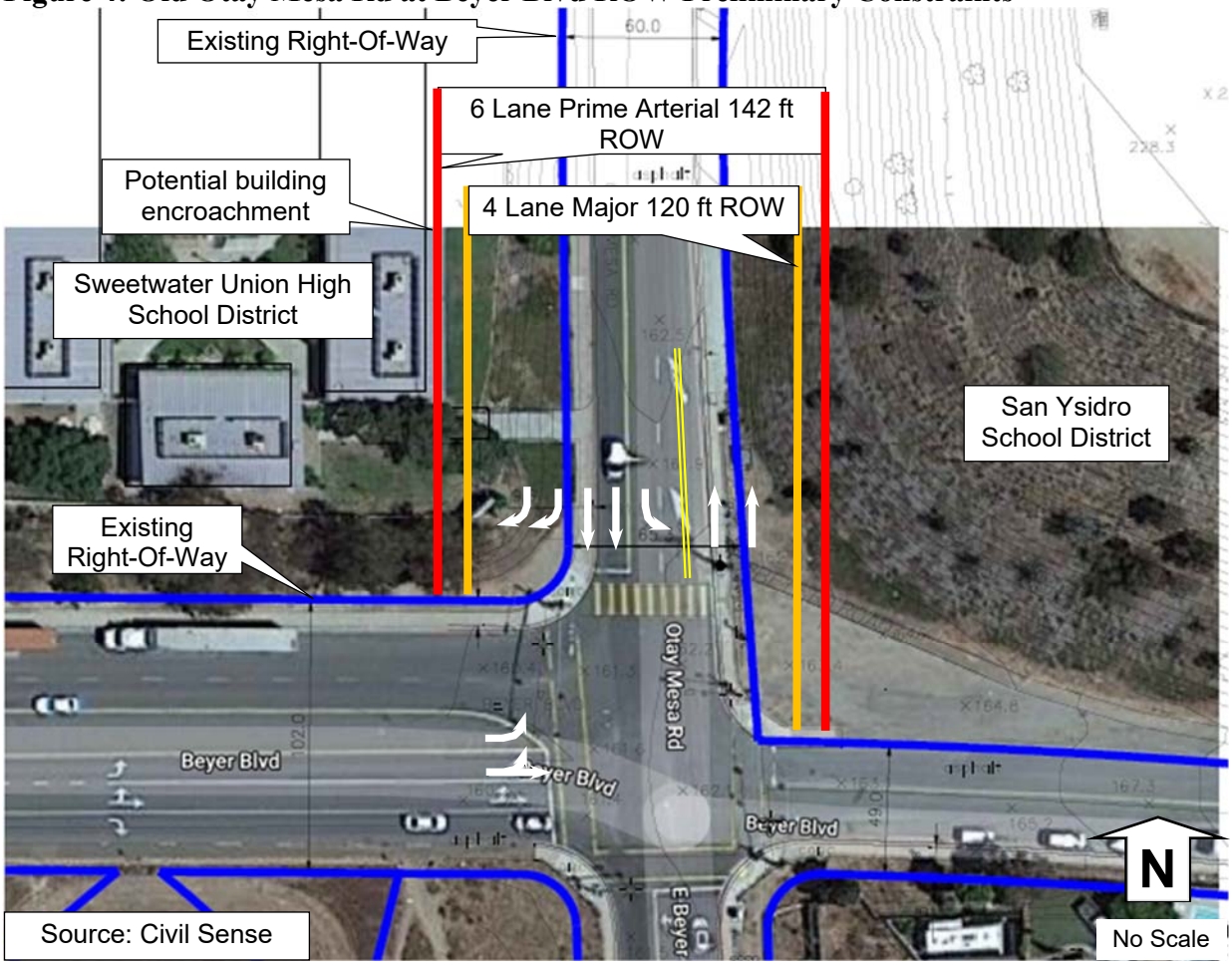
The redistributed Year 2062 volumes as described above will be added to the non-redistributed Year 2062 volumes. Existing 2022 volumes will represent the movements to/from the Beyer Blvd dead-end section. The background year 2062 volumes, redirected year 2062 volumes, and existing year 2022 Beyer Blvd dead-end section volumes are shown in **Figure 3**.

**Figure 3: Final Year 2062 Shifted Volumes**




As shown in the right square above, the horizon year 2062 volumes are no longer balanced resulting in a significant increase of turn moves between eastbound Beyer Blvd and southbound Old Otay Mesa Rd. These unbalanced volumes will require dual southbound right turn lanes and dual eastbound left turn lanes that will require additional ROW as shown in **Figure 4**.

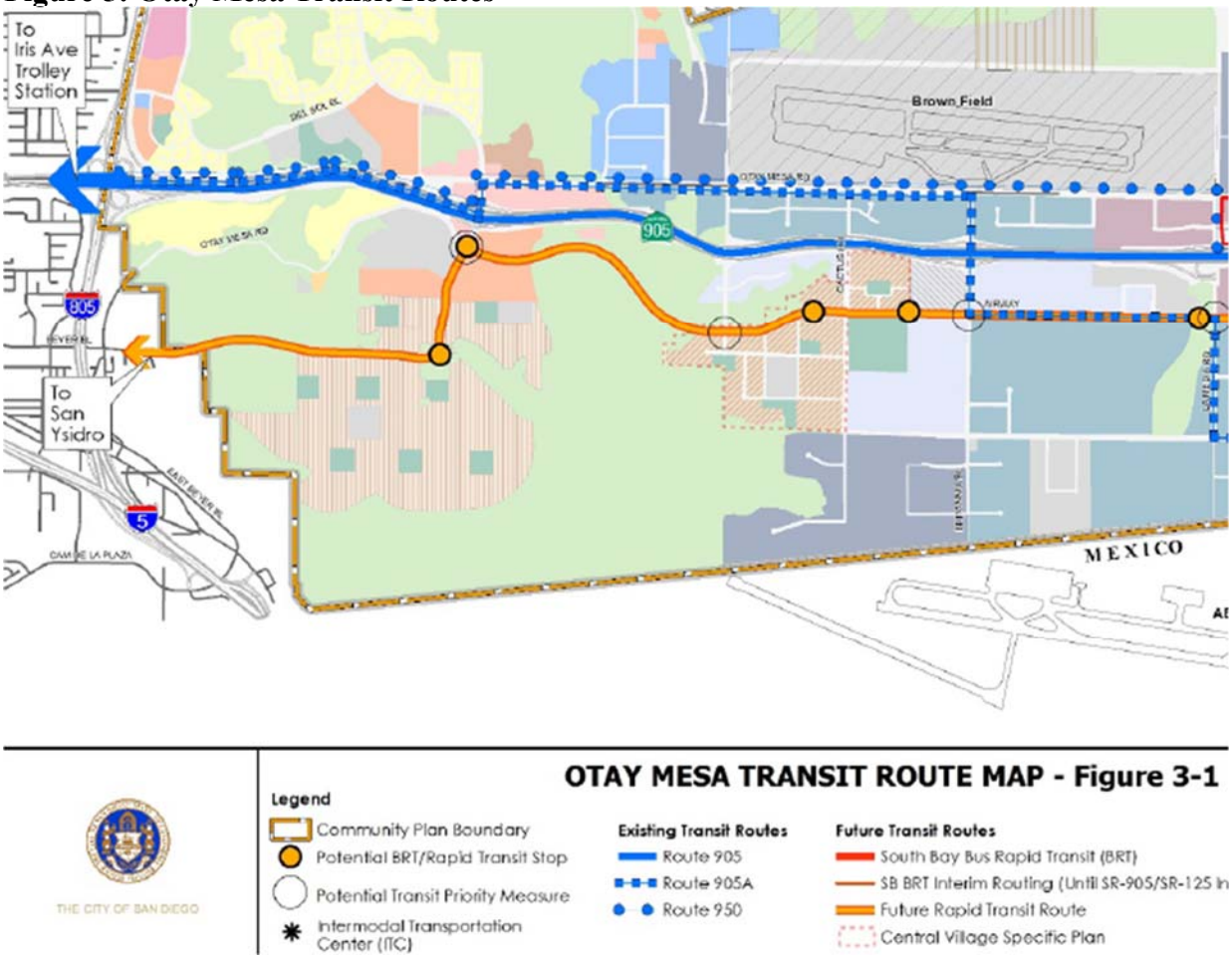
**Figure 4: Old Otay Mesa Rd at Beyer Blvd ROW Preliminary Constraints**



FUTURE TRANSIT ROUTES

The Otay Mesa Community Plan Update has a proposed future rapid transit route along the existing Beyer Blvd alignment. Altering the community plan Beyer Blvd alignment will result in the Metropolitan Transit System having to change their planned future rapid bus routes along the Beyer Blvd extension. The Otay Mesa Community Plan Update future transit route is shown in **Figure 5**.

**Figure 5: Otay Mesa Transit Routes**

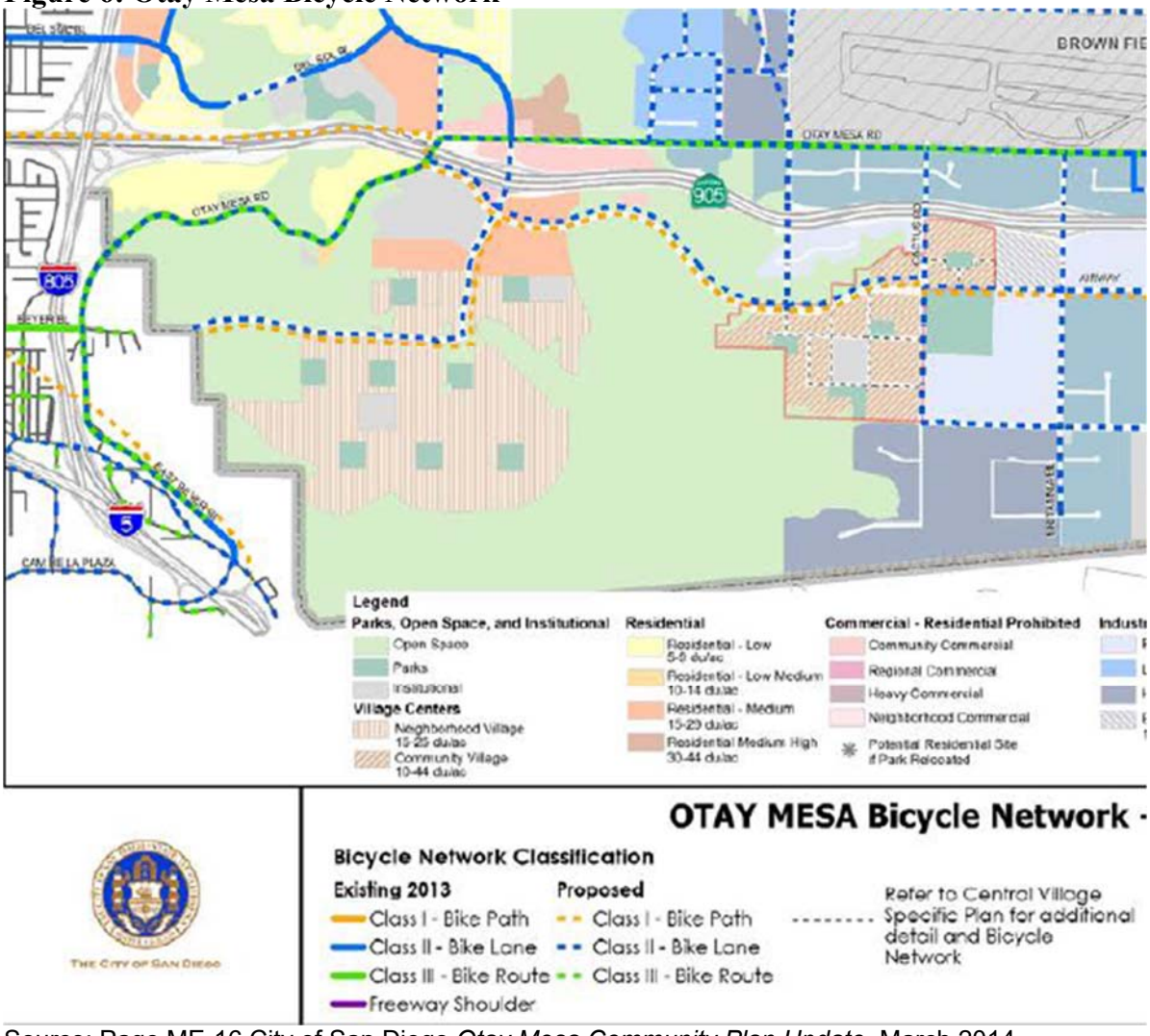



Source: Page ME-6 City of San Diego *Otay Mesa Community Plan Update,* March 2014.

FUTURE BICYCLE NETWORK

The Otay Mesa Community Plan Update has a proposed bike network along the existing Beyer Blvd alignment. Altering the community plan Beyer Blvd alignment will result in a more circuitous bike route to/from San Ysidro. The Otay Mesa Community Plan Update future bicycle network is shown in **Figure 6**.

**Figure 6: Otay Mesa Bicycle Network**




Source: Page ME-16 City of San Diego *Otay Mesa Community Plan Update,* March 2014.

FUTURE TRAILS MAP

The Otay Mesa Community Plan Update has a proposed sidewalk connection along the existing Beyer Blvd alignment. Altering the community plan Beyer Blvd alignment will result in a more circuitous sidewalk route to/from the trailhead at Beyer Blvd/Old Otay Mesa Rd. The Otay Mesa Community Plan Update future trails map is shown in **Figure 7**.

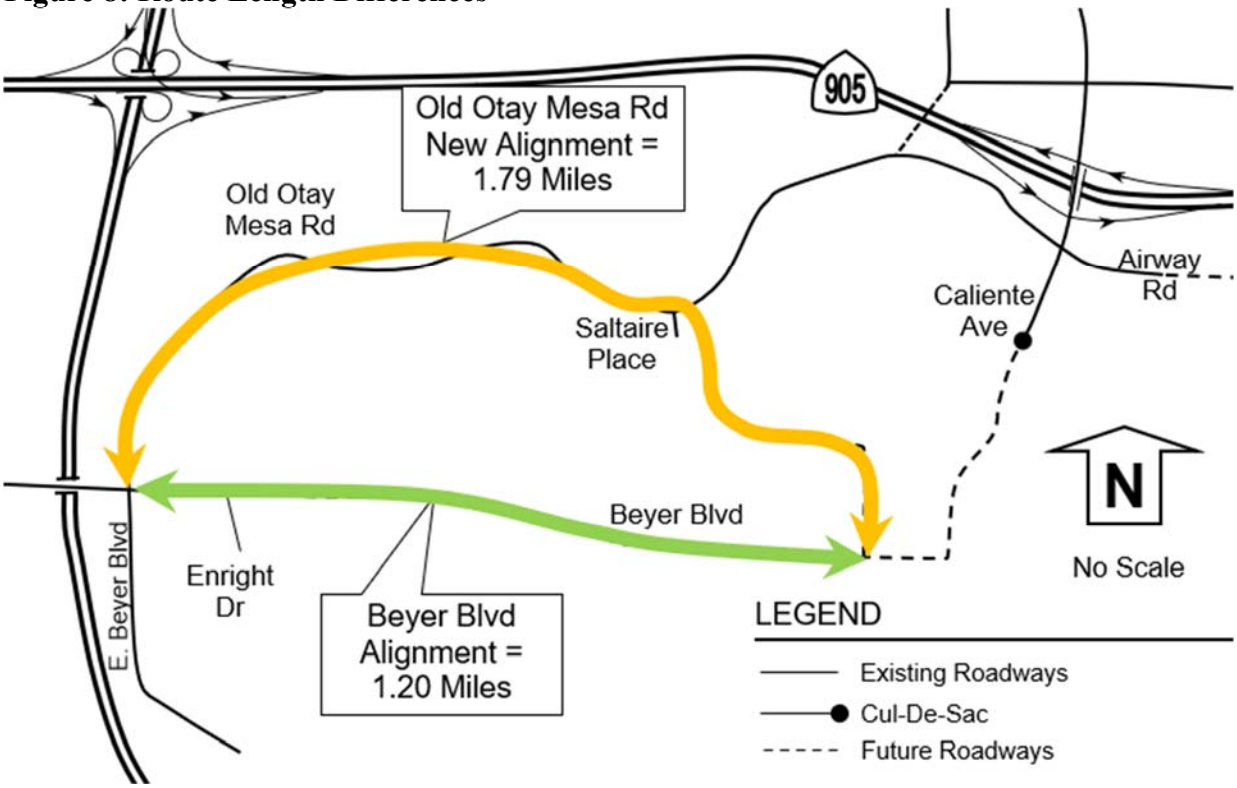
**Figure 7: Otay Mesa Trails Network**

Source: Page RE-10 City of San Diego *Otay Mesa Community Plan Update,* March 2014.

VEHICLE MILES TRAVELED

Vehicle Miles Traveled (VMT) is calculated by taking the Average Daily Traffic (ADT) volume and multiplying by the length of the roadway in miles. Eliminating Beyer Blvd will increase VMT because using Old Otay Mesa Road is a longer route as shown in **Figure 8**.

**Figure 8: Route Length Differences**




Creating a longer route such as using Old Otay Mesa Rd will increase the weekday VMT as shown in **Table 4**.

**Table 4: VMT Increase without Beyer Blvd Alignment**

| Horizon Yar ADT | Length in Miles | VMT (ADT x Length) |
|---|---|---|
| 31,000 | 1.20 | 37,200 |
| 31,000 | 1.79 | 55,490 |
| **Daily VMT Increase using Old Otay Mesa Rd** | | **18,290** |
| **Annual (260 workdays) VMT Increase** | | **4,755,400** |

As shown above, there will be an annual weekday increase of 4,755,400 VMT if the Beyer Blvd alignment is removed. The above ADT forecast is only for weekdays, thus the total annual VMT increase will be higher because a weekend ADT forecast is not available.

CONCLUSION

If the Otay Mesa Community Plan Update Beyer Blvd alignment is shifted north and connected to Old Otay Mesa Rd, then there would be a significant addition of traffic to Old Otay Mesa Rd with the following effects:

1) Widening Old Otay Mesa Road to a 4 Lane Major (LOS F) or a 6 Lane Prime (LOS C) would result in a large footprint of disturbance and potential adverse environmental effects,

2) The Beyer Blvd extension provides a volume in-balance at the intersection of Old Otay Mesa Rd at Beyer Blvd. Unbalanced volumes will require the north leg to be significantly widened to support very high turn volumes,

3) The intersection of Old Otay Mesa Rd at Beyer Blvd will require widening on the north leg that will encroach onto San Ysidro and Sweetwater Union school district parcels along with the potential of requiring the removal of an existing Sweetwater Union School building,

4) The Metropolitan Transit System will have to change their planned future rapid bus routes along Beyer Blvd extension due to the more circuitous route using Old Otay Mesa Rd to reach the proposed Southwest Village Specific Planning Area,

5) The proposed community plan bicycle element routes and connectivity will be significantly changed result in a more circuitous bike route to/from San Ysidro,

6) The proposed community plan trails network will be significantly changed without the Beyer Blvd sidewalk connection, and

7) The annual VMT (260 workdays) will be increased by 4,755,400 without the Beyer Blvd connection.

Sincerely,
**LOS Engineering, Inc.**

Justin Rasas, P.E. (RCE 60690), PTOE.
Principal and Officer of LOS Engineering, Inc.
Attachments

ATTACHMENT A

Excerpts from the Otay Mesa Community Plan Update Transportation Analysis

# TRANSPORTATION ANALYSIS

For

# OTAY MESA COMMUNITY PLAN UPDATE

Prepared for

**THE CITY OF SAN DIEGO**

Final Report, June 14, 2012
with corrections dated August 30, 2013
on four pages (ES-21, ES-38, ES-67, and 5-32).

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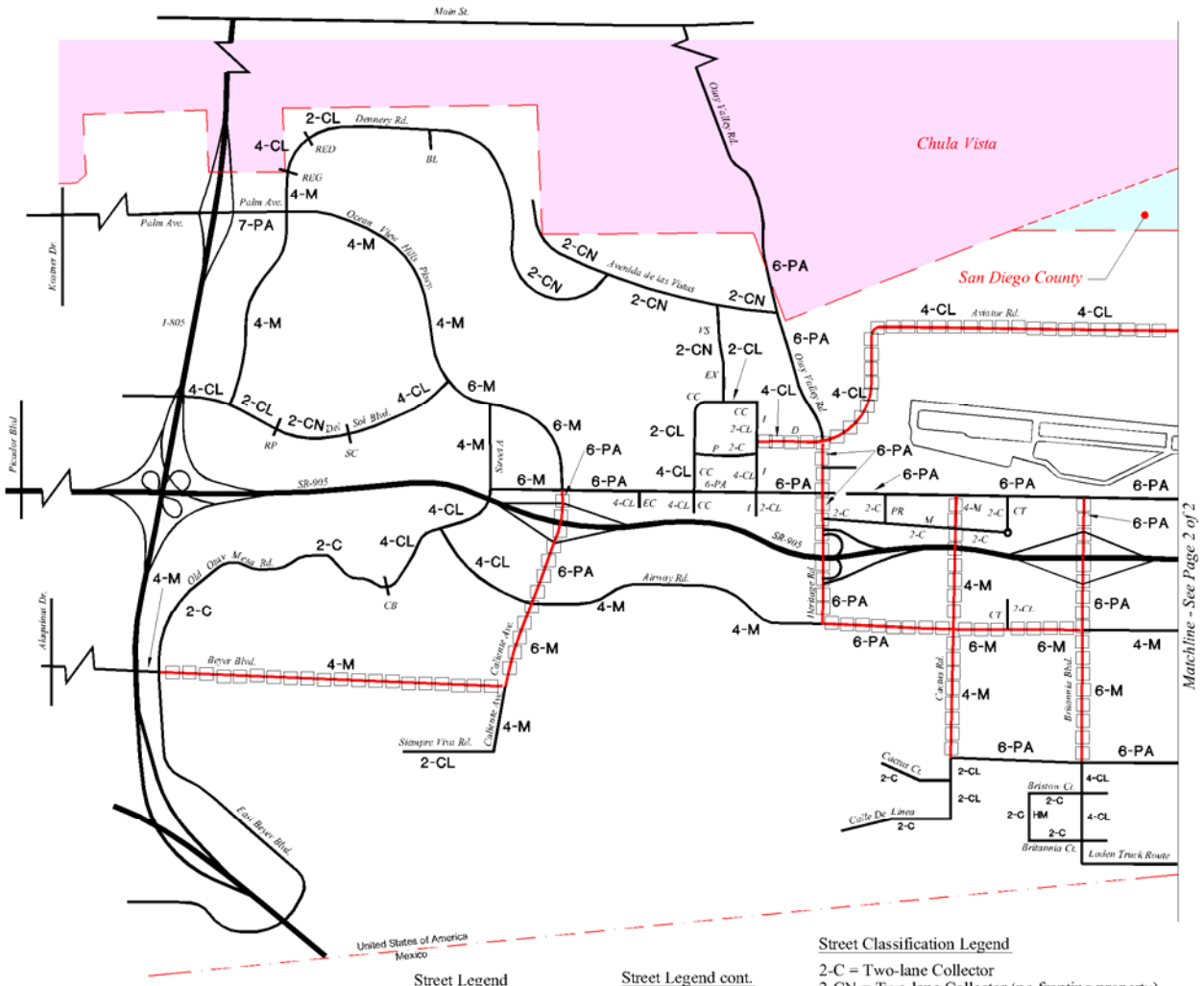
Page 1 of 2




Based on Alternative 3B Without La Media Rd. (7-26-10 Run Date, Series 11)

LEGEND

= City of San Diego Boundary

= Reclassification to a Higher Standard

Street Legend

D = Datsun St.
P = Progressive Ave.
EC = Emerald Crest Dr.
CC = Corporate Center Dr.
I = Innovative Dr.
M = Camino Maquiladora
PR = Pacific Rim Ct.
EX = Exposition Way
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Street Legend cont.

REG = Regatta Ln.
RED = Red Coral Ln.
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CB = Crescent Bay Dr.
SC = Surf Crest Dr.
RP = Riviera Pointe St.
CT = Continental St.
HM = Hixson Mesa Way

Street Classification Legend

2-C = Two-lane Collector
2-CN = Two-lane Collector (no fronting property)
2-CL = Two-lane Collector (with left turn lane)
4-C = Four-lane Collector (without left turn lane)
4-CL = Four-lane Collector (with left turn lane)
4-M = Four-lane Major Arterial
5-M = Five-lane Major Arterial (3 SB/2 NB)
6-M = Six-lane Major Arterial
6-PA = Six-lane Primary Arterial
7-PA = Seven-lane Primary Arterial

N
NO SCALE

FIGURE ES - III -1

Scenario 3B Without La Media Road Land Use Scenario
With Proposed Roadway Classification Recommendations
(Mitigation / Reclassification to a Higher Standard shown in Red)

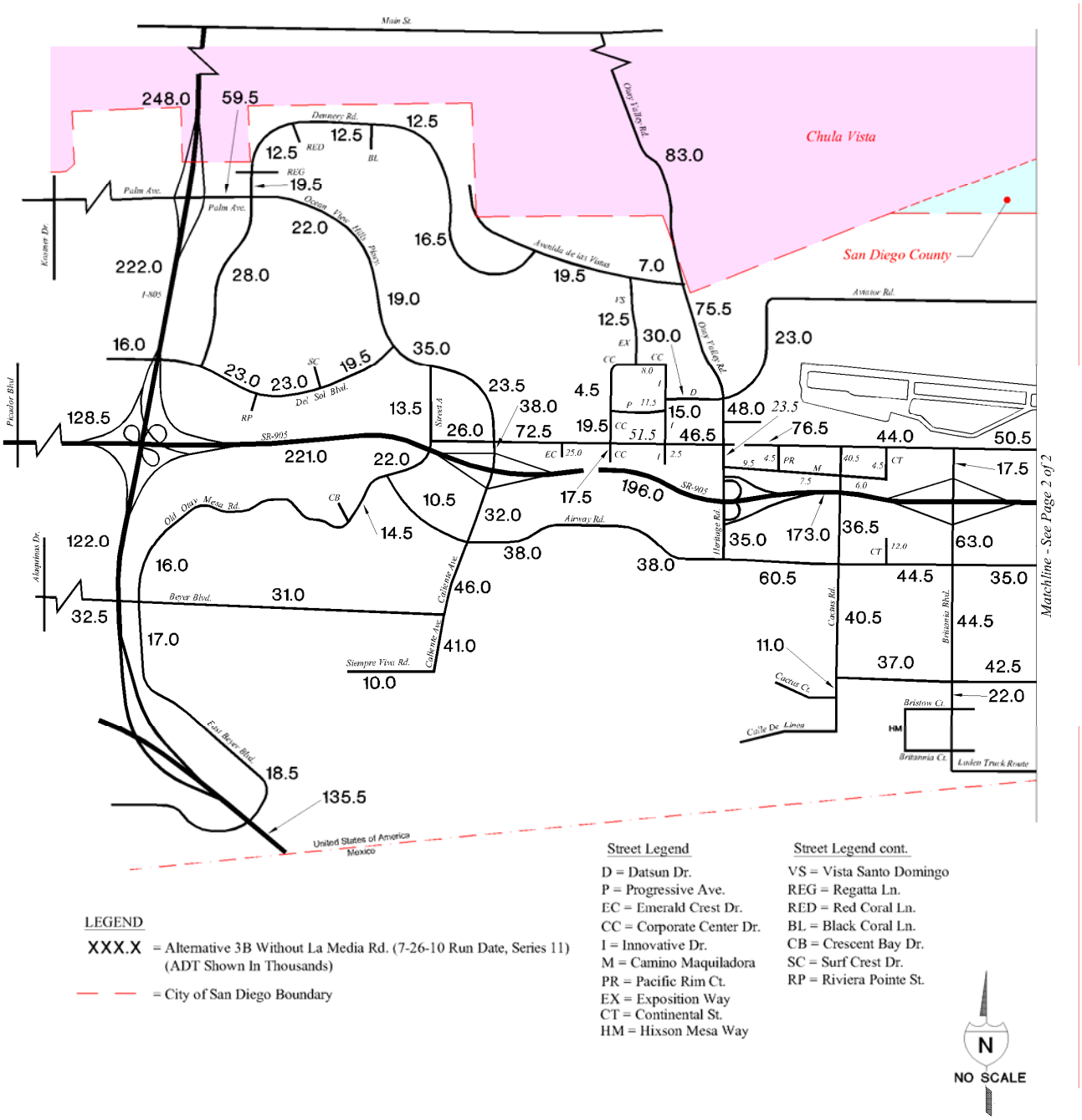



FIGURE 7-1

# Scenario 3B Without La Media Road Average Daily Traffic

# ATTACHMENT C

## City of San Diego November 13, 2021 Letter to Wildlife Agencies

The City of SAN DIEGO
Planning Department

November 13, 2020

To: Mr. David Zoutendyk, U.S. Fish and Wildlife Service
Mr. David Mayer, California Department of Fish and Wildlife

**SUBJECT: Otay Mesa Southwest Village – Beyer Boulevard Alternative Alignments Analysis**

Dear Mr. Zoutendyk and Mr. Mayer:

At the August 20, 2020 MHPA Boundary Line Adjustment (BLA) Batching Meeting, the wildlife agencies requested the applicant to further analyze alternatives to the extension of Beyer Blvd to avoid impacts within Moody Canyon and constrained wildlife movement, including a connection to Otay Mesa Road. The purpose of this memorandum is to detail the feasibility analysis and findings conducted to identify a reduced impact alternative alignment for Beyer Boulevard, as requested, from the alignment set forth in the Otay Mesa Community Plan (OMCP) and analyzed in the OMCP Update EIR.

Based on multiple factors as described below – connectivity, emergency access, roadway network and volumes, VMT reduction, and future transit service – the City does not support an alignment that bridges across Moody Canyon and connects to Old Otay Mesa. The City unequivocally upholds an east-west alignment for the Beyer Blvd extension as set forth in the Otay Mesa Community Plan.

## 1. Feasibility Analysis

### A. Emergency Access

Emergency access is a primary consideration in the design of Beyer Blvd. Realigning Beyer Blvd to Old Otay Mesa Rd. would create substantial constraints for access. An east-west connection is substantially more effective for egress/evacuation than two parallel routes. In the event of a fire evacuation, access from Southwest Village would be limited to Caliente Avenue and the Old Otay Mesa connection/Old Otay Mesa Rd. Vehicle volumes would severely exceed capacity and thereby restrict evacuation access.

### B. Inter-Connectivity/ Multi-modal Connectivity

The direct east-west alignment of Beyer Blvd serves a critical interconnectivity function. Realigning Beyer Blvd. to Old Otay Mesa Rd. would create substantial constraints for access and inter-connectivity between Southwest Village and San Ysidro to the west. Specifically, as set forth in the OMCP, Beyer Blvd. has been designed with bike and pedestrian facilities to provide multi-modal connectivity to Beyer Park, the Beyer Blvd Trolley Station, and the San Ysidro community as a whole. This connectivity is critical for VMT reduction as well as community health. Realigning Beyer Blvd. to Old Otay Mesa Rd. would eliminate direct access to these key destinations to the west.

In addition, Beyer Blvd has been established in the OMCP as a future Bus Rapid Transit route with connection to the trolley station. Realigning Beyer Blvd to Old Otay Mesa would eliminate the viability of a rapid transit bus route.

The realignment of Beyer Blvd. to Old Otay Mesa Rd. would also push significant vehicle volume and traffic congestion past the San Ysidro School District Facilities located on Old Otay Mesa Rd. and Airway Rd. including San Ysidro Middle School, San Ysidro Adult School and San Ysidro High School.

### C. Transportation/Mobility Impacts

Realigning the anticipated Beyer Blvd (4-Lane Major) traffic onto Old Otay Mesa Road would cause substantial transportation network - traffic volume and distribution issues. Based on analysis completed by LOS Engineering as detailed in **Attachment 1, Southwest Village Beyer Blvd Potential Alignment Change LOS Concerns**, if the Beyer Blvd alignment were changed as shown in Figure 1, the Horizon Year 2062 CPU Alternative 3B traffic volumes projected for Beyer Blvd. (31,000 ADT) would shift to Old Otay Mesa Rd. This would increase the forecasted failing volume from 16,000 ADT to 47,000 ADT and result in severely failing segment Level of Service (LOS) operations and emergency access concerns.

In addition to the above segment capacity constraints, there are additional concerns that include:

1) Widening Old Otay Mesa Rd. to a six-lane Prime to support 47,000 ADT would require a large footprint that has development conflicts, severe topographic issues, and still result in significant adverse environmental effects;
2) Realigning Beyer Boulevard would significantly alter the travel patterns and potentially overburden the Caliente Ave interchange at SR-905 because the shorter path to San Ysidro will be eliminated;
3) Realigning Beyer Boulevard would result in substantial Vehicle Miles Traveled (VMT) issues, as it would be a less direct route which would increase vehicle travel lengths and would divert more trips onto Caliente Avenue.

    a. Increases in trip length associated with realigning Beyer Boulevard would likely increase greenhouse gas (GHG) emissions, resulting from increases in VMT. This would conflict with the City's Climate Action Plan (CAP), which calls for implementation of "the General Plan Mobility Element and the City of Villages Strategy in Transit Priority Areas to increase the use of transit."
    b. Southwest Village is planned with densities and planned transit that will qualify the area as a Transit Priority Area. A rapid bus line is planned to traverse the Specific Plan area providing a direct connection from Otay Mesa to San Ysidro via the Beyer Boulevard alignment. One of the implementing goals of the CAP (Action 3.1) includes achieving mass transit mode share of 12% by 2020 and 25% by 2035 in Transit Priority Areas. Realigning Beyer Boulevard could impact transit access, which would ultimately conflict with the transit goals of the General Plan, Community Plan, and CAP.

In addition, the previously planned connection between Otay Mesa and San Ysidro via Siempre Viva Road which was intended to help alleviate the traffic intensity on Beyer Blvd, was eliminated with adoption of the MSCP, further necessitating and justifying Beyer Blvd's currently proposed OMCP general alignment.

## 2. Additional Key Considerations

### A. OMCP Update EIR Considerations

A large shift from the OMCP such as elimination of an east-west alignment would lessen the validity of tiering from the OMCP EIR, which is the current CEQA compliance approach. The OMCP strategically designed Beyer Blvd's current alignment to adequately balance the transportation, mobility, housing, and environmental needs. At the time the OMCP was being processed, the wildlife agencies voiced the same concerns. However, the City decision-makers adopted Findings and a Statement of Overriding Consideration (SOCs) that found due to the many constraints and factors at play, Beyer Blvd needed to be the OMCP proposed alignment.

### B. Housing Unit Loss

Realigning Beyer Blvd to Old Otay Mesa Road would restrict vehicle capacity and thus restrict the housing development potential based on Old Otay Mesa Road's reduced vehicle capacity. The overall development potential has already been significantly reduced from what was proposed in the OMCP to balance housing with environmental conservation. The City has sought to balance competing issues. To meet regional housing goals, the City does not support further reducing roadway and housing capacities in the Southwest Village.

## 3. Strategies to Reduce Environmental Impacts

The Applicant Team has conducted a number of studies subsequent to the feedback received from the agencies in order to identify strategies to reduce the environmental impacts associated with an east-west Beyer Blvd. alignment. Specifically, we are currently evaluating the feasibility of an alignment that would shift Beyer Blvd slightly to the south and increase the wildlife permeability.

### A. Southern Alignment

Shifting the alignment for Beyer Blvd. to the south would eliminate the drainage impacts in Moody Canyon and reduce impacts to Otay Tarplant at the western end of Beyer Blvd. The Applicant Team is verifying the geotechnical conditions and limits to the north and south of a potential southern alignment, conducting conceptual grading studies, and preparing a conceptual design for the roadway in order to determine the impact limits and calculate the impact reductions.

### B. Increased Permeability

The Applicant Team has evaluated the feasibility of incorporating additional culverts beneath Beyer Blvd to allow for a more pervious wildlife corridor. Based on coordination with Barry Martin, Wildlife Tracking Inc., our wildlife movement specialist, ideal locations for maximum wildlife movement were identified for both the current alignment and the southern alignment alternative.

### C. Other Considerations - Narrowing Beyer Blvd

The City considered an alternative that further downgraded Beyer Blvd. to a four-lane collector or a two-lane roadway to narrow the width of the roadway and provide the least impactful roadway width. Based

on analysis by LOS Engineering as detailed in **Attachment 2, Southwest Village Beyer Blvd. LOS with Potential Downgrade**, a four-lane collector would reduce the capacity by 10,000 ADT when compared to the currently proposed four-lane major, but would still generate a Year 2062 + project volume of 28,100 ADT, which would be an unacceptable Level of Service (LOS) E. The 28,100 ADT is already lower than the OMCP ADT of 31,000. Therefore, due to projected volumes and previously noted issues of loss of multi-modal connectivity, the narrowing of Beyer Boulevard through downgrade of classification is not supported.

Sincerely,

**Michael Prinz**, Senior Planner
Planning Department

MP/mg/ag

Attachments: 1. Southwest Village Beyer Blvd Potential Alignment Change LOS Concerns
2. Southwest Village Beyer Blvd. LOS with Potential Downgrade

cc: Kristy Forburger, Development Project Manager III, Planning Department
Tait Galloway, Program Manager, Planning Department
Maureen Gardiner, Senior Traffic Engineer, Mobility Department
George Ghossain, Program Manager, Development Services Department
Anna McPherson, Program Manager, Development Services Department
Dan Monroe, Senior Planner, Planning Department
Elizabeth Shearer-Nguyen, Senior Planner, Development Services Department
Brooke Peterson, Rick Engineering Company, Southwest Village Project Manager

**LOS Engineering, Inc.**
**Traffic and Transportation**

**DRAFT**

11622 El Camino Real, Suite 100, San Diego, CA 92130
Phone 619-890-1253, Email: Justin@LOSengineering.com

August 31, 2020

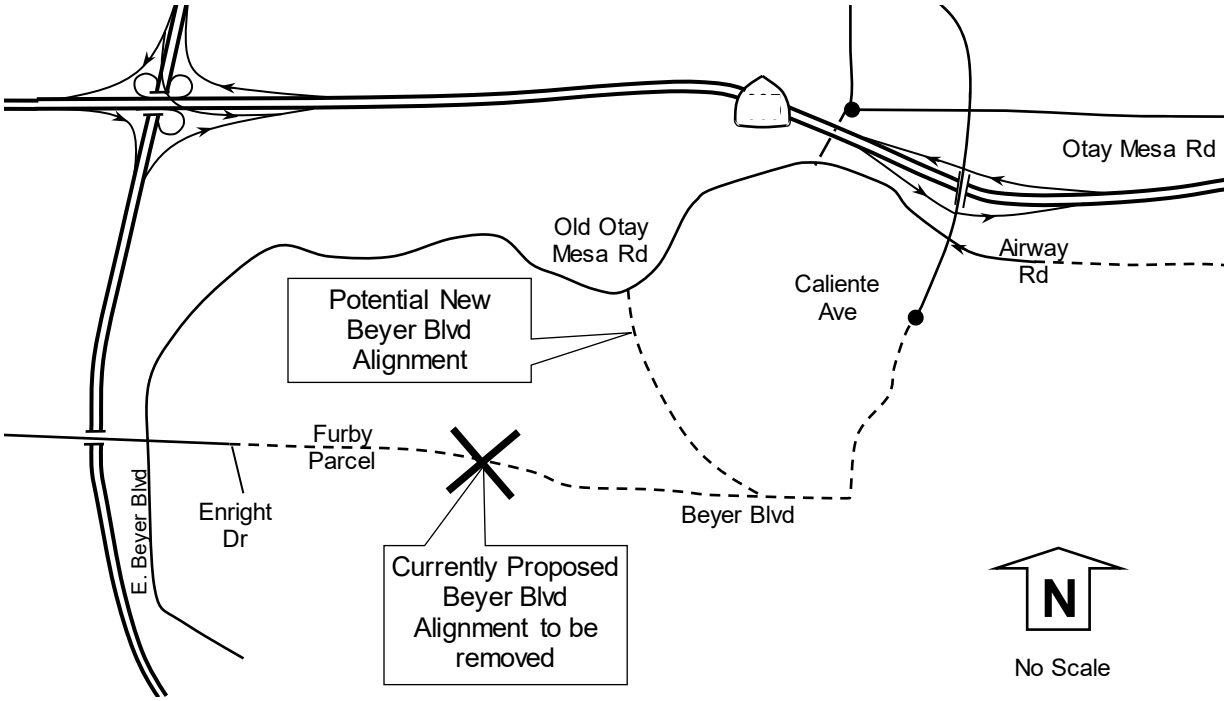
Ms. Ann Gonsalves, P.E.
City of San Diego
1222 First Ave, MS 501
San Diego, CA 92101

SUBJECT: Southwest Village Beyer Blvd Potential Alignment Change LOS Concerns

Dear Ms. Gonsalves:

The purpose of this analysis is to provide an overview of potential segment capacity challenges if the currently adopted Community Plan Update Beyer Blvd alignment between San Ysidro and Caliente Ave would be modified to avoid crossing the Furby parcel to avoid sensitive habitat. The potential alignment change is the shift the Beyer Blvd extension westerly from Caliente Ave to a northerly direction crossing what is known as Moody Canyon to connect with (Old) Otay Mesa Road in the vicinity of Saltaire Pl as shown below.

**Figure 1: Potential Beyer Blvd Realignment**



If Beyer Blvd alignment is changed as shown in Figure 1, then the Horizon Year 2062 CPU Alternative 3B would result in shifting the Beyer Blvd 31,000 ADT to Old Otay Mesa with a forecasted failing volume of 16,000 ADT to equal 47,000 ADT that results in an even more sever segment LOS operations with of V/C of 5.8 as shown in **Table 1** (Otay Mesa CPU TIA excerpts included in **Attachment A**).

**Table 1: Horizon Year 2062 Segment LOS**

| Segment | Functional Capacity | LOS E Capacity | Horizon Year 2062 Daily Volume | V/C | LOS |
|---|---|---|---|---|---|
| Community Plan Update | | | | | |
| Old Otay Mesa Rd | 2 Lane Collector | 8,000 | 16,000 | 2.000 | F |
| Beyer Blvd | 4 Lane Major | 40,000 | 31,000 | 0.775 | D |
| With Realignment | | | | | |
| Old Otay Mesa Rd | 2 Lane Collector | 8,000 | 47,000* | **5.875** | **F** |
| Beyer Blvd | 4 Lane Major | | Connection Removed | | |

Notes: 4U+TWLTL = 4 un-divided lanes + two way left turn lane. Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity Ratio. *Addition of 16,000 and 31,000 from above.

In addition to the above segment capacity constraints, there are additional concerns that include:

1) Widening Old Otay Mesa Road to a 6 Lane Prime to support 47,000 ADT would also require a large footprint and potential adverse environmental effects,

2) Significantly altering the travel patterns and potentially overburdening the Caliente Ave interchange at SR-905 because the shorter path to San Ysidro will be eliminated,

3) May cause transit to change their planned future rapid bus routes due to the more circuitous route using Old Otay Mesa Rd, and

4) Significantly change the bicycle element connectivity.

Sincerely,
**LOS Engineering, Inc.**

Justin Rasas, P.E. (RCE 60690), PTOE.
Principal and Officer of LOS Engineering, Inc.
Attachments

Attachment 1

# TRANSPORTATION ANALYSIS

For

# OTAY MESA COMMUNITY PLAN UPDATE

Prepared for

**THE CITY OF SAN DIEGO**

Final Report, June 14, 2012
with corrections dated August 30, 2013
on four pages (ES-21, ES-38, ES-67, and 5-32).

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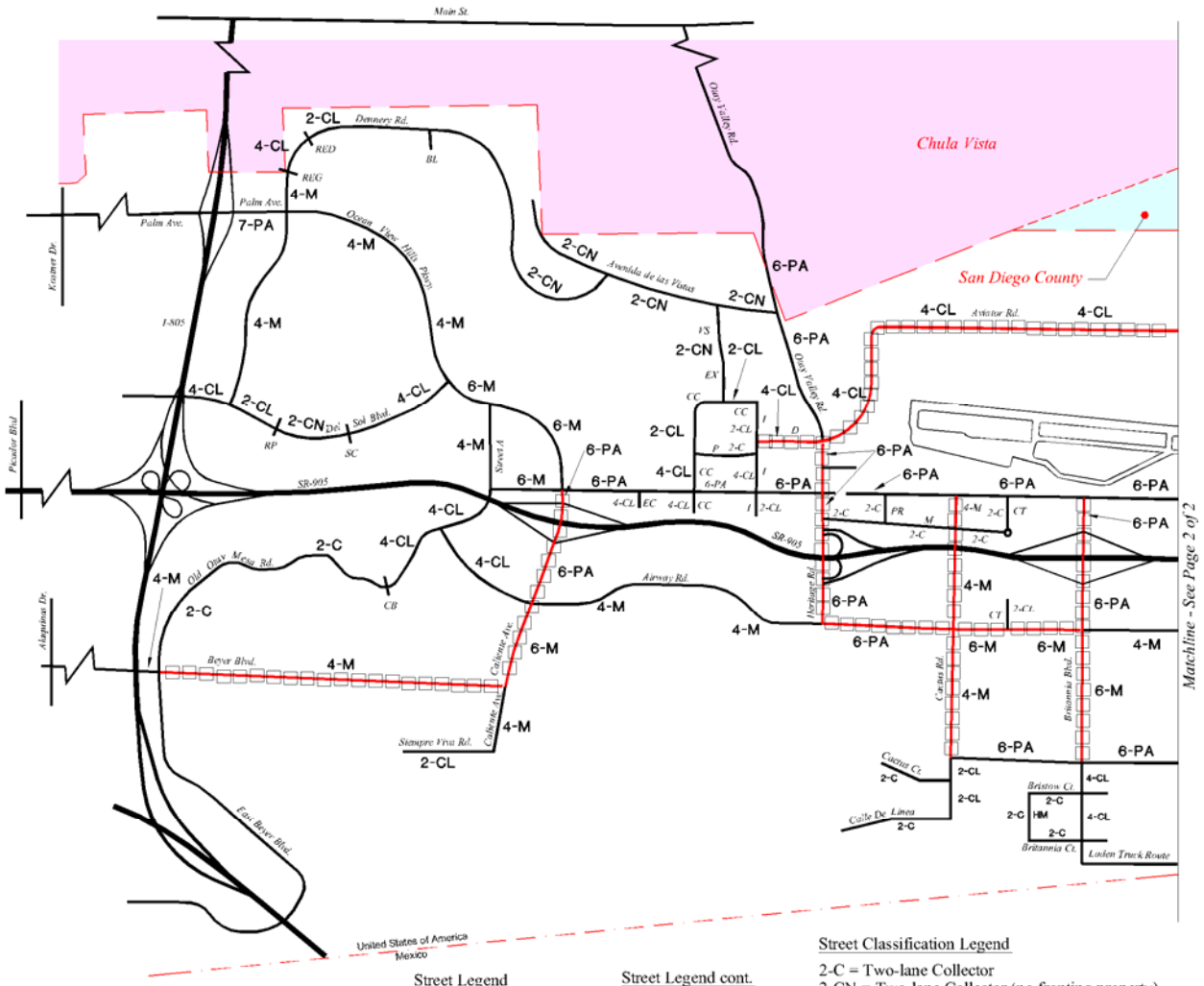
Page 1 of 2




Based on Alternative 3B Without La Media Rd. (7-26-10 Run Date, Series 11)

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= Reclassification to a Higher Standard

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M = Camino Maquiladora
PR = Pacific Rim Ct.
EX = Exposition Way
VS = Vista Santo Domingo

Street Legend cont.

REG = Regatta Ln.
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N
NO SCALE

FIGURE ES - III -1

Scenario 3B Without La Media Road Land Use Scenario
With Proposed Roadway Classification Recommendations
(Mitigation / Reclassification to a Higher Standard shown in Red)

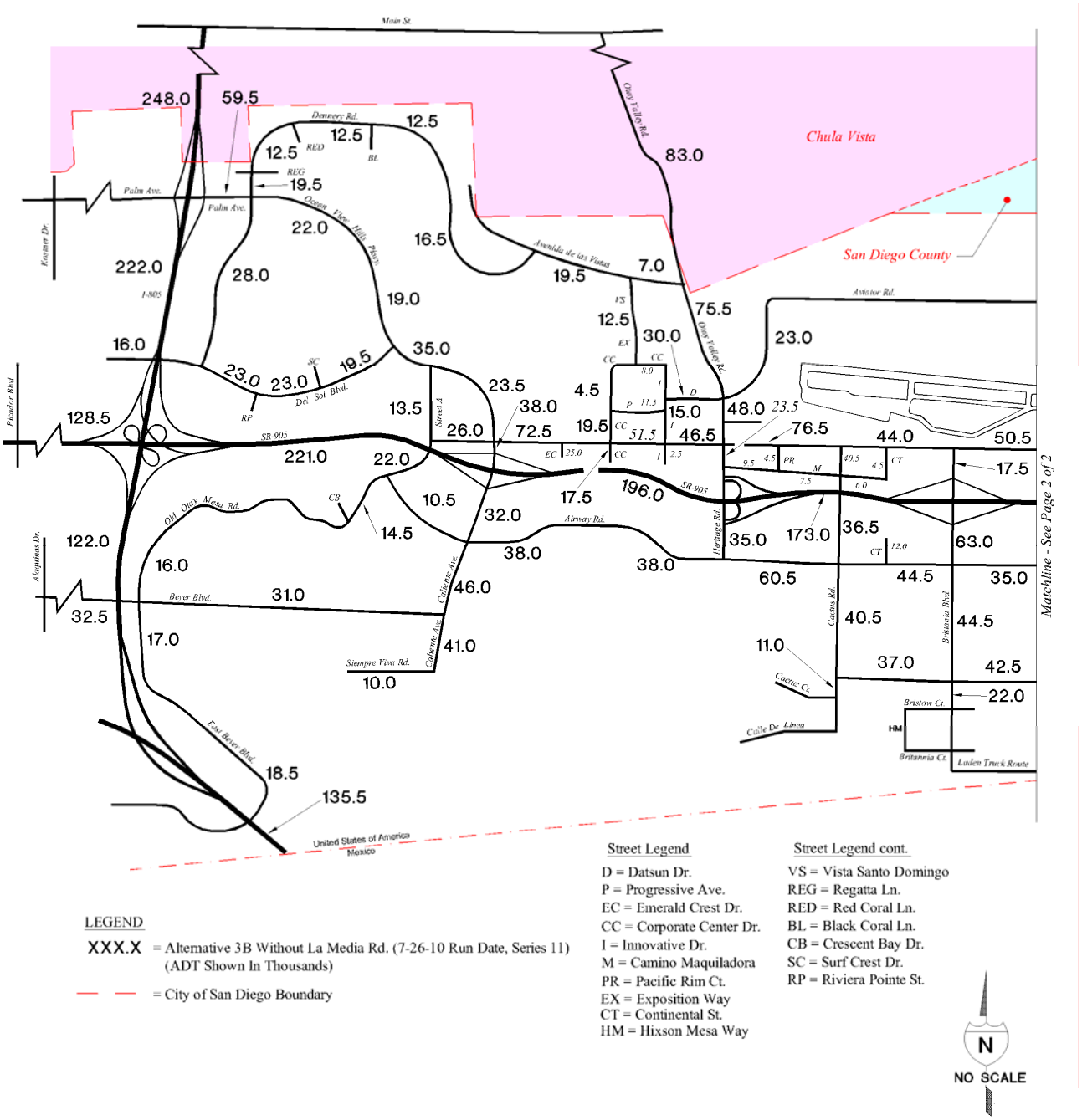


FIGURE 7-1

# Scenario 3B Without La Media Road Average Daily Traffic

## TABLE 7-1 (Continued)

### Buildout Scenario 3B Without La Media Rd.

### Average Daily Traffic & Level of Service

| Street | Segment | # | (1) Class | LOS E ADT (2) | Segment ADT | V/C | LOS | | New Class | New V/C | New LOS | S? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Palm Ave.** | I-805 to Dennery Rd. | 37 | 7-PA | 65,000 | 59,500 | 0.92 | D | | N | - | - | N |
| **Ocean View Hills Parkway** | Dennery Rd. to Del Sol Blvd. | 38 | 4-M | 40,000 | 22,000 | 0.55 | C | | N | - | - | N |
| | Del Sol Blvd. to Street "A" | 39 | 6-M | 50,000 | 35,000 | 0.70 | C | | N | - | - | N |
| | Street "A" to Otay Mesa Rd. | 40 | 6-M | 50,000 | 23,500 | 0.42 | B | | N | - | - | N |
| **Caliente Avenue** | Otay Mesa Rd. to SR-905 | 41 | 6-M | 50,000 | 38,000 | 0.76 | C | | 6-PA | 0.63 | C | N |
| | SR-905 to Airway Rd. | 42 | 6-M | 50,000 | 32,000 | 0.64 | C | | 6-PA | 0.53 | B | N |
| | Airway Rd. to Beyer Blvd. | 43 | 4-M | 40,000 | 46,000 | 1.15 | F | | 6-M | 0.92 | E | Y |
| | Beyer Blvd. to Siempre Viva Rd. | 43A | 4-M | 40,000 | 41,000 | 1.03 | F | | N | - | - | Y |
| **Beyer Boulevard** | Alaquinas Dr. to Old Otay Mesa Rd. | 44 | 4-M | 40,000 | 32,500 | 0.81 | D | | N | - | - | N |
| | Old Otay Mesa Rd. to Caliente Ave. (3) | 45 | 4-M | 40,000 | 31,000 | 0.78 | D | | N | - | - | N |
| **Heritage Road/ Otay Valley Road** | Main St. to Avenida De Las Vistas** | 46 | 6-PA | 60,000 | 83,000 | 1.38 | F | | N | - | - | Y |
| | Avenida De Las Vistas to Datsun St. | 47 | 6-M | 50,000 | 75,500 | 1.51 | F | | 6-PA | 1.26 | F | Y |
| | Datsun St. to Otay Mesa Rd. | 48 | 6-M | 50,000 | 48,000 | 0.96 | E | | 6-PA | 0.80 | C | N |
| | Otay Mesa Rd. to SR-905 | 49 | 6-M | 50,000 | 23,500 | 0.47 | B | | 6-PA | 0.39 | A | N |
| | SR-905 to Airway Rd. | 50 | 6-M | 50,000 | 35,000 | 0.70 | C | | 6-PA | 0.58 | B | N |
| **Cactus Road** | Otay Mesa Rd. to Airway Rd. | 52 | 4-CL | 30,000 | 40,500 | 1.35 | F | | 4-M | 1.01 | F | Y |
| | Airway Rd. to Siempre Viva Rd. | 53 | 4-CL | 30,000 | 40,500 | 1.35 | F | | 4-M | 1.01 | F | Y |
| | Siempre Viva Rd. to South End | 54 | 2-CL | 15,000 | 11,000 | 0.73 | D | | N | - | - | N |
| **Britannia Boulevard** | Otay Mesa Rd. to SR-905 | 55 | 4-M | 40,000 | 17,500 | 0.44 | B | | 6-PA | 0.29 | A | N |
| | SR-905 to Airway Rd. | 56 | 4-M | 40,000 | 63,000 | 1.58 | F | | 6-PA | 1.05 | F | Y |
| | Airway Rd. to Siempre Viva Rd. | 57 | 4-M | 40,000 | 44,500 | 1.11 | F | | 6-M | 0.89 | D | N |
| | Siempre Viva Rd. to South End | 58 | 2-C | 8,000 | 22,000 | 2.75 | F | | 4-CL | 0.73 | D | N |
| **La Media Road** | Birch Rd. to Lone Star Rd.** | 59 | 6-PA | 60,000 | N/A | N/A | N/A | | N/A | N/A | N/A | N/A |
| | Lone Star Rd. to Aviator Rd. | 60 | 6-PA | 60,000 | 19,500 | 0.33 | A | | 4-M | 0.49 | B | N |
| | Aviator Rd. to Otay Mesa Rd. | 61 | 6-PA | 60,000 | 22,500 | 0.38 | A | | 4-M | 0.56 | C | N |
| | Otay Mesa Rd. to SR-905 | 62 | 6-PA | 60,000 | 37,500 | 0.63 | C | | N | - | - | N |
| | SR-905 to Airway Rd. | 63 | 6-PA | 60,000 | 64,000 | 1.06 | F | | N | - | - | Y |
| | Airway Rd. to Siempre Viva Rd. | 64 | 4-M | 40,000 | 33,000 | 0.83 | D | | 5-M | 0.73 | C | N |
| **Harvest Road** | South of Otay Mesa Rd. | 65 | 4-M | 40,000 | 8,500 | 0.21 | A | | 2-CL | 0.57 | C | N |
| | Airway Rd. to Otay Center Dr. | 66 | 4-M | 40,000 | 16,000 | 0.40 | B | | 4-CL | 0.53 | C | N |
| | Otay Center Dr. to Siempre Viva Rd. | 67 | 4-M | 40,000 | 10,000 | 0.25 | A | | 4-CL | 0.33 | A | N |

*Segment in County of San Diego

**Segment in Chula Vista

# = Segment Number

(1) = Current Community Plan Classification, unless footnotes (3) or (4) apply.

(2) = Source: City of San Diego Traffic Impact Study Manual, Table 2.

(3) = Add to Circulation Plan.

(4) = Functional classification shown, not currently classified.

S? = Significant impact, Yes (Y) or No (N).

New LOS = LOS after change in classification.

F = Shading indicates a significant impact.

**Note:** There is no segment #51 with this alternative.
Segment #36 was deleted.

**Legend**

8-M = 8-lane Major Arterial

7-PA = 7-lane Primary Arterial

7-M = 7-lane Major Arterial

6-PA = 6-lane Primary Arterial

6-M = 6-lane Major Arterial

5-M = 5-lane Major Arterial (3SB /2NB)

4-P = 4-lane Primary Arterial

4-M = 4-lane Major Arterial

4-CL = 4-lane Collector (with continuous left turn lane)

4-C = 4-lane Collector (without continuous left turn lane)

2-CL = 2-lane Collector (with continuous left turn lane)

2-CN = 2-lane Collector (no fronting property)

2-C = 2-lane Collector (without continuous left turn lane)

**LOS Engineering, Inc.**
**Traffic and Transportation**

**DRAFT**

11622 El Camino Real, Suite 100, San Diego, CA 92130
Phone 619-890-1253, Email: Justin@LOSengineering.com

September 30, 2020

Ms. Ann Gonsalves, P.E.
City of San Diego
1222 First Ave, MS 501
San Diego, CA 92101

SUBJECT: Southwest Village Beyer Blvd LOS with Potential Downgrade

Dear Ms. Gonsalves:

The purpose of this analysis is to provide an overview of the LOS operations on Beyer Blvd if the currently adopted Community Plan Update Beyer Blvd 4 lane Major classification between San Ysidro and Caliente Ave would be reduced to a 2 lane roadway to reduce the footprint along sensitive habitat areas. The 4 lane Major section of Beyer Blvd is shown in **Figure 1**.

**Figure 1: Beyer Blvd Community Plan Update EIR Classification**

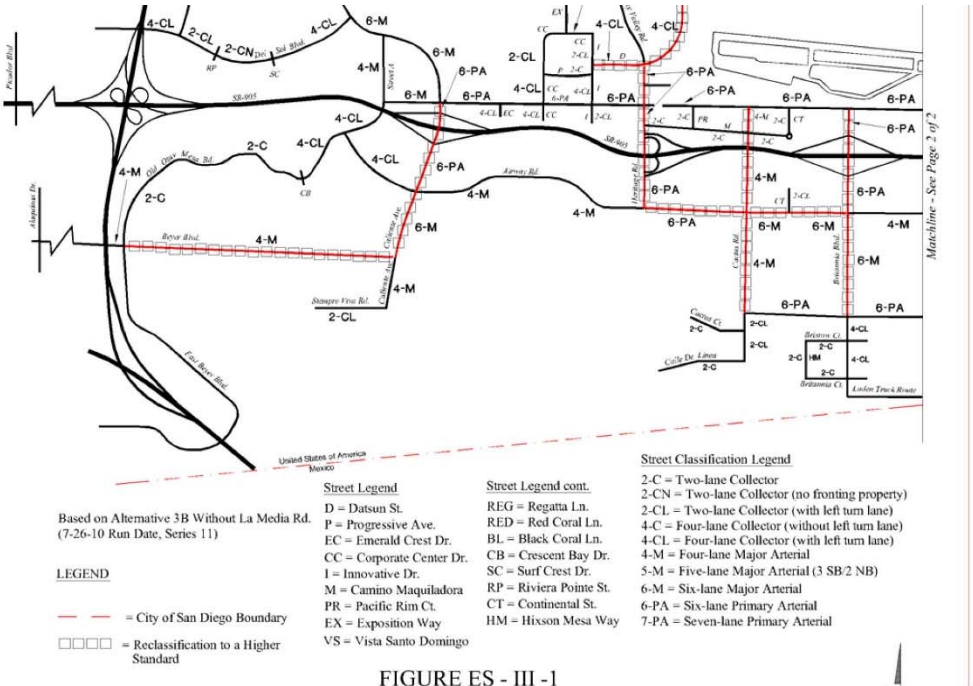


FIGURE ES - III -1
Scenario 3B Without La Media Road Land Use Scenario
With Proposed Roadway Classification Recommendations
(Mitigation / Reclassification to a Higher Standard shown in Red)

Source: Urban Systems Associates, Inc. Page ES-54 from TIA dated August 30, 2013.

The Horizon Year 2062 daily volume for this section of Beyer Blvd is forecasted at 28,100, which is based on a more recent traffic model forecast used in the 2016 San Ysidro Community Plan Update. The CPU EIR documented a Horizon Year volumes of 31,000 ADT (excerpt from the CPU EIR showing the 31,000 ADT is included in **Attachment A**).

If the Beyer Blvd classification was reduced from a 4 lane Major to either a 2 lane Major or 2 lane Collector, then the segment would operate at LOS F as shown in **Table 1**.

**Table 1: Beyer Blvd Reduced Classification Segment LOS**

| Segment | Classification | LOS E Capacity | Horizon Year 2062 Daily Volume | V/C | LOS |
|---|---|---|---|---|---|
| Community Plan Update | | | | | |
| Beyer Blvd (Old Otay Mesa Rd to Caliente) | 4 Lane Major | 40,000 | 28,100 | 0.703 | C |
| Downgrade to a 2 lane Major | | | | | |
| Beyer Blvd (Old Otay Mesa Rd to Caliente) | 2 Lane Major | 20,000 | 28,100 | 1.405 | **F** |
| Downgrade to a 2 lane Collector | | | | | |
| Beyer Blvd (Old Otay Mesa Rd to Caliente) | 2 Lane Collector | 10,000 | 28,100 | 2.810 | **F** |

Notes: Daily volume is a 24 hour volume. V/C: Volume to Capacity Ratio. LOS: Level of Service.

As shown above, if the Beyer Blvd classification was reduced to either a 2 lane Major or a 2 lane Collector thereby reducing the footprint along sensitive habitat areas, then the segment would operate at an unacceptable LOS.

Sincerely,
**LOS Engineering, Inc.**

Justin Rasas, P.E. (RCE 60690), PTOE.
Principal and Officer of LOS Engineering, Inc.
Attachments

**TABLE 5.12-5**
**CPU HORIZON YEAR ROADWAY SEGMENT LEVEL OF SERVICE**
**(continued)**

| Street | Segment | Horizon Year | | | | | Horizon Year with CPU | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Class[1] | LOS E ADT[2] | Segment ADT | V/C | LOS | New Class | New V/C | New LOS | Sig? |
| Palm Ave. | I-805 to Dennery Rd. | 7-PA | 65,000 | 59,500 | 0.92 | D | - | - | - | N |
| Ocean View Hills Parkway | Dennery Rd. to Del Sol Blvd. | 4-M | 40,000 | 22,000 | 0.55 | C | - | - | - | N |
| | Del Sol Blvd. to Street "A" | 6-M | 50,000 | 35,000 | 0.70 | C | - | - | - | N |
| | Street "A" to Otay Mesa Rd. | 6-M | 50,000 | 23,500 | 0.42 | B | - | - | - | N |
| Caliente Avenue | Otay Mesa Rd. to SR-905 | 6-M | 50,000 | 38,000 | 0.76 | C | 6-PA | 0.63 | C | N |
| | SR-905 to Airway Rd. | 6-M | 50,000 | 32,000 | 0.64 | C | 6-PA | 0.53 | B | N |
| | Airway Rd. to Beyer Blvd. | 4-M | 40,000 | 46,000 | 1.15 | **F** | 6-M | 0.92 | **E** | **Y** |
| | Beyer Blvd. to Siempre Viva Rd. | 4-M | 40,000 | 41,000 | 1.03 | **F** | - | - | - | **Y** |
| Beyer Boulevard | Alaquinas Dr. to Old Otay Mesa Rd. Old Otay Mesa Rd. to Caliente Ave.[3] | 4-M | 40,000 | 32,500 | 0.81 | D | - | - | - | N |
| | | 4-M | 40,000 | 31,000 | 0.78 | D | - | - | - | N |
| Heritage Road/ Otay Valley Road | Main St. to Avenida de Las Vistas** | 6-PA | 60,000 | 83,000 | 1.38 | **F** | - | - | - | **Y** |
| | Avenida De Las Vistas to Datsun St. | 6-M | 50,000 | 75,500 | 1.51 | **F** | 6-PA | 1.26 | **F** | **Y** |
| | Datsun St. to Otay Mesa Rd. | 6-M | 50,000 | 48,000 | 0.96 | **E** | 6-PA | 0.80 | C | N |
| | Otay Mesa Rd. to SR-905 | 6-M | 50,000 | 23,500 | 0.47 | B | 6-PA | 0.39 | A | N |
| | SR-905 to Airway Rd. | 6-M | 50,000 | 35,000 | 0.70 | C | 6-PA | 0.58 | B | N |
| Cactus Road | Otay Mesa Rd. to Airway Rd. | 4-CL | 30,000 | 40,500 | 1.35 | **F** | 4-M | 1.01 | **F** | **Y** |
| | Airway Rd. to Siempre Viva Rd. | 4-CL | 30,000 | 40,500 | 1.35 | **F** | 4-M | 1.01 | **F** | **Y** |
| | Siempre Viva Rd. to South End | 2-CL | 15,000 | 11,000 | 0.73 | D | - | - | - | N |
| Britannia Boulevard | Otay Mesa Rd. to SR-905 | 4-M | 40,000 | 17,500 | 0.44 | B | 6-PA | 0.29 | A | N |
| | SR-905 to Airway Rd. | 4-M | 40,000 | 63,000 | 1.58 | **F** | 6-PA | 1.05 | **F** | **Y** |
| | Airway Rd. to Siempre Viva Rd. | 4-M | 40,000 | 44,500 | 1.11 | **F** | 6-M | 0.89 | D | N |
| | Siempre Viva Rd. to South End | 2-C | 8,000 | 22,000 | 2.75 | **F** | 4-CL | 0.73 | D | N |
| La Media Road | Birch Rd. to Lone Star Rd.** | 6-PA | 60,000 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | Lone Star Rd. to Aviator Rd. | 6-PA | 60,000 | 19,500 | 0.33 | A | 4-M | 0.49 | B | N |
| | Aviator Rd. to Otay Mesa Rd. | 6-PA | 60,000 | 22,500 | 0.38 | A | 4-M | 0.56 | C | N |
| | Otay Mesa Rd. to SR-905 | 6-PA | 60,000 | 37,500 | 0.63 | C | - | - | - | N |
| | SR-905 to Airway Rd. | 6-PA | 60,000 | 64,000 | 1.06 | **F** | - | - | - | **Y** |
| | Airway Rd. to Siempre Viva Rd. | 4-M | 40,000 | 33,000 | 0.83 | D | 5-M | 0.73 | C | N |
| Harvest Road | South of Otay Mesa Rd. | 4-M | 40,000 | 8,500 | 0.21 | A | 2-CL | 0.57 | C | N |
| | Airway Rd. to Otay Center Dr. | 4-M | 40,000 | 16,000 | 0.40 | B | 4-CL | 0.53 | C | N |
| | Otay Center Dr. to Siempre Viva Rd. | 4-M | 40,000 | 10,000 | 0.25 | A | 4-CL | 0.33 | A | N |
| Enrico Fermi Drive | SR-11 to Airway Rd.* | 4-M | 40,000 | 15,500 | 0.62 | B | - | - | - | N |
| | Airway Rd. to Siempre Viva Rd. | 4-M | 40,000 | 8,000 | 0.20 | A | 4-CL | 0.27 | A | N |
| | Siempre Viva Rd. to Via de la Amistad | 4-M | 40,000 | 10,500 | 0.26 | A | 4-CL | 0.35 | B | N |

# ATTACHMENT 12

## Geotechnical Study, Southwest Village Emergency Vehicle Access Road

Project No. 06847-42-04A
March 27, 2024

Tri Pointe Homes
13520 Evening Creek Drive North, Suite 300
San Diego, California 92128

Attention: Mr. Allen Kashani

Subject: GEOTECHNICAL MEMORANDUM
SOUTHWEST VILLAGE EMERGENCY VEHICLE ACCESS ROAD
SAN DIEGO, CALIFORNIA

Reference: *Geotechnical Study, Southwest Village Emergency Vehicle Access Road, San Diego, California*, prepared by Geocon Incorporated, dated March 27, 2024 (Project No. 06847-42-04A).

Dear Mr. Kashani:

As requested by Recon Environmental Inc., we have prepared this memorandum regarding a meeting we had with the LDR Geology reviewer Mr. Krag Mills with respect to constructing the proposed emergency vehicle access (EVA) road within the landslide area southeast of the Southwest Village project.

Considering the roadway will be used by emergency vehicles only (and border patrol as needed) and not as a circulation element for the subdivision, the City will allow the roadway to be constructed as proposed provide we can demonstrate that the landslide area has an appropriate factor of safety for the intended use of the area as temporary EVA element. The City is not requiring we achieve a factor of safety of 1.5 as would be required for subdivision circulation elements.

Geocon Incorporated performed a slope stability analysis for the landslide in the area of the proposed EVA roadway alignment. The analysis is contained in the referenced geotechnical study. Our analysis indicates that hillside area at the EVA roadway alignment has an appropriate factor of safety (greater than 1.2) based on our conjectured landslide geometry. Our analysis also demonstrates that grading and construction of the proposed roadway does not impact the existing hillside stability. Because the slope stability factor of safety is greater than 1.0, future movement of the landslide is not expected within the lifetime of the roadway under existing and proposed conditions.

Should you have questions regarding this memorandum, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

Rodney C. Mikesell
GE 2533

REGISTERED PROFESSIONAL ENGINEER
RODNEY C. MIKESELL
No.2533
GEOTECHNICAL
STATE OF CALIFORNIA

RCM:kv

(e-mail) Addressee

# GEOTECHNICAL STUDY

# SOUTHWEST VILLAGE
# EMERGENCY VEHICLE ACCESS ROAD
# SAN DIEGO, CALIFORNIA

GEOCON
INCORPORATED

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

**PREPARED FOR**

**TRI POINTE HOMES**
**SAN DIEGO, CALIFORNIA**

**MARCH 27, 2024**
**PROJECT NO. 06847-42-04A**

GEOCON
INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. 06847-42-04A
March 27, 2024

Tri Pointe Homes
13520 Evening Creek Drive North, Suite 300
San Diego, California 92128

Attention: Mr. Allen Kashani

Subject: GEOTECHNICAL STUDY
SOUTHWEST VILLAGE EMERGENCY VEHICLE ACCESS ROAD
SAN DIEGO, CALIFORNIA

Dear Mr. Kashani:

In accordance with your request, we have prepared this study to provide geotechnical recommendations for the construction of an emergency vehicle access road planned for the Southwest Village project. This study is based on geotechnical information obtained from previous investigations performed by Geocon in the site vicinity.

The accompanying report contains the results of our study with conclusions and recommendations pertaining to geotechnical aspects of the proposed project. The site is suitable for the construction of the emergency access road provided the recommendations in this report are incorporated into the design and construction of the project.

Should you have questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

Rodney C. Mikesell
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Dave B. Evans
CEG 1860

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# GEOTECHNICAL STUDY

## 1. PURPOSE AND SCOPE

This report presents the findings of our geotechnical study for the emergency vehicle access (EVA) road planned for the Southwest Village project located in South Otay Mesa, San Diego, California (see Vicinity Map, Figure 1).

The purpose of this study was to evaluate the soil and geologic conditions along the alignment of the proposed EVA and provide recommendations for grading and structural pavement sections. A portion of the roadway lies within the San Ysidro landslide complex that borders the southwest, south, and southeast margins of Southwest Village property.

The scope of our investigation included reviewing readily available geologic literature, review of previous geotechnical reports prepared for the property and surrounding areas, performing engineering analyses, and preparing this report. The locations of previous borings and trenches near the EVA road alignment are shown on the Geologic Map (Figure 2). Logs of select borings and trenches are provided in Appendix A. Applicable laboratory testing is provided in Appendix B.

## 2. SITE AND PROJECT DESCRIPTION

The overall South Otay Mesa property consists of approximately 300 acres of undeveloped, formerly cultivated farmland located in the Otay Mesa area east of San Ysidro, south of U.S. Highway 905, and east of Interstate 805. The EVA road is located within the southern and eastern portions of the Southwest Village Tentative Map area. The property is surrounded by undeveloped properties or designated open-space.

The proposed roadway is planned across a portion of the San Ysidro Landslide complex which is one of the largest landslide features in San Diego County. Based on exploratory borings performed by Geocon Incorporated, the base of the landslide is approximately 100 to 300 feet-thick below existing grades in the area of the proposed roadway. The roadway also crosses the mesa top which is underlain by Terrace Deposits and the San Diego and Otay Formations.

Plans show the EVA road will be an approximately 1.7-mile-long roadway that follows established dirt roads. The roadway starts at Rail Court located southwest of the Southwest Village property. From Rail Court the road traverses eastward along the Border Fence road to Jeep Trail Road, where the road turns north and follows Jeep Trail Road up the hillside slope to the mesa top. The road then crosses the mesa top and terminates at the future Beyer Blvd. Ground surfaces elevation across the proposed EVA

roadway alignment vary from around 75 feet Mean Sea Level (MSL) near the connection with Rail Court to between about 490 MSL on the mesa top.

We understand the EVA road is required to satisfy a Southwest Village project condition to provide secondary emergency access during subdivision construction. Once the project is complete, the roadway will no longer be needed for the subdivision. However, we understand the fire department desires to keep the access roadway in service for emergency use. The roadway will also be utilized by Border Patrol agents. We understand access to the roadway will be restricted and will not serve as a circulation element for the subdivision.

Grading is planned for portions of the alignment to widen existing roads and reduce hillside gradients. Based on project plans, grading will occur between approximate roadway Stations 47+00 to 74+00. Roadway fill embankments that are 6 to 12 feet high are planned between Stations 47+00 to 54+00. Cuts up to approximately 15 feet will occur between Stations 55+00 to 58+50. This will result in cut slopes that range from 4 feet to 26 feet in height. Proposed cut and fill slopes will be 2:1 (horizontal to vertical) or flatter. The remainder of the roadway will be constructed near existing grades with only minor cuts and fills.

The majority of the roadway will be surfaced with disintegrated granite (DG). Steeper hillside portions will be surfaced with Portland cement concrete pavement (Stations 47+00 to 54+00 and 70+00 to 73+50). One area will be surfaced with asphalt concrete (Stations 63+00 to 66+00). The figure below shows the location of the planned roadway paving surfaces.

The locations, site descriptions, and proposed development are based on our site reconnaissance, review of published geologic literature, field investigations, project plans, and discussions with project personnel. If development plans differ from those described herein, Geocon Incorporated should be contacted for review of the plans and possible revisions to this report.

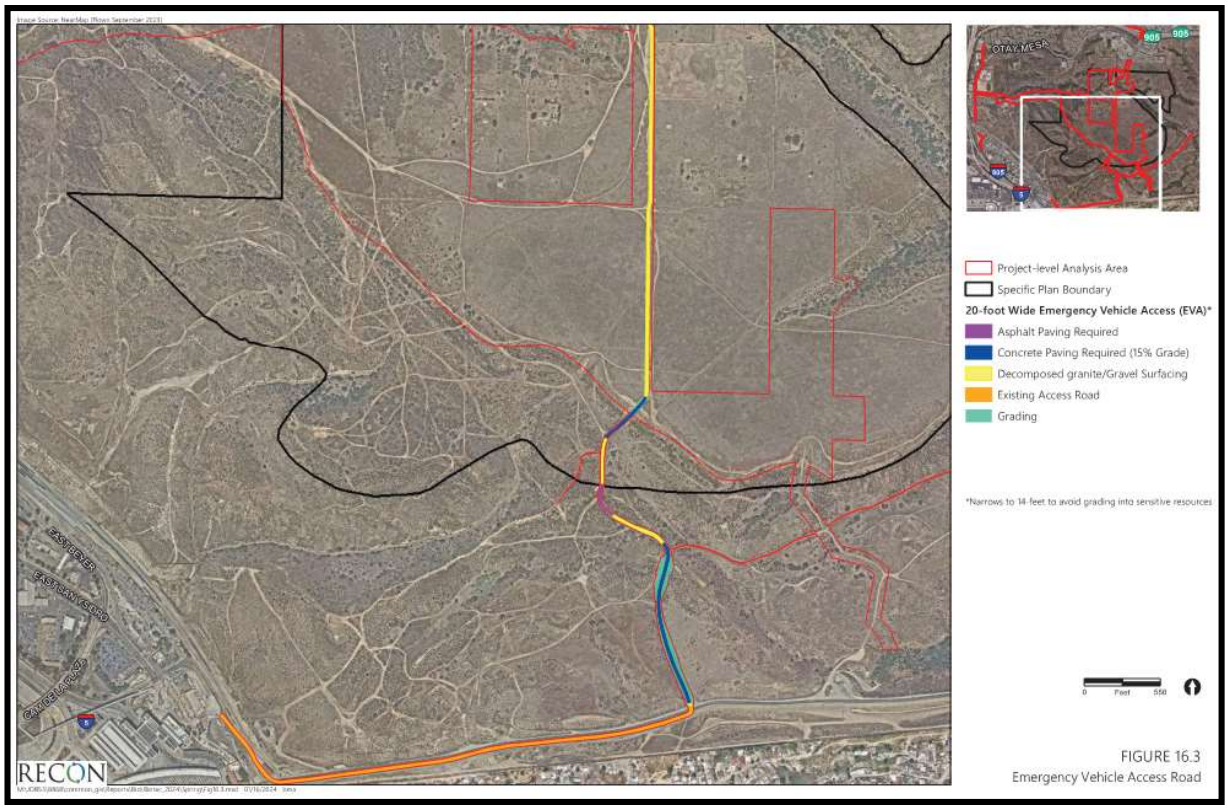



FIGURE 16.3
Emergency Vehicle Access Road

## 3. SOIL AND GEOLOGIC CONDITIONS

Soil and geologic conditions at the site were identified by a review of published and unpublished geologic literature for the general area, soil exposures noted during geologic mapping and observations within the subsurface explorations. Surficial soils and geologic units mapped or encountered during the previous field investigation in and near the roadway alignment include landslide debris, Pleistocene-age Terrace Deposits, and the Tertiary-age San Diego and Otay Formations. Each of these units is described below and their approximate limits are depicted on the Geologic Map (Figure 2) and geologic cross section Figure 3. The locations of applicable borings and trenches are shown on the geologic map. The base of the landslide shown on Figure 3 was estimated by comparing adjacent subsurface information and geomorphic interpretation. For conservatism, the toe of the slide elevation was modeled near the ground surface at the drainage on the south end of the cross section.

To prepare this report we have combined geologic maps, borings, and trenches from several geotechnical reports. Some of the nomenclature with respect to geologic units is different between the reports. To maintain consistency with the boring logs and trenches, we did not modify the nomenclature.

## 3.1 Landslide Debris (Qls)

A deep-seated landslide complex (Qls) has been identified along the western and southern mesa rim by Tan (1995), the City of San Diego Seismic Safety Element (2008, Sheets 2 and 3) and by this study (see Geologic Map, Figure No. 2). This landslide complex, also known as the *San Ysidro Landslide*, is located within the hillside area where the EVA roadway is planned. Large-diameter exploratory borings were performed along the mesa rim during previous field investigations to establish the position of the landslide headscarp (see Geocon 2002). More recent borings were performed east of the roadway alignment for the Southwest Village development (Geocon July 2021). Three continuous cores (identified on Figure 2 as B-22, B-23, and B-24) were excavated to establish the basial shear zone and obtain samples for laboratory testing. The information from these borings was utilized to generate the geologic cross section A-A' (Figure 3).

The landslide debris is expected to be suitable to support the roadway; however, remedial grading will be required at the toe of proposed fill slopes to remove compressible surficial soils. In addition, slope excavations exposing landslide debris may require a stability fill. The need for stability fills will be determined during grading.

## 3.2 Terrace Deposits (Qtc and Qtg)

Terrace deposits cap the entire mesa. These deposits are also known as Very Old Paralic Deposits (Qvop). To avoid confusion, we have left the mapped contacts as Qtc and Qtg for consistency between boring and trench logs from previous geotechnical studies and geologic maps.

The terrace deposits are divided on the geologic map into two members. The upper Terrace Deposit member consists of a highly expansive clay designated as Qtc. A very dense, granular cobble conglomerate member (Qtg) underlies the clay. Each member is described below.

Terrace Deposit Clay (Qtc) varied from 2 to 6 feet in thickness in trenches near the roadway alignment and consisted of stiff, moist, dark brown to olive clay. Expansion testing indicates the clay possesses high expansive characteristics.

Terrace Deposit Gravel (Qtg) was encountered below the clay and consists of dense to very dense interbedded reddish brown sandy coarse gravel and gravelly sands, with some silt and clay. Excavation of the Terrace Deposit Gravel required very heavy effort during drilling, and in some zones required the use of a rock core bucket to penetrate the deposit. Cobbles and boulders within the deposit generally increased in size with depth. In general, the upper 10 to 15 feet consisted of gravels less than 12 inches in dimension and contained zones with a relatively low percentage of cobble. Deeper materials contained a much higher percentage of cobble and larger boulders. Excavation of this deposit will require a very heavy effort with conventional heavy-duty earth moving equipment.

### 3.3 San Diego Formation (Tsd)

Dense, light yellowish brown to gray-brown silty, fine micaceous sandstone with some thin interbedded conglomerate layers of the Pliocene-age San Diego Formation were encountered in previous borings immediately below the Pleistocene-age Terrace Deposit Gravel (Qtg) unit described above. Down-hole logging of the Qtg/Tsd contact indicated an irregularly horizontal depositional contact scoured into the generally finer-grained horizontally bedded sandstone of the San Diego Formation. The elevation of this disconformable contact varies between approximately 430 feet MSL to approximately 457 feet MSL, with the average contact elevation at 442 feet MSL. In some of the borings, the presence of interbedded, coarse subrounded volcanic conglomerate layers is suggestive of reported nonmarine facies of the San Diego Formation (Wagner, H. M., 2001). We don't expect the San Diego Formation will be encountered during grading.

### 3.4 Otay Formation (To)

Dense to hard, light olive to gray-brown, horizontally interbedded clayey siltstones, silty claystones and fine-grained sandstone of the Oligocene-age Otay Formation sandstone-mudstone member were encountered in some of the borings immediately below the Pliocene-age San Diego Formation. Down-hole logging of the contact with the San Diego Formation indicated a sharp, but irregular, depositional contact scoured into the generally finer-grained massive to horizontal beds of the Otay Formation. Laboratory shear strength testing indicated high strength values. The Otay sandstone-mudstone member as encountered is very dense and is suitable for support of structural loads and/or fills in its present condition. The sandstone portions typically possess low expansion and good shear strength properties. We don't expect the Otay Formation will be encountered during grading.

## 4. GROUNDWATER

Groundwater was encountered in continuous core borings B-22 through B-24. A groundwater study was prepared by Dudek & Associates (see Geocon 2021). Groundwater elevations from this study were utilized in our slope stability analysis.

With respect to EVA roadway construction, groundwater is not anticipated to be encountered or impact the roadway. It is not uncommon for groundwater or seepage conditions to develop where none previously existed. Proper surface drainage of irrigation and rainwater will be critical to future performance of the project.

## 5. GEOLOGIC STRUCTURE

Bedding and formational contact attitudes observed and/or measured during previous investigations are mostly horizontal, exceptions being localized undulations and cross-laminations within a horizontally

bedded unit. The coarse conglomeratic portions of the Terrace Deposit Gravel (Qtg) are typically massive with few discernible attitudes, other than approximately horizontal imbrication of conglomerate clasts. Adverse geologic structures, based on observations of the exploratory excavations, do not present a significant hazard to roadway construction. However, during grading, cut slopes should be evaluated by an engineering geologist to confirm the presence or absence of adverse bedding or slope instability.

# 6. GEOLOGIC HAZARDS

## 6.1 Geologic Hazard Category

Review of the City of San Diego, Seismic Safety Study, Geologic Hazards and Faults, 2008 edition indicates the roadway is designated in Geologic Hazard Category 21 (within the hillside slope) and Category 53 (across the mesa top). Hazard Category 21 is described under Landslides as "Confirmed, known, or highly suspected". Category 53 is described as Other Terrain, "level or sloping terrain, unfavorable geologic structure, low to moderate risk".

## 6.2 Landslides

As previously discussed, a portion of the proposed roadway cross the San Ysidro landslide complex. Considering the depth and size of the landslide, stabilization is not practical, nor is it warranted for the construction of an EVA road that will have limited use.

Based on our stability analysis, construction of the roadway does not impact existing hillside stability or affect the overall global stability of the landslide complex. A discussion of slope stability is provided below.

# 7. SLOPE STABILITY EVALUATION

## 7.1 General

Cross section A-A' was analyzed to evaluate stability of the landslide near the EVA road alignment. The geology and basal slide surface was determined from geomorphic interpretation and application of features observed during our December 2020/January 2021 field investigation (see Geocon July 2021) and continuous core borings performed in September and October 2021. The groundwater elevation used in the analysis was based on Dudek & Associates' groundwater study.

The computer program SLOPE/W distributed by Geo-Slope International was utilized to perform the slope stability analyses. This program uses conventional slope stability equations and a two-dimensional limit-equilibrium method to calculate the factor of safety against deep-seated failure. For our analysis,

Spencer's Method with a block failure mode was used for failure along landslide basal surface. Spencer's Method satisfies both moment and force equilibrium.

The computer program searches for the critical failure surface based on parameters inputted, including the location of the "left" and "right" sliding blocks. The output files and calculated factor of safety for the cross-sections analyzed are presented on Figures 4 and 5. The critical failure surface for each analysis is shown on computer-generated output. The factor of safety is shown on each figure directly above the failure surface.

## 7.2 Shear Strength Parameters

The shear strength parameters used in the analyses are based on laboratory direct shear testing performed on samples obtained from borings during our December 2020/January 2021 study and our experience with similar soil conditions. We utilized the same strength parameters as those used in our previous study (Geocon 2021). Shear strength values used in our analyses are shown on Table 7.2.1.

**TABLE 7.2.1**
**SHEAR STRENGTH USED IN SLOPE STABILITY ANALYSES**

| Soil Type | Angle of Internal Friction (degrees) | Cohesion (psf) |
|---|---|---|
| Qcf (Compacted Fill) | 30 | 300 |
| Qal (Alluvium) | 28 | 100 |
| Qls (Landslide Debris) | 31 | 135 |
| To (Otay Formation) | 34 | 450 |
| Basal Slide Plane | 8 | 50 |

## 7.3 Slope Stability Analysis

To assess the factor of safety for the existing hillside in the area of the EVA, we performed a slope stability analysis using Cross Section A-A'. We analyzed a failure along the basal slide plane and up the assumed landslide headscarp. The strength parameters used for the basal surface was also used along the landslide headscarp. The result of this analysis is shown on Figure 4 which indicates a factor of safety of 1.25 for existing conditions.

To assess if the proposed EVA roadway grading impacts the existing hillside stability, we analyzed the stability section with the roadway grading included. The result of this analysis is shown on Figure 5. Based on our analysis, the factor of safety for the proposed roadway grading is essentially the same as it is for existing conditions (1.24). This demonstrates that the proposed EVA road construction does not impact the stability of the hillside slope. It is our opinion that a factor of safety greater than 1.2 is appropriate for the intended development of an EVA roadway.

# 8. CONCLUSIONS AND RECOMMENDATIONS

## 8.1 General

8.1.1 No soil or geologic conditions were encountered during our field investigation, or noted in our geologic review, that would preclude construction of the EVA road. Recommendations for grading and roadway pavement sections are provided herein.

8.1.2 Our field investigations indicate that the mesa top is underlain by a Terrace Deposits that are overlain by the San Diego Formation and Otay Formation. The hillside area is underlain by landslide debris. Remedial grading will be required to construct fill slopes and provide suitable support for the roadway surface improvements. Cut slopes will need to be observed by an engineering geologist to assess if stability fills are needed.

8.1.3 Slope stability analyses indicate that the proposed EVA roadway construction will not impact the overall stability of the landslide complex.

8.1.4 Groundwater and/or seepage-related problems are not anticipated provided that surface drainage is directed into properly designed drainage structures and away from pavement edges.

8.1.5 It is our professional opinion that the development area for the proposed EVA road and associated grading required to construct the roadway will have a slope stability factor of safety that is appropriate for its intended use as a temporary EVA roadway based on our conjectured landslide geometry.

## 8.2 Excavation and Soil Characteristics

8.2.1 Excavation of the on-site soils should be possible with moderate to very heavy effort using conventional heavy-duty equipment. Excavation of the terrace deposit gravels, if encountered, could generate oversized cobbles/boulders that require exporting.

8.2.2 The soil encountered during previous field investigations are considered “expansive” (expansion index [EI] greater than 20) as defined by 2022 California Building Code (CBC) Section 1803.5.3. We expect most of the soil that will be encountered possess a “low” to “high” expansion potential (EI of 130 or less) in accordance with ASTM D 4829. The following table presents soil classifications based on the expansion index.

**EXPANSION CLASSIFICATION BASED ON EXPANSION INDEX**

| Expansion Index (EI) | ASTM D 4829 Expansion Classification | 2022 CBC Expansion Classification |
|---|---|---|
| 0 – 20 | Very Low | Non-Expansive |
| 21 – 50 | Low | Expansive |
| 51 – 90 | Medium | |
| 91 – 130 | High | |
| Greater Than 130 | Very High | |

## 8.3 Grading Recommendations

8.3.1 Grading should be performed in accordance with the recommendations provided in this report, the Recommended Grading Specifications contained in Appendix C and the local grading ordinance. Geocon Incorporated should observe the grading operations on a full-time basis and provide testing during fill placement.

8.3.2 Prior to commencing grading, a preconstruction conference should be held at the site with the agency inspector, developer, grading contractor, civil engineer, and geotechnical engineer in attendance. Special soil handling and/or the grading plans can be discussed at that time.

8.3.3 Site preparation should begin with the removal of deleterious material, debris, and vegetation. The depth of vegetation removal should be such that material exposed in cut areas or soil to be used as fill is relatively free of organic matter. Material generated during stripping and/or site demolition should be exported from the site.

8.3.4 In areas of fill or where cuts are less than 1-foot, the upper 1-foot of existing soil within the roadway alignment should be removed and replaced as compacted fill. Deeper removals may be needed if unsuitable soil is encountered in the removal excavation.

8.3.5 In cut areas deeper than 1 foot, the subgrade surface should be observed by a representative of Geocon Incorporated once subgrade elevation has been attained to assess soil conditions and if overexcavation is needed. As a minimum the upper 12 inches of the subgrade should be scarified, moisture conditioned and recompacted.

8.3.6 In roadway areas that will be surfaced with concrete or asphalt concrete pavement, the upper 3 feet of subgrade soil should be checked during grading to assess the suitability of the soils for support of the pavement surface. If unsuitable soils or highly expansive soils (EI greater than 90) are encountered, the soils should be removed to a depth of at least 3 feet below

subgrade elevation and replaced with compacted fill that has an expansion index of 90 or less. Deeper removals may be required depending on the type and condition of soil encountered at subgrade elevation.

8.3.7 Remedial removals should extend to a horizontal distance of at least 3 feet beyond the edge of roadway improvements.

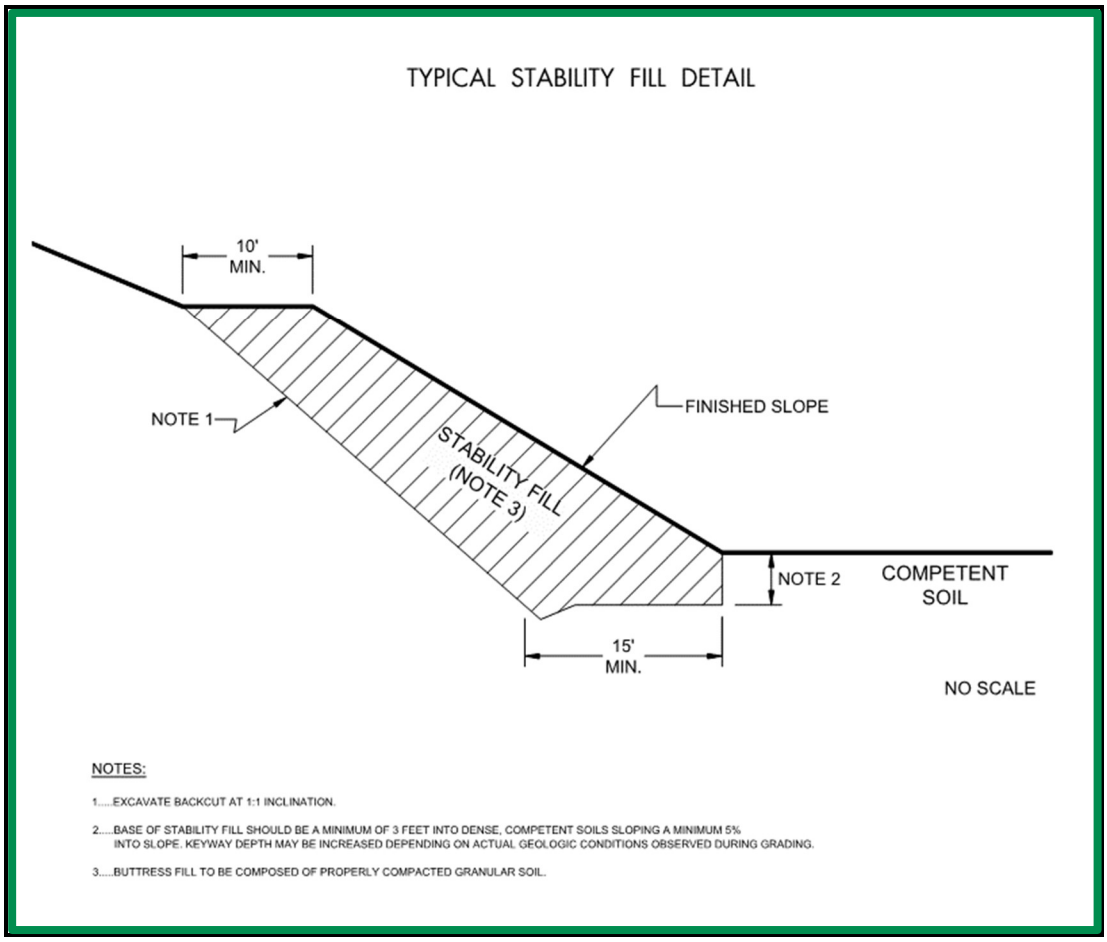
8.3.8 In the area of the proposed fill slopes, compressible soil deposits should be removed to expose competent landslide deposits. Within the slope key, the bottom of the removal should extend beyond the toe of the fill slope a horizontal distance equal to the depth of the removal. We expect removal depths of around 3 to 5 feet. The depth of required removals will be determined during grading when excavations can be performed to assess soil conditions.

8.3.9 Deeper than normal benching and/or stripping operations for sloping ground surfaces will be required where the thickness of compressible surficial deposits exceeds 3 feet.

8.3.10 After removal of unsuitable materials is performed, the site should then be brought to final subgrade elevations with structural fill compacted in layers. In general, soils native to the site are suitable for re-use as fill if free from vegetation, debris and other deleterious material. Expansive soils (EI greater than 90) should not be placed within the upper 3 feet of roadway areas underlain by concrete or asphalt concrete. Layers of fill should be no thicker than will allow for adequate bonding and compaction. All fill, including backfill and scarified ground surfaces, should be compacted to at least 90 percent of maximum dry density at or above optimum moisture content, as determined in accordance with ASTM Test Procedure D1557. The upper 12 inches of subgrade soil should be compacted to at least 95 percent relative compaction.

8.3.11 It is recommended that excavations be observed during grading by a representative of Geocon Incorporated to verify that soil and geologic conditions do not differ significantly from those anticipated.

8.3.12 Cuts slopes in the landslide debris may require a stability fill. The need for stability fills will be determined during grading once the condition of soils in the cut excavation can be assessed. A typical stability fill detail is provided below.




8.3.13 The outer 15 feet (or a distance equal to the height of the slope, whichever is less) of fill slopes should be composed of properly compacted granular "soil" fill to reduce the potential for slope creep and surficial sloughing. In general, soil with an EI≤90 should be used within the outer slope zone.

8.3.14 All fill slopes should be overbuilt at least 3 feet horizontally and cut back to the design finish grade. As an alternative, fill slopes may be compacted by back-rolling at vertical intervals not to exceed 4 feet and then track-walking with a D-8 dozer, or equivalent, upon completion such that the fill soils are uniformly compacted to at least 90 percent relative compaction to the face of the finished slope.

8.3.15 Slopes should be landscaped with drought-tolerant vegetation having variable root depths and requiring minimal landscape irrigation. Slopes should also be properly maintained to reduce erosion.

## 8.4 Preliminary Pavement Recommendations

8.4.1 Preliminary pavement recommendations for the roadway are provided below. Final pavement sections should be based on the R-Value of the subgrade soil encountered at final subgrade elevation. For preliminary design, we used a laboratory R-Value of 5. We also assumed a Traffic Index of 5.0.

8.4.2 Table 8.4.1 provides the preliminary flexible pavement sections for the roadway. The sections were calculated in general conformance with *Caltrans Method of Flexible Pavement Design* (Highway Design Manual, Section 608.4). We are also providing a pavement section based on City of San Diego Schedule "J", should it be required.

**TABLE 8.4.1**
**PRELIMINARY ASPHALT CONCRETE PAVEMENT SECTIONS FOR THE EMERGENCY VEHICLE ACCESS ROAD**

| Location | Full Depth Disintegrated Granite Base (inches) | Asphalt Concrete (inches) | Class 2 Base (inches) | City of San Diego Schedule J | |
|---|---|---|---|---|---|
| | | | | Asphalt Concrete (inches) | Cement Treated Base (inches) |
| EVA Road | 18 | 3 | 10 | 3 | 8 |

8.4.3 Disintegrated Granite base should conform to Section 200-2.7 of the *Standard Specifications for Public Works Construction* (Green Book). Asphalt concrete should conform to Section 203-6 of the Green Book. Cement treated base (CTB) should conform to Section 301-3.3 of the Green Book and Section 400-5 of the *Regional Supplement to Greenbook.* Class 2 aggregate base materials should conform to Section 26-1.02B of the *Standard Specifications of the State of California, Department of Transportation* (Caltrans).

8.4.4 Prior to placing base material, the subgrade should be scarified, moisture conditioned and recompacted to a minimum of 95 percent relative compaction. The depth of compaction should be at least 12 inches. The base material should be compacted to at least 95 percent relative compaction. Asphalt concrete should be compacted to a density of at least 95 percent of the laboratory Hveem density in accordance with ASTM D 2726.

8.4.5 We calculated the rigid pavement section in general conformance with the procedure recommended by the Portland Cement Association (PCA) and AASHTO. We used the following traffic categories and design parameters in our analysis. The analysis is based on a 20-year design life.

**TABLE 8.4.2**
**TRAFFIC CATEGORIES**

| Location | Traffic Category | Reliability (%) | Slabs Cracked at End of Design Life (%) |
|---|---|---|---|
| EVA | Residential | 75 | 15 |

8.4.6 We used the parameters presented in the following table to calculate the pavement design sections.

**TABLE 8.4.3**
**RIGID PAVEMENT DESIGN PARAMETERS**

| Design Parameter | Design Value |
|---|---|
| R-Value | 5 |
| Traffic Growth Rate | 0% |
| Directional Distribution | 100% |
| Design Lane Distribution | 100% |
| Modulus of Rupture for Concrete, $M_R$ | 500 psi |
| Concrete Compressive Strength | 3,000 psi |
| Concrete Modulus of Elasticity, E | 3,150,000 psi |

8.4.7 Based on the criteria presented herein, the PCC pavement sections should have the following minimum thickness.

**TABLE 8.4.4**
**RIGID VEHICULAR PAVEMENT RECOMMENDATIONS**

| Location | Traffic Category | Trucks Per Day | Portland Cement Concrete, T (Inches) |
|---|---|---|---|
| EVA | Residential | < 10 | 6.5 |

8.4.8 The PCC vehicular pavement should be placed over subgrade soil that is compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content.

8.4.9 Adequate joint spacing based on PCA and AASHTO guidelines should be incorporated into the design and construction of the rigid pavement.

8.4.10 Reinforcing steel will not be necessary within the concrete pavement.

8.4.11 Perimeter curbs adjacent to landscape areas should extend at least 6 inches below the bottom of the pavement aggregate base. In lieu of extending the perimeter curb, an impermeable liner should be installed.

8.4.12 Concrete flatwork should be structurally connected to the curbs to help reduce potential offsets between the curbs and the flatwork.

8.4.13 To control the location and spread of concrete shrinkage cracks, crack-control joints should be included in the design of the concrete-pavement slab. Crack-control joints should be sealed with an appropriate sealant to prevent the migration of water through the control joint to the subgrade materials. The depth of the crack-control joints should be in accordance with PCA and AASHTO guidelines.

8.4.14 Construction joints should be provided at the interface between areas of concrete placed at different times during construction. The project structural engineer should provide details for load transfer.

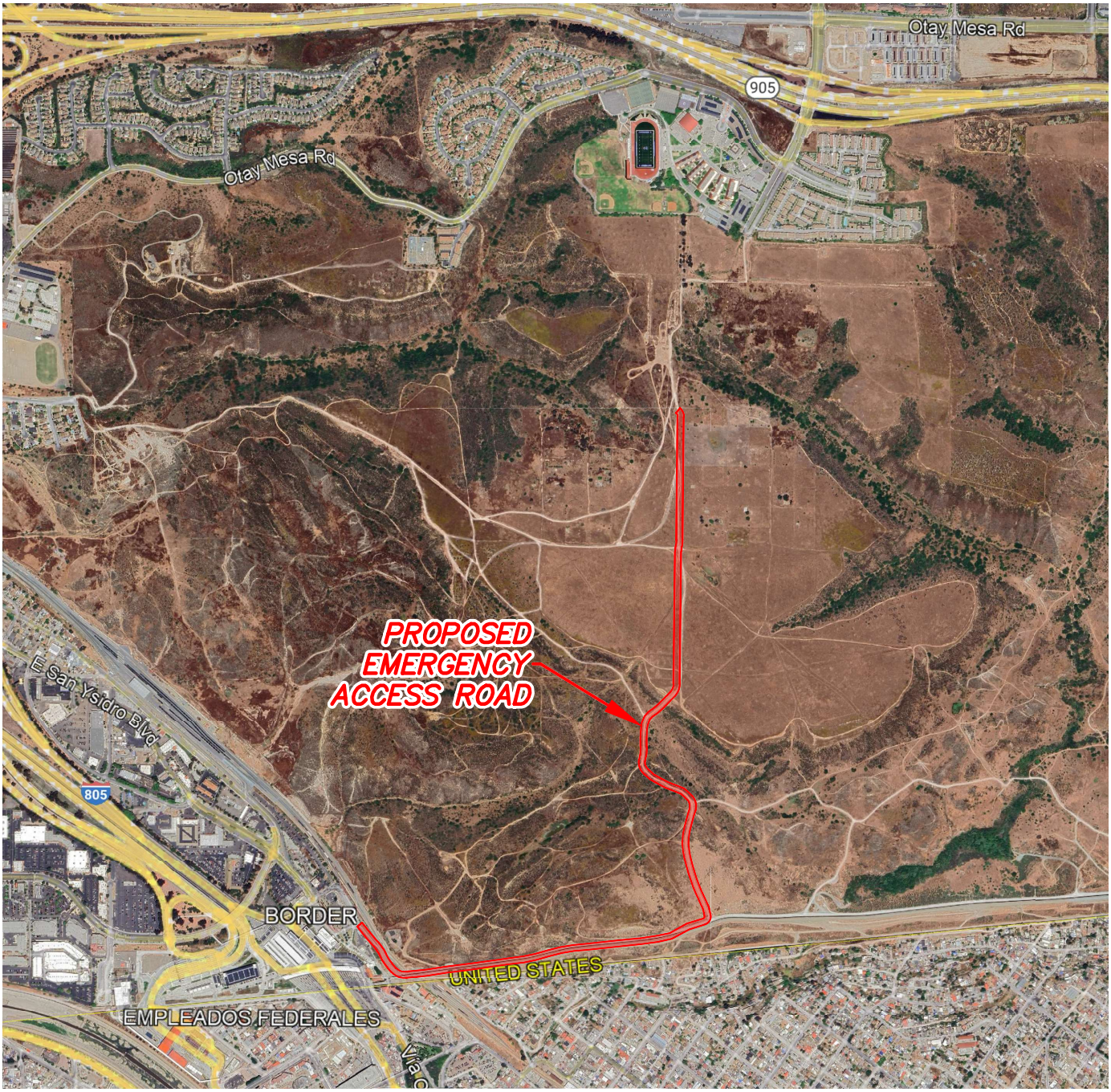
## LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

2. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon Incorporated should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon Incorporated.

3. This report is issued with the understanding that it is the responsibility of the owner or his representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

4. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

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N

NO SCALE

# VICINITY MAP

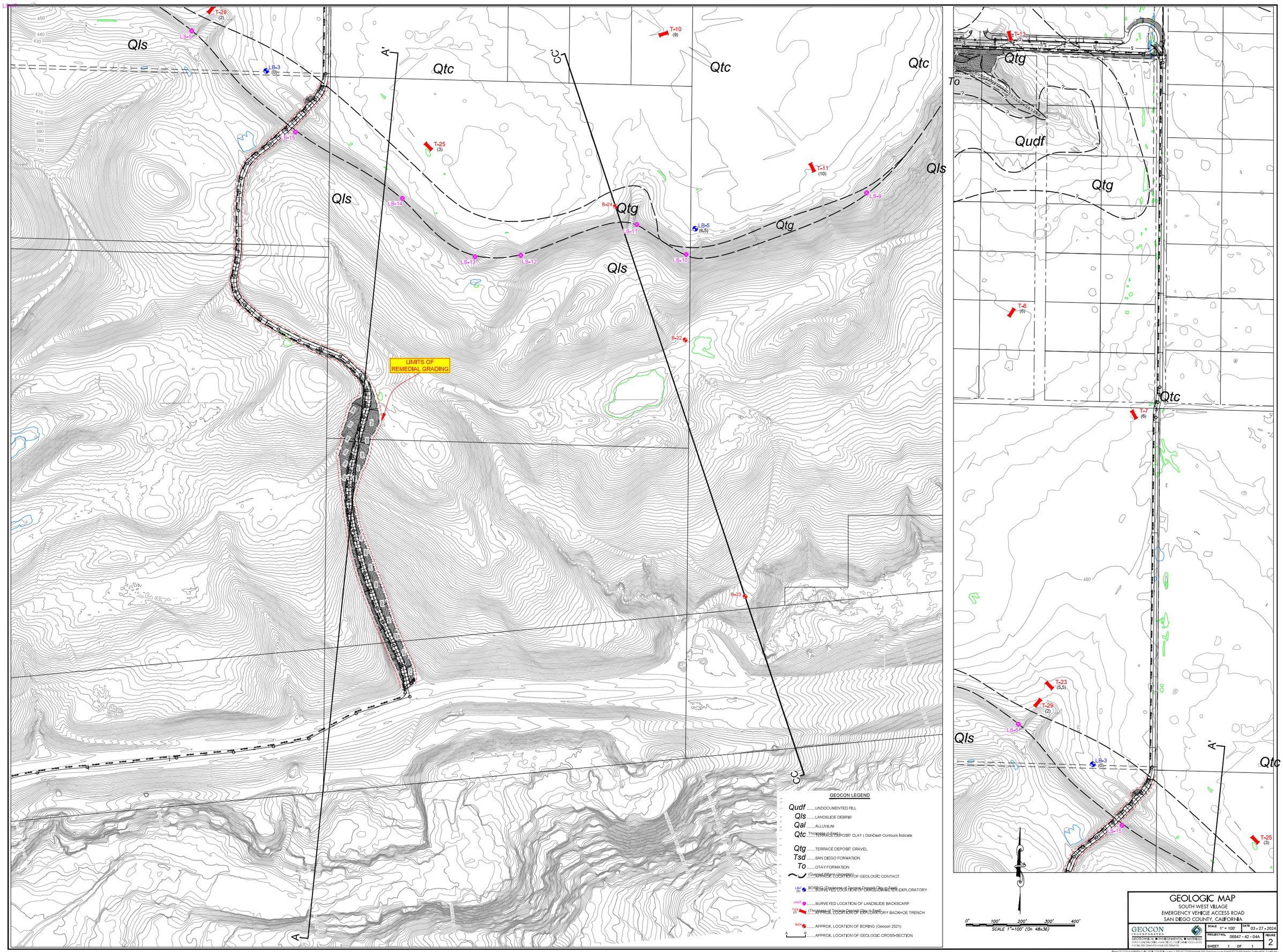
GEOCON
INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974
PHONE 858 558-6900 - FAX 858 558-6159

SOUTH WEST VILLAGE
EMERGENCY VEHICLE ACCESS ROAD
SAN DIEGO COUNTY, CALIFORNIA

| RM / RA | | DSK/GTYPD |
|---|---|---|

| DATE 03 - 27 - 2024 | PROJECT NO. 06847 - 42 - 04A | FIG. 1 |
|---|---|---|

Plotted:03/27/2024 8:44AM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\06847-42-04A SWV Emergency Access Road\DETAILS\06847-42-04A VicinityMap.dwg

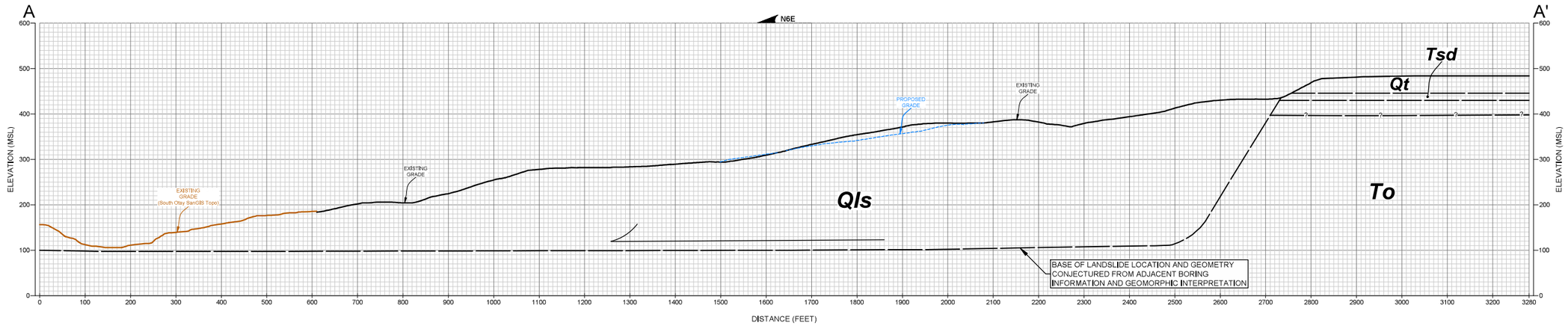



# GEOLOGIC MAP

SOUTH WEST VILLAGE
EMERGENCY VEHICLE ACCESS ROAD
SAN DIEGO COUNTY, CALIFORNIA

GEOCON INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE • SAN DIEGO, CALIFORNIA 92121-2974
TELEPHONE 858 558-6900 • FAX 858 558-6159

| | |
|---|---|
| SCALE | 1" = 100' |
| DATE | 03 - 27 - 2024 |
| PROJECT NO. | 06847 - 42 - 04A |
| FIGURE | 2 |
| SHEET | 1 OF 1 |




## GEOLOGIC CROSS-SECTION A-A'

SCALE: 1" = 100' (Vert. = Horiz.)

**GEOCON LEGEND**

***Qls*** .....LANDSLIDE DEBRIS
***Qt*** .....TERRACE DEPOSITS
***Tsd*** .....SAN DIEGO FORMATION
***To*** .....OTAY FORMATION
..... APPROX. LOCATION OF GEOLOGIC CONTACT (Queried Where Uncertain)

# GEOLOGIC CROSS - SECTION

SOUTH WEST VILLAGE
EMERGENCY VEHICLE ACCESS ROAD
SAN DIEGO COUNTY, CALIFORNIA

GEOCON INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

| SCALE | 1" = 100' | DATE | 03 - 27 - 2024 |
|---|---|---|---|
| PROJECT NO. | 06847 - 42 - 04A | FIGURE | 3 |
| SHEET | 1 OF 1 | | |

Southwest Village
Project No. 06847-42-04A
Cross Section: A-A'

Analysis:
-- Failure Up Headscarp
-- Existing Conditions

| Color | Name | Unit Weight (pcf) | Cohesion' (psf) | Phi' (°) | Piezometric Line |
|---|---|---|---|---|---|
| | Qls | 130 | 300 | 30 | 1 |
| | Shear Zone | 120 | 50 | 8 | 1 |
| | To (2) | | | | 1 |

1.25

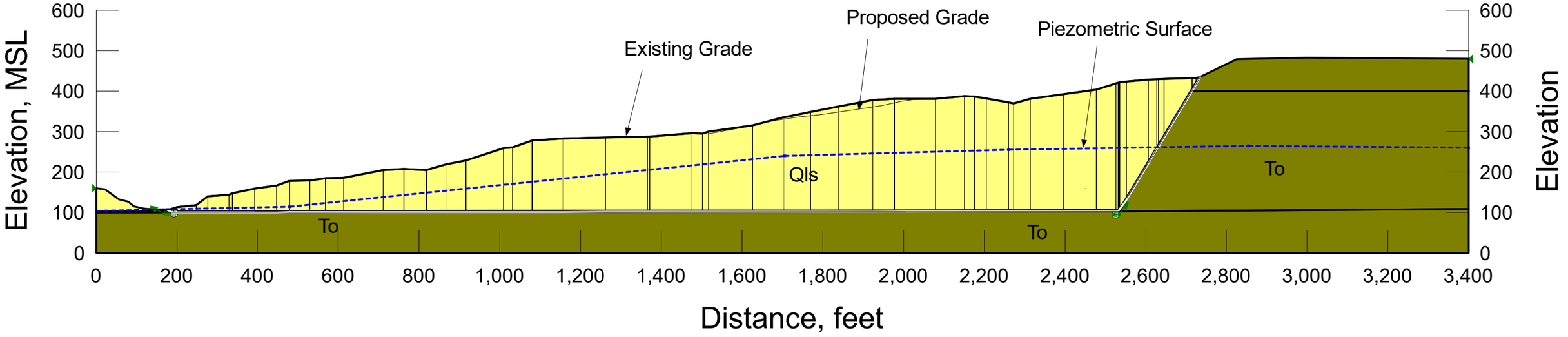



FIGURE 4

Southwest Village
Project No. 06847-42-04A
Cross Section: A-A'

Analysis:
-- Failure Up Headscarp
-- Proposed Conditions

| Color | Name | Unit Weight (pcf) | Cohesion' (psf) | Phi' (°) | Piezometric Line |
|---|---|---|---|---|---|
| | Qls | 130 | 300 | 30 | 1 |
| | Shear Zone | 120 | 50 | 8 | 1 |
| | To (2) | | | | 1 |

1.24

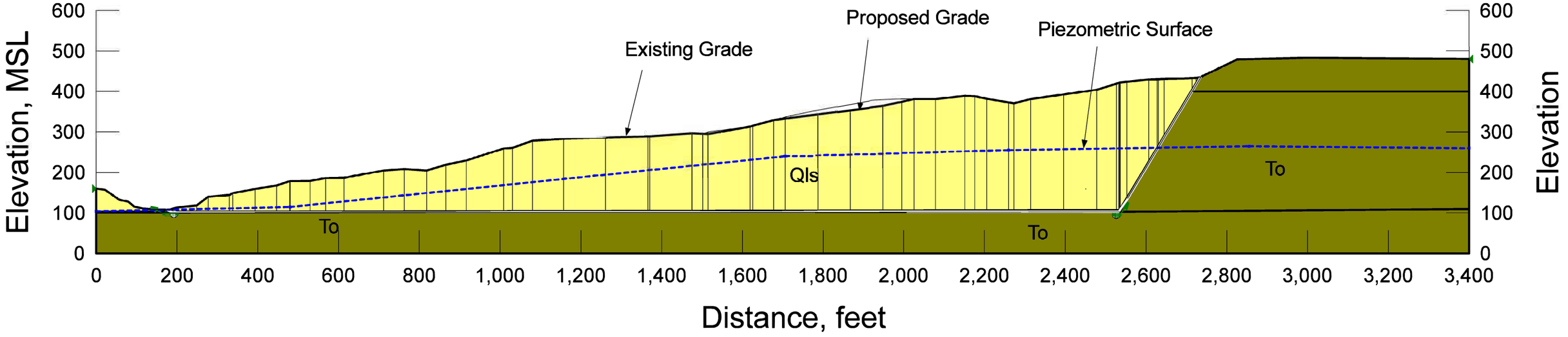



FIGURE 5

# APPENDIX

# APPENDIX A

# BORING AND TRENCH LOGS

# FOR

# SOUTHWEST VILLAGE
# EMERGENCY VEHICLE ACCESS ROAD
# SAN DIEGO, CALIFORNIA

# PROJECT NO. 06847-42-04A

PROJECT NO. 06847-42-01

# BORING LB 3

ELEV. (MSL.) 472 DATE COMPLETED 8/23/02

EQUIPMENT SOILMEC 108 TRUCK MT

| DEPTH IN FEET | SAMPLE NO. | LITHOLOGY | GROUNDWATER | SOIL CLASS (USCS) | MATERIAL DESCRIPTION | PENETRATION RESISTANCE (BLOWS/FT.) | DRY DENSITY (P.C.F.) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | | **TERRACE DEPOSIT GRAVEL** Medium dense to dense, damp, light to medium reddish brown, Sandy, medium to coarse GRAVEL to very Gravelly SAND, with some silt and trace clay | | | |
| 2 | | | | | | | | |
| 4 | | | | | | | | |
| 6 | | | | | | | | |
| 8 | | | | GM-SM | | | | |
| 10 | | | | | | | | |
| 12 | | | | | | | | |
| 14 | | | | | | | | |
| 16 | | | | | -Irregular transition 15 to 17 feet | | | |
| 18 | | | | | Dense, moist, medium reddish brown, Sandy, very coarse GRAVEL | | | |
| 20 | | | | | -Frequent occurances of 18 to 14 inch diameter, boulders of subrounded to rounded volcanic and granitic rock | | | |
| 22 | | | | GM | | | | |
| 24 | | | | | | | | |
| 26 | | | | | -Very irregular, approximately horizontal, sharp depositional (scour) contact | | | |
| 28 | | | | SM | **SAN DIEGO FORMATION** Dense, damp, light brown, Silty, fine to medium SANDSTONE | | | |

**Figure A-6, Log of Boring LB 3**

SOM

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◣ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. 06847-42-01

# BORING LB 3

ELEV. (MSL.) 472 DATE COMPLETED 8/23/02

EQUIPMENT SOILMEC 108 TRUCK MT

| DEPTH IN FEET | SAMPLE NO. | LITHOLOGY | GROUNDWATER | SOIL CLASS (USCS) | MATERIAL DESCRIPTION | PENETRATION RESISTANCE (BLOWS/FT.) | DRY DENSITY (P.C.F.) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|
| 30 | | | | | | | | |
| 32 | | | | | Dense, moist, reddish brown, Sandy coarse GRAVEL, subrounded to subangular | | | |
| 34 | | | | GM | | | | |
| 36 | | | | | -Horizontal, sharp scour-contact | | | |
| 38 | | | | SM | Dense, damp, light tan-brown, very Silty fine SANDSTONE, micaceous | | | |
| 40 | | | | | | | | |
| 42 | | | | GM | Very dense, moist, reddish brown, Sandy coarse GRAVEL<br>-Sharp, horizontal scour-contact | | | |
| 44 | LB3-1 | | | SM | **OTAY FORMATION**<br>Very dense, damp, light gray-olive, Silty, very fine SANDSTONE<br>-Joint N80W, 80N, terminated by contact below | | | |
| 46 | | | | | -Sharp, horizontal scour-contact | | | |
| 48 | LB3-2<br>LB3-3 | | | CL | Very stiff to hard, moist, light brown-pink, Silty CLAYSTONE; possibly bentonitic, massive and blocky | | | |
| 50 | | | | | | | | |
| 52 | | | | | BORING TERMINATED AT 52 FEET | | | |

**Figure A-7, Log of Boring LB 3**

SOM

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. 06847-42-01

# BORING LB 5

ELEV. (MSL.) 477 DATE COMPLETED 8/30/02

EQUIPMENT SOILMEC 108 TRUCK MT

| DEPTH IN FEET | SAMPLE NO. | LITHOLOGY | GROUNDWATER | SOIL CLASS (USCS) | MATERIAL DESCRIPTION | PENETRATION RESISTANCE (BLOWS/FT.) | DRY DENSITY (P.C.F.) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | |
| 2 | | | | CL | **TERRACE DEPOSIT CLAY**<br>Stiff, damp to moist, dark brown, Sandy CLAY, with some cobble | | | |
| 4 | | | | | | | | |
| 6 | | | | | -Irregular, approximately horizontal contact | | | |
| 8 | | | | SM-GM | **TERRACE DEPOSIT GRAVEL**<br>Medium dense to dense, medium to dark reddish brown, very Gravelly SAND; some silt, trace clay | | | |
| 10 | | | | | | | | |
| 12 | | | | | | | | |
| 14 | | | | | | | | |
| 16 | | | | | | | | |
| 18 | | | | | | | | |
| 20 | | | | GM | Very dense, damp, medium to dark reddish brown, Sandy, very coarse GRAVEL, with 8 to 18 inches diameter cobbles; some silt | | | |
| 22 | | | | | | | | |
| 24 | | | | | | | | |
| 26 | | | | | | | | |
| 28 | | | | | | | | |

**Figure A-11, Log of Boring LB 5**

SOM

SAMPLE SYMBOLS

□ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

⊠ ... DISTURBED OR BAG SAMPLE ◣ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. 06847-42-01

# BORING LB 5

ELEV. (MSL.) 477 DATE COMPLETED 8/30/02

EQUIPMENT SOILMEC 108 TRUCK MT

| DEPTH IN FEET | SAMPLE NO. | LITHOLOGY | GROUNDWATER | SOIL CLASS (USCS) | MATERIAL DESCRIPTION | PENETRATION RESISTANCE (BLOWS/FT.) | DRY DENSITY (P.C.F.) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|
| 30 | | | | | | | | |
| 32 | | | | | | | | |
| 34 | | | | | | | | |
| 36 | | | | | | | | |
| 38 | | | | GM | | | | |
| 40 | | | | | | | | |
| 42 | | | | | | | | |
| 44 | | | | | | | | |
| 46 | | | | | | | | |
| 48 | | | | | -Sharp, horizontal scour-contact at 48.5 feet | | | |
| 50 | | | | | **SAN DIEGO FORMATION**<br>Dense, damp, light tan-brown, Silty, fine to medium SANDSTONE; massive to cross-laminated, micaceous | | | |
| 52 | | | | SM | -6" pebble conglomerate layer, horizontally imbricated, rounded to subrounded dark volcanic rock | | | |
| 54 | | | | | | | | |
| 56 | | | | | -Contact transitional over 6 inches and approximately horizontal | | | |
| 58 | | | | SM-ML | **OTAY FORMATION**<br>Very dense, damp, light olive-gray-brown, very Silty, very fine SANDSTONE, with some clay lenses | | | |

**Figure A-12, Log of Boring LB 5**

SOM

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

⊠ ... DISTURBED OR BAG SAMPLE ◣ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. 06847-42-01

| DEPTH IN FEET | SAMPLE NO. | LITHOLOGY | GROUNDWATER | SOIL CLASS (USCS) | **BORING LB 5**<br>ELEV. (MSL.) **477** DATE COMPLETED **8/30/02**<br>EQUIPMENT **SOILMEC 108 TRUCK MT** | PENETRATION RESISTANCE (BLOWS/FT.) | DRY DENSITY (P.C.F.) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|
| | | | | | MATERIAL DESCRIPTION | | | |
| 60 | | | | | | | | |
| | | | | | BORING TERMINATED AT 61 FEET | | | |

**Figure A-13, Log of Boring LB 5**

SOM

SAMPLE SYMBOLS
□ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)
⊠ ... DISTURBED OR BAG SAMPLE ◣ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

RACE DEPOSIT CLAY

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. 06847-42-01

| | | GY | TER | | **TRENCH T 18** | ON E) | -Y | ) |
|---|---|---|---|---|---|---|---|---|

PROJECT NO. 06847-42-01

# TRENCH T 6

ELEV. (MSL.) 489 DATE COMPLETED 8/22/02

EQUIPMENT JD 510 RUBBER TIRE

| DEPTH IN FEET | SAMPLE NO. | LITHOLOGY | GROUNDWATER | SOIL CLASS (USCS) | MATERIAL DESCRIPTION | PENETRATION RESISTANCE (BLOWS/FT.) | DRY DENSITY (P.C.F.) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | CH | **TERRACE DEPOSIT CLAY**<br>Firm to hard, damp to dry, dark yellowish brown, CLAY, abundant soil carbonate; topsoil zone | | | |
| 2 | | | | CH | Firm to hard, moist, moderate olive brown, CLAY | | | |
| 4 | | | | | | | | |
| 6 | | | | SW-SC | **TERRACE DEPOSIT GRAVEL**<br>Dense, moist, dark to pale yellowish orange, well graded SAND with clay and fine and coarse gravel; scattered cobbles, less than 8 inches diameter | | | |
| 8 | | | | | | | | |
| 10 | | | | | | | | |
| 12 | | | | | TRENCH TERMINATED AT 12 FEET | | | |

**Figure A-24, Log of Trench T 6**

SOM

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

⊠ ... DISTURBED OR BAG SAMPLE ◥ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. 06847-42-01

# TRENCH T 7

ELEV. (MSL.) 481 DATE COMPLETED 8/22/02

EQUIPMENT JD 510 RUBBER TIRE

| DEPTH IN FEET | SAMPLE NO. | LITHOLOGY | GROUNDWATER | SOIL CLASS (USCS) | MATERIAL DESCRIPTION | PENETRATION RESISTANCE (BLOWS/FT.) | DRY DENSITY (P.C.F.) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | CH | **TERRACE DEPOSIT CLAY** Firm to hard, dry, dark yellowish brown, CLAY, abundant soil carbonate; topsoil zone | | | |
| 2 | T7-1 | | | CH | Hard, damp to dry, dark yellowish brown, CLAY | | | |
| 4 | T7-2 | | | CH | Becomes moist, moderate yellowish brown, CLAY with sand | | | |
| 6 | T7-3 | | | | | | | |
| 8 | T7-4 | | | SW | **TERRACE DEPOSIT GRAVEL** Dense, moist, moderate yellowish brown, well graded, fine to coarse SAND with rounded, fine to coarse gravel, approximately 10 to 20% rounded cobbles and boulders up to 1 foot diameter, caving | | | |
| 10 | | | | | | | | |
| | | | | | TRENCH TERMINATED AT 11 FEET | | | |

**Figure A-25, Log of Trench T 7**

SOM

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

▨ ... DISTURBED OR BAG SAMPLE ◣ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. 06847-42-01

# TRENCH T 10

ELEV. (MSL.) 479 DATE COMPLETED 8/22/02

EQUIPMENT JD 510 RUBBER TIRE

| DEPTH IN FEET | SAMPLE NO. | LITHOLOGY | GROUNDWATER | SOIL CLASS (USCS) | MATERIAL DESCRIPTION | PENETRATION RESISTANCE (BLOWS/FT.) | DRY DENSITY (P.C.F.) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | CH | **TERRACE DEPOSIT CLAY** Hard, dry, dark yellowish brown, CLAY, cracks, roots, caliche; topsoil zone | | | |
| 2 | | | | | Firm to hard, moist, pale to dark yellowish brown, CLAY | | | |
| 4 | T10-1 | | | | | | | |
| 6 | T10-2 | | | CH | | | | |
| 8 | | | | | | | | |
| 10 | T10-3 | | | SC | **TERRACE DEPOSIT GRAVEL** Dense, moist, moderate brown, Clayey SAND with gravel, approximately 10% cobbles and boulders up to 1 foot diameter | | | |
| 12 | | | | | TRENCH TERMINATED AT 12 FEET | | | |

**Figure A-28, Log of Trench T 10**

SOM

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

▨ ... DISTURBED OR BAG SAMPLE ◣ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. 06847-42-01

# TRENCH T 11

ELEV. (MSL.) 481 DATE COMPLETED 8/22/02

EQUIPMENT JD 510 RUBBER TIRE

| DEPTH IN FEET | SAMPLE NO. | LITHOLOGY | GROUNDWATER | SOIL CLASS (USCS) | MATERIAL DESCRIPTION | PENETRATION RESISTANCE (BLOWS/FT.) | DRY DENSITY (P.C.F.) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | CH | **TERRACE DEPOSIT CLAY**<br>Hard, dry, dark yellowish brown, CLAY, caliche and rootlets; topsoil zone | | | |
| 2 | | | | | Firm to hard, moist, pale yellowish brown, CLAY | | | |
| 4 | | | | | | | | |
| 6 | | | | CH | | | | |
| 8 | | | | | | | | |
| 10 | | | | | -1 foot boulder | | | |
| | | | | SC | **TERRACE DEPOSIT GRAVEL**<br>Dense, moist, moderate brown, Clayey SAND with gravel, approximately 10% rounded cobbles and boulders up to 1 foot diameter | | | |
| | | | | | TRENCH TERMINATED AT 11 FEET | | | |

**Figure A-29, Log of Trench T 11**

SOM

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◣ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. 06847-42-01

# TRENCH T 13

ELEV. (MSL.) 478 DATE COMPLETED 8/23/02

EQUIPMENT JD 510 RUBBER TIRE

| DEPTH IN FEET | SAMPLE NO. | LITHOLOGY | GROUNDWATER | SOIL CLASS (USCS) | MATERIAL DESCRIPTION | PENETRATION RESISTANCE (BLOWS/FT.) | DRY DENSITY (P.C.F.) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | |
| | | | | SM | **TOPSOIL**<br>Dense, dry, dark yellowish brown, Silty SAND, porous, soil cracking, roots | | | |
| 2 | | | | | **TERRACE DEPOSIT GRAVEL**<br>Dense, moist, moderate yellowish brown, Clayey SAND, scattered rounded gravel and cobbles less than 6 inches diameter | | | |
| 4 | T13-1 | | | SC | | | | |
| 6 | | | | | TRENCH TERMINATED AT 6 FEET | | | |

**Figure A-31, Log of Trench T 13**

SOM

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

⊠ ... DISTURBED OR BAG SAMPLE ◥ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. 06847-42-01

# TRENCH T 23

ELEV. (MSL.) 468 DATE COMPLETED 8/26/02

EQUIPMENT JD 510 RUBBER TIRE

| DEPTH IN FEET | SAMPLE NO. | LITHOLOGY | GROUNDWATER | SOIL CLASS (USCS) | MATERIAL DESCRIPTION | PENETRATION RESISTANCE (BLOWS/FT.) | DRY DENSITY (P.C.F.) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | |
| | | | | CH | **TERRACE DEPOSIT CLAY**<br>Hard, moist, moderate yellowish brown, CLAY, cracked roots | | | |
| 2 | T23-1 | | | CH | Firm, moist, moderate yellowish brown, CLAY | | | |
| 4 | | | | CH | Firm, moist, moderate yellow brown, Sandy CLAY | | | |
| 6 | T23-2 | | | SC | **TERRACE DEPOSIT GRAVEL**<br>Becomes dense, moist, moderate yellowish brown and dark yellowish orange, Clayey SAND with gravel, approximately 25% cobbles and boulders up to 2 feet diameter | | | |
| 8 | | | | | | | | |
| | | | | | TRENCH TERMINATED AT 9 FEET | | | |

**Figure A-41, Log of Trench T 23**

SOM

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

⊠ ... DISTURBED OR BAG SAMPLE ◥ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. 06847-42-01

# TRENCH T 25

ELEV. (MSL.) 484 DATE COMPLETED 8/26/02

EQUIPMENT JD 510 RUBBER TIRE

| DEPTH IN FEET | SAMPLE NO. | LITHOLOGY | GROUNDWATER | SOIL CLASS (USCS) | MATERIAL DESCRIPTION | PENETRATION RESISTANCE (BLOWS/FT.) | DRY DENSITY (P.C.F.) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | | | | | |
| | | | | CH | **TERRACE DEPOSIT CLAY**<br>Hard, dry, dark yellowish brown, CLAY, cracks, roots | | | |
| 2 | | | | CH | Hard, moist, dark yellowish brown, CLAY | | | |
| | | | | SC | **TERRACE DEPOSIT GRAVEL**<br>Dense, moist, moderate brown, Clayey SAND with rounded gravel, approximately 20% cobbles and boulders up to 1 foot diameter | | | |
| 4 | | | | | | | | |
| 6 | T25-1 | | | SC | No cobbles or boulders below 4.5 feet | | | |
| 8 | | | | | TRENCH TERMINATED AT 8 FEET | | | |

**Figure A-43, Log of Trench T 25**

SOM

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. 06847-42-01

# TRENCH T 29

ELEV. (MSL.) 465 DATE COMPLETED 8/26/02

EQUIPMENT JD 510 RUBBER TIRE

| DEPTH IN FEET | SAMPLE NO. | LITHOLOGY | GROUNDWATER | SOIL CLASS (USCS) | MATERIAL DESCRIPTION | PENETRATION RESISTANCE (BLOWS/FT.) | DRY DENSITY (P.C.F.) | MOISTURE CONTENT (%) |
|---|---|---|---|---|---|---|---|---|
| 0 | | | | CH | **TOPSOIL**<br>Hard, dry, dark yellowish brown, CLAY with gravel, cracking, roots | | | |
| 2 | | | | SC-GC | **TERRACE DEPOSIT GRAVEL**<br>Dense, moist, dusky yellow and moderate yellowish brown, Clayey, very Gravelly SAND, approximately 30% rounded cobbles and boulders up to 2.5 feet diameter | | | |
| 12 | T29-1 | | | SM | **SAN DIEGO FORMATION**<br>Dense, damp, dusky yellow to light olive brown, Silty fine SAND | | | |
| 14 | | | | | TRENCH TERMINATED AT 14 FEET | | | |

**Figure A-47, Log of Trench T 29**

SOM

SAMPLE SYMBOLS

□ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

⊠ ... DISTURBED OR BAG SAMPLE ◥ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

# Log of Boring B 22

GEOCON

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:**
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 347' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | **LANDSLIDE DEBRIS** |
| 2 | | | | | | | | Medium dense, moist, black, Clayey, fine to coarse SAND with some gravel. |
| 3 | | 1 | 5 | 80 | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | 1 | 5 | 40 | | | | -Becomes dark brown below 8 feet. |
| 9 | | | | | | | | |
| 10 | | | | | | SC | | -Becomes predominately reddish brown below 10 feet with soft sheared clay at 10.1 feet. |
| 11 | | | | | | | | |
| 12 | | | | | | | | -Gravel and cobble size rock fragments below 12 feet. |
| 13 | | 1 | 5 | 50 | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
| 16 | | | | | | | | |
| 17 | | | | | | | | |
| 18 | | 1 | 5 | 50 | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| 21 | | | | | | | | Medium dense, moist, reddish brown, Silty, fine to coarse SAND with some gravel. |
| 22 | | | | | | | | |
| 23 | | 2 | 5 | 80 | | SM | | |
| 24 | | | | | | | | |

**Appendix 1**

GEOCON

# Log of Boring B 22

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:**
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 347' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 26 | | | | | | | | |
| 27 | | 2 | 5 | 30 | | SM | | |
| 28 | | | | | | | | |
| 29 | | | | | | | | |
| 30 | | | | | | | | Dense to medium dense, moist, reddish brown, fine to coarse, Sandy GRAVEL; poor recoveries due to high gravel and cobble content. |
| 31 | | 2 | 2.5 | 40 | | | | |
| 32 | | | | | | | | |
| 33 | | 2 | 2.5 | 80 | | | | |
| 34 | | | | | | | | |
| 35 | | | | | | | | |
| 36 | | 3 | 1.5 | 100 | | | | |
| 37 | | | | | | | | |
| 38 | | 3 | 3.5 | 57 | | | | |
| 39 | | | | | | | | |
| 40 | | | | | | | | |
| 41 | | | | | | | | |
| 42 | | 3 | 5 | 0 | | | | |
| 43 | | | | | | | | |
| 44 | | | | | | | | |
| 45 | | | | | | | | |
| 46 | | | | | | | | |
| 47 | | 4 | 5 | 0 | | | | |
| 48 | | | | | | | | |
| 49 | | | | | | | | |

**Appendix 1**

# Log of Boring B 22

GEOCON

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:**
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 347' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 51 | | | | | | | | Very stiff, moist, grayish brown, Silty CLAYSTONE to Clayey SILTSTONE blocks; disturbed with multiple fractures and apparent disturbed zones. |
| 52 | | 4 | 5 | 100 | | | | |
| 53 | | | | | | | | |
| 54 | | | | | | | | |
| 55 | | | | | | | | |
| 56 | | 4 | 3.5 | 86 | | CL&ML | | |
| 57 | | | | | | | | |
| 58 | | | | | ■ | | | |
| 59 | | | | | | | | -No core saple collected from 58.5 to 61 feet due to casing being added. |
| 60 | | | | | | | | |
| 61 | | 5 | 1 | 50 | | | | |
| 62 | | | | | ■ | | | |
| 63 | | | | | | | | Medium dense, moist, gray, Silty, fine to medium SAND/SANDSTONE; disturbed. |
| 64 | | 5 | 5 | 90 | | SM | | |
| 65 | | | | | | | | -Cobble present at 65 feet. |
| 66 | | | | | | | | |
| 67 | | | | | ■ | | | Very stiff, moist, pale brown, Silty CLAY/CLAYSTONE to Clayey SILT/SILTSTONE; disturbed. |
| 68 | | | | | | | | |
| 69 | | 5 | 5 | 100 | | | | |
| 70 | | | | | | CL&ML | | |
| 71 | | | | | | | | -Becomes gray below 71 feet. |
| 72 | | | | | | | | -Contorted beds present from 72 to 74.5 feet. |
| 73 | | 6 | 5 | 80 | | | | |
| 74 | | | | | | | | -High angle fracture with gray siltstone bed above and reddish brown claystone bed below at 73.5 feet. |
| | | | | | | | | -Gradational contact. |

**Appendix 1**

# Log of Boring B 22

GEOCON

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:**
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 347' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 76 | | 6 | 5 | 80 | | ML | | Hard, damp, gray, fine, Sandy SILT/SILTSTONE. |
| 77 | | | | | | | | |
| 78 | | 6 | 2.5 | 100 | | | | |
| 79 | | | | | | | | |
| 80 | | 6 | 2.5 | 80 | | | | -Pink bentonite rip-up clasts at 80 feet. |
| 81 | | | | | | | | Medium dense to dense, damp to moist, gray, Silty, fine to medium SAND/SANDSTONE; fractured in areas. |
| 82 | | | | | | | | |
| 83 | | | | | | | | |
| 84 | | 7 | 5 | 100 | | | | |
| 85 | | | | | | | | |
| 86 | | | | | | | | |
| 87 | | | | | | | | |
| 88 | | | | | | | | |
| 89 | | 7 | 5 | 100 | | | | |
| 90 | | | | | | SM | | |
| 91 | | | | | | | | -Becomes fine grained below 91 feet. |
| 92 | | | | | | | | |
| 93 | | | | | | | | -Disturbed appearance at 92.8 feet. |
| 94 | | 8 | 5 | 100 | | | | |
| 95 | | | | | | | | |
| 96 | | | | | | | | |
| 97 | | | | | | | | -High angle shear with 1/2-inch thick, poorly remolded clay-sand-silt mixture along fissured-striated surface. |
| 98 | | 8 | 5 | 100 | | | | |
| 99 | | | | | | | | |

**Appendix 1**

GEOCON

# Log of Boring B 22

**Projec No.: 06847-42-06**
**Client:**

**Location:**

**Date:**
**Drilling Company:**
**Excavation Method: Hollow-Stem Auger**
**Boring Diameter: inches**
**Elevation: 347' feet above MSL**
**Geologist: T. REIST**

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 101 | | 8 | 5 | 100 | | SM | | -Disturbed appearance from 101 to 102.5 feet.<br>-Prominent fracture with striae at 101.6 feet. |
| 102 | | | | | | | | |
| 103 | | | | | | | | |
| 104 | | 9 | 5 | 100 | | | | |
| 105 | | | | | | | | |
| 106 | | | | | | | | |
| 107 | | | | | | | | |
| 108 | | | | | | | | |
| 109 | | 9 | 5 | 100 | | | | |
| 110 | | | | | | | | |
| 111 | | | | | | | | |
| 112 | | | | | | | | Hard, moist, grayish brown, Silty CLAYSTONE to Sandy SILT/SILTSTONE. |
| 113 | | | | | | | | |
| 114 | | 10 | 5 | 100 | | CL/ML | | **-BEDDING PLANE SHEAR AT 114.6 FEET**; 1-inch thick, stiff, pink, poorly to moderately remolded bentonite lens. |
| 115 | | | | | | | | |
| 116 | | | | | | | | |
| 117 | | | | | | | | |
| 118 | | | | | | | | Medium dense to dense, moist, gray, Silty, fine to medium SAND/SANDSTONE. |
| 119 | | | | | | | | |
| 120 | | 10 | 5 | 100 | | | | |
| 121 | | | | | | SM | | |
| 122 | | | | | | | | -3-inch thick, grayish brown claystone bed at 122.3 feet. |
| 123 | | 11 | 5 | 100 | | | | |
| 124 | | | | | | | | -Gradational contact. |
| | | | | | | CL/ML | | Hard, moist, grayish brown, Silty CLAYSTONE to Clayey SILTSTONE. |

**Appendix 1**

# Log of Boring B 22

GEOCON

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:**
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 347' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 126 | | 11 | 5 | 100 | | | | -Becomes reddish brown between 126 and 127 feet. |
| 127 | | | | | | CL/ML | | -High angle fracture at 126.5 feet. |
| 128 | | | | | | | | |
| 129 | | | | | | | | -Shear zone at 128.5 feet; 6-inch think zone of multiple sheared clay planes. |
| 130 | | 11 | 5 | 90 | | | | Hard/dense, damp, gray, fine, Sandy SILTSTONE/Silty, fine SANDSTONE. |
| 131 | | | | | | | | |
| 132 | | | | | | | | |
| 133 | | | | | | | | -Fracturing at 133 feet. |
| 134 | | | | | | | | |
| 135 | | 12 | 5 | 100 | | | | -Fracturing at 135 feet. |
| 136 | | | | | | | | |
| 137 | | | | | | | | |
| 138 | | | | | | | | |
| 139 | | | | | | | | |
| 140 | | 12 | 5 | 100 | | ML/SM | | |
| 141 | | | | | | | | -1-foot thick, clayey siltstone bed at 141 feet. |
| 142 | | | | | | | | |
| 143 | | | | | | | | -Thinly laminated claystone beds present between 142.6 and 143.5 feet. |
| 144 | | | | | | | | |
| 145 | | 13 | 5 | 100 | | | | |
| 146 | | | | | | | | -6-inch thick, unsheared pink bentonite bed at 145.5 feet. |
| 147 | | | | | | | | |
| 148 | | | | | | | | |
| 149 | | 13 | 5 | 100 | | | | -Clayey siltstone 148 to 150 feet. |

**Appendix 1**

# Log of Boring B 22

GEOCON

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:**
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 347' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | -High fracture at 150 feet. |
| 151 | | 13 | 5 | 100 | | | | -Fracturing 151 to 152 feet. |
| 152 | | | | | | | | |
| 153 | | | | | | ML/SM | | |
| 154 | | | | | | | | |
| 155 | | 14 | 5 | 100 | | | | Dense, damp, gray, Silty, fine SANDSTONE. |
| 156 | | | | | | | | |
| 157 | | | | | | | | |
| 158 | | | | | | | | |
| 159 | | | | | | | | |
| 160 | | 14 | 5 | 90 | | | | |
| 161 | | | | | | SM | | |
| 162 | | | | | | | | |
| 163 | | | | | | | | |
| 164 | | | | | | | | |
| 165 | | 15 | 5 | 100 | | | | |
| 166 | | | | | | | | -16-inch thick cemented zone at 165.6 feet. |
| 167 | | | | | | | | Hard, moist, brown, Silty, CLAYSTONE with high fractures throughout. |
| 168 | | | | | | | | -6-inch thick zone of highly fissured claystone at 168 feet. |
| 169 | | | | | | | | |
| 170 | | 15 | 5 | 100 | | | | |
| 171 | | | | | | CL | | |
| 172 | | | | | | | | |
| 173 | | | | | | | | -Grades into fine, sandy siltstone below 173 feet. |
| 174 | | 16 | 5 | 100 | | | | |
| | | | | | | SM | | Dense, moist, light brown, Silty, fine to medium SANDSTONE; cemented. |

**Appendix 1**

GEOCON

# Log of Boring B 22

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:**
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 347' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 176 | | 16 | 5 | 100 | | SM | | |
| 177 | | | | | | | | -Becomes fine to coarse below 177 feet (gritstone?). |
| 178 | | | | | | | | |
| 179 | | 16 | 5 | 100 | | | | |
| 180 | | | | | | | | |
| 181 | | | | | | | | |
| 182 | | | | | | | | |
| 183 | | | | | | | | |
| 184 | | 17 | 5 | 100 | | | | |
| 185 | | | | | | | | |
| 186 | | | | | | | | |
| 187 | | | | | | | | |
| 188 | | | | | | | | |
| 189 | | 18 | 5 | 100 | | | | |
| 190 | | | | | | | | |
| 191 | | | | | | | | |
| 192 | | | | | | | | |
| 193 | | | | | | | | |
| 194 | | 18 | 5 | 100 | | | | |
| 195 | | | | | | | | |
| 196 | | | | | | | | -Some gravels between 196 and 201 feet. |
| 197 | | | | | | | | |
| 198 | | 19 | 5 | 100 | | | | |
| 199 | | | | | | | | |

**Appendix 1**

GEOCON

# Log of Boring B 22

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:**
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 347' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 201 | | 19 | 5 | 100 | | SM | | -Some gravels present from 213.5 to 220.5 feet. |
| 202 | | | | | | | | |
| 203 | | | | | | | | |
| 204 | | 19 | 5 | 100 | | | | |
| 205 | | | | | | | | |
| 206 | | | | | | | | |
| 207 | | | | | | | | |
| 208 | | | | | | | | |
| 209 | | 20 | 5 | 100 | | | | |
| 210 | | | | | | | | |
| 211 | | | | | | | | |
| 212 | | | | | | | | |
| 213 | | | | | | | | |
| 214 | | 20 | 5 | 100 | | | | |
| 215 | | | | | | | | |
| 216 | | | | | | | | |
| 217 | | | | | | | | |
| 218 | | | | | | | | |
| 219 | | 21 | 5 | 100 | | | | |
| 220 | | | | | | | | |
| 221 | | | | | | | | |
| 222 | | | | | | | | |
| 223 | | 21 | 5 | 100 | | | | |
| 224 | | | | | | | | |

**Appendix 1**

GEOCON

# Log of Boring B 22

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:**
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 347' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | -Some gravels present from 225 to 229 feet. |
| 226 | | 21 | 5 | 100 | | | | |
| 227 | | | | | | | | |
| 228 | | | | | | | | |
| 229 | | | | | | | | |
| 230 | | 22 | 5 | 100 | | | | -Becomes fine grained below 229.5 feet<br>-30-inch thick, hard, clayey siltstone bed at 229.5 feet. |
| 231 | | | | | | | | -High angle fracture in 1/4-inch thick claystone bed at 230 feet. |
| 232 | | | | | | | | |
| 233 | | | | | | | | |
| 234 | | | | | | | | |
| 235 | | 22 | 5 | 100 | | | | -Becomes fine to coarse below 235 feet. |
| 236 | | | | | | | | |
| 237 | | | | | | SM | | |
| 238 | | | | | | | | |
| 239 | | | | | | | | |
| 240 | | 23 | 5 | 100 | | | | |
| 241 | | | | | | | | -Very coarse grained with little to no silt between 241 and 244 feet. |
| 242 | | | | | | | | |
| 243 | | | | | | | | |
| 244 | | | | | | | | |
| 245 | | 23 | 5 | 100 | | | | |
| 246 | | | | | | | | |
| 247 | | | | | | | | |
| 248 | | | | | | | | |
| 249 | | 24 | 5 | 100 | | | | -Becomes predominately fine to medium grained below 248 feet with high angle fracture between 248 and 249 feet. |

**Appendix 1**

GEOCON

# Log of Boring B 22

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:**
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 347' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 251 | | 24 | 5 | 100 | | | | |
| 252 | | | | | | | | |
| 253 | | | | | | | | |
| 254 | | | | | | | | |
| 255 | | 24 | 5 | 100 | | | | |
| 256 | | | | | | | | -16-inch thick, hard, brown claystone bed at 256 feet. |
| 257 | | | | | | SM | | -Becomes very coarse with gravel and low cohesion below 257 feet. |
| 258 | | | | | | | | |
| 259 | | | | | | | | |
| 260 | | 25 | 5 | 80 | | | | |
| 261 | | | | | | | | |
| 262 | | | | | | | | |
| 263 | | | | | | | | |
| 264 | | | | | | | | |
| 265 | | 25 | 5 | 100 | | | | |
| 266 | | | | | | | | Hard, moist, brown, Silty, CLAYSTONE. |
| 267 | | | | | | | | |
| 268 | | | | | | CL | | -Becomes sandy claystone and cemented below 267 feet. |
| 269 | | | | | | | | |
| 270 | | 26 | 5 | 100 | | | | |
| 271 | | | | | | | | |
| 272 | | | | | | | | Very dense, damp, light brown, Clayey, fine to medium SANDSTONE. |
| 273 | | | | | | SM | | |
| 274 | | 26 | 5 | 100 | | | | |

**Appendix 1**

GEOCON

# Log of Boring B 22

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:**
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 347' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 276 | | 26 | 5 | 100 | | SM | | |
| 277 | | | | | | | | |
| 278 | | | | | | | | Hard, damp, brown, Silty to Sandy CLAYSTONE. |
| 279 | | 27 | 5 | 100 | | CL | | |
| 280 | | | | | | | | |
| 281 | | | | | | | | |
| 282 | | | | | | | | **-BEDDING PLANE SHEAR AT 281.9 FEET**; 1/8-inch thick, soft, moist, grayish brown, poorly remolded plastic clay gouge. |
| 283 | | | | | | | | Very dense, light brown, Clayey, fine to medium SANDSTONE. |
| 284 | | 27 | 5 | 100 | | SC | | |
| 285 | | | | | | | | |
| 286 | | | | | | | | |
| 287 | | | | | | | | |
| 288 | | | | | | | | |
| 289 | | 28 | 5 | 100 | | | | |
| 290 | | | | | | | | |
| 291 | | | | | | | | Hard, moist, light brown, Silty CLAYSTONE. |
| 292 | | | | | | | | **-BEDDING PLANE SHEAR AT 292 FEET**; 1/4 to 1/2 inch thick, soft, moist, brownish gray, poorly remolded plastic clay gouge. |
| 293 | | | | | | | | **-BEDDING PLANE SHEAR AT 293.2 FEET**; 1/2 to 3/4 inch thick, soft, moist, grayish brown, highly remolded plastic clay gouge. |
| 294 | | 28 | 5 | 100 | | CL | | |
| 295 | | | | | | | | |
| 296 | | | | | | | | |
| 297 | | | | | | | | BORING TERMINATED AT 297 FEET. |

**Appendix 1**

GEOCON

# Log of Boring B 23

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/8/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 230' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 1–5 | | 1 | 5 | 100 | | | | **LANDSLIDE DEBRIS** Medium dense/very stiff, moist, gray and reddish brown, Silty to Clayey SAND and Silty to Sandy CLAY; chunks of claystone and siltstone present in matrix. |
| 5–10 | | 1 | 5 | 80 | | | | |
| 10–15 | | 2 | 5 | 80 | | SM/SC/CL | | |
| 15–20 | | 2 | 5 | 80 | | | | |
| 20–24 | | 2 | 4 | 50 | | | | |
| | | 3 | 1 | 100 | | | | |

**Appendix 2**

# Log of Boring B 23

GEOCON

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/8/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 230' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 26 | | | | | | SM/SC/CL | | |
| 27 | | 3 | 5 | 100 | | | | Very stiff/medium dense, moist, dark brown to brown, Sandy CLAY to Clayey SAND; some gravel at 28 feet |
| 28 | | | | | | | | -Some marbling present from 27.5 to 29 feet. |
| 29 | | | | | | | | |
| 30 | | | | | | | | Medium dense, moist, gray-brown, Silty/Clayey, fine to medium SAND; no fabric. |
| 31 | | | | | | | | |
| 32 | | 3 | 5 | 100 | | | | |
| 33 | | | | | | | | |
| 34 | | | | | | | | |
| 35 | | | | | | | | -4-inch thick zone of white caliche at 35 feet. |
| 36 | | | | | | | | |
| 37 | | 4 | 5 | 100 | | | | |
| 38 | | | | | | SM/SC | | |
| 39 | | | | | | | | -1/2-inch siltstone rip-up clasts present below 39 feet. |
| 40 | | | | | | | | |
| 41 | | | | | | | | |
| 42 | | 4 | 5 | 100 | | | | |
| 43 | | | | | | | | |
| 44 | | | | | | | | -16-inch thick, gravel/cobble lens at 44 feet. |
| 45 | | | | | | | | |
| 46 | | | | | | | | Very stiff, moist, mottled dark brown and brown, Silty/Sandy CLAY. |
| 47 | | 5 | 5 | 100 | | | | **-BASAL SHEAR ZONE FROM 45.2 TO 50 FEET**; melange of viscous deformation, marbled appearance; moderately remolded with apparent grayish brown to black alluvial soils present in shear zone. |
| 48 | | | | | | CL | | |
| 49 | | | | | | | | |

**Appendix 2**

# Log of Boring B 23

GEOCON

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/8/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 230' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 51 | | | | | | SC | | **OTAY FORMATION (To)**<br>Dense, moist, grayish brown, Clayey, fine to medium SANDSTONE.<br>-4-inch gravel lens at 51 feet. |
| 52 | | 6 | 5 | 100 | | | | -6-inch gray clay lens at 51.5 feet. |
| 53 | | | | | | | | Dense, damp, Silty, fine to coarse SANDSTONE.<br>-Gravel and cobble lens between 53 and 56 feet. |
| 54 | | | | | | | | |
| 55 | | | | | | | | |
| 56 | | | | | | SM | | -Becomes fine grained below 56 feet. |
| 57 | | 6 | 5 | 100 | | | | |
| 58 | | | | | | | | |
| 59 | | | | | | | | |
| 60 | | | | | | | | |
| 61 | | | | | | CL | | Hard, moist, light grayish brown to brown, Silty CLAYSTONE with high angle fracturing. |
| 62 | | 7 | 5 | 100 | | | | |
| 63 | | | | | | | | |
| 64 | | | | | | | | |
| 65 | | | | | | ML | | Hard, damp, grayish brown, fine, Sandy/Clayey SILTSTONE. |
| 66 | | | | | | | | |
| 67 | | 7 | 5 | 100 | | | | -Gradational contact. |
| 68 | | | | | | | | Dense, damp, gray, Silty, fine SANDSTONE. |
| 69 | | | | | | | | |
| 70 | | | | | | | | |
| 71 | | | | | | SM | | -Some coarse sand below 71 feet. |
| 72 | | 8 | 5 | 100 | | | | |
| 73 | | | | | | | | |
| 74 | | | | | | | | |

**Appendix 2**

GEOCON

# Log of Boring B 23

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/8/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 230' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | -Becomes fine to coarse below 75 feet (gritstone?). |
| 76 | | | | | | | | |
| 77 | | 8 | 5 | 100 | | | | -Cemented from 77 to 79 feet. |
| 78 | | | | | | | | |
| 79 | | | | | | | | -Trace gravel present below 79 feet. |
| 80 | | | | | | | | |
| 81 | | | | | | | | |
| 82 | | 9 | 5 | 100 | | | | |
| 83 | | | | | | | | |
| 84 | | | | | | | | |
| 85 | | | | | | | | |
| 86 | | | | | | | | |
| 87 | | 9 | 5 | 100 | | SM | | |
| 88 | | | | | | | | |
| 89 | | | | | | | | |
| 90 | | | | | | | | -Cemented from 90 to 92 feet with little to no silt. |
| 91 | | | | | | | | |
| 92 | | 10 | 5 | 100 | | | | |
| 93 | | | | | | | | |
| 94 | | | | | | | | |
| 95 | | | | | | | | |
| 96 | | | | | | | | |
| 97 | | 10 | 5 | 80 | | | | -Becomes fine to medium grained from 96.5 to 98 feet. |
| 98 | | | | | | | | |
| 99 | | | | | | | | -High angle fractures from 96.5 to 99 feet. |

**Appendix 2**

GEOCON

# Log of Boring B 23

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/8/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 230' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 101 | | | | | | | | |
| 102 | | 11 | 4 | 100 | | | | |
| 103 | | | | | | | | |
| 104 | | 11 | 1 | 100 | | | | |
| 105 | | | | | | | | -Becomes fine to medium grained from 105 to 110. |
| 106 | | | | | | | | |
| 107 | | 11 | 5 | 100 | | SM | | -High angle fracture at 107 feet. |
| 108 | | | | | | | | |
| 109 | | | | | | | | |
| 110 | | | | | | | | |
| 111 | | | | | | | | |
| 112 | | 12 | 5 | 100 | | | | -Cemented with some gravels from 112 to 114 feet. |
| 113 | | | | | | | | |
| 114 | | | | | | | | |
| 115 | | | | | | | | |
| 116 | | | | | | | | Hard, moist, grayish brown, Silty CLAYSTONE. |
| 117 | | 13 | 5 | 100 | | | | **-BEDDING PLANE SHEAR ZONE AT 117.3 FEET**; multiple 1/4 inch thick, soft, moist, grayish brown, poorly remolded plastic clay gouge seams. |
| 118 | | | | | | | | |
| 119 | | | | | | CL | | -High angle fracture at 119.1 feet. |
| 120 | | | | | | | | |
| 121 | | 13 | 2.5 | 100 | | | | |
| 122 | | | | | | | | |
| 123 | | | | | | | | **-BEDDING PLANE SHEAR AT 122.5 FEET**; 1/2 to 3/4 inch thick, soft, brownish gray, moderately remolded plastic clay gouge. |
| 124 | | 13 | 2.5 | 100 | | SM | | Dense, damp, gray, Silty, fine to coarse SAND. |

**Appendix 2**

# Log of Boring B 23

GEOCON

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/8/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 230' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 126 | | | | | | | | Dense, damp, light brown, fine to coarse SAND with trace gravel. |
| 127 | | 14 | 5 | 100 | | | | |
| 128 | | | | | | | | |
| 129 | | | | | | SP | | |
| 130 | | | | | | | | |
| 131 | | | | | | | | |
| 132 | | | | | | | | -Cobble/boulder at contact. |
| 133 | | 14 | 5 | 100 | | | | Dense, moist, light brown, Silty to Clayey, fine to medium SAND. |
| 134 | | | | | | | | |
| 135 | | | | | | | | |
| 136 | | | | | | | | |
| 137 | | 15 | 5 | 100 | | | | |
| 138 | | | | | | | | |
| 139 | | | | | | SM/SC | | -3-foot thick, fine to coarse sand bed with trace gravel at 139 feet. |
| 140 | | | | | | | | |
| 141 | | | | | | | | |
| 142 | | 15 | 5 | 100 | | | | |
| 143 | | | | | | | | -High angle fracture at 142.5 feet. |
| 144 | | | | | | | | |
| 145 | | | | | | | | |
| 146 | | 16 | 2.5 | 100 | | | | |
| 147 | | | | | | | | |
| 148 | | 16 | 2.5 | 100 | | | | |
| 149 | | | | | | | | |

**Appendix 2**

# Log of Boring B 23

GEOCON

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/8/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 230' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 151 | | | | | | | | -1-foot thick, moist, grayish brown claystone bed at 150 feet. |
| 152 | | 16 | 5 | 100 | | | | |
| 153 | | | | | | | | |
| 154 | | | | | | | | |
| 155 | | | | | | | | Hard, moist, mottled reddish brown and olive green, Silty, CLAYSTONE, near vertical fracture from 155 to 157 feet. |
| 156 | | | | | | | | |
| 157 | | 17 | 5 | 100 | | | | |
| 158 | | | | | | | | |
| 159 | | | | | | | | **-SHEARED CLAY ZONE AT 158.7 FEET**; 3/4 inch thick, soft, moist, remolded plastic clay gouge. |
| 160 | | | | | | CL | | |
| 161 | | | | | | | | |
| 162 | | 17 | 5 | 100 | | | | |
| 163 | | | | | | | | |
| 164 | | | | | | | | |
| 165 | | | | | | | | **-BEDDING PLANE SHEAR AT 165 FEET**; 3/4 to 1-inch thick, soft, moist, remolded plastic clay gouge. |
| 166 | | | | | | | | -Gradational contact. |
| 167 | | 18 | 5 | 100 | | | | Dense, damp to moist, grayish brown, Silty to Clayey, fine to medium SANDSTONE. |
| 168 | | | | | | | | |
| 169 | | | | | | | | -Becomes less clayey and fine to coarse below 169 feet. |
| 170 | | | | | | SM/SC | | |
| 171 | | | | | | | | |
| 172 | | | | | | | | |
| 173 | | 19 | 5 | 100 | | | | -Gradational contact. |
| 174 | | | | | | CL | | Hard, moist, grayish brown, Silty CLAYSTONE with some fine, sandy siltstone interbeds. |

**Appendix 2**

# Log of Boring B 23

GEOCON

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/8/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 230' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 176 | | | | | | | | |
| 177 | | 19 | 5 | 100 | | | | |
| 178 | | | | | | | | |
| 179 | | | | | | CL | | |
| 180 | | | | | | | | |
| 181 | | 20 | 2.5 | 100 | | | | **-BEDDING PLANE SHEAR AT 181.3 FEET**; 1/8 inch thick, poorly remolded plastic clay gouge. |
| 182 | | | | | | | | |
| 183 | | | | | | | | **-BEDDING PLANE SHEAR AT 182.1 FEET**; 1/8 inch thick, poorly remolded plastic clay gouge. |
| 184 | | 20 | 2.5 | 100 | | | | Dense, damp, grayish brown, Clayey, fine to medium SANDSTONE. |
| 185 | | | | | | | | -Becomes fine to coarse below 185 feet. |
| 186 | | | | | | SC | | |
| 187 | | | | | | | | |
| 188 | | 20 | 5 | 100 | | | | |
| 189 | | | | | | | | Hard, moist, grayish brown, Silty CLAYSTONE. |
| 190 | | | | | | | | |
| 191 | | | | | | | | |
| 192 | | | | | | | | |
| 193 | | 21 | 5 | 100 | | | | |
| 194 | | | | | | CL | | -Becomes brown, waxy claystone below 194 feet with high angle fractures and black manganese staining. |
| 195 | | | | | | | | |
| 196 | | | | | | | | |
| 197 | | | | | | | | |
| 198 | | 21 | 5 | 100 | | | | |
| 199 | | | | | | | | |

**Appendix 2**

# Log of Boring B 23

GEOCON

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/8/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 230' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 201 | | | | | | | | Dense, damp, grayish brown, Silty, fine SANDSTONE. |
| 202 | | | | | | | | |
| 203 | | 22 | 5 | 100 | | SM | | |
| 204 | | | | | | | | |
| 205 | | | | | | | | |
| 206 | | | | | | | | -Gradational contact. |
| 207 | | | | | | | | Dense, moist, pale green, fine to coarse SANDSTONE. |
| 208 | | 22 | 5 | 100 | | | | |
| 209 | | | | | | | | |
| 210 | | | | | | | | |
| 211 | | | | | | | | -Trace gravel below 211 feet. |
| 212 | | | | | | | | |
| 213 | | 23 | 5 | 100 | | | | -Gravel and cobble below 212.5 feet. |
| 214 | | | | | | | | |
| 215 | | | | | | | | |
| 216 | | | | | | SP | | -Becomes fine to medium grained and massive below 216. |
| 217 | | | | | | | | |
| 218 | | 24 | 5 | 100 | | | | |
| 219 | | | | | | | | |
| 220 | | | | | | | | |
| 221 | | 24 | 2 | 100 | | | | -Some orange straining below 221 feet. |
| 222 | | | | | | | | |
| 223 | | 24 | 3 | 100 | | | | |
| 224 | | | | | | | | |

**Appendix 2**

GEOCON

# Log of Boring B 23

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/8/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 230' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 226 | | | | | | | | |
| 227 | | 25 | 5 | 100 | | | | |
| 228 | | | | | | | | |
| 229 | | | | | | | | |
| 230 | | | | | | | | |
| 231 | | | | | | | | |
| 232 | | 25 | 5 | 100 | | | | |
| 233 | | | | | | | | |
| 234 | | | | | | | | |
| 235 | | | | | | | | |
| 236 | | | | | | | | |
| 237 | | 26 | 5 | 100 | | SP | | -Becomes grayish brown, fine grained with orange staining below 237 feet. |
| 238 | | | | | | | | |
| 239 | | | | | | | | |
| 240 | | | | | | | | |
| 241 | | | | | | | | |
| 242 | | 26 | 5 | 100 | | | | |
| 243 | | | | | | | | |
| 244 | | | | | | | | |
| 245 | | | | | | | | |
| 246 | | | | | | | | |
| 247 | | 27 | 5 | 100 | | | | -Becomes predominately gray below 247 feet. |
| 248 | | | | | | | | |
| 249 | | | | | | | | |

**Appendix 2**

GEOCON

# Log of Boring B 23

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/8/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 230' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 251 | | | | | | | | |
| 252 | | 27 | 5 | 100 | | | | |
| 253 | | | | | | | | |
| 254 | | | | | | | | |
| 255 | | | | | | SP | | |
| 256 | | | | | | | | |
| 257 | | 28 | 5 | 100 | | | | |
| 258 | | | | | | | | |
| 259 | | | | | | | | |
| 260 | | | | | | | | BORING TERMINATED AT 260 FEET. |

**Appendix 2**

GEOCON

# Log of Boring B 24

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 1 | | 1 | 2 | 50 | | | | **VERY OLD PARALIC DEPOSITS (Qvop)** Dense, damp, brown, fine to coarse, Sandy GRAVEL with interbeds of gravelly sand. |
| 2 | | | | | | | | |
| 3 | | 1 | 3 | 100 | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | 1 | 2 | 50 | | | | |
| 7 | | 1 | 1 | 75 | | | | |
| 8 | | | | | | | | |
| 9 | | 1 | 2 | 75 | | | | |
| 10 | | | | | | | | |
| 11 | | 1 | 1.5 | 50 | | | | |
| 12 | | | | | | | | |
| 13 | | 1 | 3.5 | 100 | | GM | | -Becomes reddish brown below 13 feet. |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
| 16 | | 2 | 2.5 | 80 | | | | |
| 17 | | | | | | | | |
| 18 | | 2 | 1 | 25 | | | | |
| 19 | | 2 | 1.5 | 20 | | | | |
| 20 | | 2 | .5 | 50 | | | | |
| 21 | | | | | | | | |
| 22 | | | | | | | | |
| 23 | | 2 | 4.5 | 67 | | | | -20-inch thick reddish brown sand bed at 23 feet. |
| 24 | | | | | | | | |

**Appendix 3**

GEOCON

# Log of Boring B 24

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 26 | | | | | | | | |
| 27 | | 2 | 5 | 100 | | | | |
| 28 | | | | | | | | |
| 29 | | | | | | | | |
| 30 | | 3 | 1 | 100 | | | | |
| 31 | | | | | | | | |
| 32 | | 3 | 2 | 100 | | | | |
| 33 | | | | | | | | |
| 34 | | 3 | 2 | 75 | | GM | | |
| 35 | | | | | | | | |
| 36 | | | | | | | | |
| 37 | | 3 | 5 | 100 | | | | |
| 38 | | | | | | | | |
| 39 | | | | | | | | |
| 40 | | 4 | .5 | 0 | | | | |
| 41 | | | | | | | | |
| 42 | | | | | | | | |
| 43 | | 4 | 4.5 | 89 | | | | Dense, damp, light brown with faint orange staining, Silty, fine to medium SAND with gravel/cobble lenses. |
| 44 | | | | | | SM | | |
| 45 | | | | | | | | |
| 46 | | | | | | | | **OTAY FORMATION (To)** |
| 47 | | | | | | | | Dense, moist, gray, Silty, fine SANDSTONE with interbeds of siltstone. |
| 48 | | 4 | 5 | 90 | | SM | | |
| 49 | | | | | | | | |

**Appendix 3**

# Log of Boring B 24

GEOCON

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 51 | | | | | | | | Hard, moist, grayish brown, Silty CLAYSTONE/Clayey SILTSTONE; fractures in areas. |
| 52 | | 5 | 5 | 100 | | | | |
| 53 | | | | | | | | |
| 54 | | | | | | | | |
| 55 | | | | | | | | -16-inch thick, gray, fine sandstone bed at 55 feet. |
| 56 | | | | | | | | |
| 57 | | 5 | 4 | 50 | | | | |
| 58 | | | | | | | | |
| 59 | | | | | | | | |
| 60 | | | | | | | | |
| 61 | | 6 | 2 | 100 | | | | |
| 62 | | | | | | CL/ML | | -High angle fractures with moist clay films along trace at 61.5 feet.<br>-1-foot gray, fine sandstone bed at 62 feet. |
| 63 | | | | | | | | |
| 64 | | 6 | 3 | 67 | | | | |
| 65 | | | | | | | | |
| 66 | | 7 | 2.5 | 100 | | | | |
| 67 | | | | | | | | |
| 68 | | | | | | | | -Zone of high angle bentonitic banding from 68 to 70 feet with 1/2 inch thick, high angle shear with 1/8 inch thick remolded plastic clay gouge along trace. |
| 69 | | 7 | 2.5 | 100 | | | | |
| 70 | | | | | | | | -4-inch thick, unsheared pink bentonite bed at 70 feet. |
| 71 | | | | | | | | |
| 72 | | | | | | | | |
| 73 | | 7 | 5 | 100 | | | | Dense, damp, grayish brown, Silty, fine SANDSTONE. |
| 74 | | | | | | SM | | |

**Appendix 3**

GEOCON

# Log of Boring B 24

**Projec No.: 06847-42-06**
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 76 | | | | | | | | |
| 77 | | 8 | 5 | 100 | | | | -Fracture between 77 and 79 feet. |
| 78 | | | | | | | | |
| 79 | | | | | | SM | | |
| 80 | | | | | | | | |
| 81 | | | | | | | | |
| 82 | | 8 | 5 | 100 | | | | |
| 83 | | | | | | | | |
| 84 | | | | | | | | Cemented at 83.5 feet. |
| 85 | | | | | | | | Hard, damp, grayish brown, Clayey/Sandy SILTSTONE/Silty CLAYSTONE. |
| 86 | | | | | | | | |
| 87 | | 9 | 5 | 180 | | | | **-18-inch thick zone of several poorly developed bedding plane shears with poorly** remolded plastic clay gouge at 87 feet**.** |
| 88 | | | | | | | | |
| 89 | | | | | | | | |
| 90 | | | | | | | | **-BEDDING PLANE SHEAR AT 89.6 FEET**; 1/4 to 1/2 inch thick, soft, moist, brownish gray, moderately remolded plastic clay gouge. |
| 91 | | | | | | | | |
| 92 | | 9 | 5 | 100 | | ML/CL | | |
| 93 | | | | | | | | |
| 94 | | | | | | | | |
| 95 | | | | | | | | |
| 96 | | | | | | | | |
| 97 | | 10 | 5 | 100 | | | | |
| 98 | | | | | | | | |
| 99 | | | | | | | | |

**Appendix 3**

GEOCON

# Log of Boring B 24

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 101 | | | | | | | | |
| 102 | | | | | | | | |
| 103 | | 10 | 5 | 100 | | | | |
| 104 | | | | | | | | |
| 105 | | | | | | | | -2-foot thick, gray sandstone bed at 105 feet. |
| 106 | | | | | | | | |
| 107 | | | | | | | | -6-inch cemented zone at 106.5 feet. |
| 108 | | 11 | 5 | 100 | | | | |
| 109 | | | | | | | | |
| 110 | | | | | | | | |
| 111 | | | | | | | | |
| 112 | | | | | | | | |
| 113 | | 11 | 5 | 100 | | ML/CL | | **-BEDDING PLANE SHEAR AT 113 FEET**; 1/8 to 1/4 inch thick, soft, moist, reddish brown, poorly remolded plastic clay gouge. |
| 114 | | | | | | | | |
| 115 | | | | | | | | |
| 116 | | | | | | | | |
| 117 | | | | | | | | |
| 118 | | 12 | 5 | 100 | | | | |
| 119 | | | | | | | | |
| 120 | | | | | | | | |
| 121 | | | | | | | | |
| 122 | | | | | | | | |
| 123 | | 12 | 5 | 100 | | | | |
| 124 | | | | | | | | |

**Appendix 3**

# Log of Boring B 24

GEOCON

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 126 | | | | | | ML/CL | | |
| 127 | | 13 | 5 | 100 | | SM | | Dense, moist, gray, Silty, fine to medium SANDSTONE. |
| 128 | | | | | | | | |
| 129 | | | | | | | | |
| 130 | | | | | | | | Hard, moist, grayish brown, Silty CLAYSTONE to Clayey SILTSTONE. |
| 131 | | | | | | | | |
| 132 | | 13 | 4.5 | 89 | | CL/ML | | |
| 133 | | | | | | | | |
| 134 | | | | | | | | |
| 135 | | 13 | .5 | 100 | | | | Dense, moist, gray, Silty, fine SANDSTONE. |
| 136 | | | | | | | | |
| 137 | | 14 | 5 | 100 | | | | |
| 138 | | | | | | | | |
| 139 | | | | | | | | |
| 140 | | | | | | SM | | -6-inch cemented zone at 139.5 feet. |
| 141 | | | | | | | | |
| 142 | | 14 | 5 | 100 | | | | |
| 143 | | | | | | | | -Becomes fine to medium grained below 143 feet. |
| 144 | | | | | | | | |
| 145 | | | | | | | | Hard, moist, grayish brown, Silty CLAYSTONE. |
| 146 | | | | | | | | |
| 147 | | 15 | 5 | 100 | | CL | | -Zone of shearing from 146.8 to 147.5 feet; disturbed claystone with several remolded clay planes. |
| 148 | | | | | | | | -16-inch thick fractured sandstone bed at 148 feet. |
| 149 | | | | | | | | |

**Appendix 3**

GEOCON

# Log of Boring B 24

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 151 | | | | | | | | |
| 152 | | 16 | 5 | 100 | | | | |
| 153 | | | | | | | | **-BEDDING PLANE SHEAR AT 153.3 FEET**; 1/4-inch thick, soft, moist, reddish brown, highly remolded plastic clay gouge. |
| 154 | | | | | | | | |
| 155 | | | | | | | | |
| 156 | | | | | | | | |
| 157 | | 16 | 5 | 100 | | | | -2.5 inch thick, gray, fine sandstone bed at 157 feet. |
| 158 | | | | | | | | |
| 159 | | | | | | | | |
| 160 | | | | | | | | |
| 161 | | | | | | | | |
| 162 | | 17 | 5 | 100 | | CL | | -6-inch zone of paper thin clay beds with slight remolding at 162.5 feet. |
| 163 | | | | | | | | |
| 164 | | | | | | | | -2-foot thick, gray, fine sandstone bed at 164 feet. |
| 165 | | | | | | | | |
| 166 | | | | | | | | |
| 167 | | 17 | 5 | 100 | | | | |
| 168 | | | | | | | | |
| 169 | | | | | | | | |
| 170 | | | | | | | | -Becomes pale grayish green below 170 feet. |
| 171 | | | | | | | | |
| 172 | | 18 | 5 | 100 | | | | |
| 173 | | | | | | | | |
| 174 | | | | | | | | |

**Appendix 3**

GEOCON

# Log of Boring B 24

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 176 | | | | | | CL | | |
| 177 | | 18 | 5 | 100 | | SM | | Dense, damp, grayish green, Silty, fine SANDSTONE with interbedded fine, sandy siltstone beds. |
| 178 | | | | | | | | |
| 179 | | | | | | | | |
| 180 | | | | | | | | |
| 181 | | 19 | 5 | 100 | | | | |
| 182 | | | | | | | | |
| 183 | | | | | | | | |
| 184 | | | | | | | | |
| 185 | | | | | | | | |
| 186 | | 19 | 2.5 | 100 | | | | |
| 187 | | | | | | | | Hard, moist, reddish brown to grayish green, Silty CLAYSTONE to Clayey SILTSTONE. |
| 188 | | 19 | 2.5 | 100 | | CL/ML | | **-BEDDING PLANE SHEAR AT 187.5 FEET**; 1/8-inch thick, soft, moist, reddish brown poorly remolded plastic clay gouge. |
| 189 | | | | | | | | |
| 190 | | | | | | | | Dense, moist, gray, Silty fine SANDSTONE with fine, sandy siltstone interbeds. |
| 191 | | | | | | | | |
| 192 | | 20 | 5 | 100 | | | | |
| 193 | | | | | | | | |
| 194 | | | | | | | | **-BEDDING PLANE SHEAR AT 193.7 FEET**; 1/8-inch thick, soft, moist, poorly remolded plastic clay gouge. |
| 195 | | | | | | SM | | |
| 196 | | 20 | 3 | 100 | | | | |
| 197 | | | | | | | | |
| 198 | | | | | | | | |
| 199 | | 20 | 2 | 100 | | | | |

**Appendix 3**

GEOCON

# Log of Boring B 24

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 201 | | | | | | | | |
| 202 | | 21 | 5 | 100 | | | | |
| 203 | | | | | | | | |
| 204 | | | | | | | | |
| 205 | | | | | | | | |
| 206 | | | | | | | | |
| 207 | | 21 | 5 | 100 | | | | |
| 208 | | | | | | | | |
| 209 | | | | | | | | |
| 210 | | | | | | | | |
| 211 | | | | | | | | |
| 212 | | 22 | 5 | 100 | | SM | | |
| 213 | | | | | | | | |
| 214 | | | | | | | | |
| 215 | | | | | | | | |
| 216 | | | | | | | | |
| 217 | | 22 | 5 | 100 | | | | |
| 218 | | | | | | | | |
| 219 | | | | | | | | |
| 220 | | | | | | | | |
| 221 | | | | | | | | |
| 222 | | 23 | 5 | 100 | | | | |
| 223 | | | | | | | | |
| 224 | | | | | | | | |

**Appendix 3**

GEOCON

# Log of Boring B 24

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 226 | | | | | | | | -2-foot thick claystone bed at 225 feet. |
| 227 | | 23 | 5 | 100 | | | | |
| 228 | | | | | | | | |
| 229 | | | | | | | | |
| 230 | | | | | | | | |
| 231 | | | | | | | | |
| 232 | | 24 | 3.5 | 86 | | | | |
| 233 | | | | | ■ | SM | | |
| 234 | | 24 | 1.5 | 100 | | | | |
| 235 | | | | | | | | |
| 236 | | | | | | | | |
| 237 | | 24 | 5 | 100 | | | | |
| 238 | | | | | | | | |
| 239 | | | | | | | | |
| 240 | | | | | | | | |
| 241 | | | | | | | | |
| 242 | | | | | | | | Hard, moist, grayish brown, Silty CLAYSTONE. |
| 243 | | 25 | 5 | 100 | | | | -18-inch thick, pink to brown bentonite bed; no apparent remolding at 242.5 feet. |
| 244 | | | | | | | | |
| 245 | | | | | | | | |
| 246 | | | | | | CL | | |
| 247 | | | | | | | | |
| 248 | | 25 | 5 | 100 | | | | |
| 249 | | | | | | | | |
| | | | | | | SM | | Dense, moist, gray, Silty, fine SANDSTONE. |

**Appendix 3**

GEOCON

# Log of Boring B 24

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 251 | | | | | | | | -Becomes interbedded with silty to sandy claystone between 251 to 254 feet. |
| 252 | | 26 | 5 | 100 | | | | |
| 253 | | | | | | | | |
| 254 | | | | | | | | -2-foot thick claystone bed at 253.7 feet. |
| 255 | | | | | | | | |
| 256 | | | | | | | | |
| 257 | | 26 | 5 | 100 | | | | **-BEDDING PLANE SHEAR AT 256.8 FEET**; 1/8 to 1/4-inch thick, soft, moist, poorly to moderately remolded plastic clay gouge. |
| 258 | | | | | | | | |
| 259 | | | | | | | | |
| 260 | | | | | | | | |
| 261 | | | | | | SM | | -2-foot thick, interbedded claystone and siltstone beds at 260.7 feet. |
| 262 | | 27 | 5 | 100 | | | | |
| 263 | | | | | | | | |
| 264 | | | | | | | | |
| 265 | | | | | | | | |
| 266 | | | | | | | | |
| 267 | | 27 | 5 | 100 | | | | |
| 268 | | | | | | | | |
| 269 | | | | | | | | |
| 270 | | | | | | | | |
| 271 | | | | | | | | |
| 272 | | 28 | 5 | 160 | | | | |
| 273 | | | | | | | | Hard, moist, gray, interbedded fine, Sandy/Clayey SILTSTONE and Silty CLAYSTONE. |
| 274 | | | | | | | | |

**Appendix 3**

GEOCON

# Log of Boring B 24

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 276 | | | | | | | | |
| 277 | | 28 | 5 | 100 | | | | -6-inch thick bentonite bed with a 1/4-inch **BEDDING PLANE SHEAR AT 276.6 FEET;** soft, moist, moderatley remolded plastic clay gouge. |
| 278 | | | | | | | | |
| 279 | | | | | | CL/ML | | . |
| 280 | | | | | | | | |
| 281 | | | | | | | | -18-inch thick zone of weak clay films with some areas with poorly remolded clay gouge at 281 feet. |
| 282 | | 29 | 5 | 100 | | | | |
| 283 | | | | | | | | Dense, damp, gray, Silty, fine SANDSTONE. |
| 284 | | | | | | | | |
| 285 | | | | | | | | |
| 286 | | | | | | | | |
| 287 | | 29 | 5 | 100 | | | | |
| 288 | | | | | | | | |
| 289 | | | | | | | | |
| 290 | | | | | | SM | | |
| 291 | | | | | | | | |
| 292 | | 30 | 5 | 100 | | | | |
| 293 | | | | | | | | |
| 294 | | | | | | | | |
| 295 | | | | | | | | |
| 296 | | | | | | | | |
| 297 | | 31 | 5 | 100 | | | | Hard, moist, brown, Silty CLAYSTONE. |
| 298 | | | | | | CL | | -18-inch thick zone of weak clay films with some areas with poorly remolded clay gouge at 298 feet. |
| 299 | | | | | | | | |

**Appendix 3**

GEOCON

# Log of Boring B 24

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 301 | | | | | | CL | | -Becomes sandy claystone below 301 feet. |
| 302 | | 31 | 5 | 100 | | | | |
| 303 | | | | | | | | Dense, damp, brownish gray, Silty, fine SANDSTONE. |
| 304 | | | | | | | | |
| 305 | | | | | | | | -Becomes brown and fine to medium grained with trace gravel below 305 feet (gritstone?). |
| 306 | | | | | | | | |
| 307 | | 32 | 5 | 100 | | | | |
| 308 | | | | | | | | |
| 309 | | | | | | | | |
| 310 | | | | | | | | |
| 311 | | | | | | | | |
| 312 | | 32 | 5 | 100 | | | | |
| 313 | | | | | | | | -Cemented below 313 feet. |
| 314 | | | | | | SM | | |
| 315 | | | | | | | | |
| 316 | | | | | | | | |
| 317 | | 33 | 5 | 100 | | | | |
| 318 | | | | | | | | |
| 319 | | | | | | | | |
| 320 | | | | | | | | |
| 321 | | | | | | | | |
| 322 | | 33 | 5 | 100 | | | | |
| 323 | | | | | | | | |
| 324 | | | | | | | | |

**Appendix 3**

GEOCON

# Log of Boring B 24

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 326 | | | | | | | | |
| 327 | | 34 | 5 | 100 | | | | |
| 328 | | | | | | | | |
| 329 | | | | | | | | |
| 330 | | | | | | | | |
| 331 | | | | | | | | |
| 332 | | 34 | 5 | 100 | | | | |
| 333 | | | | | | | | |
| 334 | | | | | | SM | | |
| 335 | | | | | | | | |
| 336 | | | | | | | | |
| 337 | | 35 | 5 | 100 | | | | |
| 338 | | | | | | | | |
| 339 | | | | | | | | |
| 340 | | | | | | | | -2-foot thick cemented gravel bed at 340 feet. |
| 341 | | 35 | 3 | 100 | | | | |
| 342 | | | | | | | | |
| 343 | | | | | | | | |
| 344 | | 36 | 2 | 100 | | | | Dense, damp, light brown, Sandy GRAVEL; cemented. |
| 345 | | | | | | | | |
| 346 | | | | | | | | |
| 347 | | 36 | 5 | 100 | | GM | | |
| 348 | | | | | | | | |
| 349 | | | | | | | | |

**Appendix 3**

GEOCON

# Log of Boring B 24

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 351 | | 36 | 2 | 100 | | GM | | |
| 352 | | | | | | | | |
| 353 | | | | | | | | |
| 354 | | 37 | 4 | 100 | | | | Dense, damp, gray, Silty, fine to medium SANDSTONE. |
| 355 | | | | | | | | |
| 356 | | | | | | | | |
| 357 | | | | | | | | |
| 358 | | 37 | 5 | 100 | | | | -Becomes fine to coarse below 358 feet. |
| 359 | | | | | | | | |
| 360 | | | | | | | | |
| 361 | | | | | | | | |
| 362 | | | | | | | | |
| 363 | | 38 | 5 | 100 | | | | -Some gravel at 363.5 feet. |
| 364 | | | | | | SM | | -Becomes fine to medium grained below 364. |
| 365 | | | | | | | | |
| 366 | | | | | | | | |
| 367 | | | | | | | | |
| 368 | | 35 | 5 | 100 | | | | |
| 369 | | | | | | | | -Becomes fine to coarse grained below 369. |
| 370 | | | | | | | | |
| 371 | | | | | | | | |
| 372 | | | | | | | | |
| 373 | | 39 | 5 | 100 | | | | -4-foot gravel bed at 372.5 feet. |
| 374 | | | | | | | | |

**Appendix 3**

GEOCON

# Log of Boring B 24

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| 376 | | 39 | 5 | 100 | | SM | | |
| 377 | | | | | | | | -Becomes gray with orange to reddish staining below 377 feet. |
| 378 | | | | | | | | |
| 379 | | 39 | 5 | 100 | | | | |
| 380 | | | | | | | | |
| 381 | | | | | | | | -Becomes dark reddish brown below 381 feet. |
| 382 | | | | | | | | |
| 383 | | | | | | | | |
| 384 | | 40 | 5 | 100 | | | | |
| 385 | | | | | | | | |
| 386 | | | | | | | | |
| 387 | | | | | | | | |
| 388 | | | | | | | | |
| 389 | | 40 | 5 | 100 | | | | Dense, damp, gray, fine to coarse, Sandy GRAVEL with interbedded sandstone. |
| 390 | | | | | | GM | | |
| 391 | | | | | | | | -18-inch thick sandstone bed at 391 feet. |
| 392 | | | | | | | | |
| 393 | | | | | | | | |
| 394 | | 41 | 5 | 100 | | | | |
| 395 | | | | | | | | -4-foot thick sandstone bed at 394.7 feet. |
| 396 | | | | | | | | |
| 397 | | | | | | | | |
| 398 | | 41 | 5 | 100 | | | | |
| 399 | | | | | | | | |

**Appendix 3**

GEOCON

# Log of Boring B 24

**Projec No.:** 06847-42-06
**Client:**

**Location:**

**Date:** 9/30/21
**Drilling Company:**
**Excavation Method:** Hollow-Stem Auger
**Boring Diameter:** inches
**Elevation:** 479' feet above MSL
**Geologist:** T. REIST

| Depth (Feet) | Elevation MSL (Feet) | Box | Run | % Rec | Recovery | USCS Class. | Lithology | Material Description |
|---|---|---|---|---|---|---|---|---|
| | | 41 | 5 | 100 | | GM | | |
| 401 | | | | | | | | BORING TERMINATED AT 401 FEET. |

**Appendix 3**

# APPENDIX B

## APPENDIX B

## LABORATORY TESTING

As part of our previous geotechnical studies, we performed laboratory tests in general accordance with the test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. We tested selected samples to evaluate in-place dry density and moisture content, direct shear strength, Atterberg limits, and gradation. The results of the laboratory tests are presented in the following tables and graphs.

### TABLE B-I
### SUMMARY OF DIRECT SHEAR TEST RESULTS
### (ASTM D 3080)

| Sample No. | Geologic Unit | Dry Density (pcf) | Moisture Content (%) | Angle of Shear Resistance (degrees) | Unit Cohesion (psf) |
|---|---|---|---|---|---|
| LB3-3†* | Otay Formation | 93.4 | 19.0 | 32 | 500 |
| LB1-3** | Landslide Debris | 101.0 | 25.9 | 31 | 135 |
| LB4-9†** | Remolded Shear Plane | -- | -- | 27 | 180 |
| B1@215 ft | Otay Formation | 121.2 | 6.1 | 45 (peak)<br>39 (ultimate) | 3,260 (peak)<br>960 (ultimate) |
| B2@289 ft | Otay Formation | 116.4 | 6.4 | 38 (peak)<br>29 (ultimate) | 1,720 (peak)<br>600 (ultimate) |
| B3@394 ft | Otay Formation | 113.5 | 8.9 | 49 (peak)<br>37 (ultimate) | 1,550 (peak)<br>1,000 (ultimate) |
| B3@328–330 ft | Basal Shear Zone (Remolded) | 107.4 | 18.3 | 21 (peak)<br>20 (ultimate) | 150 (peak)<br>160 (ultimate) |

†Sample remolded to approximately 90 percent of relative compaction near optimum moisture content.
*From Geocon October 2004
**From Geocon May 2006

### TABLE B-II
### SUMMARY OF LABORATORY ATTERBERG LIMITS TEST RESULTS
### ASTM D 4318

| Sample No. | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index |
|---|---|---|---|
| B1@161-164 ft | 66 | 27 | 39 |
| B2@263 ft | 40 | 21 | 19 |
| B3@324 ft | 51 | 23 | 28 |
| B3@328-330 ft | 35 | 18 | 17 |
| B23@46 ft | 52 | 19 | 33 |

## TABLE B-III
## RESIDUAL SHEAR STRENGTH VALUES FOR BASAL SLIDE PLANE
## BASED ON STARK, CHOI, MCCONE (2005)

| Sample No. | Liquid Limit | Percent Clay | Angle of Internal Friction (degrees) | Cohesion (psf) |
|---|---|---|---|---|
| B1@161 – 164 feet | 66 | 27 | 11 | 50 |
| B2@263 feet | 40 | 10 | 24 | 20 |
| B3@324 feet | 51 | 22 | 15 | 60 |
| B3@328-330 feet | 35 | 14 | 22 | 60 |
| B23@46 feet | 52 | 30 | 16 | 57 |

# APPENDIX C

# APPENDIX C

# RECOMMENDED GRADING SPECIFICATIONS

FOR

## SOUTHWEST VILLAGE
## EMERGENCY VEHICLE ACCESS ROAD
## SAN DIEGO, CALIFORNIA

## PROJECT NO. 06847-42-04A

# RECOMMENDED GRADING SPECIFICATIONS

## 1. GENERAL

1.1 These Recommended Grading Specifications shall be used in conjunction with the Geotechnical Report for the project prepared by Geocon. The recommendations contained in the text of the Geotechnical Report are a part of the earthwork and grading specifications and shall supersede the provisions contained hereinafter in the case of conflict.

1.2 Prior to the commencement of grading, a geotechnical consultant (Consultant) shall be employed for the purpose of observing earthwork procedures and testing the fills for substantial conformance with the recommendations of the Geotechnical Report and these specifications. The Consultant should provide adequate testing and observation services so that they may assess whether, in their opinion, the work was performed in substantial conformance with these specifications. It shall be the responsibility of the Contractor to assist the Consultant and keep them apprised of work schedules and changes so that personnel may be scheduled accordingly.

1.3 It shall be the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the work in accordance with applicable grading codes or agency ordinances, these specifications and the approved grading plans. If, in the opinion of the Consultant, unsatisfactory conditions such as questionable soil materials, poor moisture condition, inadequate compaction, and/or adverse weather result in a quality of work not in conformance with these specifications, the Consultant will be empowered to reject the work and recommend to the Owner that grading be stopped until the unacceptable conditions are corrected.

## 2. DEFINITIONS

2.1 **Owner** shall refer to the owner of the property or the entity on whose behalf the grading work is being performed and who has contracted with the Contractor to have grading performed.

2.2 **Contractor** shall refer to the Contractor performing the site grading work.

2.3 **Civil Engineer** or **Engineer of Work** shall refer to the California licensed Civil Engineer or consulting firm responsible for preparation of the grading plans, surveying and verifying as-graded topography.

2.4 **Consultant** shall refer to the soil engineering and engineering geology consulting firm retained to provide geotechnical services for the project.

2.5 **Soil Engineer** shall refer to a California licensed Civil Engineer retained by the Owner, who is experienced in the practice of geotechnical engineering. The Soil Engineer shall be responsible for having qualified representatives on-site to observe and test the Contractor's work for conformance with these specifications.

2.6 **Engineering Geologist** shall refer to a California licensed Engineering Geologist retained by the Owner to provide geologic observations and recommendations during the site grading.

2.7 **Geotechnical Report** shall refer to a soil report (including all addenda) which may include a geologic reconnaissance or geologic investigation that was prepared specifically for the development of the project for which these Recommended Grading Specifications are intended to apply.

## 3. MATERIALS

3.1 Materials for compacted fill shall consist of any soil excavated from the cut areas or imported to the site that, in the opinion of the Consultant, is suitable for use in construction of fills. In general, fill materials can be classified as *soil* fills, *soil-rock* fills or *rock* fills, as defined below.

3.1.1 **Soil fills** are defined as fills containing no rocks or hard lumps greater than 12 inches in maximum dimension and containing at least 40 percent by weight of material smaller than ¾ inch in size.

3.1.2 **Soil-rock fills** are defined as fills containing no rocks or hard lumps larger than 4 feet in maximum dimension and containing a sufficient matrix of soil fill to allow for proper compaction of soil fill around the rock fragments or hard lumps as specified in Paragraph 6.2. **Oversize rock** is defined as material greater than 12 inches.

3.1.3 **Rock fills** are defined as fills containing no rocks or hard lumps larger than 3 feet in maximum dimension and containing little or no fines. Fines are defined as material smaller than ¾ inch in maximum dimension. The quantity of fines shall be less than approximately 20 percent of the rock fill quantity.

3.2 Material of a perishable, spongy, or otherwise unsuitable nature as determined by the Consultant shall not be used in fills.

3.3 Materials used for fill, either imported or on-site, shall not contain hazardous materials as defined by the California Code of Regulations, Title 22, Division 4, Chapter 30, Articles 9 and 10; 40CFR; and any other applicable local, state or federal laws. The Consultant shall not be responsible for the identification or analysis of the potential presence of hazardous materials. However, if observations, odors or soil discoloration cause Consultant to suspect the presence of hazardous materials, the Consultant may request from the Owner the termination of grading operations within the affected area. Prior to resuming grading operations, the Owner shall provide a written report to the Consultant indicating that the suspected materials are not hazardous as defined by applicable laws and regulations.

3.4 The outer 15 feet of *soil-rock* fill slopes, measured horizontally, should be composed of properly compacted *soil* fill materials approved by the Consultant. *Rock* fill may extend to the slope face, provided that the slope is not steeper than 2:1 (horizontal:vertical) and a soil layer no thicker than 12 inches is track-walked onto the face for landscaping purposes. This procedure may be utilized provided it is acceptable to the governing agency, Owner and Consultant.

3.5 Samples of soil materials to be used for fill should be tested in the laboratory by the Consultant to determine the maximum density, optimum moisture content, and, where appropriate, shear strength, expansion, and gradation characteristics of the soil.

3.6 During grading, soil or groundwater conditions other than those identified in the Geotechnical Report may be encountered by the Contractor. The Consultant shall be notified immediately to evaluate the significance of the unanticipated condition.

## 4. CLEARING AND PREPARING AREAS TO BE FILLED

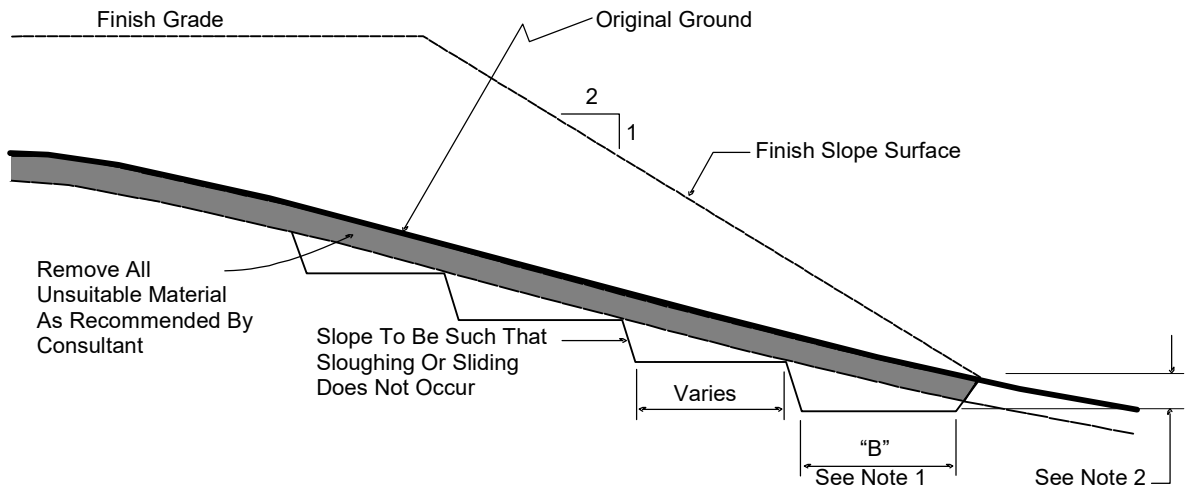
4.1 Areas to be excavated and filled shall be cleared and grubbed. Clearing shall consist of complete removal above the ground surface of trees, stumps, brush, vegetation, man-made structures, and similar debris. Grubbing shall consist of removal of stumps, roots, buried logs and other unsuitable material and shall be performed in areas to be graded. Roots and other projections exceeding 1½ inches in diameter shall be removed to a depth of 3 feet below the surface of the ground. Borrow areas shall be grubbed to the extent necessary to provide suitable fill materials.

4.2 Asphalt pavement material removed during clearing operations should be properly disposed at an approved off-site facility or in an acceptable area of the project evaluated by Geocon and the property owner. Concrete fragments that are free of reinforcing steel may be placed in fills, provided they are placed in accordance with Section 6.2 or 6.3 of this document.

4.3 After clearing and grubbing of organic matter and other unsuitable material, loose or porous soils shall be removed to the depth recommended in the Geotechnical Report. The depth of removal and compaction should be observed and approved by a representative of the Consultant. The exposed surface shall then be plowed or scarified to a minimum depth of 6 inches and until the surface is free from uneven features that would tend to prevent uniform compaction by the equipment to be used.

4.4 Where the slope ratio of the original ground is steeper than 5:1 (horizontal:vertical), or where recommended by the Consultant, the original ground should be benched in accordance with the following illustration.

TYPICAL BENCHING DETAIL




No Scale

DETAIL NOTES:

(1) Key width "B" should be a minimum of 10 feet, or sufficiently wide to permit complete coverage with the compaction equipment used. The base of the key should be graded horizontal, or inclined slightly into the natural slope.

(2) The outside of the key should be below the topsoil or unsuitable surficial material and at least 2 feet into dense formational material. Where hard rock is exposed in the bottom of the key, the depth and configuration of the key may be modified as approved by the Consultant.

4.5 After areas to receive fill have been cleared and scarified, the surface should be moisture conditioned to achieve the proper moisture content, and compacted as recommended in Section 6 of these specifications.

## 5. COMPACTION EQUIPMENT

5.1 Compaction of *soil* or *soil-rock* fill shall be accomplished by sheepsfoot or segmented-steel wheeled rollers, vibratory rollers, multiple-wheel pneumatic-tired rollers, or other types of acceptable compaction equipment. Equipment shall be of such a design that it will be capable of compacting the *soil* or *soil-rock* fill to the specified relative compaction at the specified moisture content.

5.2 Compaction of *rock* fills shall be performed in accordance with Section 6.3.

## 6. PLACING, SPREADING AND COMPACTION OF FILL MATERIAL

6.1 *Soil* fill, as defined in Paragraph 3.1.1, shall be placed by the Contractor in accordance with the following recommendations:

6.1.1 *Soil* fill shall be placed by the Contractor in layers that, when compacted, should generally not exceed 8 inches. Each layer shall be spread evenly and shall be thoroughly mixed during spreading to obtain uniformity of material and moisture in each layer. The entire fill shall be constructed as a unit in nearly level lifts. Rock materials greater than 12 inches in maximum dimension shall be placed in accordance with Section 6.2 or 6.3 of these specifications.

6.1.2 In general, the *soil* fill shall be compacted at a moisture content at or above the optimum moisture content as determined by ASTM D 1557.

6.1.3 When the moisture content of *soil* fill is below that specified by the Consultant, water shall be added by the Contractor until the moisture content is in the range specified.

6.1.4 When the moisture content of the *soil* fill is above the range specified by the Consultant or too wet to achieve proper compaction, the *soil* fill shall be aerated by the Contractor by blading/mixing, or other satisfactory methods until the moisture content is within the range specified.

6.1.5 After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted by the Contractor to a relative compaction of at least 90 percent. Relative compaction is defined as the ratio (expressed in percent) of the in-place dry density of the compacted fill to the maximum laboratory dry density as determined in accordance with ASTM D 1557. Compaction shall be continuous over the entire area, and compaction equipment shall make sufficient passes so that the specified minimum relative compaction has been achieved throughout the entire fill.

6.1.6 Where practical, soils having an Expansion Index greater than 50 should be placed at least 3 feet below finish pad grade and should be compacted at a moisture content generally 2 to 4 percent greater than the optimum moisture content for the material.

6.1.7 Properly compacted *soil* fill shall extend to the design surface of fill slopes. To achieve proper compaction, it is recommended that fill slopes be over-built by at least 3 feet and then cut to the design grade. This procedure is considered preferable to track-walking of slopes, as described in the following paragraph.

6.1.8 As an alternative to over-building of slopes, slope faces may be back-rolled with a heavy-duty loaded sheepsfoot or vibratory roller at maximum 4-foot fill height intervals. Upon completion, slopes should then be track-walked with a D-8 dozer or similar equipment, such that a dozer track covers all slope surfaces at least twice.

6.2 *Soil-rock* fill, as defined in Paragraph 3.1.2, shall be placed by the Contractor in accordance with the following recommendations:

6.2.1 Rocks larger than 12 inches but less than 4 feet in maximum dimension may be incorporated into the compacted *soil* fill, but shall be limited to the area measured 15 feet minimum horizontally from the slope face and 5 feet below finish grade or 3 feet below the deepest utility, whichever is deeper.

6.2.2 Rocks or rock fragments up to 4 feet in maximum dimension may either be individually placed or placed in windrows. Under certain conditions, rocks or rock fragments up to 10 feet in maximum dimension may be placed using similar methods. The acceptability of placing rock materials greater than 4 feet in

maximum dimension shall be evaluated during grading as specific cases arise and shall be approved by the Consultant prior to placement.

6.2.3 For individual placement, sufficient space shall be provided between rocks to allow for passage of compaction equipment.

6.2.4 For windrow placement, the rocks should be placed in trenches excavated in properly compacted *soil* fill. Trenches should be approximately 5 feet wide and 4 feet deep in maximum dimension. The voids around and beneath rocks should be filled with approved granular soil having a Sand Equivalent of 30 or greater and should be compacted by flooding. Windrows may also be placed utilizing an "open-face" method in lieu of the trench procedure, however, this method should first be approved by the Consultant.

6.2.5 Windrows should generally be parallel to each other and may be placed either parallel to or perpendicular to the face of the slope depending on the site geometry. The minimum horizontal spacing for windrows shall be 12 feet center-to-center with a 5-foot stagger or offset from lower courses to next overlying course. The minimum vertical spacing between windrow courses shall be 2 feet from the top of a lower windrow to the bottom of the next higher windrow.

6.2.6 Rock placement, fill placement and flooding of approved granular soil in the windrows should be continuously observed by the Consultant.

6.3 *Rock* fills, as defined in Section 3.1.3, shall be placed by the Contractor in accordance with the following recommendations:

6.3.1 The base of the *rock* fill shall be placed on a sloping surface (minimum slope of 2 percent). The surface shall slope toward suitable subdrainage outlet facilities. The *rock* fills shall be provided with subdrains during construction so that a hydrostatic pressure buildup does not develop. The subdrains shall be permanently connected to controlled drainage facilities to control post-construction infiltration of water.

6.3.2 *Rock* fills shall be placed in lifts not exceeding 3 feet. Placement shall be by rock trucks traversing previously placed lifts and dumping at the edge of the currently placed lift. Spreading of the *rock* fill shall be by dozer to facilitate *seating* of the

rock. The *rock* fill shall be watered heavily during placement. Watering shall consist of water trucks traversing in front of the current rock lift face and spraying water continuously during rock placement. Compaction equipment with compactive energy comparable to or greater than that of a 20-ton steel vibratory roller or other compaction equipment providing suitable energy to achieve the required compaction or deflection as recommended in Paragraph 6.3.3 shall be utilized. The number of passes to be made should be determined as described in Paragraph 6.3.3. Once a *rock* fill lift has been covered with *soil* fill, no additional *rock* fill lifts will be permitted over the *soil* fill.

6.3.3 Plate bearing tests, in accordance with ASTM D 1196, may be performed in both the compacted *soil* fill and in the *rock* fill to aid in determining the required minimum number of passes of the compaction equipment. If performed, a minimum of three plate bearing tests should be performed in the properly compacted *soil* fill (minimum relative compaction of 90 percent). Plate bearing tests shall then be performed on areas of *rock* fill having two passes, four passes and six passes of the compaction equipment, respectively. The number of passes required for the *rock* fill shall be determined by comparing the results of the plate bearing tests for the *soil* fill and the *rock* fill and by evaluating the deflection variation with number of passes. The required number of passes of the compaction equipment will be performed as necessary until the plate bearing deflections are equal to or less than that determined for the properly compacted *soil* fill. In no case will the required number of passes be less than two.

6.3.4 A representative of the Consultant should be present during *rock* fill operations to observe that the minimum number of “passes” have been obtained, that water is being properly applied and that specified procedures are being followed. The actual number of plate bearing tests will be determined by the Consultant during grading.

6.3.5 Test pits shall be excavated by the Contractor so that the Consultant can state that, in their opinion, sufficient water is present and that voids between large rocks are properly filled with smaller rock material. In-place density testing will not be required in the *rock* fills.

6.3.6 To reduce the potential for “piping” of fines into the *rock* fill from overlying *soil* fill material, a 2-foot layer of graded filter material shall be placed above the uppermost lift of *rock* fill. The need to place graded filter material below the *rock*

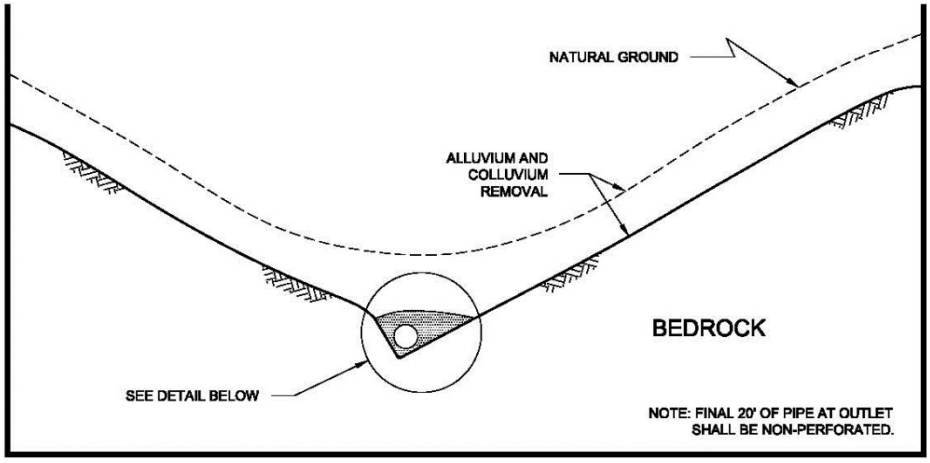
should be determined by the Consultant prior to commencing grading. The gradation of the graded filter material will be determined at the time the *rock* fill is being excavated. Materials typical of the *rock* fill should be submitted to the Consultant in a timely manner, to allow design of the graded filter prior to the commencement of *rock* fill placement.

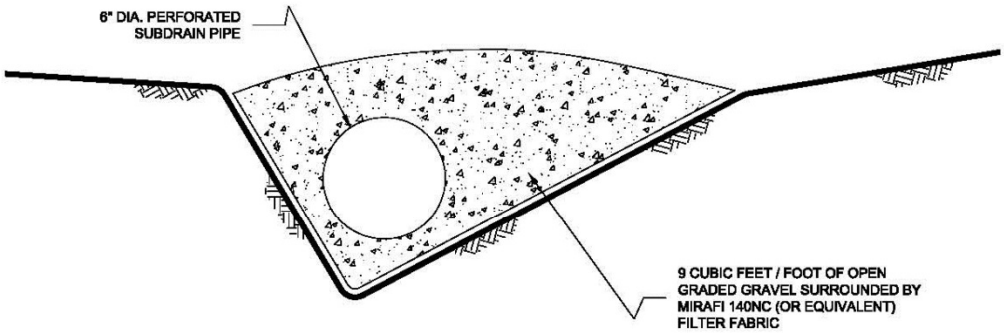
6.3.7 *Rock* fill placement should be continuously observed during placement by the Consultant.

## 7. SUBDRAINS

7.1 The geologic units on the site may have permeability characteristics and/or fracture systems that could be susceptible under certain conditions to seepage. The use of canyon subdrains may be necessary to mitigate the potential for adverse impacts associated with seepage conditions. Canyon subdrains with lengths in excess of 500 feet or extensions of existing offsite subdrains should use 8-inch-diameter pipes. Canyon subdrains less than 500 feet in length should use 6-inch-diameter pipes.

TYPICAL CANYON DRAIN DETAIL




NOTES:

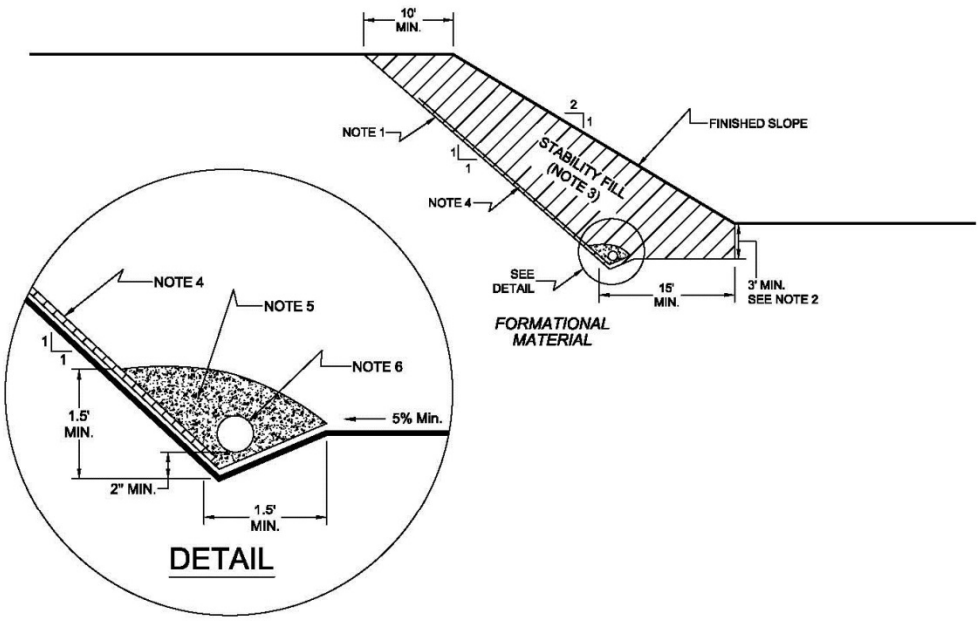
1.....6-INCH DIAMETER, SCHEDULE 80 PVC PERFORATED PIPE FOR FILLS
IN EXCESS OF 100-FEET IN DEPTH OR A PIPE LENGTH OF LONGER THAN 500 FEET.

2.....6-INCH DIAMETER, SCHEDULE 40 PVC PERFORATED PIPE FOR FILLS
LESS THAN 100-FEET IN DEPTH OR A PIPE LENGTH SHORTER THAN 500 FEET.

NO SCALE

7.2 Slope drains within stability fill keyways should use 4-inch-diameter (or lager) pipes.

TYPICAL STABILITY FILL DETAIL




**NOTES:**

1.....EXCAVATE BACKCUT AT 1:1 INCLINATION (UNLESS OTHERWISE NOTED).

2.....BASE OF STABILITY FILL TO BE 3 FEET INTO FORMATIONAL MATERIAL, SLOPING A MINIMUM 5% INTO SLOPE.

3.....STABILITY FILL TO BE COMPOSED OF PROPERLY COMPACTED GRANULAR SOIL.

4.....CHIMNEY DRAINS TO BE APPROVED PREFABRICATED CHIMNEY DRAIN PANELS (MIRADRAIN G200N OR EQUIVALENT) SPACED APPROXIMATELY 20 FEET CENTER TO CENTER AND 4 FEET WIDE. CLOSER SPACING MAY BE REQUIRED IF SEEPAGE IS ENCOUNTERED.

5.....FILTER MATERIAL TO BE 3/4-INCH, OPEN-GRADED CRUSHED ROCK ENCLOSED IN APPROVED FILTER FABRIC (MIRAFI 140NC).

6.....COLLECTOR PIPE TO BE 4-INCH MINIMUM DIAMETER, PERFORATED, THICK-WALLED PVC SCHEDULE 40 OR EQUIVALENT, AND SLOPED TO DRAIN AT 1 PERCENT MINIMUM TO APPROVED OUTLET.

NO SCALE

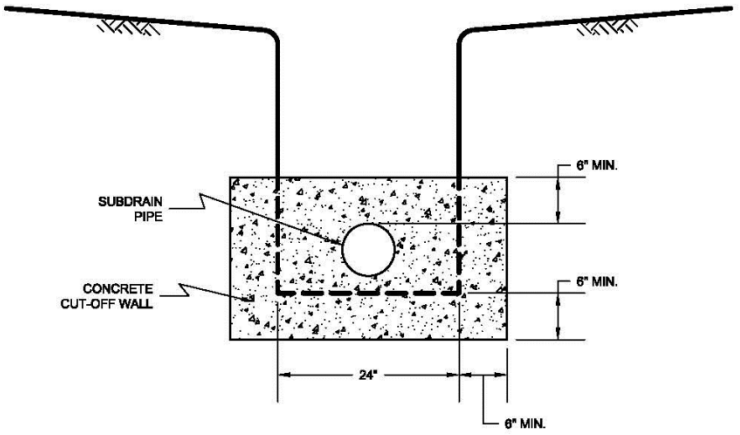
7.3 The actual subdrain locations will be evaluated in the field during the remedial grading operations. Additional drains may be necessary depending on the conditions observed and the requirements of the local regulatory agencies. Appropriate subdrain outlets should be evaluated prior to finalizing 40-scale grading plans.

7.4 *Rock* fill or *soil-rock* fill areas may require subdrains along their down-slope perimeters to mitigate the potential for buildup of water from construction or landscape irrigation. The subdrains should be at least 6-inch-diameter pipes encapsulated in gravel and filter fabric. *Rock* fill drains should be constructed using the same requirements as canyon subdrains.

7.5 Prior to outletting, the final 20-foot segment of a subdrain that will not be extended during future development should consist of non-perforated drainpipe. At the non-perforated/ perforated interface, a seepage cutoff wall should be constructed on the downslope side of the pipe.

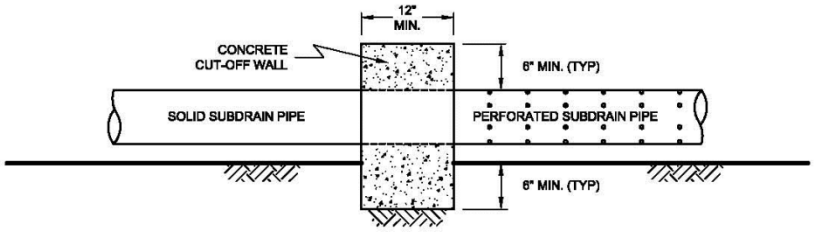
TYPICAL CUT OFF WALL DETAIL

FRONT VIEW




NO SCALE

SIDE VIEW

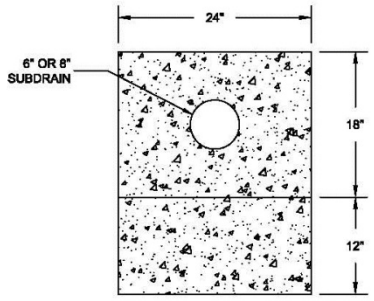



NO SCALE

7.6 Subdrains that discharge into a natural drainage course or open space area should be provided with a permanent headwall structure.

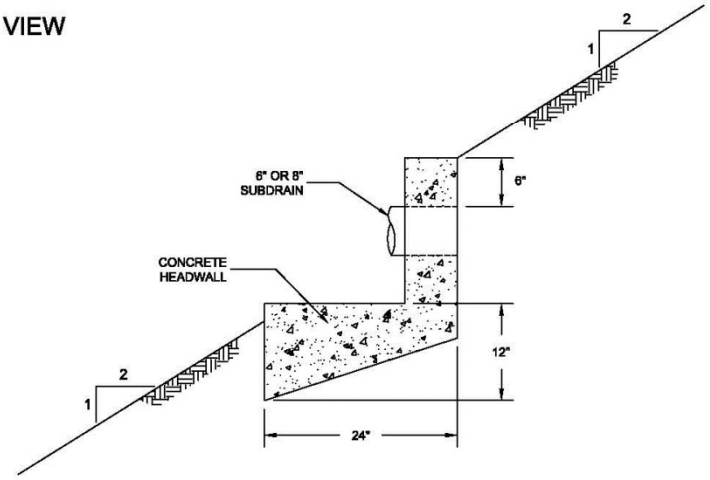
TYPICAL HEADWALL DETAIL

FRONT VIEW




NO SCALE

SIDE VIEW




NOTE: HEADWALL SHOULD OUTLET AT TOE OF FILL SLOPE
OR INTO CONTROLLED SURFACE DRAINAGE

NO SCALE

7.7 The final grading plans should show the location of the proposed subdrains. After completion of remedial excavations and subdrain installation, the project civil engineer should survey the drain locations and prepare an “as-built” map showing the drain locations. The final outlet and connection locations should be determined during grading operations. Subdrains that will be extended on adjacent projects after grading can be placed on formational material and a vertical riser should be placed at the end of the subdrain. The grading contractor should consider videoing the subdrains shortly after

burial to check proper installation and functionality. The contractor is responsible for the performance of the drains.

## 8. OBSERVATION AND TESTING

8.1 The Consultant shall be the Owner's representative to observe and perform tests during clearing, grubbing, filling, and compaction operations. In general, no more than 2 feet in vertical elevation of *soil* or *soil-rock* fill should be placed without at least one field density test being performed within that interval. In addition, a minimum of one field density test should be performed for every 2,000 cubic yards of *soil* or *soil-rock* fill placed and compacted.

8.2 The Consultant should perform a sufficient distribution of field density tests of the compacted *soil* or *soil-rock* fill to provide a basis for expressing an opinion whether the fill material is compacted as specified. Density tests shall be performed in the compacted materials below any disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.

8.3 During placement of *rock* fill, the Consultant should observe that the minimum number of passes have been obtained per the criteria discussed in Section 6.3.3. The Consultant should request the excavation of observation pits and may perform plate bearing tests on the placed *rock* fills. The observation pits will be excavated to provide a basis for expressing an opinion as to whether the *rock* fill is properly seated and sufficient moisture has been applied to the material. When observations indicate that a layer of *rock* fill or any portion thereof is below that specified, the affected layer or area shall be reworked until the *rock* fill has been adequately seated and sufficient moisture applied.

8.4 A settlement monitoring program designed by the Consultant may be conducted in areas of *rock* fill placement. The specific design of the monitoring program shall be as recommended in the Conclusions and Recommendations section of the project Geotechnical Report or in the final report of testing and observation services performed during grading.

8.5 We should observe the placement of subdrains, to check that the drainage devices have been placed and constructed in substantial conformance with project specifications.

8.6 Testing procedures shall conform to the following Standards as appropriate:

**8.6.1 Soil and Soil-Rock Fills:**

8.6.1.1 Field Density Test, ASTM D 1556, *Density of Soil In-Place By the Sand-Cone Method.*

8.6.1.2 Field Density Test, Nuclear Method, ASTM D 6938, *Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth).*

8.6.1.3 Laboratory Compaction Test, ASTM D 1557, *Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Pound Hammer and 18-Inch Drop*.

8.6.1.4. Expansion Index Test, ASTM D 4829, *Expansion Index Test*.

## 9. PROTECTION OF WORK

9.1 During construction, the Contractor shall properly grade all excavated surfaces to provide positive drainage and prevent ponding of water. Drainage of surface water shall be controlled to avoid damage to adjoining properties or to finished work on the site. The Contractor shall take remedial measures to prevent erosion of freshly graded areas until such time as permanent drainage and erosion control features have been installed. Areas subjected to erosion or sedimentation shall be properly prepared in accordance with the Specifications prior to placing additional fill or structures.

9.2 After completion of grading as observed and tested by the Consultant, no further excavation or filling shall be conducted except in conjunction with the services of the Consultant.

## 10. CERTIFICATIONS AND FINAL REPORTS

10.1 Upon completion of the work, Contractor shall furnish Owner a certification by the Civil Engineer stating that the lots and/or building pads are graded to within 0.1 foot vertically of elevations shown on the grading plan and that all tops and toes of slopes are within 0.5 foot horizontally of the positions shown on the grading plans. After installation of a section of subdrain, the project Civil Engineer should survey its location and prepare an *as-built* plan of the subdrain location. The project Civil Engineer should verify the proper outlet for the subdrains and the Contractor should ensure that the drain system is free of obstructions.

10.2 The Owner is responsible for furnishing a final as-graded soil and geologic report satisfactory to the appropriate governing or accepting agencies. The as-graded report should be prepared and signed by a California licensed Civil Engineer experienced in

geotechnical engineering and by a California Certified Engineering Geologist, indicating that the geotechnical aspects of the grading were performed in substantial conformance with the Specifications or approved changes to the Specifications.

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# ATTACHMENT 13

## Coastal Cactus Wren Mitigation Plan for the Southwest Village Specific Plan Project

# Coastal Cactus Wren Mitigation Plan for the Southwest Village Specific Plan Project San Diego, California Project No. 614791

Prepared for
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13520 Evening Creek Drive North, Suite 300
San Diego, CA 92128

Prepared by
RECON Environmental, Inc.
3111 Camino del Rio North, Suite 600
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P 619.308.9333

RECON Number 8868
August 22, 2024

Meagan Olson, Restoration Ecologist

Jade Woll, Restoration Ecologist

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# Acronyms and Abbreviations

| | |
|---|---|
| CDFW | California Department of Fish and Wildlife |
| City | City of San Diego |
| HCMP | Habitat Conservation and Management Plan |
| impact site | Beyer Boulevard extension impact site |
| km | kilometer |
| MHPA | Multi-Habitat Planning Area |
| mitigation site | coastal cactus wren mitigation site |
| MMC | Mitigation Monitoring Coordination |
| MSCP | Multiple Species Conservation Program |
| PEP | Plant Establishment Period |
| plan | Coastal Cactus Wren Mitigation Plan |
| project | Southwest Village Specific Plan Project |
| RECON | RECON Environmental, Inc. |
| Specific Plan | Southwest Village Specific Plan |
| USGS | U.S. Geological Survey |

# 1.0 Introduction

This mitigation plan (plan) details the process for mitigating impacts to coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*) habitat associated with implementation of the Southwest Village Specific Plan (project). The Southwest Village Specific Plan (Specific Plan) is in the community of Otay Mesa, within the city of San Diego (Figures 1 and 2). The project includes the adoption of the Specific Plan, which is a policy framework intended to guide the future development of residences; commercial and retail spaces; public facilities including an elementary school, parks, and trails; and open space and habitat conservation areas within a 490-acre area. Additionally, the project includes development of Phase 1 of the Specific Plan, which includes construction of an extension of Beyer Boulevard connecting San Ysidro to the Specific Plan area as well as other supporting grading and infrastructure. Impacts to coastal cactus wren habitat would result from construction of the planned Beyer Boulevard extension, which is a City of San Diego (City) planned Mobility Element roadway.

This plan is prepared in accordance with the California Environmental Quality Act, the City's Multiple Species Conservation Program (MSCP), and as implemented through the Land Development Code - Biology Guidelines (City of San Diego 2018). In addition, the mitigation site location, implementation design, maintenance methods, and performance standards described in this plan follow the South San Diego County Coastal Cactus Wren Habitat Conservation and Management Plan (HCMP; The Nature Conservancy 2015).

As currently planned, the Beyer Boulevard extension would cause permanent impacts to 0.63 acre of coastal cactus wren habitat and indirect impacts to 0.46 acre of coastal cactus wren habitat due to noise impacts from construction activities, resulting in a total of 1.09 acres of impacts to coastal cactus wren habitat. Per the City's MSCP Appendix A conditions of coverage for coastal cactus wren (City of San Diego 1997), impacts to maritime succulent scrub shall be mitigated at a 1:1 ratio to ensure protection of this narrow endemic wildlife species. This plan proposes to mitigate impacts to coastal cactus wren habitat through restoration of existing low quality disturbed maritime succulent scrub and enhancement of surrounding maritime succulent scrub habitat. The coastal cactus wren habitat mitigation includes restoration through the removal of non-native species and salvage and installation of coast cholla (*Cylindropuntia prolifera)* to establish coastal cactus wren habitat within the disturbed maritime succulent scrub. Additional mitigation includes habitat enhancement through non-native species control and shrub thinning within existing maritime succulent scrub habitat. This plan proposes 1.09 acres of restoration to mitigate impacts to 1.09 acres of coastal cactus wren habitat. The methods for implementing and maintaining this mitigation are laid out in this plan.

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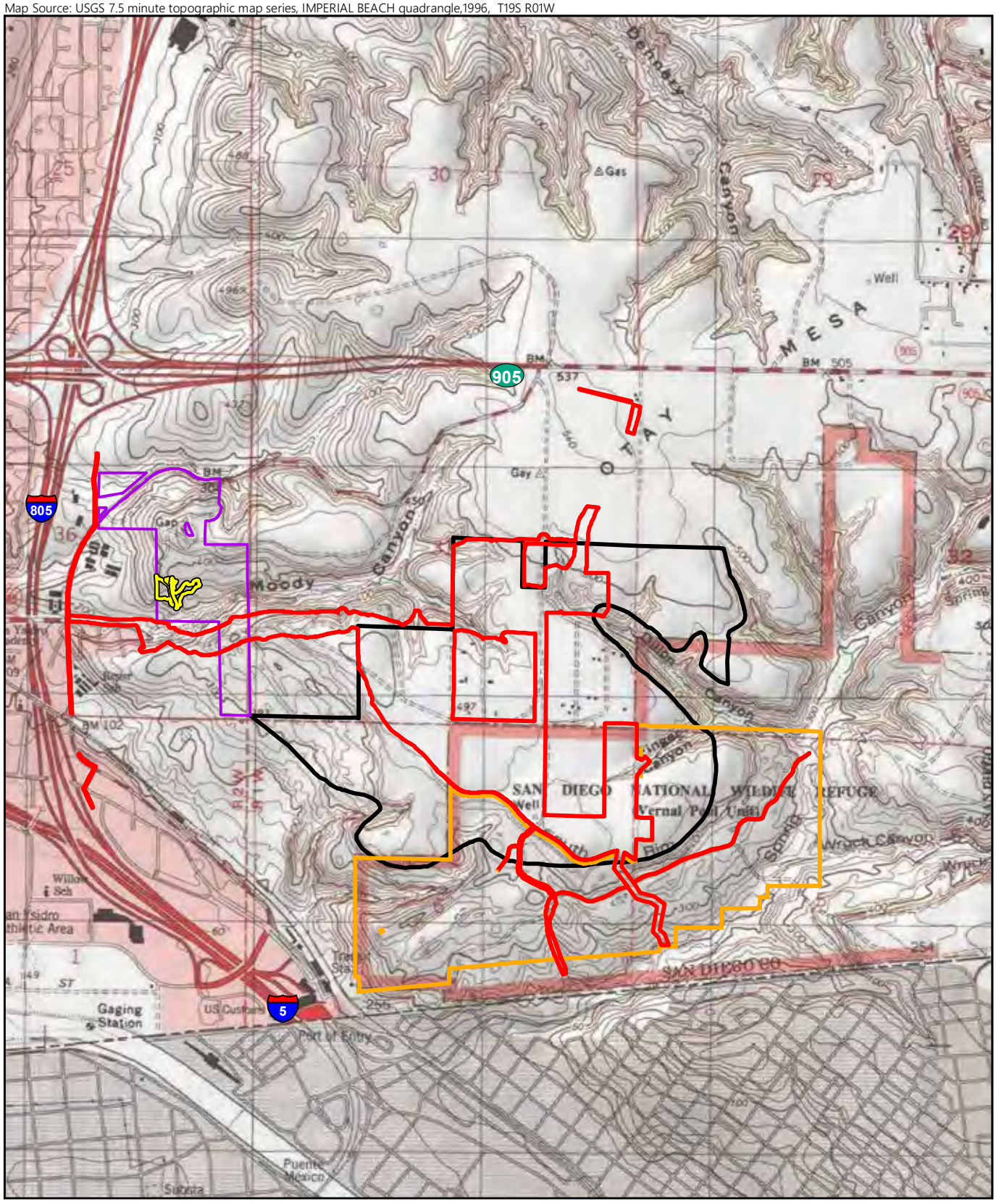
FIGURE 1
Regional Location

Map Source: USGS 7.5 minute topographic map series, IMPERIAL BEACH quadrangle,1996, T19S R01W




Coastal Cactus Wren Habitat Mitigation Site
Project-level Analysis Area
Land to be Conserved and Managed by the City
Specific Plan Boundary
Furby North Preserve

0 Feet 2,000

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FIGURE 2
Mitigation Site Location on USGS Map

## 1.1 Project Location

A mitigation site within the County of San Diego Furby North Preserve has been proposed for mitigating impacts to coastal cactus wren habitat associated with the project-level analysis areas evaluated in the Southwest Village Specific Plan Biological Resources Technical Report. The proposed mitigation location was determined to be highly desirable due to the proximity to the impact location in addition to the fact that the Furby North Preserve is known to have historically supported coastal cactus wren. The mitigation site is located in the eastern portion of the San Ysidro Community Plan, just west of the community of Otay Mesa within the city of San Diego, and more specifically south of State Route 905 and east of Interstate 805 near the existing terminus of Beyer Boulevard (see Figure 1). The project is within Township 19 South, Range 01 West, of the U.S. Geological Survey (USGS) 7.5-minute topographic map, Imperial Beach, California quadrangle (see Figure 2; USGS 1996) and is presented on the City of San Diego 800-foot-scale map number 138-1761 (Figure 3). The mitigation site is surrounded by open space in all directions and the City's Multi-Habitat Planning Area (MHPA) occurs within and adjacent to the proposed mitigation site (Figure 4).

The mitigation site is located within disturbed maritime succulent scrub and maritime succulent scrub habitats on canyon slopes within open space approximately 0.07 mile (0.11 kilometers [km]) north of the Beyer Boulevard impact site.

## 1.2 Coastal Cactus Wren Status and Biology

The coastal cactus wren ranges from southern Orange County through San Diego County into extreme northwestern Baja California (Proudfoot and Sherry 2000). Year-round residents, the subspecies inhabit coastal sage and maritime succulent scrub containing thickets of coast cholla and two species of prickly pear, coast prickly pear (*Opuntia littoralis*) and chaparral prickly pear (*Opuntia oricola*) (Rea and Weaver 1990). Coastal cactus wrens build their nests in cactus approximately 3 feet (1 meter) in height (Solek and Szijj 2004), and egg laying occurs from mid-March through early June. Males often build multiple nests throughout the year, which are used for roosting by adults and fledglings, and nesting for subsequent broods (Unitt 2004). This species is considered a shrubbery skulker, foraging primarily on open areas on the ground or low in the vegetation for insects. In high temperatures, the coastal cactus wren prefers to forage under the canopy of shrubs (Solek and Szijj 2004).

The coastal cactus wren is a California Department of Fish and Wildlife (CDFW) species of concern and a City MSCP-covered species (CDFW 2021; City of San Diego 1997). Shuford and Gardali (2008) summarize that in San Diego County the coastal cactus wren is concentrated in four core regions: southern Camp Pendleton/Fallbrook Naval Weapons Station, Lake Hodges/San Pasqual, Lake Jennings, and Sweetwater/Otay Mesa. The primary cause for the decline of this species is habitat degradation and loss of breeding habitat to urbanization (Solek and Szijj 2004).

Map Source: City of San Diego, Engineering and Development Department, City 800' Maps, Number 138-1749 & 138-1761

Coastal Cactus Wren Habitat Mitigation Site

Project-level Analysis Area

Land to be Conserved and Managed by the City

Specific Plan Boundary

Furby North Preserve

0 Feet 800

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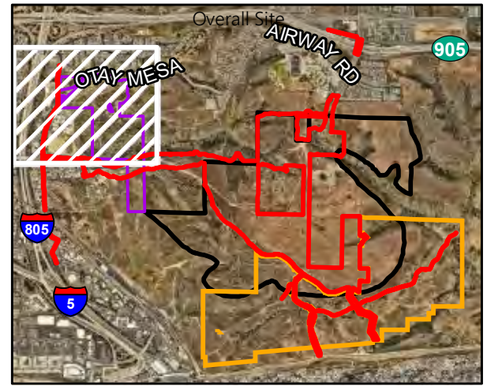
FIGURE 3
Project Location on City 800' Map

Image Source: NearMap (Flown January 2024)




- Coastal Cactus Wren Habitat Mitigation Site
- Project-level Analysis Area
- Land to be Conserved and Managed by the City
- Specific Plan Boundary
- Furby North Preserve
- City of SD MHPA
- Parcels

0 Feet 300

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FIGURE 4
Mitigation Site Location
on Aerial Photograph

## 1.3 Mitigation Requirements

The project would result in direct and indirect impacts to 1.09 acres of coastal cactus wren suitable habitat, which support thickets of coast cholla (Table 1; Figure 5). Per the City's MSCP Appendix A conditions of coverage for coastal cactus wren (City of San Diego 1997), impacts to maritime succulent scrub shall be mitigated at a 1:1 ratio to ensure protection of this narrow endemic wildlife species. Table 1 presents the total mitigation required for direct and indirect impacts to coastal cactus wren habitat based on the impact acreage and the applicable mitigation ratio. The proposed mitigation would result in a total of 1.09 acres of coastal cactus wren habitat restoration, which would be achieved via the restoration of disturbed maritime succulent scrub and enhancement of maritime succulent scrub.

**Table 1**
**Impacts and Required Mitigation**

| | Impacts to Coastal Cactus Wren Habitat (acres) | Required Mitigation Ratio | Required Coastal Cactus Wren Habitat to Fulfill Mitigation (acres) | Proposed Coastal Cactus Wren Habitat Restoration[1] (acres) |
|---|---|---|---|---|
| Direct Impacts | 0.63 | 1:1 | 1.09 | 1.09 |
| Indirect Impacts | 0.46 | 1:1 | | |

[1]Proposed restoration includes restoration of disturbed maritime succulent scrub habitat (0.91 acre) and enhancement of maritime succulent scrub habitat (0.18 acre)

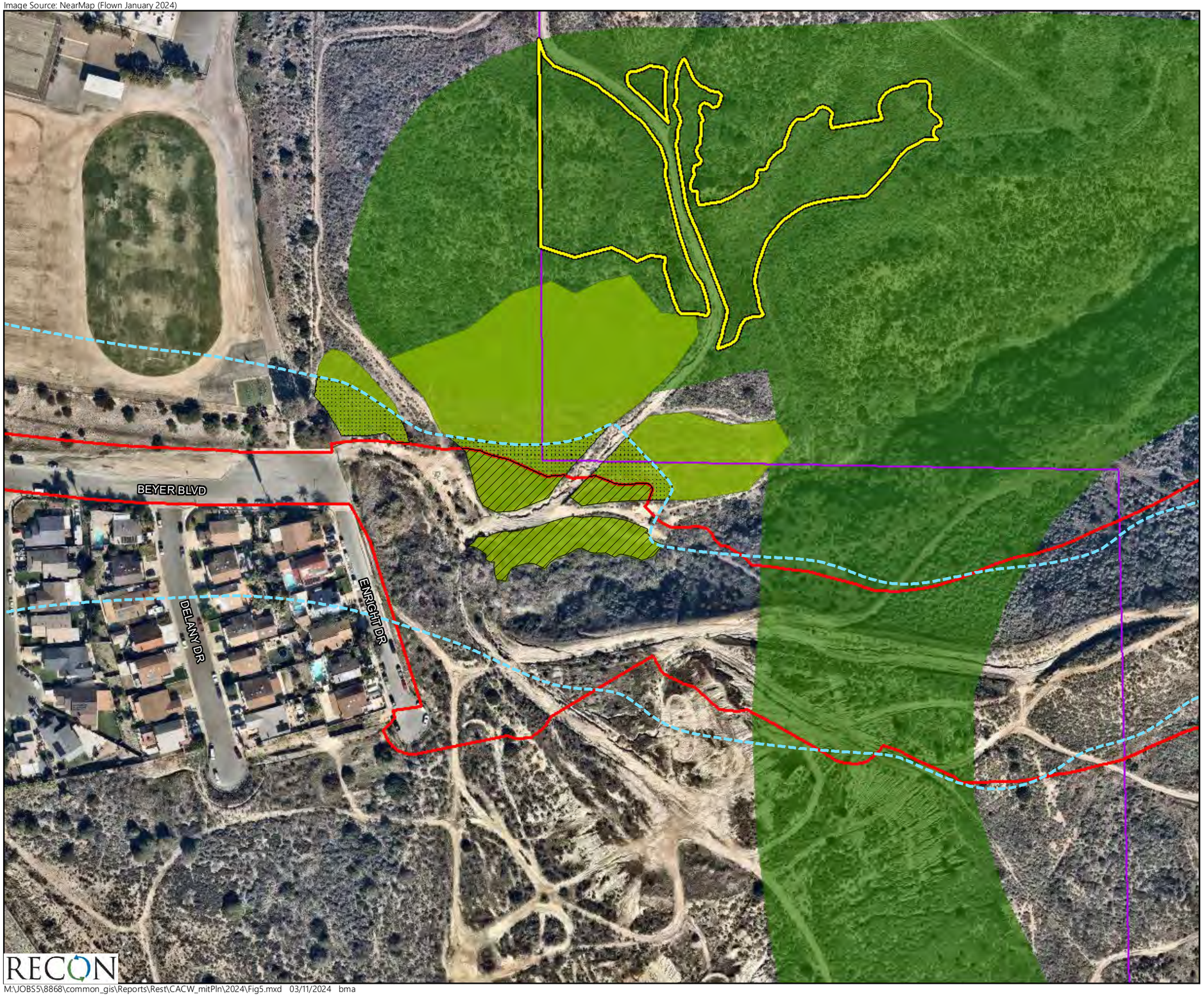
Table 2 presents the process for determining the total available mitigation acreage within the mitigation site based on non-native cover. Coastal cactus wren habitat would be restored at a ratio derived from the percent cover of non-native species within the existing and potential coastal cactus wren habitat, where the ratio is equal to the percent cover of non-native species (i.e., 50% equals 0.50:1). The total proposed restoration area would include 1.09 acres, within an overall 2.54-acre area.

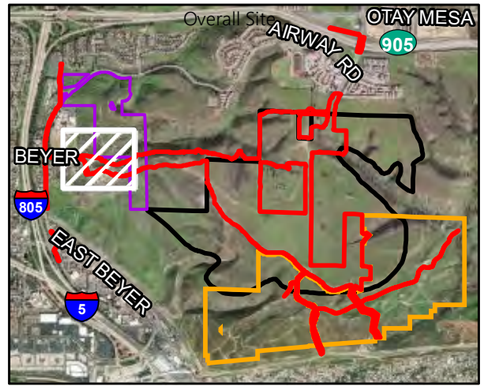
**Table 2**
**Areas to be Restored by Percent Non-native Cover**

| Percent Non-native Cover[1] | Acreage of Area to be Restored | Ratio of Percent Cover Non-Native Species to Restoration Area Acreage | Total Proposed Mitigation |
|---|---|---|---|
| 25% | 0.72 | 0.25:1 | 0.18 |
| 50% | 1.82 | 0.50:1 | 0.91 |
| **TOTAL** | **2.54** | **-** | **1.09** |

[1]Proposed mitigation includes restoration of disturbed maritime succulent scrub habitat (50 percent non-native cover) and enhancement of maritime succulent scrub habitat (25 percent non-native cover).

Image Source: NearMap (Flown January 2024)




- Project-level Analysis Area
- Cactus Wren Habitat/Cholla Thicket
- Coastal Cactus Wren Habitat Mitigation Site
- Furby North Preserve
- City of SD MHPA
- 60 CNEL Noise Contour
- Direct Impact to Cactus Wren Habitat (0.63 acre)
- Indirect Impact to Cactus Wren Habitat (0.46 ac)

0 Feet 150

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FIGURE 5
Impacts to Coastal Cactus Wren Habitat

The mitigation for impacts to coastal cactus wren habitat would be met through habitat restoration resulting in the creation of coastal cactus wren habitat within existing disturbed maritime succulent scrub habitat with 50 percent non-native cover (0.91 acre), in addition to enhancement of coastal cactus wren habitat in the surrounding maritime succulent scrub that contains 25 percent non-native cover (0.18 acre), a Tier I community. Coastal cactus wren habitat restoration would be implemented within the disturbed maritime succulent scrub habitat through non-native weed removal, coast cholla translocation from the impact site, cactus cutting installation, and native herbaceous seed introduction. The surrounding maritime succulent scrub habitat would be enhanced through non-native weed removal, cactus cutting introduction, and shrub thinning where needed to make the maritime succulent scrub more suitable for coastal cactus wren foraging and nesting. The entire mitigation site would include a five-year maintenance program.

The area specific management directives for coastal cactus wren as defined in the MSCP must include restoration of maritime succulent scrub habitat, including propagation of cactus patches, active/adaptive management of coastal cactus wren habitat, and specific measures to reduce or eliminate detrimental edge effects (City of San Diego 1997). Per the City Biological Guidelines (City of San Diego 2018), habitat restoration may include the restoration of degraded habitat as well as the enhancement of existing degraded habitat, where the proposed enhancement increases the habitat quality and biological function of the site.

The proposed restoration effort would increase the habitat quality and biological function of the site by expanding coastal cactus wren habitat within a portion of the Furby North Preserve that is not currently suitable for coastal cactus wren. The enhancement effort would further improve the biological function for coastal cactus wren through non-native weed removal and thinning of overgrown shrubs (e.g., jojoba (*Simmondsia chinensis*) and San Diego bur-sage (*Ambrosia chenopodiifolia*) that have overtaken coast cholla. Non-native weed removal supports open spaces for coastal cactus wren foraging and thinning overgrown shrubs supports coastal cactus wren nesting. Thinning overgrown shrubs and increasing open areas for foraging would increase the quality of the existing habitat for coastal cactus wren. In addition, the restoration effort would expand coastal cactus wren habitat areas through cholla salvage and installation within areas that currently do not contain cholla within the Furby North Preserve. Overall, the restoration and enhancement effort would improve the quality of coastal cactus wren habitat within an area that has historically supported the species. Furthermore, the project has incorporated 6-foot masonry walls to attenuate road noise and deter trespass into the habitat. While the coastal cactus wren habitat impacts occur outside of the MHPA, all mitigation would occur within the MHPA, just north of the impact area within the Furby North Preserve.

# 2.0 Existing Conditions

This section describes the existing physical and biological conditions of the impact site and the mitigation site. This includes a summary of land use, topographical features, and soils observed during biological surveys conducted between June 30, 2020, and May 7, 2021. A follow-up survey was conducted on June 16, 2023, to micro-map the vegetation communities within the mitigation site. An additional survey was conducted on October 9, 2023, to assess additional areas to include within the mitigation site for noise impacts associated with the Beyer Boulevard extension.

## 2.1 Impact Site Environmental Conditions

The impact site consists primarily of disturbed land and maritime succulent scrub with areas of disturbed maritime succulent scrub, coastal sage scrub, mule fat scrub, non-native grassland, and disturbed habitat. Within the impact site, where coastal cactus wren habitat would be impacted, the maritime succulent scrub habitat supports dense stands of cholla thickets. While the habitat to be impacted is considered suitable for coastal cactus wren, the coast cholla thickets are overgrown with native shrubs, reducing the existing suitability of the site for the species.

## 2.2 Mitigation Site Description

The mitigation site is located within the northern section of the 83-acre County of San Diego Furby North Preserve (Assessor Parcel Number 638-070-74), within the City's MHPA (see Figure 4). The site is on a gentle south-facing slope and is surrounded by native habitat, which includes coast cholla. The area surrounding the mitigation site is generally suitable for coastal cactus wren; however, it is in need of maintenance and shrub thinning to increase habitat suitability. The mitigation site is located approximately 0.07 mile (0.11 km) north from the impact site.

## 2.3 Topography and Soils

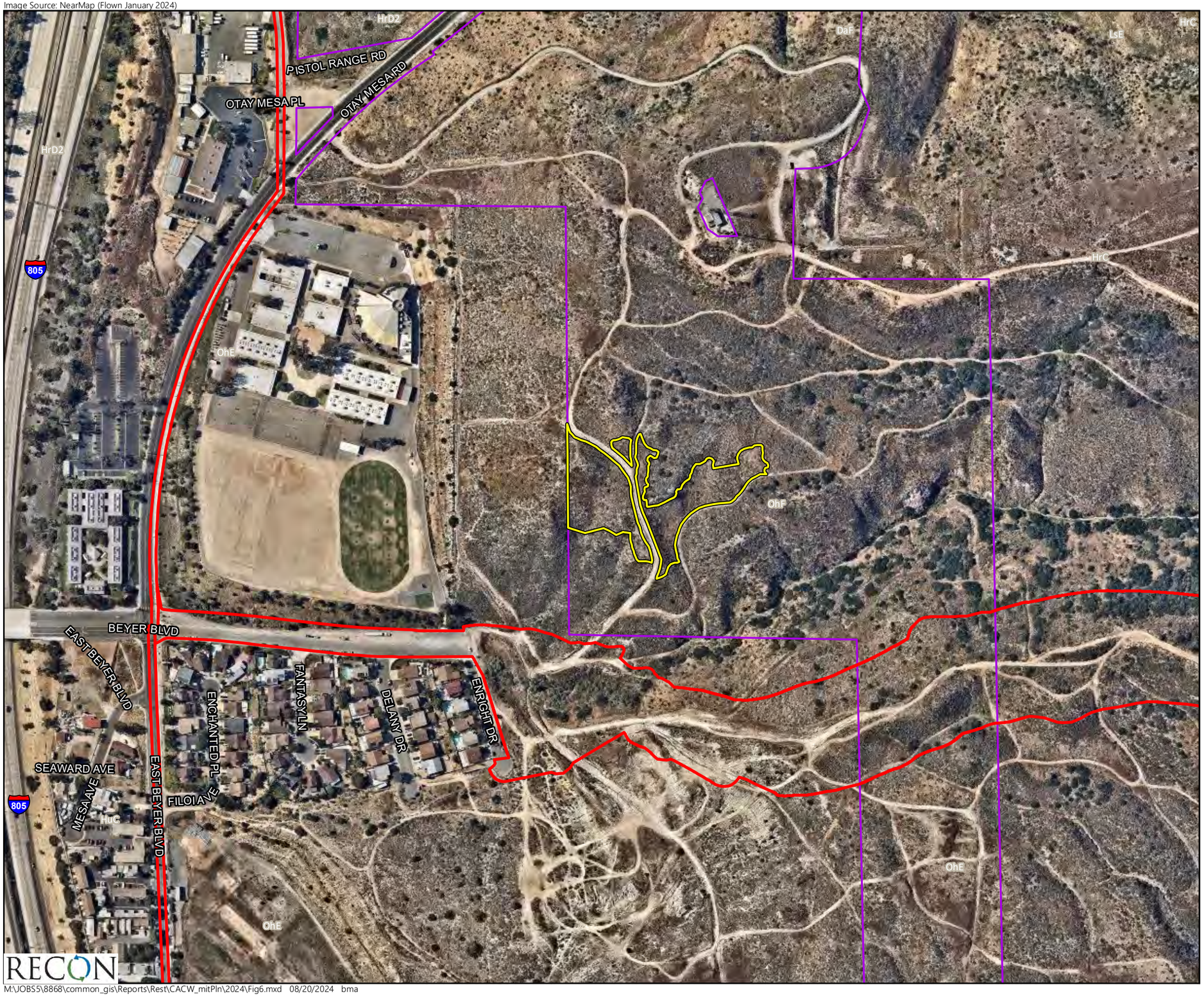
The mitigation site is characterized by a south-facing slope, within the Furby North Preserve. One soil type, Olivenhain cobbly loam, 30 to 50 percent slopes (Figure 6; U.S. Department of Agriculture 1973). This soil series consists of well drained, moderately deep to deep cobbly loams that have a very cobbly clay subsoil. This soil type is formed in gravelly and cobbly alluvium. Permeability is very slow, and the runoff is slow to medium. The erosion hazard is slight to moderate. This soil type can support vegetation found within Diegan coastal sage scrub habitat including California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*) and can also support maritime succulent scrub habitat which includes species such as jojoba, San Diego County viguiera (*Bahiopsis lacinata*), and laurel sumac (*Malosma laurina*).

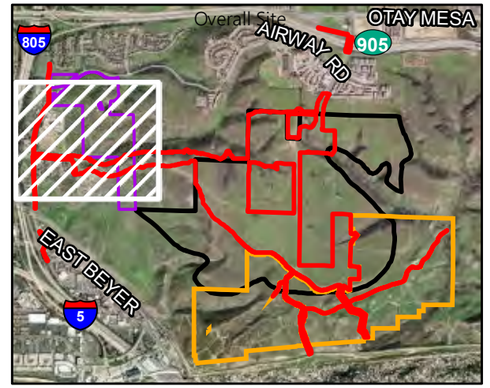
## 2.4 Biological Conditions

The mitigation site's existing biological resources are shown in Figure 7. The mitigation site consists of disturbed maritime succulent scrub and maritime succulent scrub. Photographs 1 through 3 provide representative overviews of the existing native and non-native species present within the mitigation site and distinguish the proposed restoration and enhancement areas.

The mitigation site includes disturbed maritime succulent scrub habitat with 50 percent non-native cover. The disturbed maritime succulent scrub contains of dense stand of non-native species including tocalote (*Centaurea melitensis*), black mustard (*Brassica nigra*), and non-native grasses. The disturbed maritime succulent scrub habitat contains patches of jojoba and San Diego bur-sage; however, it is not currently suitable for coastal cactus wren as it does not contain stands of coast cholla, which coastal cactus wren require for nesting, and it contains dense stands of non-native weeds which preclude coastal cactus wren foraging.

Image Source: NearMap (Flown January 2024)




- Coastal Cactus Wren Habitat Mitigation Site
- Project-level Analysis Area
- Land to be Conserved and Managed by the City
- Specific Plan Boundary
- Furby North Preserve

0 Feet 300

FIGURE 6
Mitigation Site Location
on Soils Map

RECON

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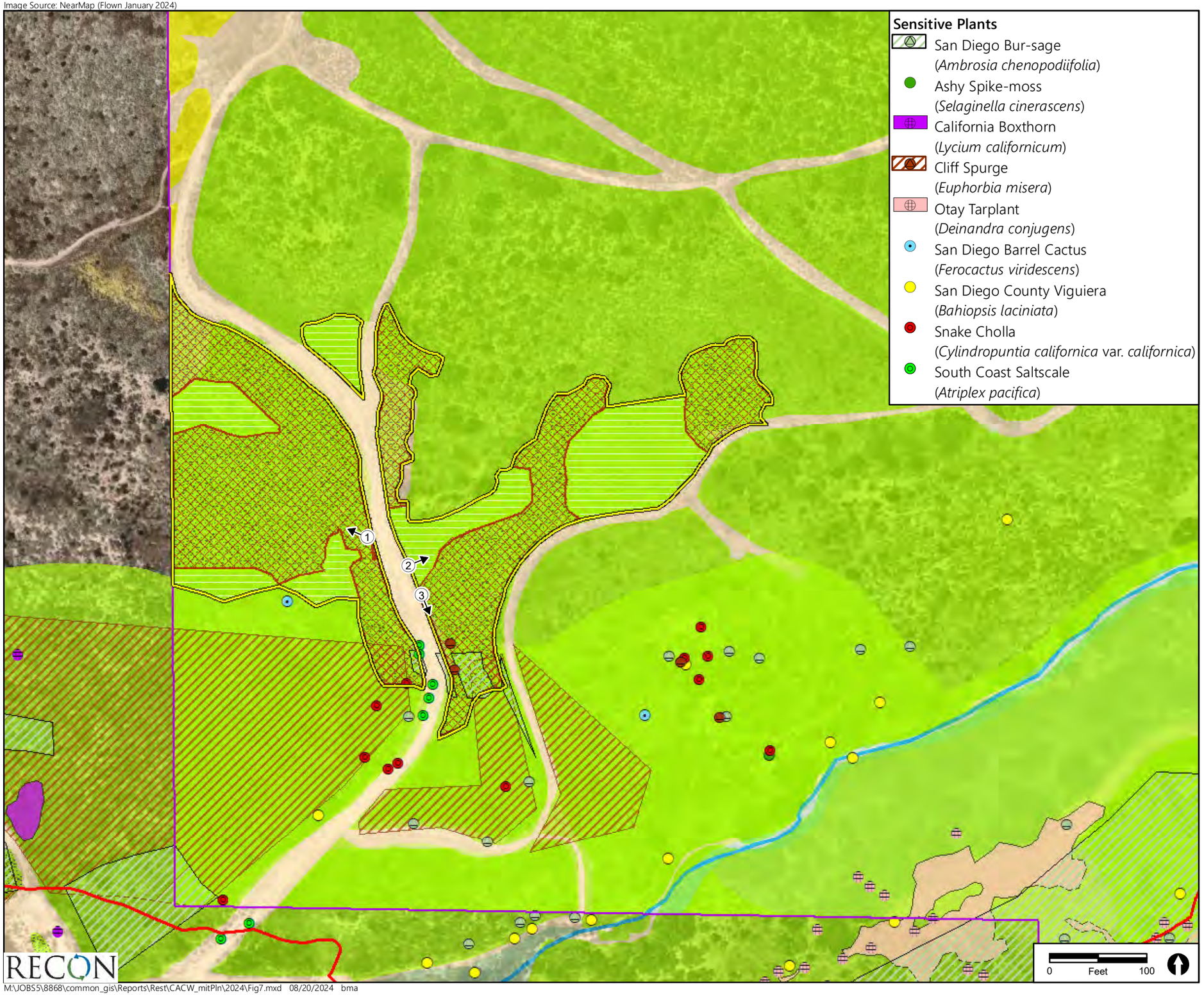
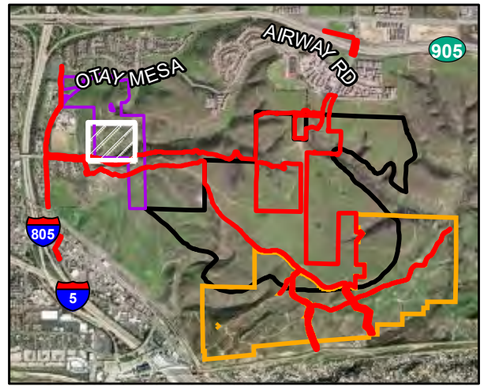
Image Source: NearMap (Flown January 2024)




**Sensitive Plants**

- San Diego Bur-sage (*Ambrosia chenopodiifolia*)
- Ashy Spike-moss (*Selaginella cinerascens*)
- California Boxthorn (*Lycium californicum*)
- Cliff Spurge (*Euphorbia misera*)
- Otay Tarplant (*Deinandra conjugens*)
- San Diego Barrel Cactus (*Ferocactus viridescens*)
- San Diego County Viguiera (*Bahiopsis laciniata*)
- Snake Cholla (*Cylindropuntia californica* var. *californica*)
- South Coast Saltscale (*Atriplex pacifica*)




- Coastal Cactus Wren Habitat Mitigation Site
- Project-level Analysis Area
- Land to be Conserved and Managed by the City
- Specific Plan Boundary
- Furby North Preserve
- Photograph

**Vegetation Communities**

- Diegan Coastal Sage Scrub
- Maritime Succulent Scrub
- Disturbed Maritime Succulent Scrub
- Natural Flood Channel
- Disturbed Land

**Vegetation Communities***

- Maritime Succulent Scrub
- Diegan Coastal Sage Scrub
- Non-Native Grassland
- Non-Vegetated Channel or Floodway
- Disturbed Habitat

**Vegetation Communities****

- Maritime Succulent Scrub (25% non-native cover)
- Disturbed Maritime Succulent Scrub (50% non-native cover)

*Source: Furby-North Property Resource Management Plan, San Diego County Department of Parks and Recreation, 2012

**Additional micro-mapping was conducted within and around the primary mitigation site by RECON, June and October 2023

RECON

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FIGURE 7
Existing Biological Resources

The mitigation site also includes maritime succulent scrub with 25 percent non-native cover. The maritime succulent scrub within the mitigation site supports native species, such as jojoba, San Diego bur-sage, and San Diego County viguiera; however, the maritime succulent scrub is degraded with non-native species, such as tocalote, black mustard, and red brome (*Bromus rubens*). The maritime succulent scrub consists of non-native species within the understory which preclude coastal cactus wren from foraging. Additionally, within the western portion of the mitigation site, there is a section of maritime succulent scrub that contains coast cholla with non-native species in the understory. Although coast cholla is present, there are shrubs intermixed which may result in overcrowding and non-natives present within the understory which reduces foraging habitat for coastal cactus wren.

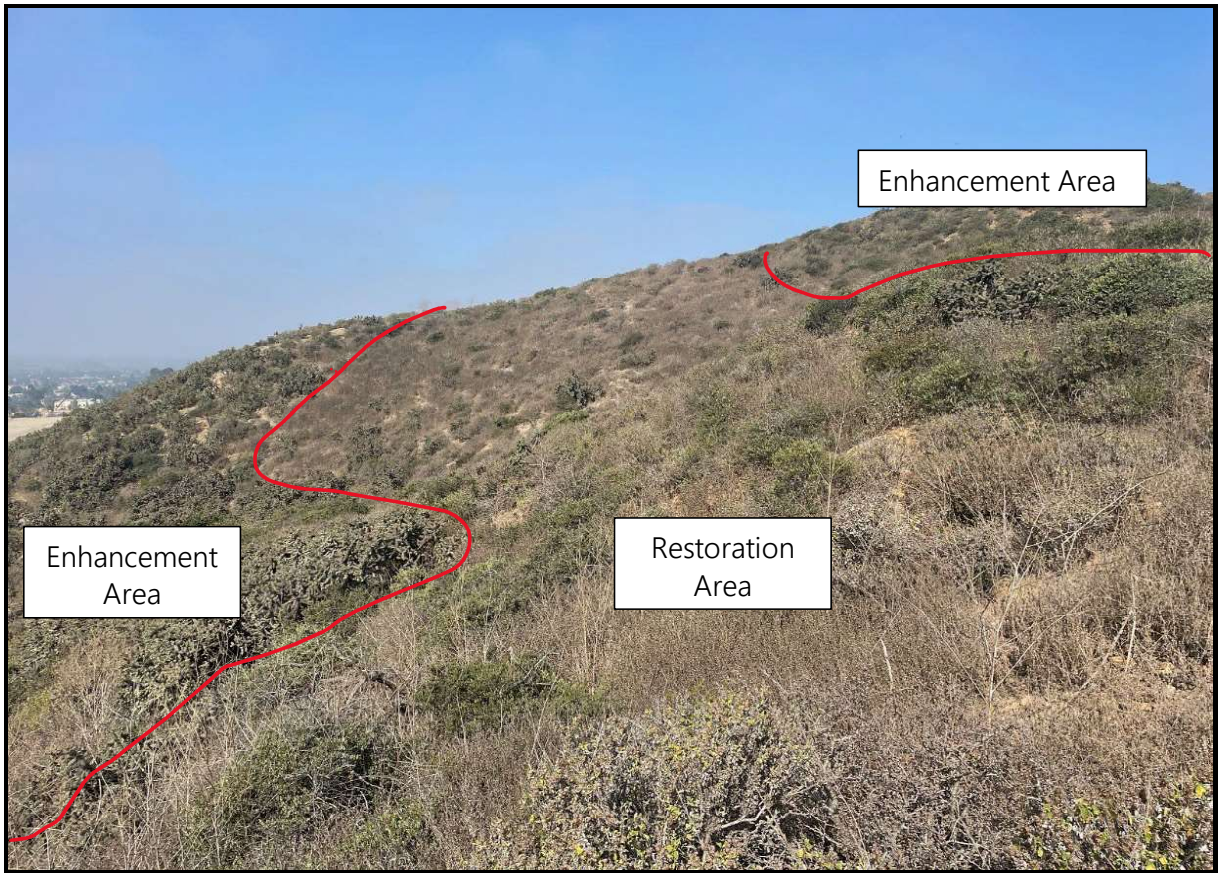
# 2.5 Rationale for Expecting Success

## 2.5.1 Restoration Goals

The goals for this mitigation plan are to establish, restore, enhance, and maintain 1.09 acres of habitat for coastal cactus wren as mitigation for 1.09 acres of impact resulting from the project (see Tables 1 and 2). Specifically, restoration of 1.09 acres of coastal cactus wren habitat would be achieved via the restoration and enhancement of a 2.54-acre mitigation site through the restoration of disturbed maritime succulent scrub with 50 percent non-native species cover and enhancement of maritime succulent scrub with 25 percent non-native species cover (see Table 2 and Photographs 1–3; Figure 8). The habitat restoration activities and methods described in this plan are intended to restore and enhance native habitat that is conducive and supportive of nesting and foraging for coastal cactus wren.

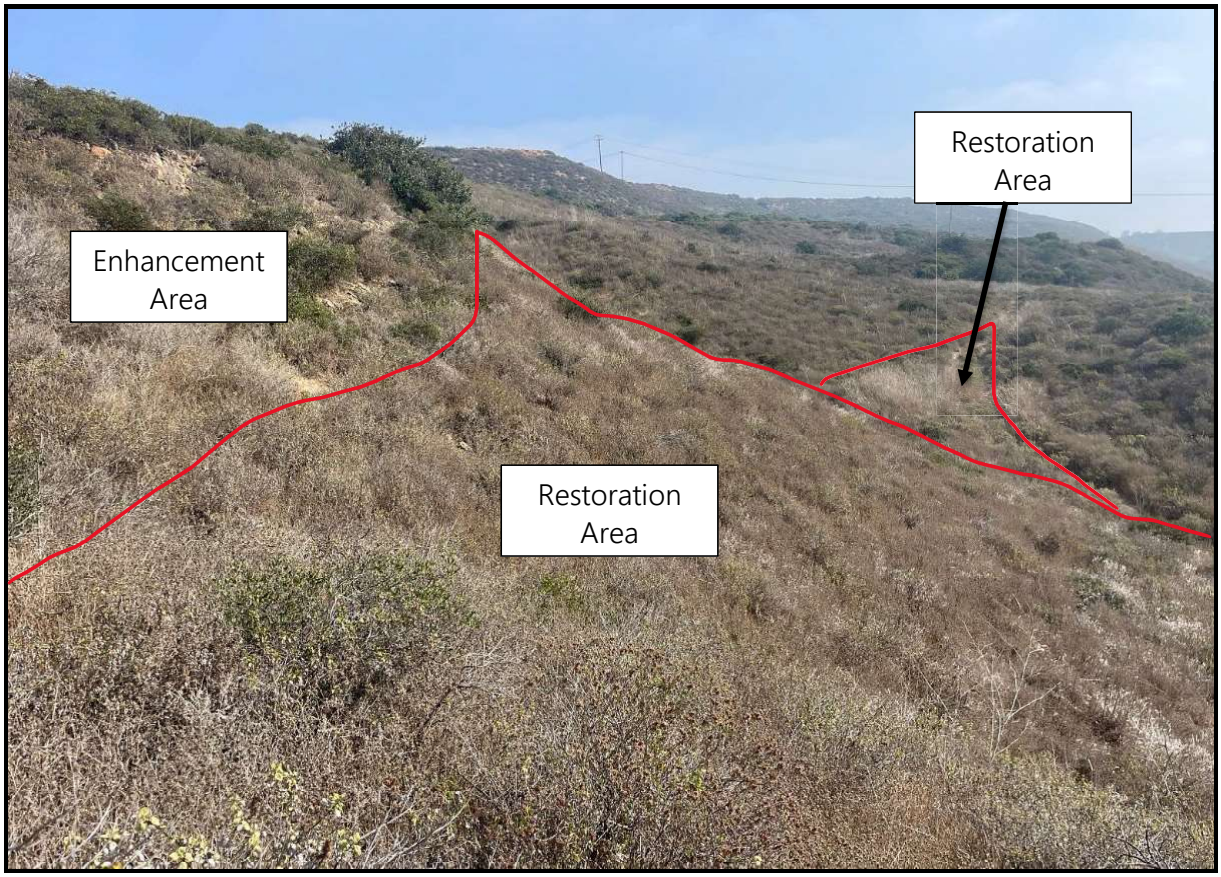
## 2.5.2 Mitigation Site Suitability

The proposed location of the mitigation site is within 0.07 mile (0.11 km) of the coastal cactus wren habitat impact location and is located within the County's Furby North Preserve and the City's MHPA (see Figure 4). The mitigation site primarily occurs within disturbed maritime succulent scrub with 50 percent non-native cover and maritime succulent scrub with 25 percent non-native cover (see Figure 7). The mitigation would create a contiguous, dense stand of coast cholla for coastal cactus wren nesting with patches of maritime succulent scrub shrubs and annuals as well as areas of bare ground suitable for coastal cactus wren foraging. The habitat restoration effort would involve cactus salvage and translocation, native seeding, non-native species control, and introduction of native herbaceous species in the understory within the disturbed maritime succulent scrub. Additionally, the mitigation site would enhance existing maritime succulent scrub habitat to increase suitability for coastal cactus wren through shrub thinning, cactus planting, non-native species control, and native seed introduction.




PHOTOGRAPH 1

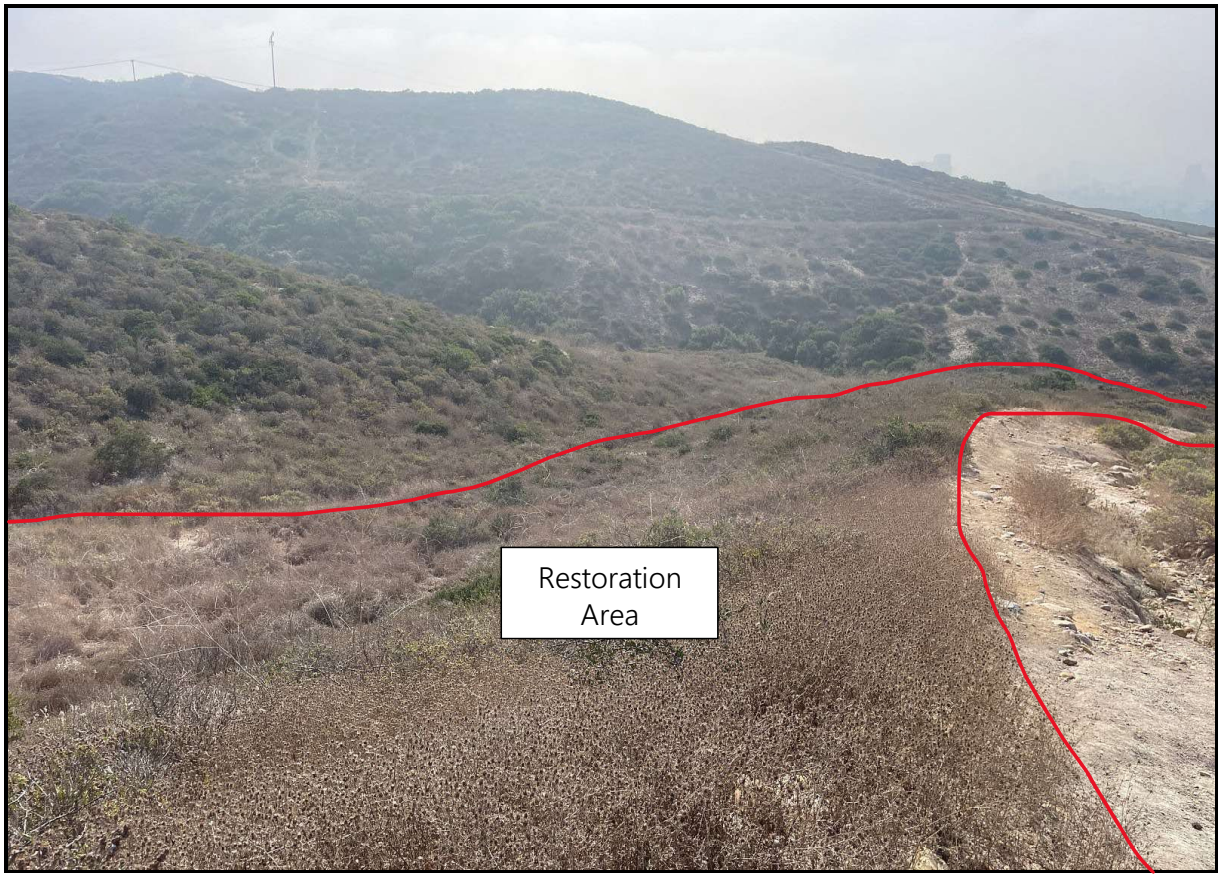
View of western section of mitigation site, which is intermixed with restoration and enhancement areas. The restoration area has a 50 percent cover of non-native species, such as tocalote (*Centaurea melitensis*), while the enhancement areas have a 25 percent cover of non-native species. Photograph taken on 10/9/2023, looking northwest.




PHOTOGRAPH 2

View of eastern section of mitigation site, which is intermixed with restoration and enhancement areas.

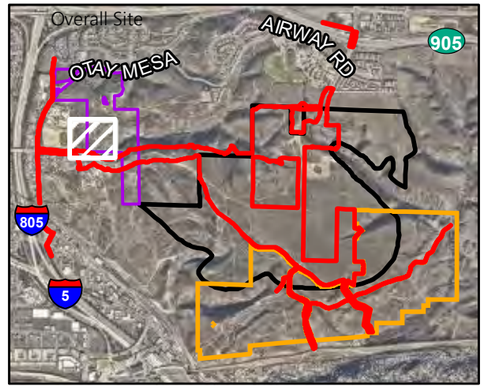
Photograph taken on 10/9/2023, looking northeast.




PHOTOGRAPH 3

View of southeastern section of mitigation site, which consist of only restoration. This area is dominated by non-native species such as tocalote. Photograph taken on 10/9/2023, looking south.

Image Source: NearMap (Flown January 2024)




- Coastal Cactus Wren Habitat Mitigation Site
- Project-level Analysis Area
- Furby North Preserve
- Photograph
- Coastal Cactus Wren Habitat Restoration Area (1.82 acre)
- Coastal Cactus Wren Habitat Enhancement Area (0.72 acre)

0 Feet 100

FIGURE 8
Coastal Cactus Wren Habitat
Mitigation Site Design

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Overall, the proposed mitigation plan acknowledges and follows recommendations identified in the HCMP's Management Strategies as well as best practices for cactus scrub restoration, such as site selection, patch size, cactus salvage, planting layout, plant protection, weed control, and supplemental watering (The Nature Conservancy 2015). The proposed mitigation site is considered suitable for coastal cactus wren restoration; factors that support this assessment include the following:

1) The land is located within the City's MHPA.

2) The land is conserved by the County of San Diego for habitat conservation purposes, as described in the Resource Management Plan for the Furby-North Property (County of San Diego, 2012).

3) The County of San Diego is responsible for management, biological monitoring, and meeting the conditions of MSCP coverage within the Furby North Preserve, which would ensure ongoing management of the land surrounding the mitigation site.

4) The surrounding areas within the Furby North Preserve are anticipated to be maintained as open space.

5) The mitigation site has adequate site access for mitigation implementation and maintenance.

6) The site is adjacent to existing maritime succulent scrub habitat with open ground available for foraging.

7) The site is within historically occupied habitat within the Furby North Preserve (Figure 9).

8) The site is located on south-facing slope which is preferred for coastal cactus wren.

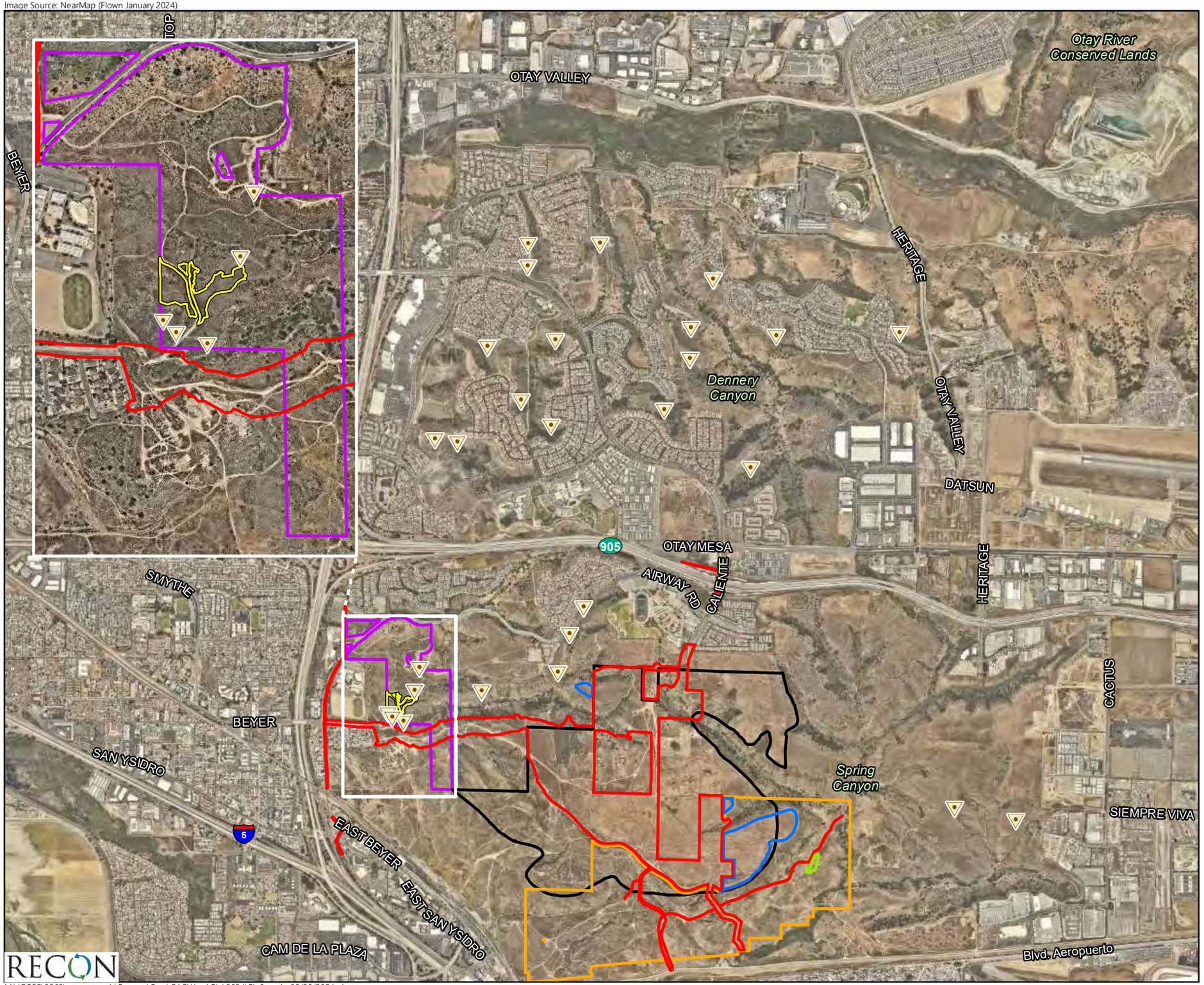
9) The site would be outside of the 60 Community Noise Equivalent Level noise contour for the planned Beyer Boulevard (see Figure 46 of the Southwest Village Biological Resources Report).

10) The mitigation site would not conflict with utility easements or brush management requirements.

### 2.5.3 Restoration Viability

The viability of the proposed mitigation site was assessed during the preparation of this plan per the City's Land Development Code – Biology Guidelines (City of San Diego 2018). The assessment included consideration of the site's connectivity to larger planned open space and the surrounding land uses. Land surrounding the mitigation site is within the City's MHPA and land to the north, east and south is part of the County's Furby North Preserve which would be retained for conservation purposes (see Figure 4).

Image Source: NearMap (Flown January 2024)




Coastal Cactus Wren Habitat Mitigation Site
Otay Tarplant/Native Grassland Mitigation Site
Project-level Analysis Area
Vernal Pool Mitigation Site
Land to be Conserved and Managed by the City
County Furby North Preserve
Specific Plan Boundary
Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*) SDMMP Observations 2009 - 2012

0 Feet 2,000

FIGURE 9
Mitigation Site Location in Relation to the South San Diego County Coastal Cactus Wren Habitat Conservation and Management Plan, Management Unit 3

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The mitigation site was selected based on extensive coordination with the U.S. Fish and Wildlife Service (USFWS), CDFW, City staff, in addition to consultation with coastal cactus wren expert, Kris Preston during a visit to the Furby North Preserve on May 12, 2023. A priority conservation goal for coastal cactus wren is to expand existing known populations and habitat areas. In particular, the Furby North Preserve is a location that has historically supported the species; therefore, a disturbed area within the Furby North Preserve was identified that could expand existing coastal cactus wren habitat to enhance the suitable habitat area.

The mitigation site is within suitable habitat identified in the HCMP's coastal cactus wren habitat suitability model, which identifies suitable restoration locations by evaluating habitat connectivity gaps and potential linkages within and between existing coastal cactus wren populations (The Nature Conservancy 2015). Per the HCMP, a primary goal for coastal cactus wren management is to bolster existing populations through habitat enhancement and restoration. The HCMP recognizes maintaining habitat connectivity as essential to maintaining functional landscapes and allowing dispersal and recolonization in response to disturbances and maintaining gene flow. Increasing the suitability of coastal cactus wren habitat within the Furby North Preserve would support opportunities for dispersal and recolonization of the area to increase gene flow. Coastal cactus wren have been observed within the Furby North Preserve in prior years but none were observed during recent surveys. Improvements to the habitat within Furby North Preserve could support recolonization of this location for coastal cactus wren and provide additional connectivity to known sites within Management Unit 3, such as Dennery Canyon and Otay River Conserved Lands (The Nature Conservancy 2015; see Figure 9).

The proposed mitigation also includes all restoration focus activities identified by the HCMP (The Nature Conservancy 2015): 1) planting of coast cholla, 2) non-native weed maintenance, 3) shrub thinning where needed, and 4) enhancement of the native grass and forb understory to improve coastal cactus wren foraging conditions. As recommended by the HCMP, native forbs and grasses would be included in the shrub understory to both replace invasive plants and improve foraging conditions for coastal cactus wren. The enhancement of the shrub understory has been identified in the HCMP as a measure to enhance foraging opportunities for the coastal cactus wren. Forbs and grasses that may be considered include foothill needlegrass (*Stipa lepida*), purple needlegrass (*Stipa pulchra*), blue eyed grass (*Sisyrinchium bellum*), osmadenia (*Osmadenia tenella*), matchweed (*Guiterrezia sarothrae*), fascicled tarplant (*Deinandra fasciculata*) and other native forbs and subshrubs that are on or near each site.

Additionally, the approach to restoration includes measures to prevent cholla die-off as recommended by the HCMP (The Nature Conservancy 2015), including incorporating recommended propagation techniques for cactus, salvaging large cactus specimens at the optimal time to ensure survival, avoiding inclusion of larger shrubs in the plant palette to reduce overcrowding by shrubs, planting of native grass species, and maintenance of non-native species during the five-year maintenance and monitoring period to minimize non-native encroachment. Further, the mitigation site is located at the lower portion of a south-facing slope, which might enhance soil moisture to help mitigate the effect of drought on cholla mortality (The Nature Conservancy 2015).

The HCMP emphasizes that cactus can be established from transplants, unrooted cuttings, dry-rooted cuttings, or from container/propagated stock. For the mitigation site, transplants and unrooted cuttings would be utilized for coastal cactus wren habitat establishment. While the recommendation for the size of restored cactus patch is evolving, the HCMP recommends creating cactus patches of at least 1 acre where there is habitat nearby; however, further studies have shown that a functional patch size ranges from 2-3 acres. In total, suitable coastal cactus wren habitat will expand by 2.54 acres from the proposed mitigation. Further, the HCMP recommends that cactus cover 40 to 50 percent of the habitat at maturity. Due to the nature of the restoration area, translocation of mature coast cholla from the impact site would provide an immediate increase in cactus cover within the mitigation site. A total of approximately 850 cactus would be removed and translocated to the mitigation site. The salvage of cactus would be from large cactus specimens greater than 2 feet (1 meter) in height.

The HCMP states that cactus may be salvaged at any time of year, however, late fall is least ideal as cactus are most drought stressed at this time. Cactus salvage would occur during the spring, summer, or early winter, if feasible, depending on the construction schedule. Salvage efforts would be initiated prior to or concurrent with the start of grading for the Beyer Boulevard extension. Additionally grading limits would be marked with construction fencing and biological monitoring would be required to ensure that cactus are not removed unnecessarily. If construction is proposed to occur within the coastal cactus wren's breeding season of February 15 to August 15, salvage would be completed prior to February 14. To ensure successful translocation, the rootball would be excavated as much as possible and the transplants would be watered following translocation. Staking may also be added to ensure the cactus grow upright after transplanting. Additional cactus patches would be created using un-rooted cuttings from the translocated cactus following recommendations discussed in the HCMP.

# 3.0 Roles and Responsibilities

## 3.1 Project Proponent and Financial Responsibility

The project proponent (Tri Pointe Homes) would be responsible for retaining (1) a qualified restoration specialist with over five years of experience monitoring habitat restoration to oversee the entire installation and monitoring of the mitigation program and (2) a qualified installation/maintenance contractor with expertise in restoration of native habitat for sensitive wildlife species. Tri Pointe Homes would be responsible for financing the installation, five-year maintenance program, and biological monitoring of the proposed mitigation described in this plan.

## 3.2 Responsible Agencies

The City Development Services Department would be responsible for issuing any necessary permits associated with the entitlements. The following entities would be responsible for reviewing and approving this plan.

Contacts: Ms. Liz Shearer-Nguyen
City of San Diego
Development Services Department
1222 First Avenue, MS 501
San Diego, CA 92101

Ms. Kristy Forburger
City of San Diego
Planning Department
Multiple Species Conservation Program
9485 Aero Drive
San Diego, CA 92123

## 3.3 Restoration Specialist

Overall supervision of the installation and maintenance of this restoration effort would be the responsibility of a restoration specialist with at least five years of native habitat restoration experience. The restoration specialist would oversee the installation/maintenance for the life of the restoration project. Specifically, the restoration specialist would educate all participants about restoration goals and requirements; inspect plant material; directly oversee planting, seeding, weeding, and other maintenance activities; and conduct regular monitoring as well as annual assessments of the restoration effort. The restoration specialist would prepare and submit the required annual reports.

## 3.4 Installation/Maintenance Contractor

Tri Pointe Homes would hire a qualified restoration contractor. The contractor would be a firm holding a valid C-27 Landscape Contracting License from the State of California, a valid Pest Control Business License, and a Qualified Applicator Certificate or Qualified Applicator License, with Category B, that would allow them to perform the required work for this restoration effort.

During the installation, the contractor would be responsible for initial weed control/dethatching, cactus salvage and translocation, and barrier installation, as well as maintenance of the mitigation site during the 120-day Plant Establishment Period (PEP) and five-year maintenance period. Cactus salvage and translocation may be completed by the construction contractor in conjunction with the Beyer Boulevard extension construction (outside of coastal cactus wren breeding season of February 15 to August 15).

Following installation, the contractor would submit marked up as-builts for all activities that occurred during implementation to the City. Following formal sign-off of the PEP, the contractor would maintain the mitigation site for five years. During this period, the contractor would service the entire mitigation site according to the maintenance schedule (Section 4.0, below). Service would include, but not be limited to, weed control, trash removal, watering, dead plant replacement, and pest and disease management. All activities conducted would be seasonally appropriate and approved by the restoration specialist.

# 4.0 Implementation Plan

This section describes the design of the proposed mitigation and how it would be implemented. The mitigation design is based on the HCMP's Management Strategies as well as best practices for cactus scrub restoration (The Nature Conservancy 2015). Implementation of the habitat restoration efforts would be conducted under the direction of the qualified habitat restoration specialist. Habitat restoration activities would commence the first summer-fall season prior to, or concurrently with, construction. The proposed mitigation site design is shown in Figure 8.

Implementation activities include weed dethatching, cactus salvage and translocation, and barrier installation. Weed dethatching and cactus salvage and translocation would occur concurrent with the start of the construction of the project. Habitat restoration activities should occur in the order included in the following sections, although seasonal variability should be taken into consideration and the contractor's best professional judgment should be applied. Some activities may be conducted concurrently.

## 4.1 Preliminary Design

Mitigation for impacts to coastal cactus wren habitat would consist of restoration of disturbed maritime succulent scrub habitat and enhancement of maritime succulent scrub to create cholla dominated maritime succulent scrub that is designed to support foraging and nesting of coastal cactus wren. Restoration and enhancement of coastal cactus wren habitat would occur within existing disturbed maritime succulent scrub and maritime succulent scrub habitats (see Figure 8). The mitigation site would restore coastal cactus wren habitat through cactus salvage and translocation, native seeding, non-native species control, and introduction of native species in the understory. The mitigation site would be maintained throughout the five-year maintenance and monitoring period to cactus scrub that supports use by coastal cactus wren, as described in Section 5.0.

## 4.2 Implementation Activities

Implementation activities include non-native weed biomass dethatching, cactus salvage and translocation, barrier/signage installation, and native seed introduction. The implementation schedule is shown in Table 3. All cactus salvage would commence concurrently with the start of construction of the project, or prior to, if construction is expected to occur within the coastal cactus wren breeding season of February 15 to August 15. For all implementation activities, the site will be accessed via the existing access road off Old Otay Road.

| Table 3<br>Restoration Implementation Activities Schedule | |
|---|---|
| Task | Time of Year |
| 1. Dethatching | Summer/Fall |
| 2. Cactus Salvage and Translocation | Fall, after site dethatching |
| 3. Barrier/Signage Installation | Fall, immediately following cactus translocation |

### 4.2.1 Dethatching

Prior to cactus translocation, crews familiar with native and non-native plants would remove the accumulated weedy thatch throughout the mitigation site using line trimmers and rakes. Native species would be avoided and no impacts to native vegetation would occur. Cut material would be raked into piles, removed from the site, and taken to a landfill or put into a green waste dumpster for disposal. Removal of the thatch aides in preparing the site for cactus translocation and reducing future weed growth that may inhibit use of the site by coastal cactus wren.

### 4.2.2 Plant Salvage and Translocation

Cactus and succulent species within the impact area would be salvaged prior to construction activities (see Figure 5). Plants would be salvaged by hand and heavy equipment and immediately translocated to the mitigation site. Large coast cholla, between two and three feet tall with the root ball attached, would be salvaged by hand for installation throughout the mitigation site to quickly create habitat suitable for coastal cactus wren nesting. Large salvaged cholla would be installed in clusters within the mitigation site. Clusters would be approximately 1,225 square feet with 35 feet between each cluster. Approximately 50 large salvaged cholla would be installed within each cluster. It is anticipated that 850 salvaged cholla would be required to plant at this density. Supplemental species, such as those required for inclusion in coastal cactus wren mitigation per the City's Biology Guidelines including liveforevers (*Dudleya* spp.), fish-hook cactus (*Mammillaria dioica*), coastal prickly pear, chaparral prickly pear, chaparral candle (*Hesperoyucca whipplei*), and Mojave yucca (*Yucca schidigera*), would also be salvaged for translocation into the mitigation site, as available. San Diego barrel cactus (*Ferocactus viridescens)* and snake cholla (*Cylidropuntia californica* var. *californica)* mapped within the impact area would be salvaged prior to construction activities and immediately translocated to the restoration site. Species identified for salvage are included in Table 4.

| Table 4<br>Cactus and Plant Species to be Salvaged | |
|---|---|
| Scientific Name | Common Name |
| *Bergerocactus emoryi* | golden-spined cereus |
| *Cylindropuntia prolifera*[1] | coast cholla |
| *Cylindropuntia californica* var. *californica*[2] | Snake cholla |
| *Dudleya edulis* | lady fingers |
| *Dudleya pulverulenta* | chalk dudleya |
| *Echinocereus engelmannii* | strawberry hedgehog cactus |
| *Ferocactus viridescens*[2] | San Diego barrel cactus |
| *Hesperoyucca whipplei* | chaparral candle |
| *Mammillaria dioica* | fish-hook cactus |

| Table 4<br>Cactus and Plant Species to be Salvaged | |
|---|---|
| Scientific Name | Common Name |
| *Opuntia littoralis* | coast prickly pear |
| *Opuntia oricola* | chaparral prickly-pear |
| *Yucca schidigera* | Mojave yucca |
| [1]Approximately 850 two- to three-foot-tall cholla would be salvaged for translocation.<br>[2]Sensitive species mapped in the impact area identified for salvage and translocation within this plan area. | |

### 4.2.3 Cutting Installation

In addition to the plant species salvaged from the impact site, cuttings of coast cholla or prickly pear would also be installed within the mitigation site. Cuttings would likely be collected from the impact site; however, if adequate cuttings are not available, an alternative source within 5 miles of the mitigation site may be utilized for cutting collection, with proper access authorization.

In general, coast cholla cuttings would be installed as individual cuttings throughout the mitigation site, both within and between the salvaged cholla clusters. Cuttings would be spaced approximately 3 feet apart. Prickly pear would be installed in clusters of approximately ten individuals at the edges of the coast cholla transplanted clusters. The goal would be to establish dense patches of coast cholla appropriate for coastal cactus wren nesting with interspaces between the clusters supporting low-growing maritime succulent scrub habitat appropriate for coastal cactus wren foraging. The maritime succulent scrub species would be introduced through seeding during Year 2, as described in Section 5.3. Introduction of seed during Year 2 would facilitate weed control efforts in Year 1.

Foot paths should be established and maintained during cactus installation. The foot paths would allow for access throughout the site for maintenance and monitoring activities and would be filled in with cactus cuttings after successful completion of the mitigation.

### 4.2.4 Barrier Installation

After plant installation, temporary barriers would be installed at all unauthorized access points into the mitigation site to prevent unauthorized access by U.S. Customs and Border Protection operational activities and trespassing by the public. Barriers would not be installed at locations that would prohibit entrance into the site by maintenance or water trucks for the purposes of maintaining the mitigation site. Once cactus translocation is complete, the mitigation site would be permanently fenced with T-posts and rope along the perimeter. Vegetation would be strategically placed along the trails and at other strategic locations, to prevent unauthorized entry and to minimize vandalism. Signs would be installed to provide notice that the area is an ecological preserve, notify that trespassing is prohibited, and cite penalties for trespass violation including liability for repair of any damage to soil or biological resources within the barrier. Signs in both Spanish and English would be mounted at approximately 200-foot intervals around the mitigation site on metal T-posts or similar.

## 4.3 As-built Reporting

At the completion of implementation, the installation would be approved by the City. An as-built report would be submitted that documents implementation activities and the dates they were completed. The report would include but not be limited to dates of on-site work, details of cactus salvage and translocation, final plant and seed lists and quantities, and any modifications to the mitigation site design. The report may be a brief letter report with photos of the final site design and figures with locations of site elements.

## 4.4 120-day Plant Establishment Period

The 120-day PEP would begin once the implementation activities are approved by the City, likely once all soil translocation and native seeding have been completed. The PEP shall last for 120 calendar days and shall consist of all maintenance activities and methods discussed in Section 5.0. Regular (at least every other week) qualitative monitoring would be conducted to assess plant establishment and non-native weed germination and make recommendations for maintenance activities, as needed (Table 5). Year 1 would begin after successful completion of the PEP and any required remedial cutting or seed installation has been completed. At the completion of the PEP, the restoration specialist would prepare a letter report for submittal to the City to document activities conducted during the PEP and the site progress towards final success criteria.

Table 5
Maintenance Schedule

| Task | 120-day PEP | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|---|
| Weed Control (herbicide treatment) | As needed | Monthly[1] | Monthly[1] | 5 to 6 times per year[1] | 4 to 5 times per year[1] | 4 times per year[1] |
| Watering | As needed | As needed | As needed | -- | -- | – |
| Seed Installation | -- | -- | Fall/Winter | Fall/Winter | -- | -- |
| Supplemental Planting | At end of PEP | Fall/Winter | Fall/Winter | – | – | – |
| Erosion control | As needed | As needed | As needed | As needed | As needed | As needed |
| Trash Removal | In conjunction with weed control | In conjunction with weed control | In conjunction with weed control | In conjunction with weed control | In conjunction with weed control | In conjunction with weed control |
| Barrier/Sign Maintenance | As needed | As needed | As needed | As needed | As needed | As needed |
| [1]Minimum frequency | | | | | | |

## 4.5 Mitigation Measures

The following species-specific mitigation measures to avoid and minimize impacts to sensitive biological resources are provided as detailed in the Biological Resources Report for the Southwest Village Specific Plan San Diego, California, Project No. 614791 (RECON 2024a).

### 4.5.1 Thread-leaved Brodiaea

a. Conduct a focused rare plant survey in the spring prior to the start of construction to determine the presence of thread-leaved brodiaea not previously detected. If no thread-leaved brodiaea are detected, no additional measures would be required.

b. If detected, a qualified biologist will flag or fence any thread-leaved brodiaea that occur within the temporary impact areas prior to initiation of construction activities. Thread-leaved brodiaea shall be avoided to the maximum extent feasible within the temporary impact and restoration areas.

c. Any individuals that cannot be avoided within temporary impact or restoration areas shall be salvaged for transplant and incorporated into the Vernal Pool/Quino Checkerspot Mitigation Plan area (RECON 2024b).

### 4.5.2 Coastal California Gnatcatcher and Coastal Cactus Wren

a. To avoid indirect impacts to coastal California gnatcatcher and coastal cactus wren nesting in the vicinity of the restoration area, any work that may cause noise in excess of 60 A-weighted decibels hourly average, or the ambient if it is greater, shall be avoided during the breeding season March 1 to August 15.

b. If removal of habitat in the mitigation area must occur during the breeding season, a qualified biologist shall conduct a pre-implementation survey to determine the presence or absence of nesting birds in the proposed area of disturbance. The pre-implementation survey shall be conducted within 3 calendar days prior to the start of mitigation activities (including removal of vegetation).

c. The applicant shall submit the results of the pre-implementation survey to the City for review and approval prior to initiating any mitigation activities. If no nesting birds are detected, no additional monitoring beyond general biological monitoring will be required.

d. If nesting birds are detected, a letter report in conformance with the City's Biology Guidelines (i.e., appropriate follow-up surveys, monitoring schedules, work and noise barriers/buffers, etc.) shall be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided.

e. The report shall be submitted to the City for review and approval and implemented to the City's satisfaction. The City's Mitigation Monitoring Coordination (MMC) office shall verify and approve that all measures identified in the report are in place prior to and/or during implementation.

### 4.5.3 Other Nesting Avian Species

a. To avoid any direct impacts to avian species identified as a listed, candidate, sensitive, or special status species in the MSCP, removal of habitat that supports active nests in the mitigation area should occur outside the breeding season for these species (February 1 to September 15).

b. If removal of habitat in the mitigation area must occur during the breeding season, a qualified biologist shall conduct a pre-implementation survey to determine the presence or absence of nesting birds in the proposed area of disturbance. The pre-implementation survey shall be conducted within 3 calendar days prior to the start of mitigation activities (including removal of vegetation).

c. The applicant shall submit the results of the pre-implementation survey to the City, CDFW, USFWS, and Regional Water Quality Control Board for review and approval prior to initiating any mitigation activities. If no nesting birds are detected, no additional monitoring beyond general biological monitoring will be required.

d. If nesting birds are detected, a letter report in conformance with the City's Biology Guidelines (i.e., appropriate follow-up surveys, monitoring schedules, work and noise barriers/buffers, etc.) shall be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided.

e. The report shall be submitted to the City for review and approval and implemented to the City's satisfaction. The City's MMC shall verify and approve that all measures identified in the report are in place prior to and/or during implementation.

### 4.5.4 Quino Checkerspot Butterfly

a. Prior to restoration implementation, locations of Quino checkerspot butterfly (*Euphydryas editha quino*) host and nectar plants would be mapped.

b. During restoration activities, Quino checkerspot butterfly nectar plants shall be avoided.

c. Herbicide application would not occur within the 10-foot buffers of Quino checkerspot butterfly host and nectar plant patches, if present. Buffers would be used to prohibit restoration activities from occurring or personnel from entering areas where Quino checkerspot butterfly larvae have potential to traverse between host plant patches, and to ensure only target species are treated with herbicide. The field crew would not enter occupied Quino checkerspot butterfly areas or areas where host plants are present.

d. Only locations with dense non-native plant cover and no Quino checkerspot butterfly host or nectar plants would be sprayed with a glyphosate-based herbicide. A field crew trained in habitat restoration would spray weeds in areas where Quino checkerspot butterfly and its host plants have not been documented.

e. Herbicide would not be applied when wind speed and direction may cause herbicide drift to areas with Quino checkerspot host plants or nectar plants. Marker dye would be added to the herbicide mixture so the restoration field crew can see any drift.

f. The California Invasive Plant Council Best Management Practices for wildland stewardship, including covering Quino host plant patches and nectar plant patches with tarps during herbicide applications.

### 4.5.5 Crotch's Bumble Bee

a. Additional coordination and an Incidental Take Permit are anticipated to be conducted with the CDFW. The results of this additional coordination may adjust the required mitigation. If Crotch's bumble bee (*Bombus crotchii*) is no longer a candidate or listed species at the time of implementation, this measure would not apply.

b. To avoid impacts to Crotch's bumble bee, if habitat suitable for Crotch's bumble bee requires removal, it must occur outside of the Colony Active Period between April 1 and August 31. If removal of habitat in the proposed area of disturbance must occur during the Colony Active Period, a Qualified Biologist shall conduct a pre-construction survey to determine the presence or absence of Crotch's bumble bee within the proposed area of disturbance.

c. The Qualified Biologist must be approved by CDFW and hold a Memorandum of Understanding to catch and release Crotch's bumble bees in accordance with the CDFW guidance (i.e., Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species, dated June 6, 2023). Survey methods that involve lethal take of species are not acceptable.

d. The pre-construction survey shall be conducted during the colony active period between April 1 and August 31 by the Qualified Biologist prior to the issuance of Grading Permit, Demolition Plans/Permits and Building Plans/Permits and within one year prior to the initiation of project activities (including removal of vegetation). The pre-construction survey shall consist of photographic surveys following CDFW guidance (i.e., Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species, dated June 6, 2023). The surveys shall consist of three separate visits spaced two to four weeks apart. Survey results will be considered valid until the start of the next colony active period.

e. The Qualified Biologist/owner/permittee shall submit the results (including positive or negative survey results) of the pre-construction survey to City DSD (Mitigation Monitoring Coordination) City Planning Department (MSCP) staff and CDFW for review and written approval prior to the issuance of Grading Permit, Demolition Plans/Permits and Building Plans/Permits.

f. If pre-construction surveys identify Crotch's bumble bee individuals on-site, the Qualified Biologist shall notify CDFW and the measures identified in the Incidental Take Permit will be implemented.

g. Survey data shall be submitted by the Qualified Biologist to the California Natural Diversity Database in accordance with the Memorandum of Understanding with CDFW, or Scientific Collecting Permit requirements, as applicable.

h. Herbicide application should consider proximity to known Crotch's bumble bee occurrences or nests (i.e., known occurrences within 1 kilometer of the mitigation site) during the nesting season (February 15 to September 15), and to the extent feasible herbicide shall be avoided during the peak blooming season for potential foraging resources of Crotch's bumble bee.

# 5.0 Maintenance Plan

Regular maintenance of the mitigation site would be required during the five-year maintenance period to establish coastal cactus wren habitat and control non-native weeds. The need for weeding is expected to decrease substantially by the end of the maintenance period provided successful habitat restoration has been achieved. Maintenance activities would include weed control, watering, supplemental re-planting or seeding of native species, erosion control, trash removal, and barrier/sign maintenance. Maintenance activities would be conducted in a frequency and duration that ensures attainment of the final success criteria. Maintenance activities would be performed per the schedule in Table 5 or as needed to achieve project success.

## 5.1 Weed Control

Weed control would be performed consistent with the following:

- All herbicide and pesticide use would be under the direction of a licensed qualified applicator and would be applied by personnel trained to apply herbicide. All weeding personnel would be educated to distinguish between native and non-native species.

- Herbicide would only be applied when wind speed is less than five miles per hour, and spray nozzles would be of a design to maximize the size of droplets, to reduce the potential for drift of herbicide to non-target plants. Application of herbicide would not occur if rain is projected within 12 hours of the scheduled application.

- Weeding would be done at a frequency and duration to ensure that weeds are not allowed to flower and set seed within the site. During the growing season this may be as frequently as every other week, depending on weather patterns. Any weeds that have set seed would be removed by hand and disposed of off-site.

- As designed, overcrowding of cactus by native shrubs is not anticipated to be a concern. However, if observed, select shrubs may be thinned to maintain conditions favorable for coastal cactus wren.

- Selective thinning activities will occur outside of the coastal cactus wren breeding season (February 15 to August 15) unless mitigation measures are implemented consistent with conditions of coverage for the species.

- Timing of herbicide and pesticides application will take into consideration proximity to known Crotch's bumble bee occurrences/nests (within 1 km of the mitigation site), breeding season for sensitive species (approximately February 15 to September 15), and to the extent feasible avoid the peak blooming season for potential foraging resources.

## 5.2 Watering

Hand watering would be performed consistent with the following:

- The watering frequency and duration would be done in a manner to mimic natural rainfall, and encourage deep root establishment, but not enough to create runoff.
- Watering would be carefully tapered off during the summer months to allow plants to experience their typical summer dormancy and avoid overwatering or excessive soil shrinking and swelling that can damage plant roots.

## 5.3 Seed Installation

Native annual and perennial species seed would be dispersed throughout the mitigation site during Year 2 and remedially during Year 3 to enhance the habitat for coastal cactus wren foraging and provide competition for invasive weed species. Although the species proposed for introduction present little to no threat of overcrowding cactus, seed installation would be focused along the perimeter of the mitigation site to further prevent potential overcrowding by shrubs. The species list is included in Table 6. The seed would be dispersed by hand with an inert material (such as rice hulls) to facilitate even distribution. Seeding would be scheduled for distribution in the fall/winter sometime following the first significant rain event of the season and immediately prior to a forecasted rain event (not more than 48 hours). See Table 5 for the seeding schedule. All seed would be collected from the vicinity of the mitigation site where feasible and as approved by the restoration specialist.

Table 6
Plant Species to be Seeded

| Scientific Name | Common Name |
|---|---|
| *Achillea millefolium* | yarrow |
| *Ambrosia chenopodiifolia* | San Diego bur-sage |
| *Apiastrum angustifolium* | wild celery |
| *Cryptantha intermedia* | nievitas cryptantha |
| *Deinandra fasciculatum* | fascicled tarplant |
| *Eriophyllum confertiflorum* | golden yarrow |
| *Gutierrezia sarothrae* | matchweed |
| *Lasthenia gracilis* | needle goldfields |
| *Microseris douglasii* | silverpuffs |
| *Osmadenia tenella* | osmadenia |
| *Plantago erecta* | dot-seed plantain |
| *Simmondsia chinensis* | jojoba |
| *Sisyrinchium bellum* | blue-eyed grass |
| *Stipa lepida* | foothill needlegrass |
| *Stipa pulchra* | purple needlegrass |

## 5.4 Supplemental Planting

Supplemental planting would be performed consistent with the following:

- Translocated cactus would be replaced, as needed, within the site. All dead cactus would be replaced during Years 1 and 2 by installation of cactus cuttings, unless their function has been replaced by natural recruitment.
- Containers of maritime succulent scrub plant species may be introduced to facilitate erosion control and enhance the mitigation site edges for coastal cactus wren privacy.
- Remedial cutting installation would be conducted to increase habitat value for coastal cactus wren.

## 5.5 Erosion Control

Erosion control would be performed consistent with the following:

- Rills and gullies would be repaired as necessary.
- Erosion control devices, i.e., biodegradable fiber rolls and gravel bags, or jute netting, would be installed per the manufacturer instructions.
- Container plants may be utilized to provide natural erosion control.

## 5.6 Trash Removal and Barrier/Sign Maintenance

Trash removal and barrier/sign maintenance would be performed consistent with the following:

- Trash and other debris would be removed as necessary.
- All fencing and signs would be checked and repaired as necessary.
- Other site problems, such as vehicle damage and trespassing, would be reported to the City with recommendations for remedial measures.

## 5.7 Adaptive Management Approach

While the restoration and maintenance measures proposed by this plan are intended to improve the quality of the mitigation site, unforeseen changes may occur because of unpredictable weather patterns, ecological processes, or other natural or anthropogenic stressors. The contractor would respond to any unexpected events that have a detrimental impact on the mitigation sites using an adaptive management approach. Adaptive management is defined, for the purposes of this mitigation, as a flexible, iterative approach to the management of biological resources that is directed

over time by the results of ongoing monitoring activities and direct observation of environmental stressors that are producing adverse results within the mitigation site.

Achieving the key goals of the mitigation program and establishing self-sustaining native habitats would be the focus of all adaptive management decisions. Adaptive management measures would be based on qualitative data gathered in the field throughout the five-year maintenance and monitoring period. and may include collection and dispersal of cuttings and/or seed, additional weed control efforts, additional watering, and other actions deemed appropriate through consultation with the City.

If an interim performance standard (see Section 6.0) is not met in any year or if the final performance standards are not met, the restoration specialist would prepare an analysis of the cause(s) of failure and, if deemed necessary by the City, propose remedial actions for approval. If any of the restored habitat has not met a performance standard during the initial five-year period, the maintenance and monitoring obligations would continue until the City deems the mitigation successful.

# 6.0 Performance Standards

Mitigation would be considered successful when the final performance standards have been met. At the end of the five-year monitoring period, the mitigation site should be dominated by coast cholla with pockets of more established cholla suitable for coastal cactus wren nesting. Low-growing, native herbaceous vegetation should be present to support coastal cactus wren foraging with minimal non-native weed cover.

The habitat must sustain itself for a minimum of two years in the absence of significant maintenance measures. Significant maintenance measures include replanting, irrigation, reseeding, eradication of major weed infestations, and major erosion repairs. Interim and final performance standards for cactus transplant survival, coast cholla cover, native herbaceous cover, species richness (native diversity), and non-native vegetation cover are shown in Table 7. These performance standards are based on Best Practices for Cactus Scrub Restoration for Coastal Cactus Wren, Attachment D of the HCMP (The Nature Conservancy 2015).

Table 7
Vegetative Performance Standards

| Year | Percent – Cactus Transplant Survival | Percent Cover–Coast Cholla | Percent Cover–Native Herbaceous Species | Species Richness[2] | Percent Cover – Non-native Vegetation[3] |
|---|---|---|---|---|---|
| 1 | 90 | 15 | 5 | 8 | 10 |
| 2 | 100[1] | 25 | 10 | 9 | 10 |
| 3 | -- | 35 | 15 | 10 | 10 |
| 4 | -- | 45 | 20 | 11 | 10 |
| 5 | -- | 50 | 20 | 12 | 10 |

[1]Percentage of plants from previous year.
[2]Based on number of species planted and seeded within mitigation site.
[3]In addition, no perennial or Cal-IPC listed High weed species would be present.

# 7.0 Monitoring Requirements

A minimum commitment of five years of monitoring of the mitigation site would be completed. Biological monitoring goals would include qualitative vegetation monitoring, quantitative vegetation monitoring, and photographic documentation. The monitoring schedule is presented in Table 8.

Table 8
Monitoring Schedule

| Task | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|---|---|---|---|---|
| Qualitative Monitoring | Monthly[1] | Monthly[1] | Monthly[1] | Monthly[1] | Monthly[1] |
| Quantitative Monitoring | Spring | Spring | Spring | Spring | Spring |
| Wildlife Surveys | Spring | Spring | Spring | Spring | Spring |
| Photograph Documentation | As-needed | Spring | Spring | Spring | Spring |

[1] Minimum frequency

## 7.1 Qualitative Monitoring

Overall native and non-native cover and species richness would be qualitatively evaluated for the mitigation site as they relate to coastal cactus wren habitat health and establishment but would not be used to determine final project success. Qualitative monitoring would occur monthly with additional visits conducted as needed to ensure project success (see Table 8). Monitoring would include, but not be limited to, assessment of native plant establishment, weed presence, and unauthorized trespassing. Monitoring results would be used to determine the timing and frequency of maintenance activities.

## 7.2 Quantitative Monitoring

Quantitative monitoring data for coast cholla cover, native herbaceous cover, and non-native vegetation cover would be collected by ocular estimates. Biologists would perform quantitative monitoring surveys through meandering transects where dead transplanted cactus would be counted and cover of coast cholla, native herbs, and non-native vegetation would be estimated. Estimates would be determined based on the California Native Plant Society cover diagrams (CNPS 2001). All native species observed within the mitigation site would be noted to determine species richness.

## 7.3 Wildlife Surveys

Coastal cactus wren presence within the mitigation site would not be a requirement for successful mitigation but qualified biologists would conduct annual general wildlife surveys during the spring. Detection of coastal cactus wren would be the focus of wildlife monitoring, but all species observed utilizing the mitigation site would be recorded. Nesting sites, roosting sites, burrows, tracks, calls, direct sightings, and other signs of wildlife use of the mitigation sites would be recorded during each survey. The biologists would conduct the survey on foot by meandering throughout the entire mitigation site and use binoculars to search the adjacent vegetation surrounding the site. In addition

to the general wildlife surveys, incidental observations of wildlife would be noted during qualitative and quantitative monitoring activities.

## 7.4 Photographic Documentation

A minimum of two permanent photo points would be established along the edges of the mitigation site to provide an overview of habitat development over the course of the mitigation. Photo points would be established prior to the start of restoration activities. Representative photographs would be taken before implementation, at the completion of implementation, completion of the PEP, and annually to visually document the progress of vegetation cover development over the monitoring period.

## 7.5 Reporting

Annual reports that assess both the attainment of yearly interim and progress toward the final performance standards for the site would be submitted to the City's MMC by December 1 of each year in addition to the County of San Diego Parks and Recreation Department and wildlife agencies. The reports would also summarize the mitigation project's compliance with all applicable mitigation measures and permit conditions. A list of incidental wildlife species observations would be prepared and included in the annual reports. Species lists would be compiled annually. A final monitoring report would be prepared and submitted to the City MMC, County of San Diego Parks and Recreation Department and wildlife agencies for use in the notification of completion and final acceptance of the mitigation effort.

# 8.0 Financial Assurances

The project proponent/applicant must post a financial assurance (e.g., letter of credit, performance bond, etc.) to cover the initial implementation, and five-year maintenance and monitoring activities outlined in this plan. The same funding source established by the project proponent/applicant would be available to complete the compensatory mitigation project, provide alternative compensatory mitigation, and/or for use by a third party to complete required tasks should the initial mitigation effort fail to be successful.

# 9.0 Notification of Completion

If the final success criteria have been met at the end of the five-year monitoring program, notification of these events would be provided with the fifth-year report. If the final success criteria have not been met by the end of the five-year monitoring program, the fifth-year report would discuss the possible reasons and recommendations for remedial measures to aid the site in meeting the criteria. If the mitigation site has not met the performance standards, the project proponent's maintenance and monitoring obligations would continue, until the City MMC and wildlife agencies deem the mitigation program as successful.

Following receipt of the final annual report, the City MMC, County of San Diego Parks and Recreation Department and wildlife agencies shall conduct a site visit the mitigation site in order to approve completion of the mitigation effort. The coastal cactus wren mitigation requirements shall be deemed complete once the final success criteria are met and after written approval by the City MMC has been received.

# 10.0 Site Protection Instrument and Long-term Management Plan

After completion of the restoration effort, long term management and maintenance would be conducted by the County consistent with their existing responsibilities as landowner and manager of conserved land within the City's MSCP Subarea Plan. As detailed in the Furby-North Property Resource Management Plan (County of San Diego, 2012), the County would conduct biological monitoring and management actions as part of their overall preserve management. The proposed Coastal cactus wren restoration effort would enhance the existing biological conditions within the Furby North preserve, supporting implementation of the City's MSCP Area Specific Management Directives for Coastal cactus wren and Management Directives related to habitat restoration and invasive removals, consistent with the County's Furby-North Property Resource Management Plan goals.

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