

BIG CANYON CREEK RESTORATION PROJECT PHASE II

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Submitted to
CITY OF NEWPORT BEACH

June 2007



Prepared by
WRC CONSULTING SERVICES, INC.



FIGURE 2.1-1

Big Canyon Topography

Existing Topography

1-ft Contour Line

5-ft Contour Line

Existing Creek



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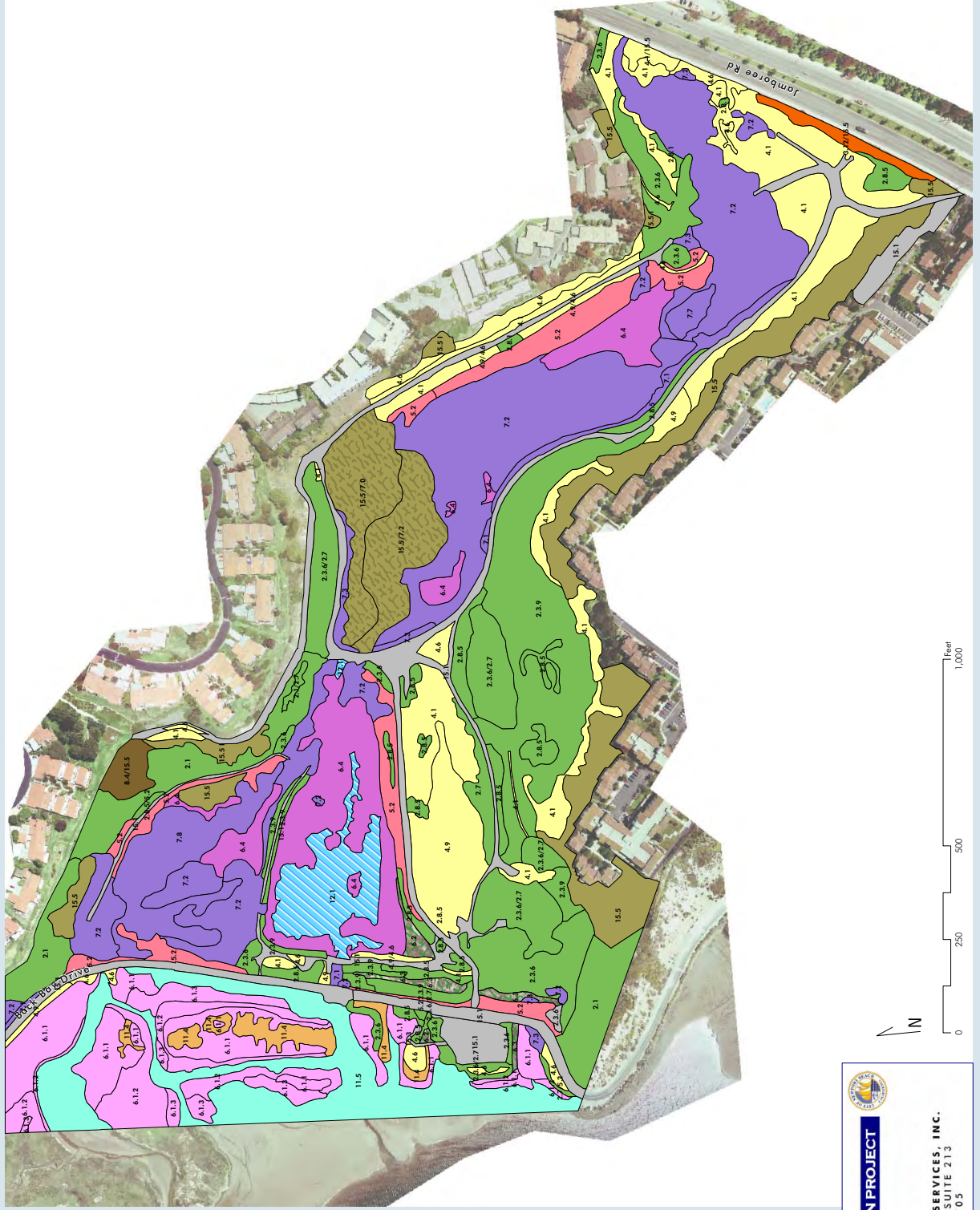
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FIGURE 2.1-2

Existing Vegetation

- Existing Habitat
-  Coastal Sage Scrub
 -  Chaparral
 -  Grassland
 -  Wet Meadows, Seeps & Vernal Pools
 -  Salt Marsh
 -  Freshwater Marsh
 -  Brackish or Alkaline Marsh
 -  Riparian
 -  Woodlands
 -  Sandy Flats
 -  Marine and Coastal
 -  Ponds and Creeks
 -  Ornamental Plantings
 -  Mixed Ornamental Plantings and Riparian
 -  Developed: Parking Lots, Roads, and Trails
 -  Creek

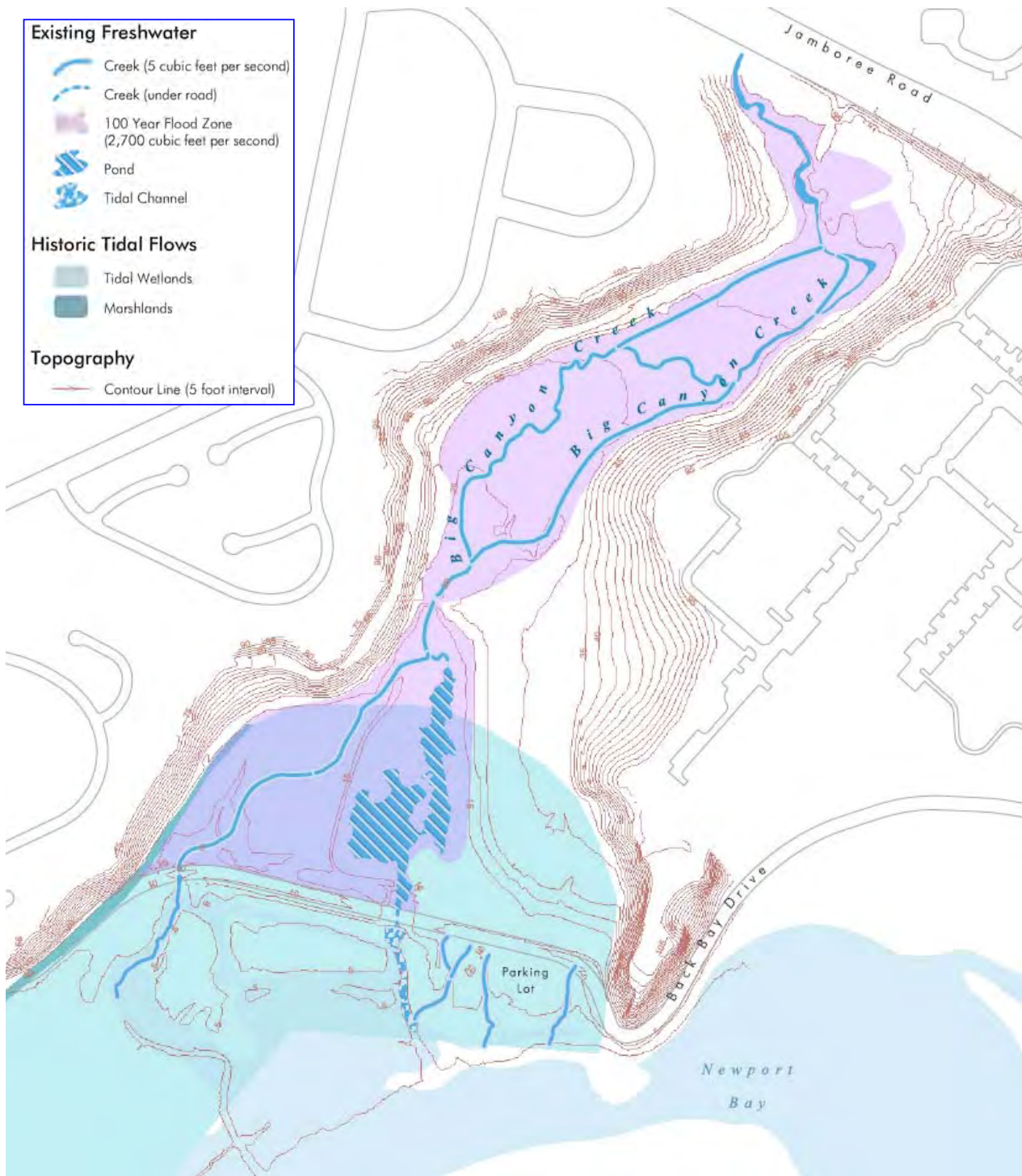



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Source: Adapted from CCI, 2004



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**FIGURE 2.1-3
Historic Tidal Wetlands and Waters**



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FIGURE 2.2-2

Grading, Drainage, and Utilities Plan

Existing Utilities

- Manhole
- Sewer Line
- Storm Drain Line
- BMP

Planned Grading

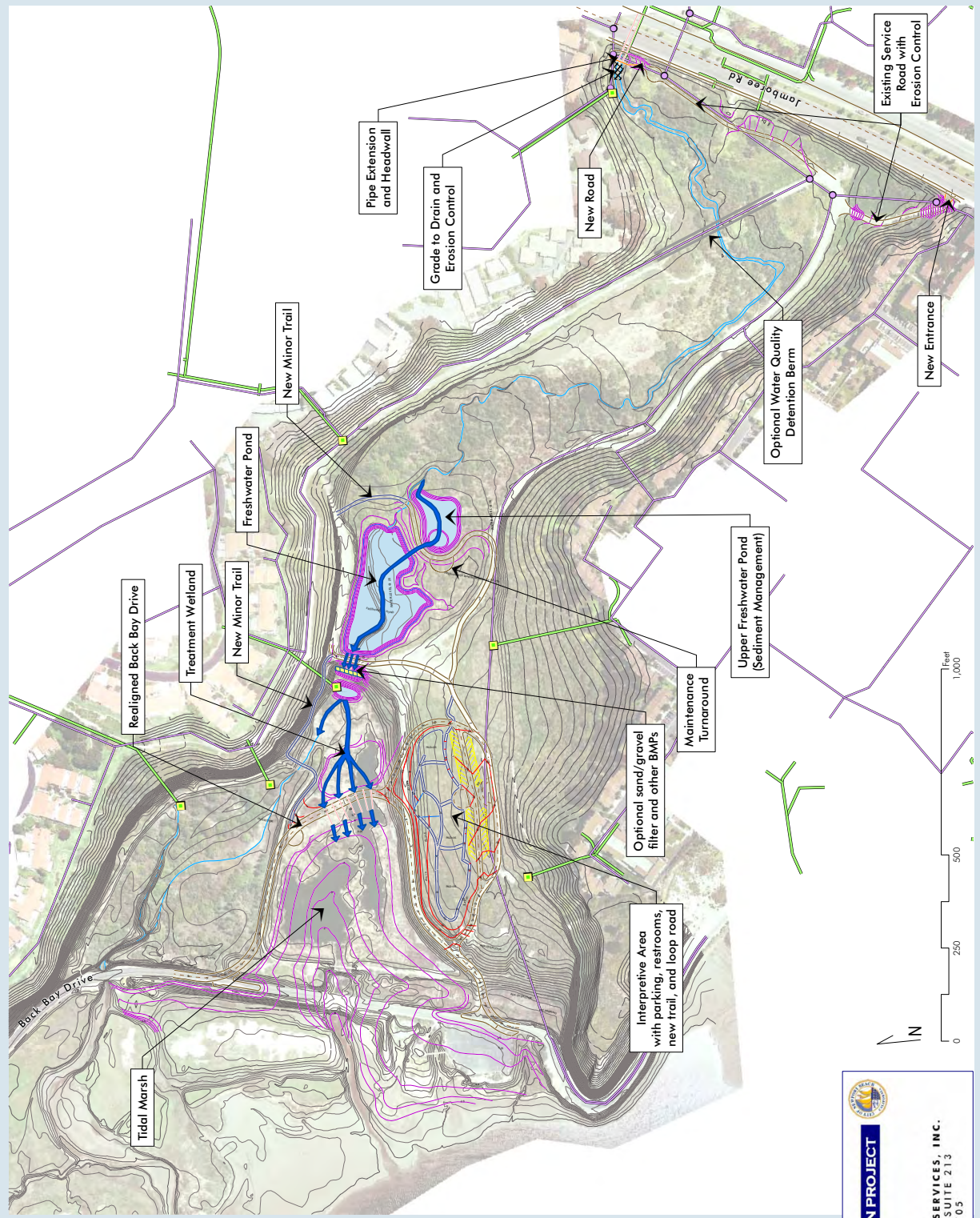
- Fill Contour
- Excavation Contour
- Existing Contour

Planned Road / Trail

- Road Centerline
- Trail
- Road
- Parking

Other Planned

- Pipe
- Wall
- ▨ Riprap
- ▭ Pond
- Existing Creek
- ➔ Planned Hydrologic Flow
- ▨ Optional sand/gravel filter and other BMPs



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
FIGURE 2.2-3

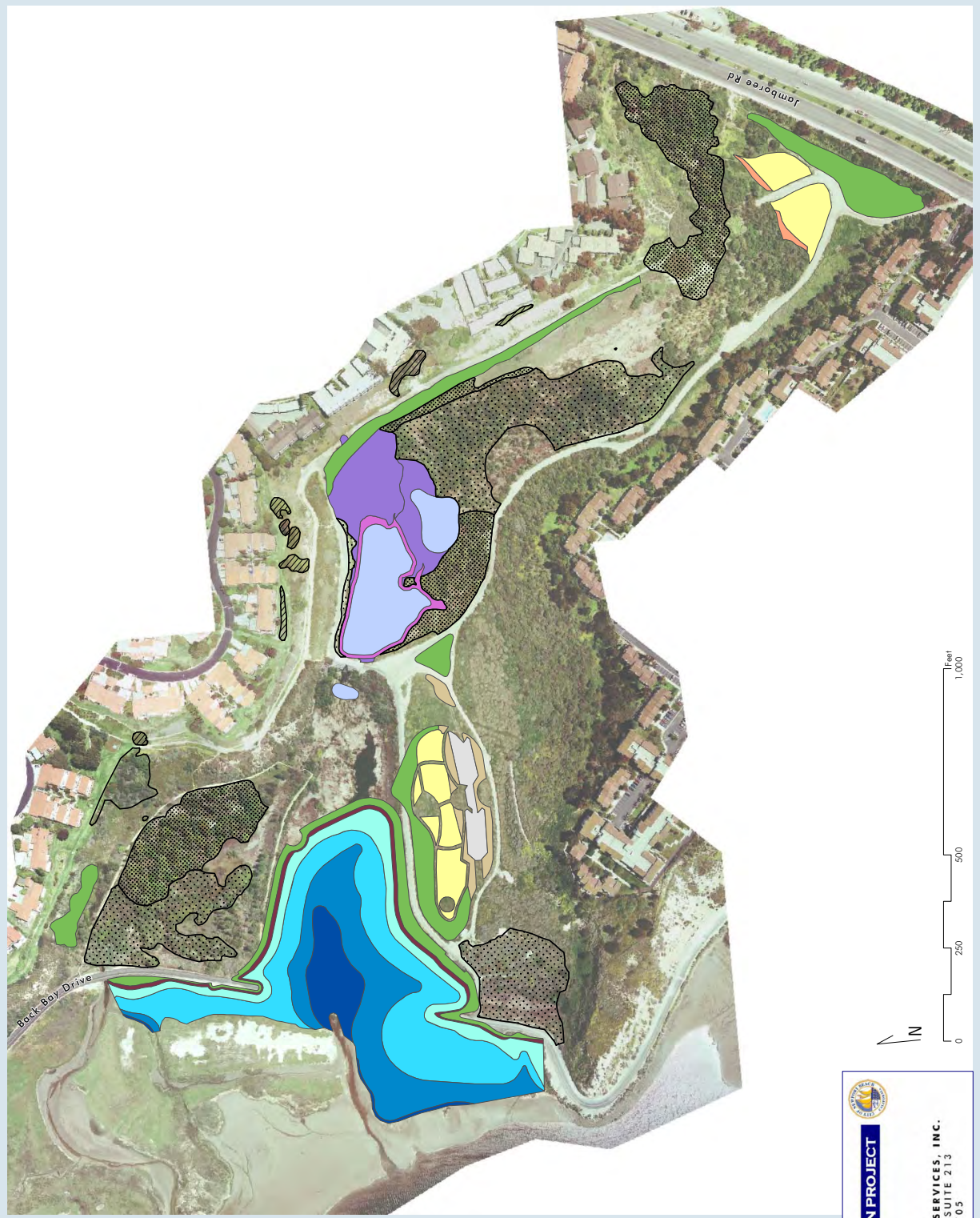
Planting/Habitat Plan

Exotic Invasive Plant Removal Zones

-  Exotic Removal A
Large to medium tree removal on slopes above Big Canyon
-  Exotic Removal B
Large to small tree/shrub removal on private property
-  Exotic Removal C
Large to small tree/shrub, sapling, seedling removal within riparian areas
-  Exotic Removal D
Medium to small tree, sapling, seedling spot removal within riparian areas

New Plantings by Habitat Type

-  Coastal Sage Scrub
-  Grassland
-  Mulefat
-  Native Shade Trees
-  Freshwater Pond
-  Freshwater Marsh
-  Riparian
-  Marsh Transition
-  High Marsh
-  Mid Marsh
-  Low Marsh
-  Mudflat




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

FIGURE 2.2-4

Trail and Facility Plan

Planned Areas and Facilities

-  Paved Area
 -  Facility
 -  New Native Planting per Planting Plan
 -  Pond
 -  Major Trail on Maintenance Road
 -  Minor Trail on Maintenance Road
 -  Maintenance Road
-  Paved Area
 -  A - Arrival / Dropoff Area
 -  Facility
 -  B - Amphitheater and Staging Area
 -  C - Observation Deck
 -  D - Restrooms
 -  E - Overlook
 -  F - Parking

Roads and Trails

-  Public Road & Bike Trail
-  Major Trail
-  Minor Trail
-  Maintenance Road





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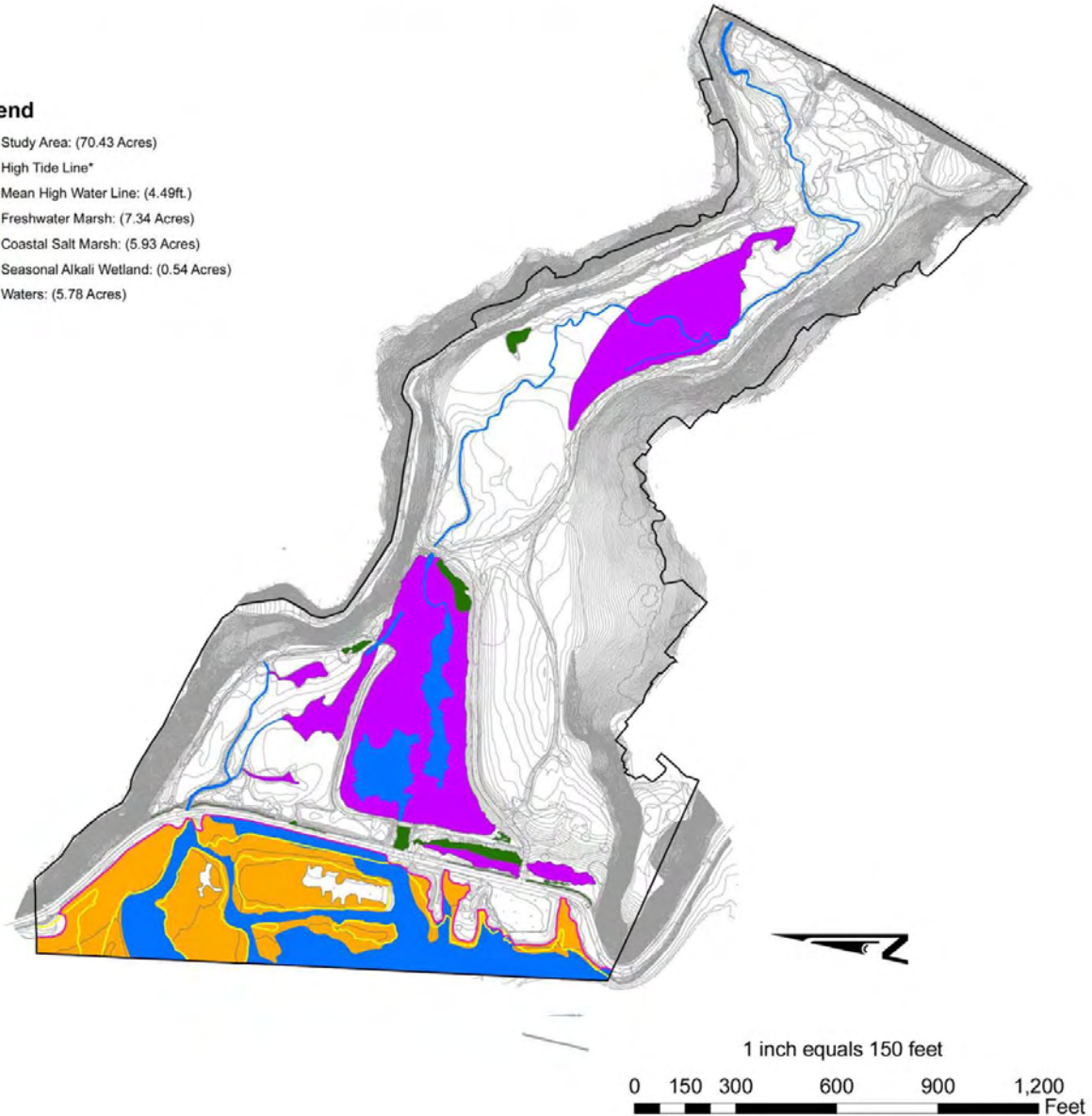


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Big Canyon Creek: Potential Wetlands and Waters under Army Corp of Engineers Jurisdiction

Legend

-  Study Area: (70.43 Acres)
-  High Tide Line*
-  Mean High Water Line: (4.49ft.)
-  Freshwater Marsh: (7.34 Acres)
-  Coastal Salt Marsh: (5.93 Acres)
-  Seasonal Alkali Wetland: (0.54 Acres)
-  Waters: (5.78 Acres)



*The Los Angeles Corps District interprets the HTL as the upper limit of tidal wetland vegetation.



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FIGURE 3.1-1






Potential Wetlands and Waters under Army
Corps of Engineers Jurisdiction

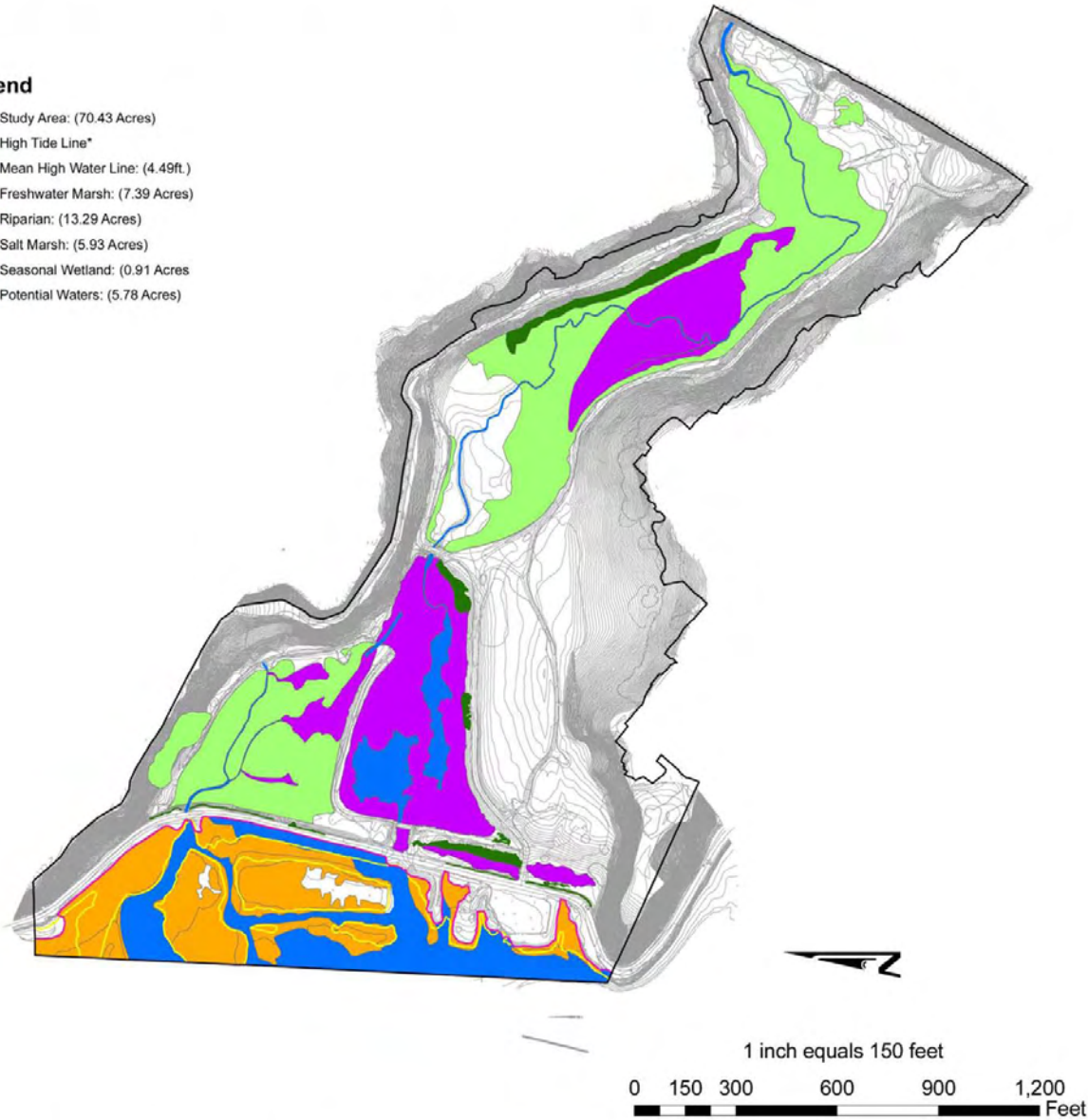


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Big Canyon Creek: Potential Wetlands and Waters under California Coastal Commission Jurisdiction

Legend

-  Study Area: (70.43 Acres)
-  High Tide Line*
-  Mean High Water Line: (4.49ft.)
-  Freshwater Marsh: (7.39 Acres)
-  Riparian: (13.29 Acres)
-  Salt Marsh: (5.93 Acres)
-  Seasonal Wetland: (0.91 Acres)
-  Potential Waters: (5.78 Acres)



*The Los Angeles Corps District interprets the HTL as the upper limit of tidal wetland vegetation.



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FIGURE 3.1-2





Potential Wetlands and Waters under
California Coastal Commission Jurisdiction

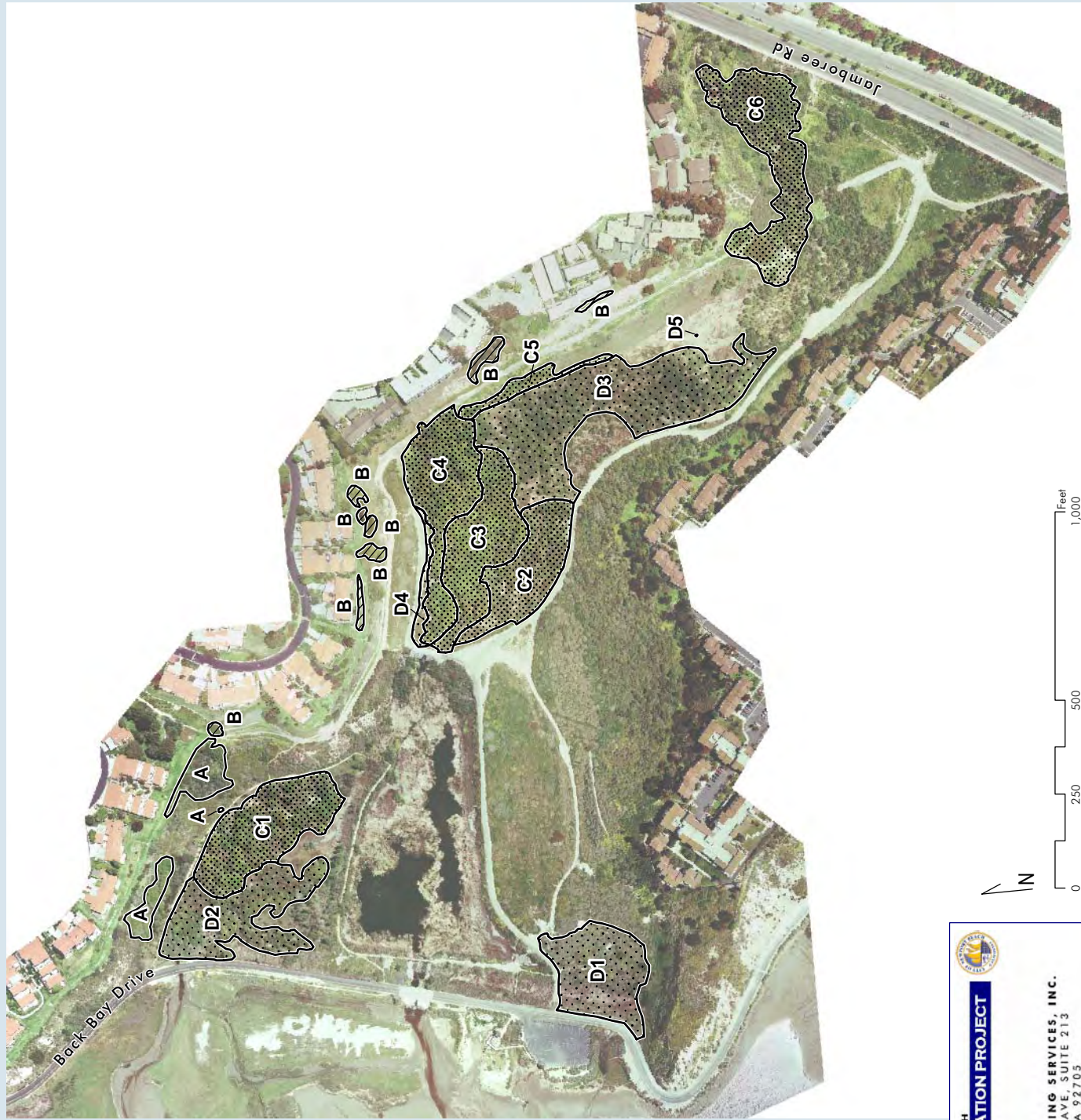


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FIGURE 3.1-3
Exotic Invasive Plant
Removal Zones

Exotic Invasive Plant Removal Zones

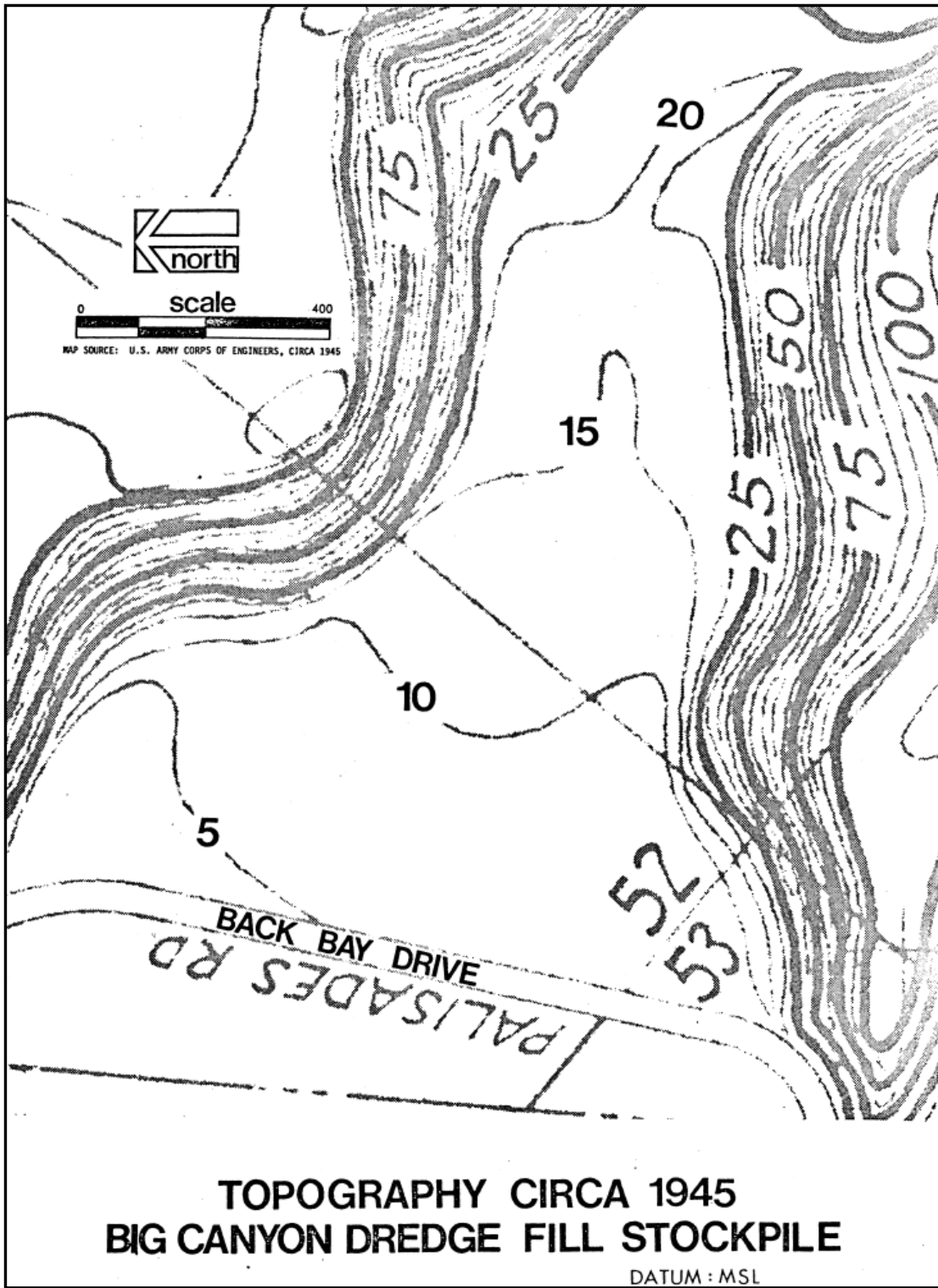
-  Exotic Removal A
Large to medium tree removal on slopes above Big Canyon
-  Exotic Removal B
Large to small tree/shrub removal on private property
-  Exotic Removal C
Large to small tree/shrub, sapling, seedling removal within riparian areas
-  Exotic Removal D
Medium to small tree, sapling, seedling spot removal within riparian areas




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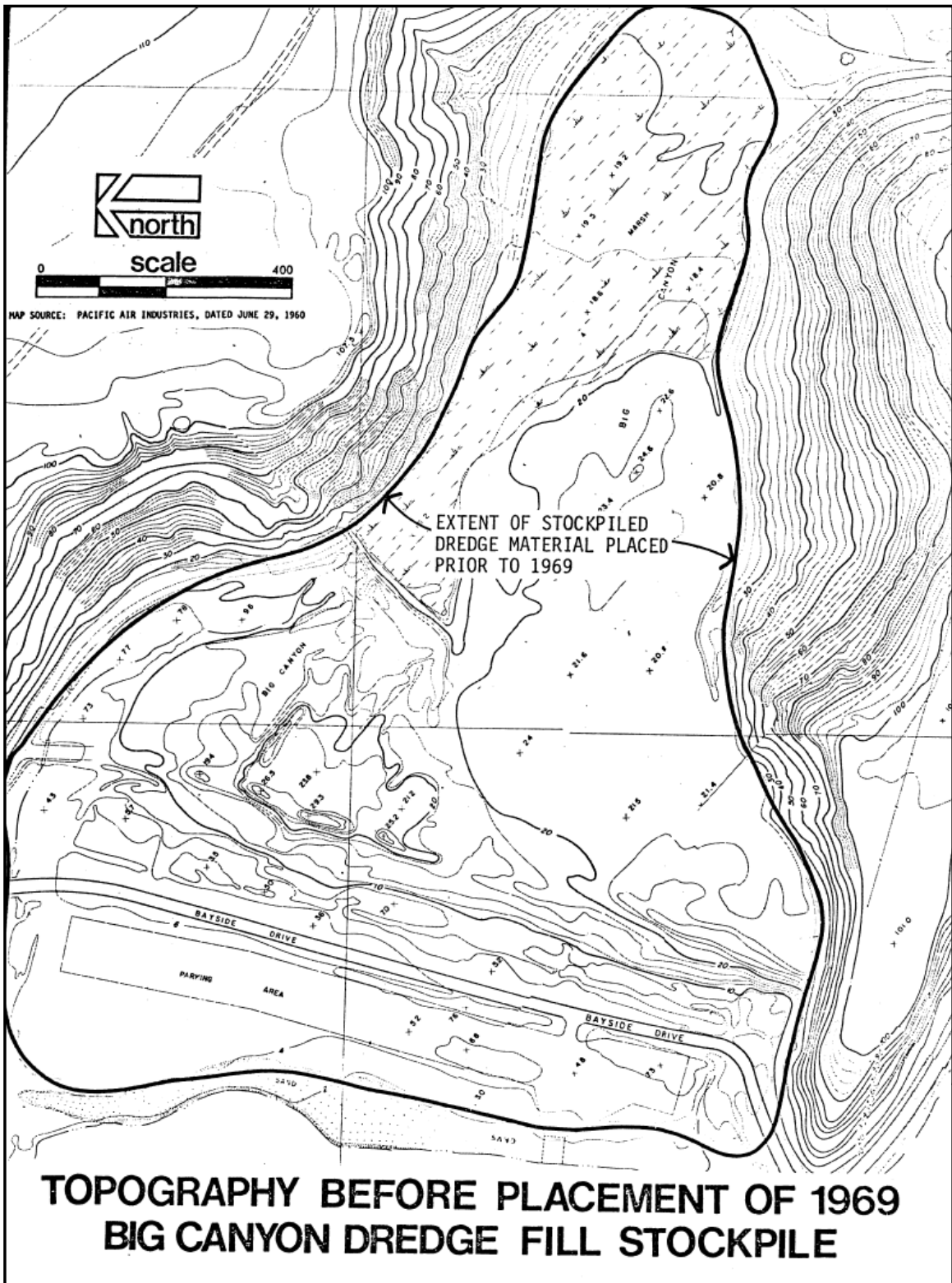
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FIGURE 3.2-1
Topography in Lower Big Canyon Circa 1945

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FIGURE 3.2-2

Topography in Lower Big Canyon Prior to Placement of the 1969 Dredge Fill



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FIGURE 3.2-3
Topography in Lower Big Canyon in 1974

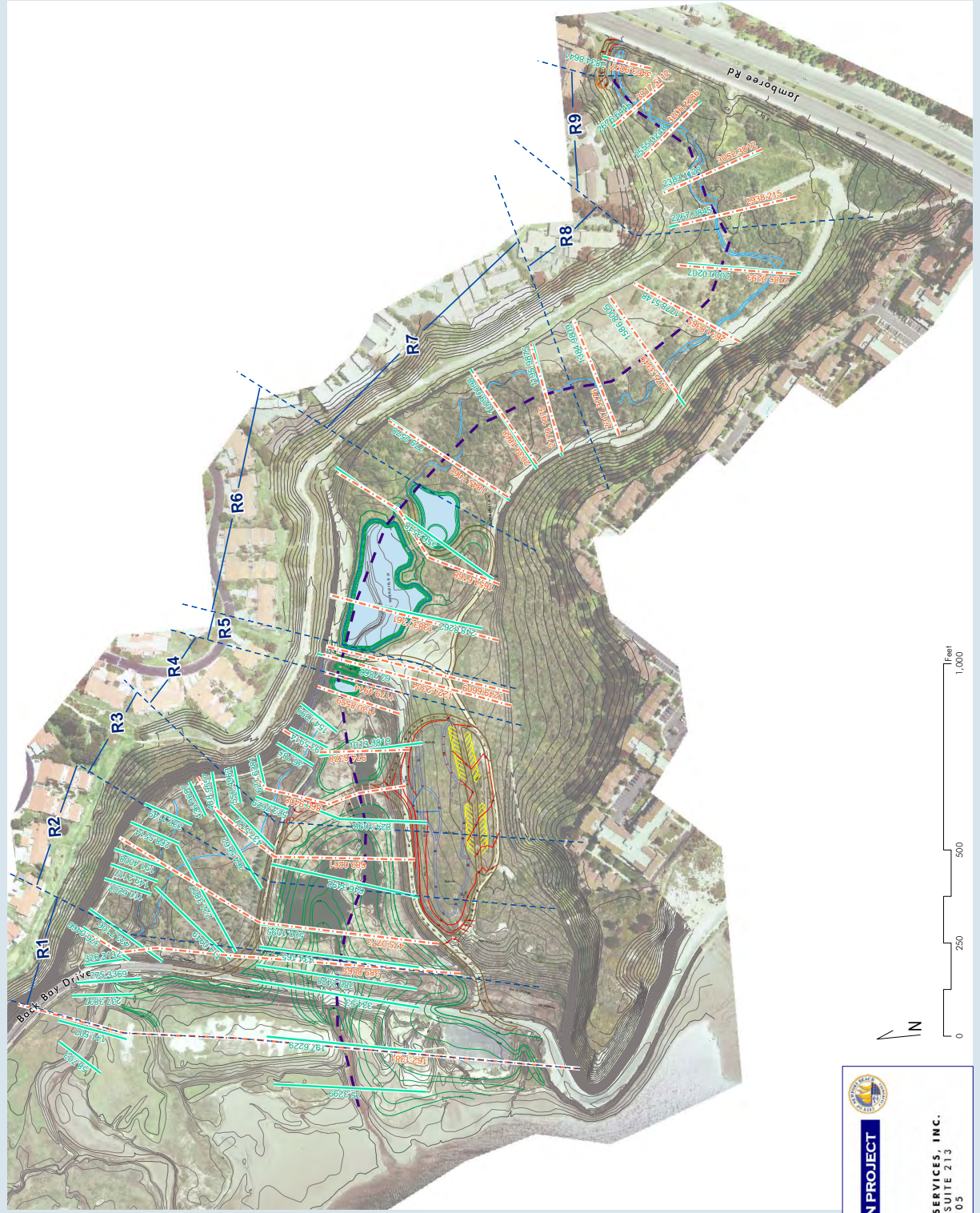


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FIGURE 3.2-4

Hydraulic Flow Model

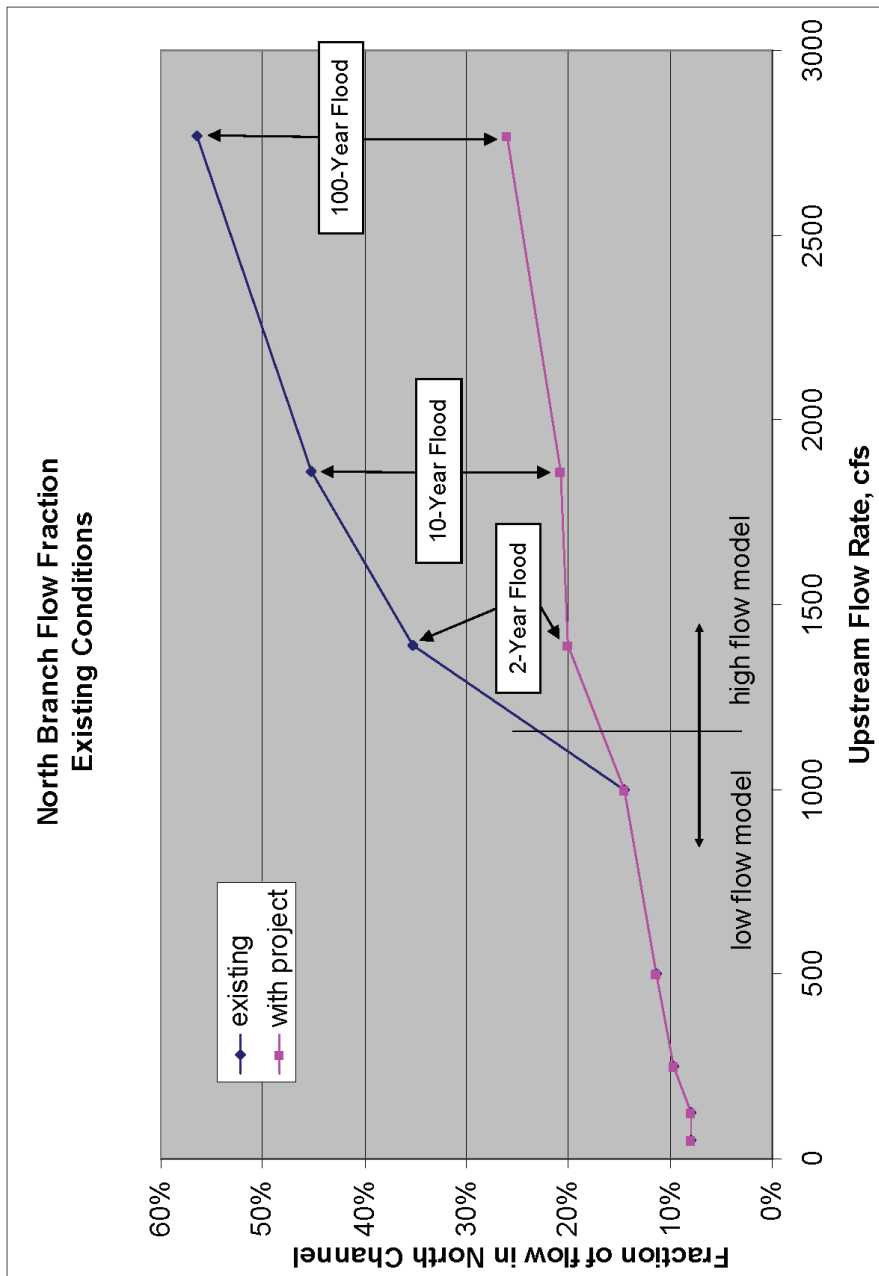
- Hydraulic Flow Model
 - Stream Reach
 - Reach Boundary
 - Low Flow Model Section
 - High Flow Model Section
 - Station Control Line
- Other
 - Existing Creek
 - Pond



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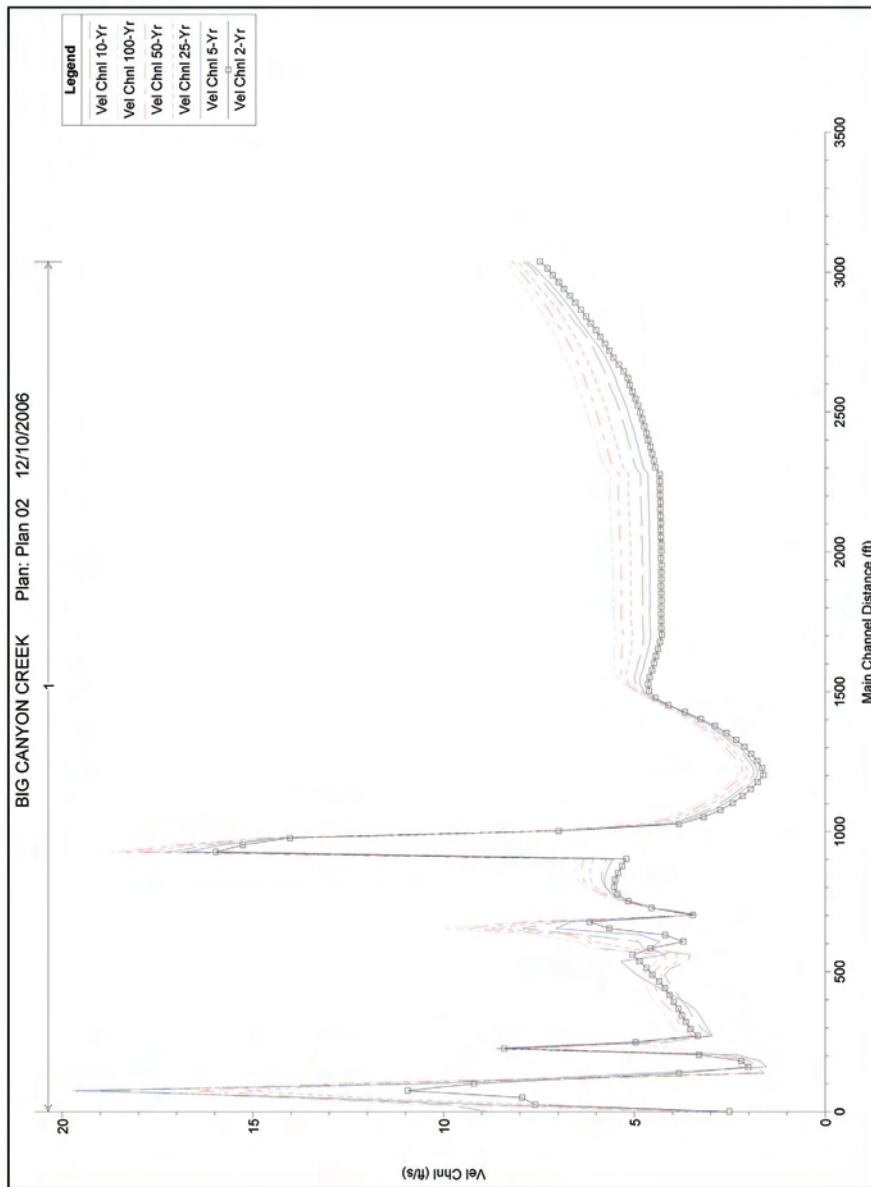
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FIGURE 3.2-5
North Channel Flow Ratio Variations

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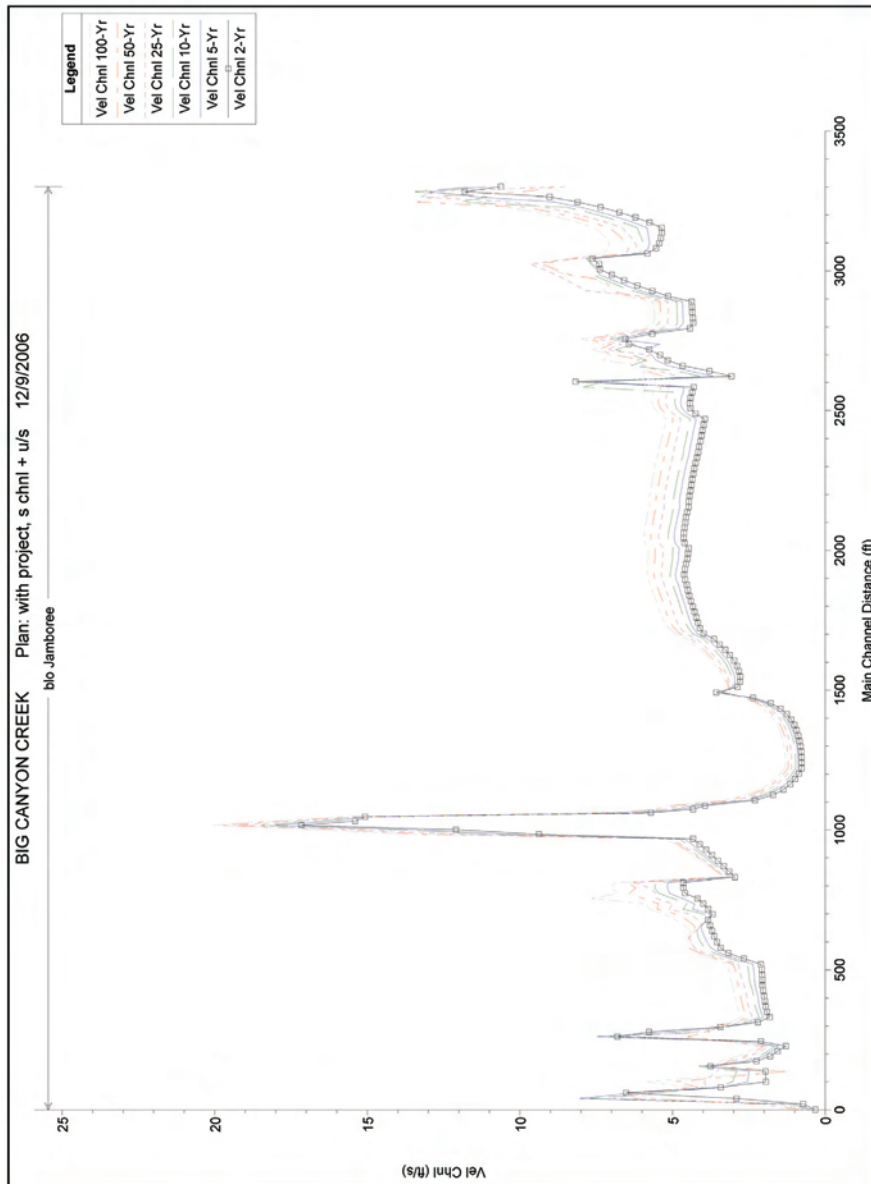
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FIGURE 3.2-6
Flow Velocity Variations – Existing Conditions

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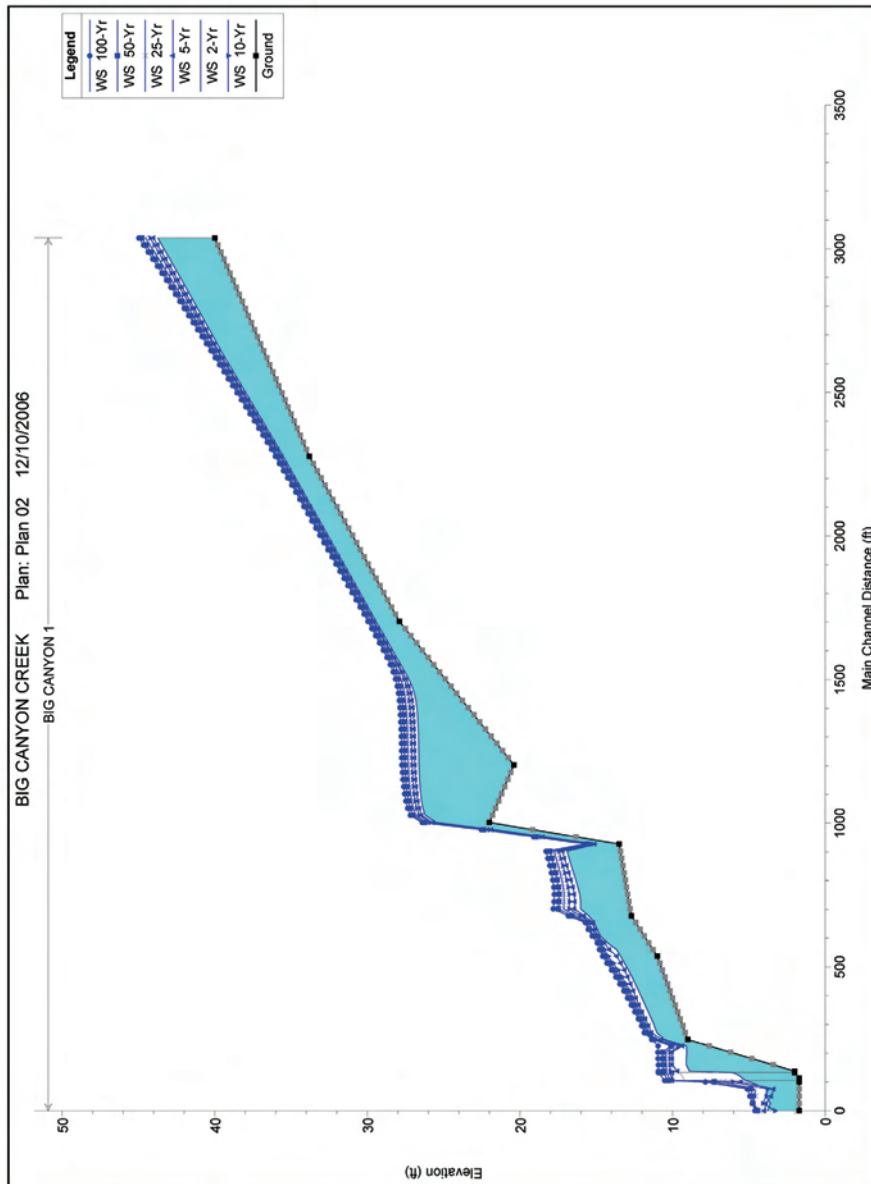
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FIGURE 3.2-7
Flow Velocity Variations – Proposed Conditions

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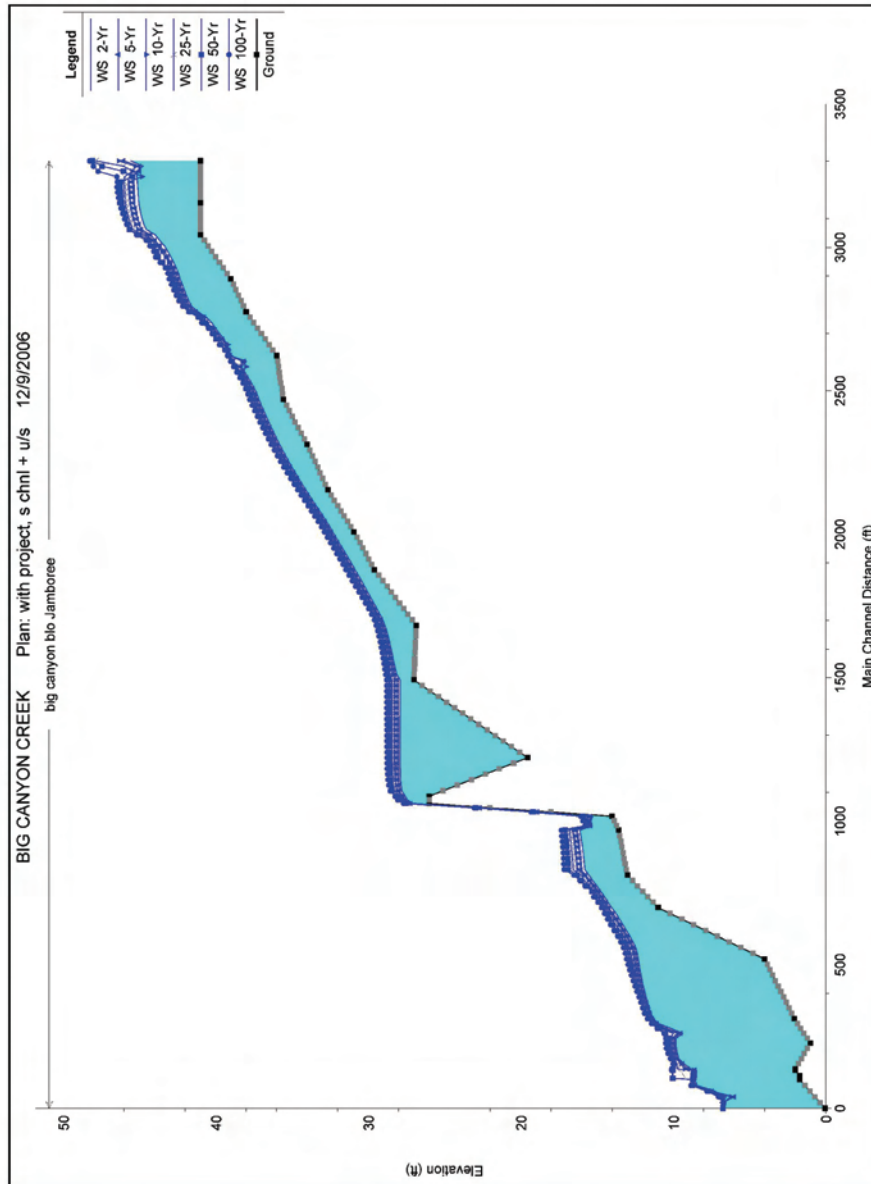
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FIGURE 3.2-8
Water Surface Profiles – Existing Conditions

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FIGURE 3.2-9
Water Surface Profiles – Proposed Conditions

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FIGURE 3.5-1 Soil Survey

2006 Soil Survey Locations



Hand Auger



Hollow Stem Boring



Surface Sample

2003 Soil Survey Locations



Soil Sample




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