

LEGEND:

-  AQUATIC RESOURCE TEMP IMPACT AREA
-  AQUATIC RESOURCE PERM IMPACT AREA
-  STUDY AREA
-  PERENNIAL STREAM AREA
-  WETLAND AREA
-  EPHEMERAL STREAM AREA
-  INTERMITTENT STREAM



COORDINATE SYSTEM: NAD 1980 UTM ZONE 12
 PROJECTION: UTM
 DATUM: NORTH AMERICAN 1983
 VERTICAL DATUM: NAVD88, U.S. FOOT
 1 INCH = 100'

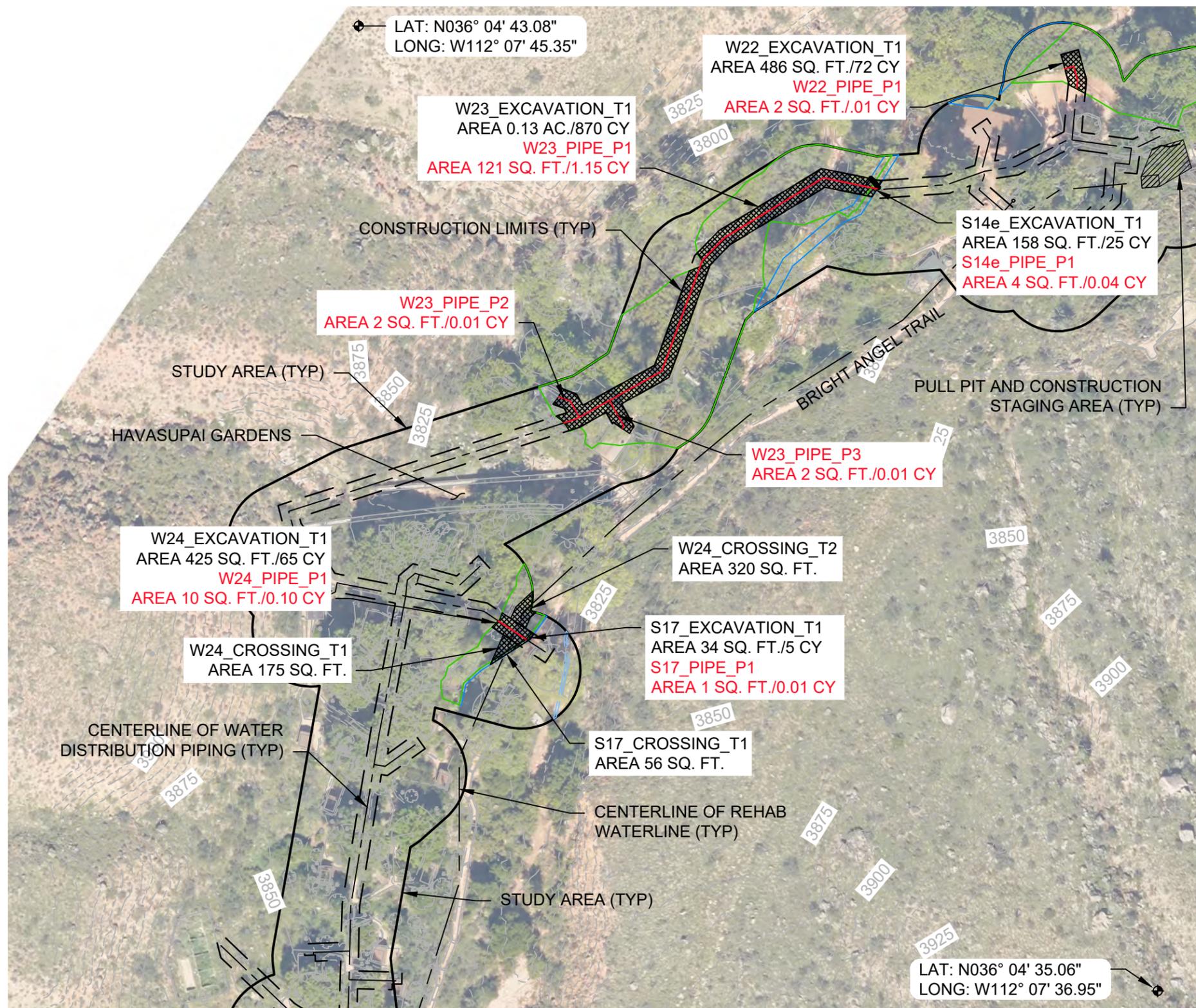
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MADE IN ACCORDANCE WITH THE UPDATED MAP AND DRAWING STANDARDS FOR THE SOUTH PACIFIC DIVISION REGULATORY PROGRAM, AS AMENDED ON FEBRUARY 10, 2016, BY:
 PAUL KOWALKE
 TRACY HAMILTON
 HDR, INC
 419 CANYON AVE, STE 316
 FORT COLLINS, CO 80521



**AQUATIC RESOURCE IMPACT KEY MAP
 PROJECT AREA 02 & 03**

DATE
 DEC 2021
 FIGURE
 03-WL00



- LEGEND:**
-  AQUATIC RESOURCE TEMP IMPACT AREA
 -  AQUATIC RESOURCE PERM IMPACT AREA
 -  STUDY AREA
 -  PERENNIAL STREAM AREA
 -  WETLAND AREA
 -  EPHEMERAL STREAM AREA
 -  INTERMITTENT STREAM



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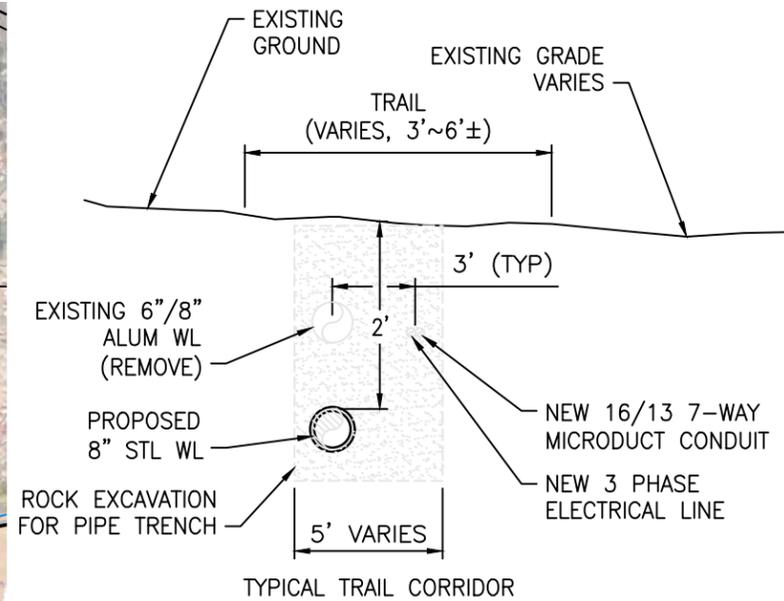
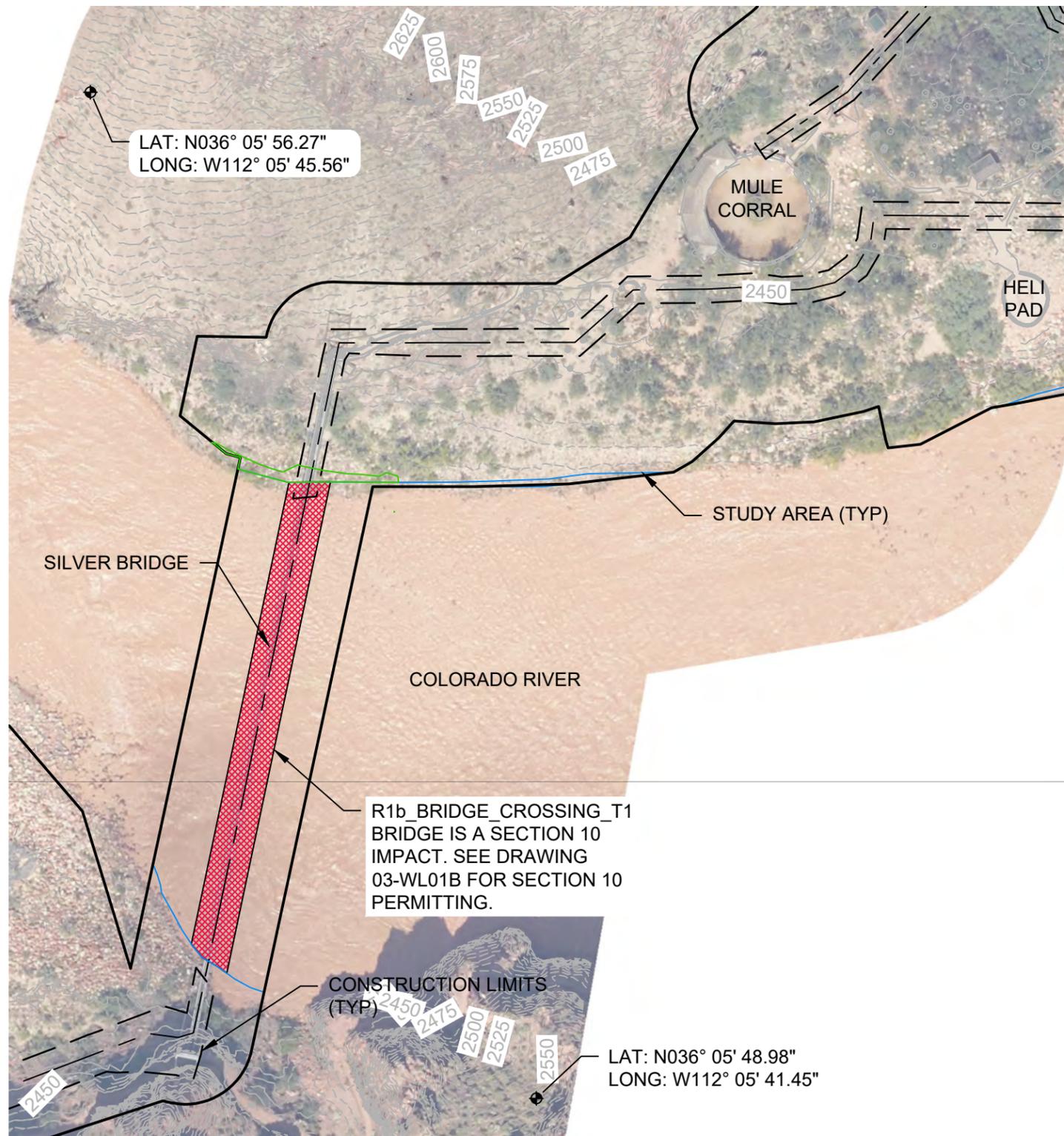
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**AQUATIC RESOURCE IMPACT AREA
 PROJECT AREA 02
 HAVASUPAI GARDEN CAMPGROUND
 DISTRIBUTION IMPROVEMENTS**

DATE
 DEC 2021
 FIGURE
 02-WL01



- LEGEND:**
- AQUATIC RESOURCE TEMP IMPACT AREA
 - OVERHEAD WATERLINE CROSSING
 - STUDY AREA
 - PERENNIAL STREAM AREA
 - WETLAND AREA
 - EPHEMERAL STREAM AREA
 - INTERMITTENT STREAM



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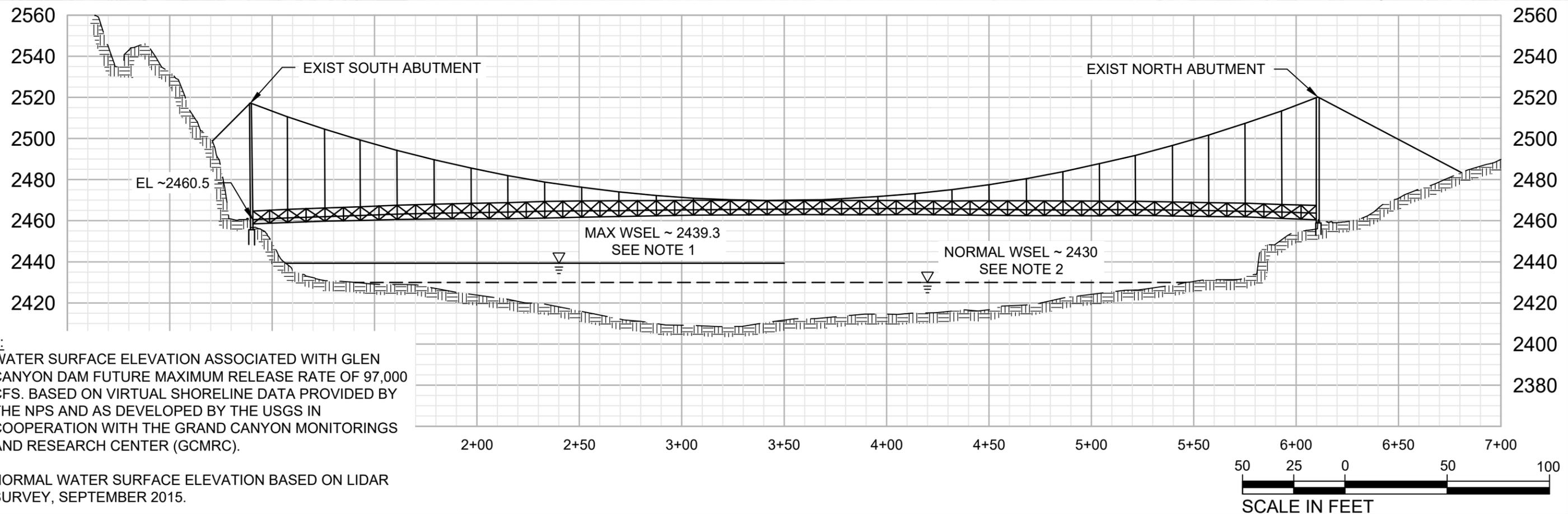
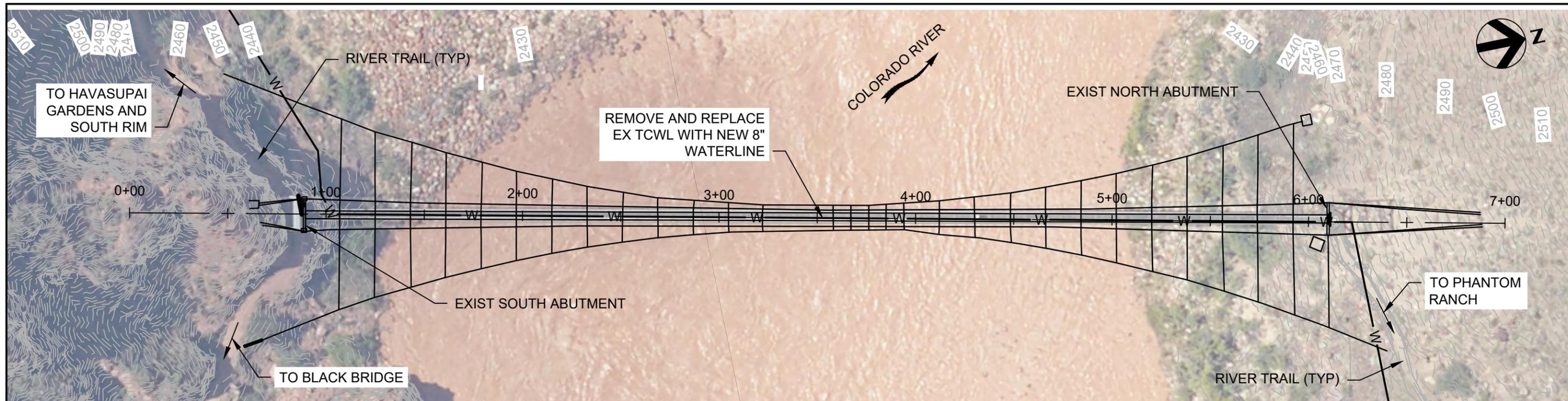
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**AQUATIC RESOURCE IMPACT AREA
PROJECT AREA 03
SILVER BRIDGE OVER COLORADO RIVER**

DATE
DEC 2021

FIGURE
03-WL01A



NOTES:

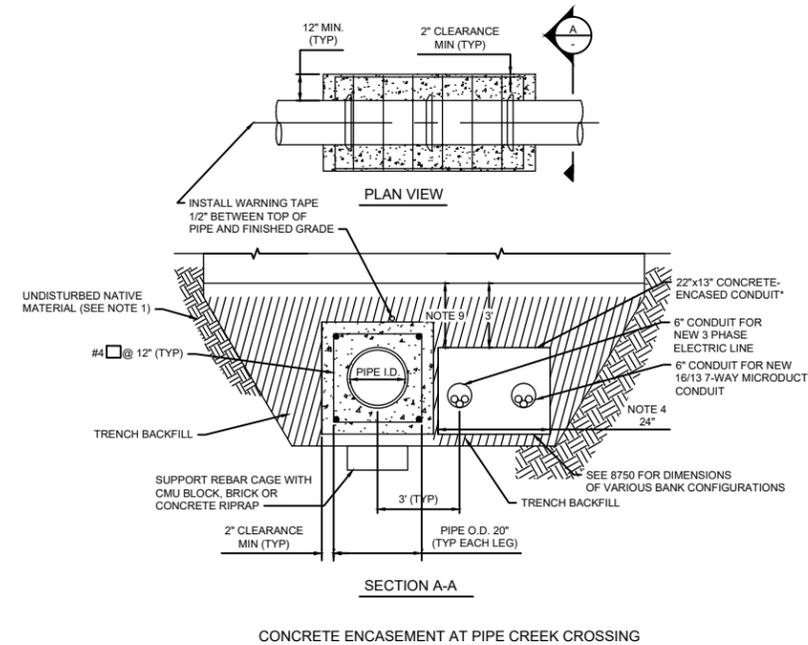
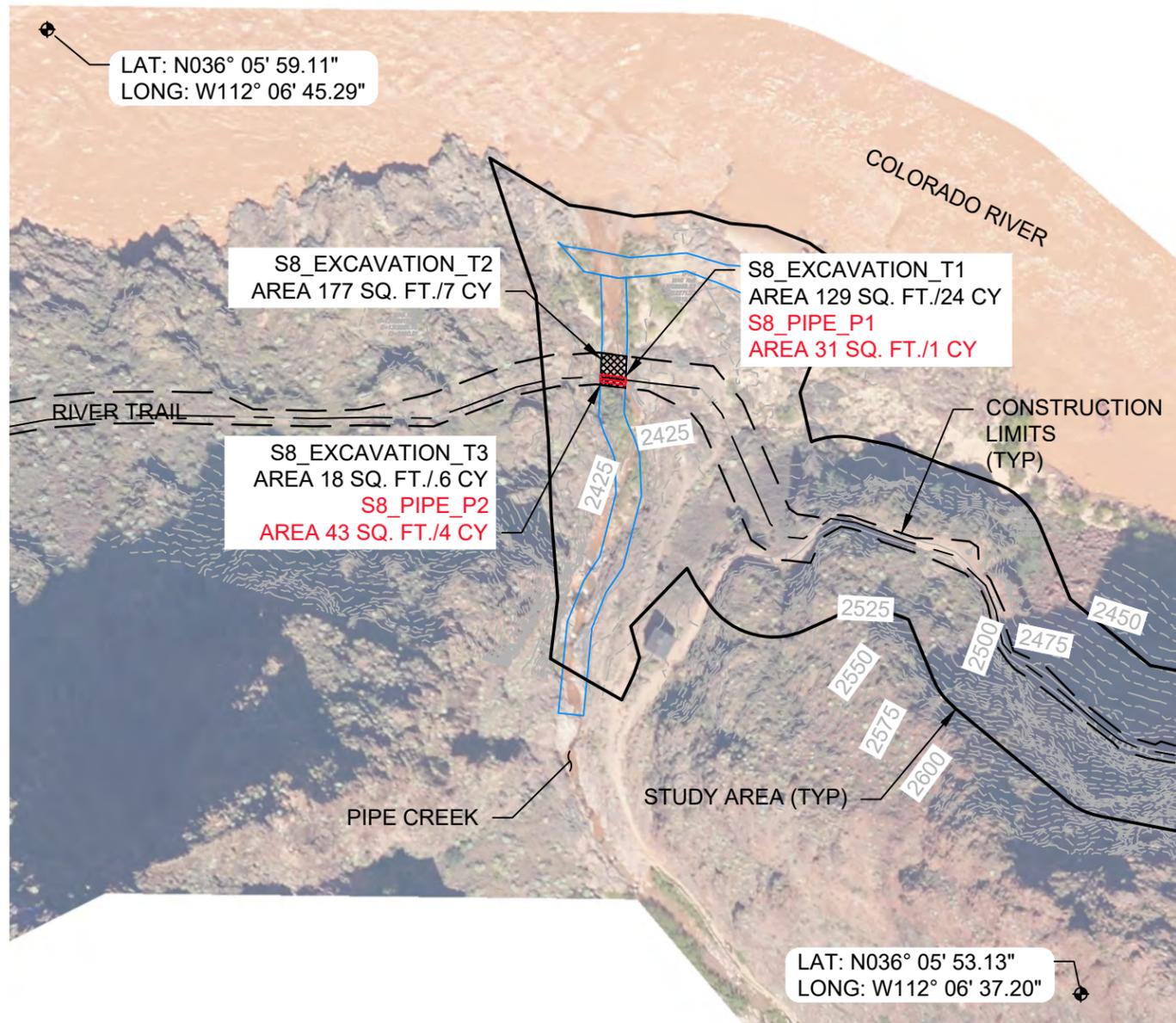
1. WATER SURFACE ELEVATION ASSOCIATED WITH GLEN CANYON DAM FUTURE MAXIMUM RELEASE RATE OF 97,000 CFS. BASED ON VIRTUAL SHORELINE DATA PROVIDED BY THE NPS AND AS DEVELOPED BY THE USGS IN COOPERATION WITH THE GRAND CANYON MONITORINGS AND RESEARCH CENTER (GCMRC).
2. NORMAL WATER SURFACE ELEVATION BASED ON LIDAR SURVEY, SEPTEMBER 2015.



**AQUATIC RESOURCE IMPACT AREA
SECTION 10 PERMIT
SILVER BRIDGE OVER COLORADO RIVER**

DATE
DEC 2021

FIGURE
03-WL01B



LEGEND:

- AQUATIC RESOURCE TEMP IMPACT AREA
- AQUATIC RESOURCE PERM IMPACT AREA
- STUDY AREA
- PERENNIAL STREAM AREA
- WETLAND AREA
- EPHEMERAL STREAM AREA
- INTERMITTENT STREAM



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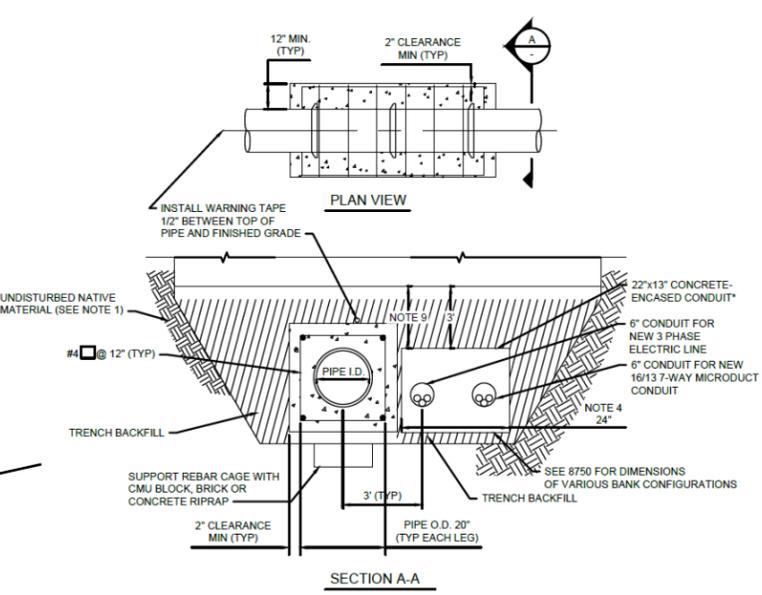
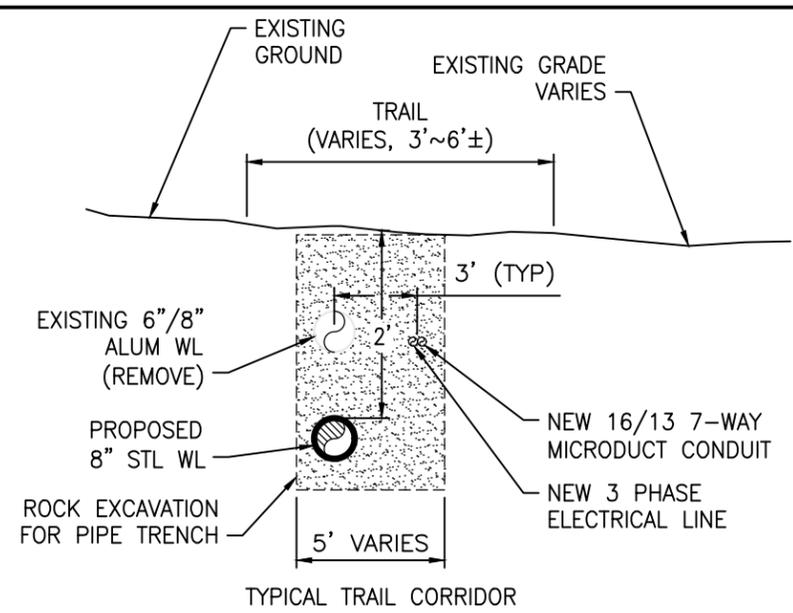
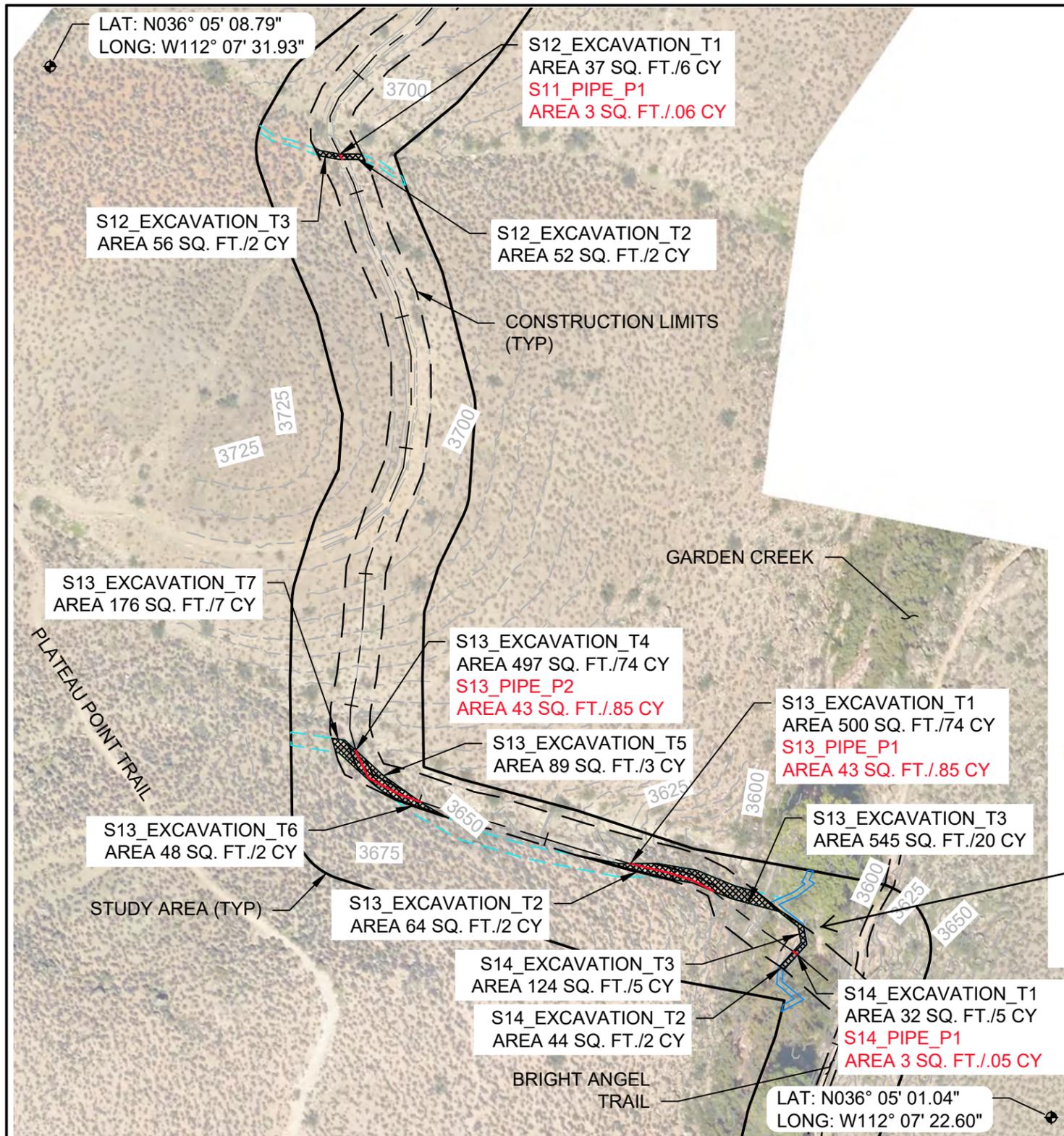
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**AQUATIC RESOURCE IMPACT AREA
 PROJECT AREA 03
 HAVASUPAI GARDENS TO PHANTOM
 RANCH PIPELINE REPLACEMENT**

DATE
 DEC 2021
 FIGURE
 03-WL02



- LEGEND:**
- AQUATIC RESOURCE TEMP IMPACT AREA
 - AQUATIC RESOURCE PERM IMPACT AREA
 - STUDY AREA
 - PERENNIAL STREAM AREA
 - WETLAND AREA
 - EPHEMERAL STREAM AREA
 - INTERMITTENT STREAM



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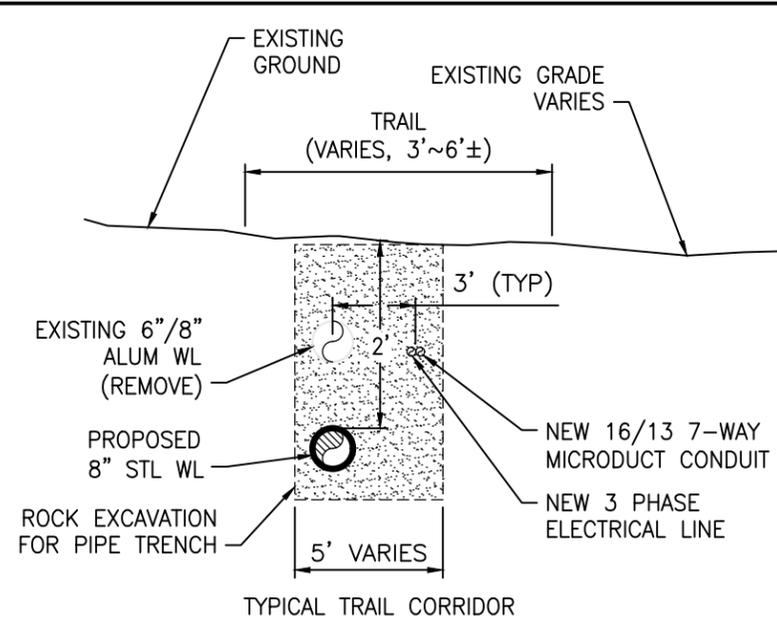
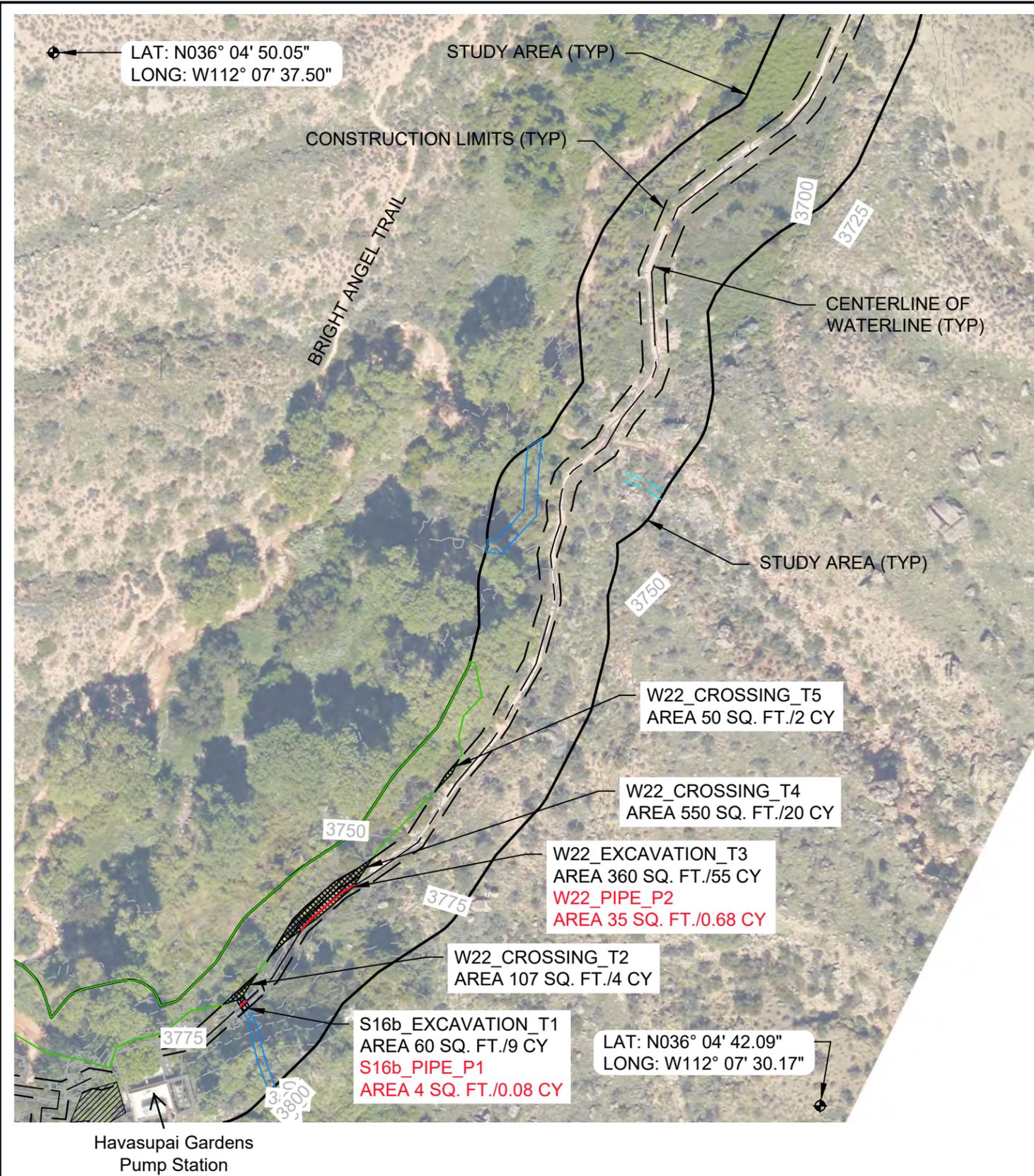
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**AQUATIC RESOURCE IMPACT AREA
PROJECT AREA 03
HAVASUPAI GARDENS TO PHANTOM
RANCH PIPELINE REPLACEMENT**

DATE
DEC 2021

FIGURE
03-WL04



- LEGEND:**
- AQUATIC RESOURCE TEMP IMPACT AREA
 - AQUATIC RESOURCE PERM IMPACT AREA
 - STUDY AREA
 - PERENNIAL STREAM AREA
 - WETLAND AREA
 - EPHEMERAL STREAM AREA
 - INTERMITTENT STREAM



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1 INCH = 100'

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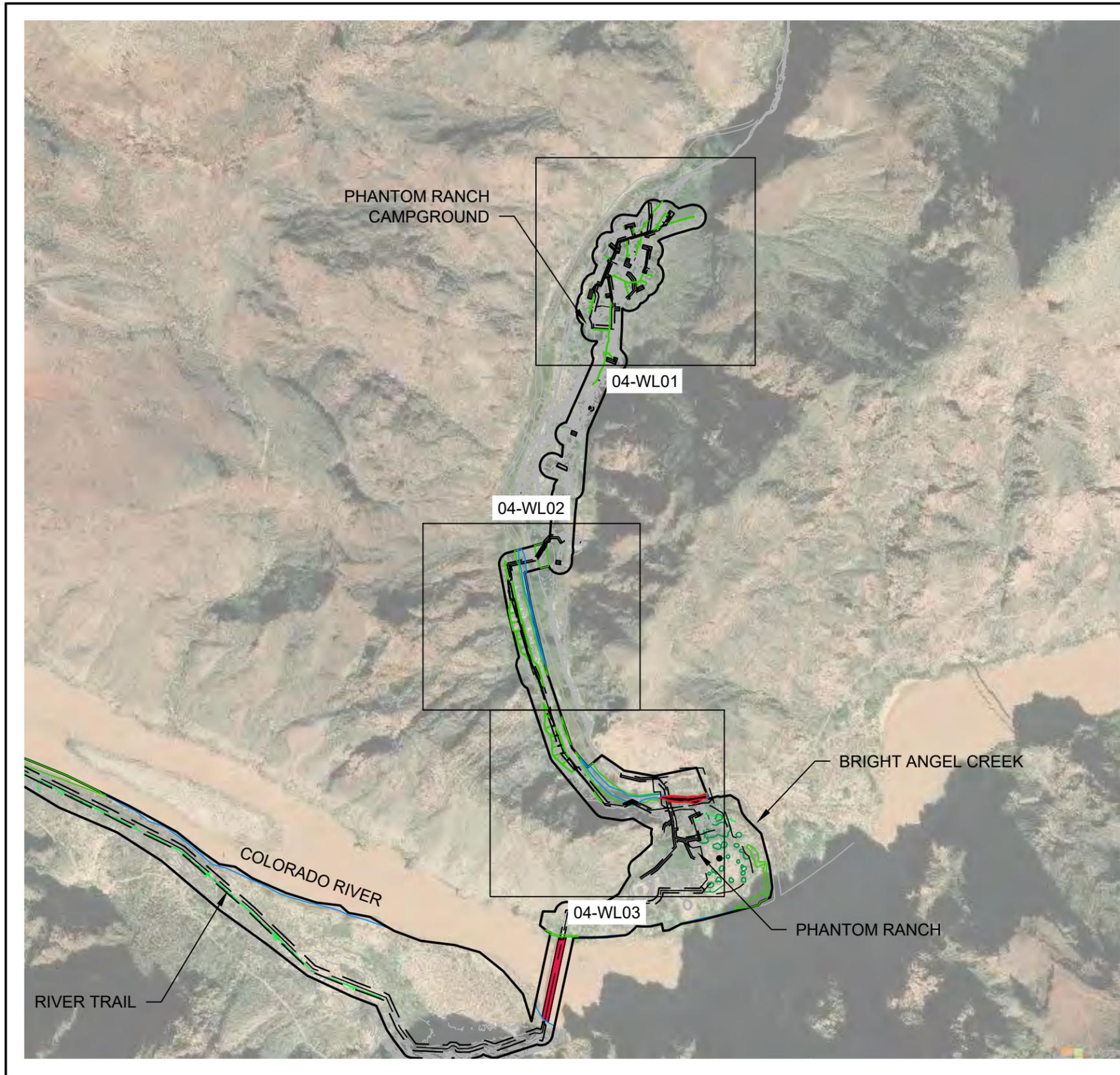
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**AQUATIC RESOURCE IMPACT AREA
PROJECT AREA 03
HAVASUPAI GARDENS TO PHANTOM
RANCH PIPELINE REPLACEMENT**

DATE
DEC 2021

FIGURE
03-WL05



LEGEND:

- AQUATIC RESOURCE TEMP IMPACT AREA
- AQUATIC RESOURCE PERM IMPACT AREA
- STUDY AREA
- PERENNIAL STREAM AREA
- WETLAND AREA
- EPHEMERAL STREAM AREA
- INTERMITTENT STREAM



COORDINATE SYSTEM: NAD 1980 UTM ZONE 12
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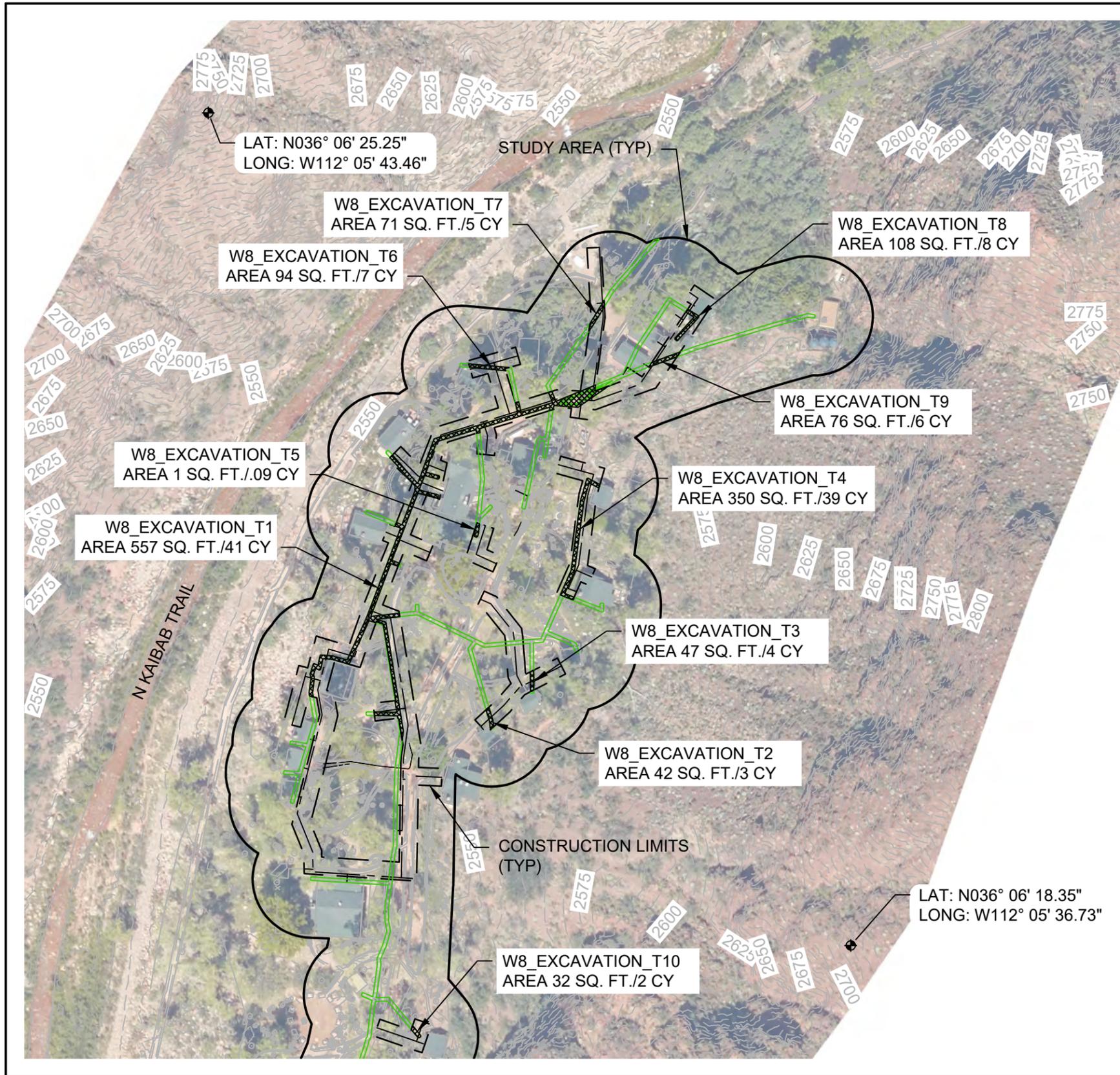
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**AQUATIC RESOURCE IMPACT KEY MAP
 PROJECT AREA 04
 BRIGHT ANGEL CREEK INTAKE RELOCATION
 AND PHANTOM RANCH DISTRIBUTION
 PIPELIN**

DATE
 DEC 2021
 FIGURE
 04-WL00



LEGEND:

-  AQUATIC RESOURCE TEMP IMPACT AREA
-  AQUATIC RESOURCE PERM IMPACT AREA
-  STUDY AREA
-  PERENNIAL STREAM AREA
-  WETLAND AREA
-  EPHEMERAL STREAM AREA
-  INTERMITTENT STREAM



COORDINATE SYSTEM: NAD 1980 UTM ZONE 12
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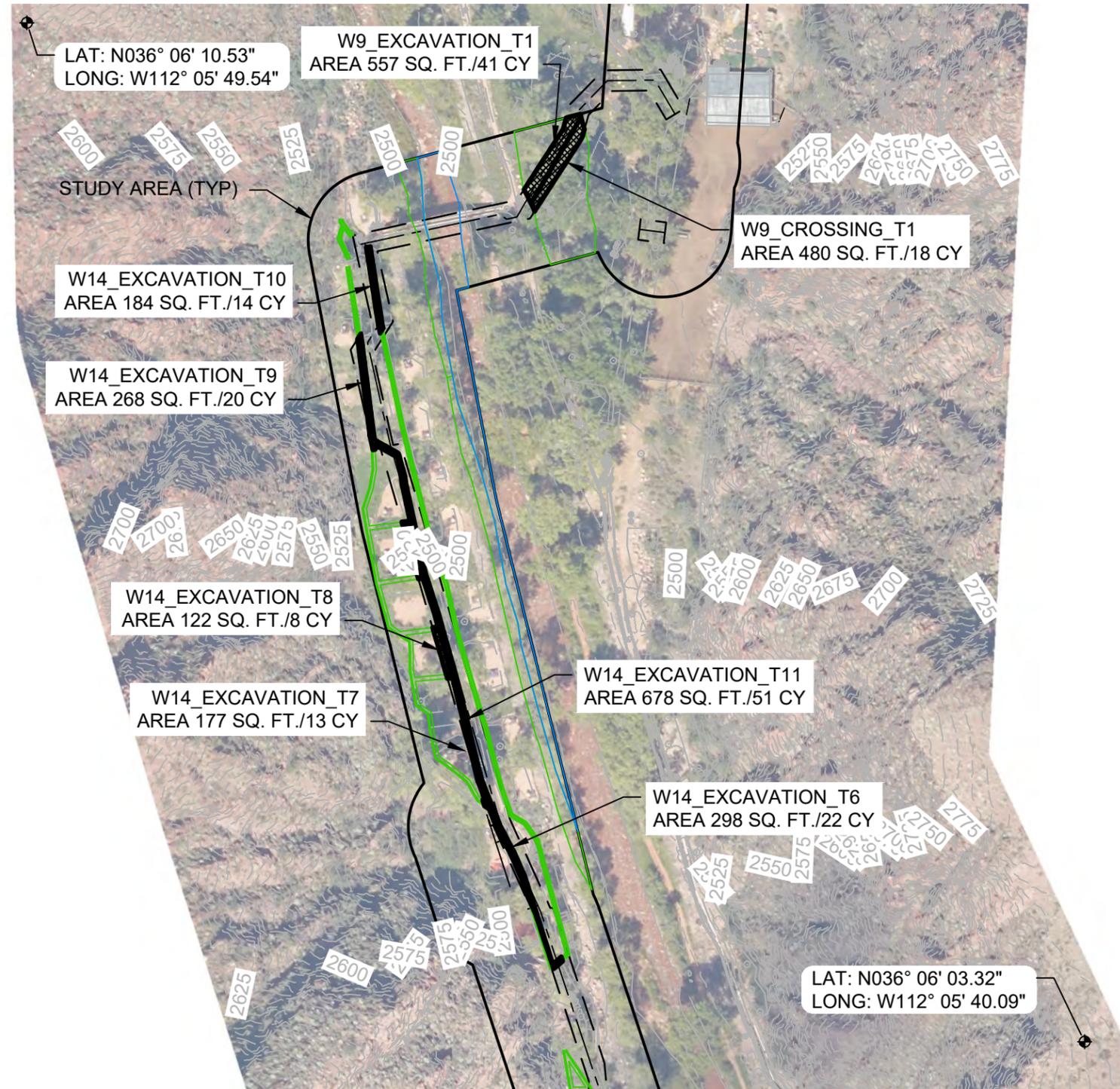
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**AQUATIC RESOURCE IMPACT KEY MAP
 PROJECT AREA 04
 BRIGHT ANGEL CREEK INTAKE RELOCATION
 AND PHANTOM RANCH DISTRIBUTION
 IMPROVEMENTS**

DATE
 DEC 2021
 FIGURE
 04-WL01



LEGEND:

-  AQUATIC RESOURCE TEMP IMPACT AREA
-  AQUATIC RESOURCE PERM IMPACT AREA
-  STUDY AREA
-  PERENNIAL STREAM AREA
-  WETLAND AREA
-  EPHEMERAL STREAM AREA
-  INTERMITTENT STREAM



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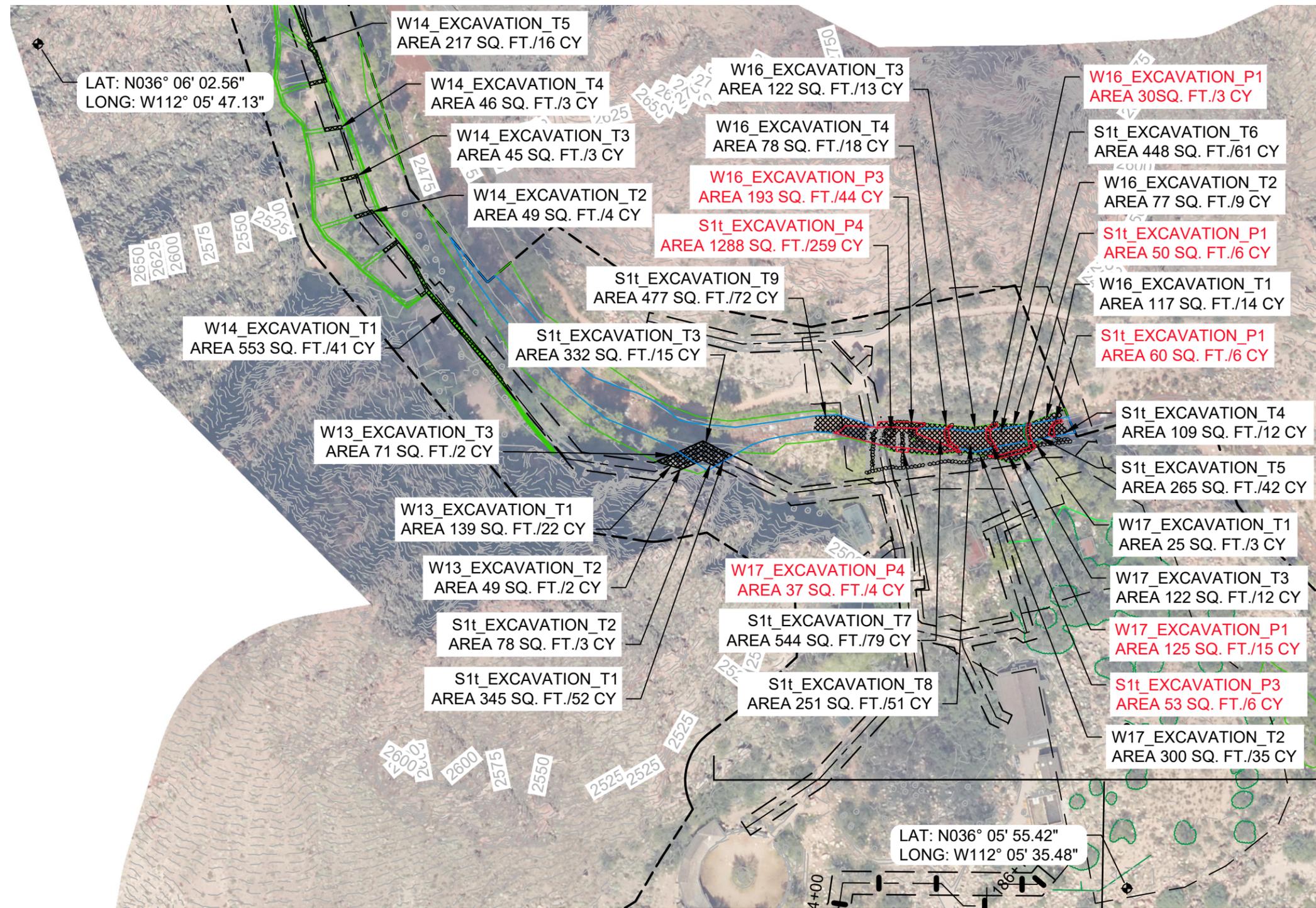
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**AQUATIC RESOURCE IMPACT KEY MAP
 PROJECT AREA 04
 BRIGHT ANGEL CREEK INTAKE RELOCATION
 AND PHANTOM RANCH DISTRIBUTION
 IMPROVEMENTS**

DATE
 DEC 2021
 FIGURE
 04-WL02



- LEGEND:**
-  AQUATIC RESOURCE TEMP IMPACT AREA
 -  AQUATIC RESOURCE PERM IMPACT AREA
 -  STUDY AREA
 -  PERENNIAL STREAM AREA
 -  WETLAND AREA
 -  EPHEMERAL STREAM AREA
 -  INTERMITTENT STREAM



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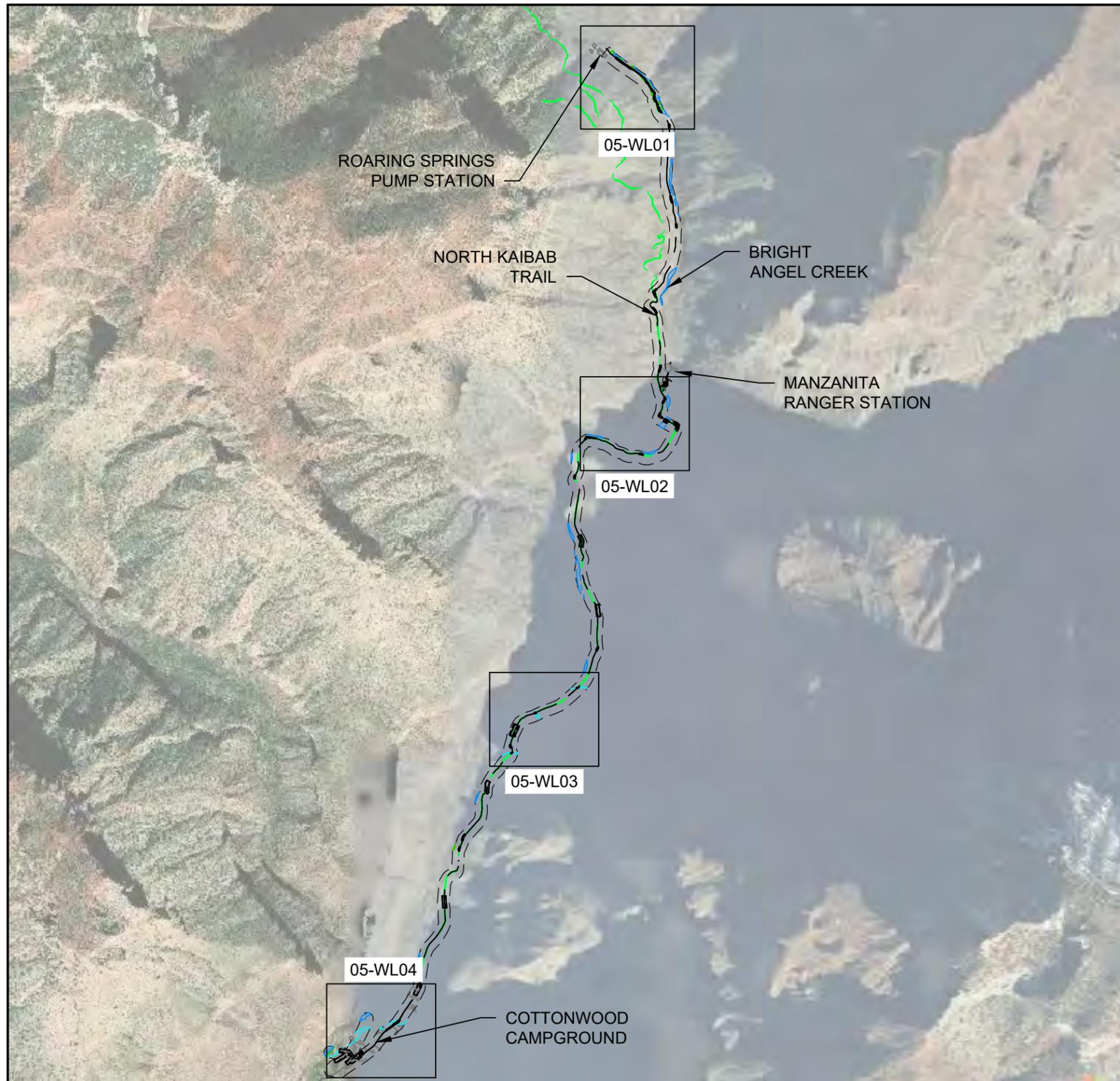
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Figures 4 and 5 Provide Additional Details Regarding Intake Design



**AQUATIC RESOURCE IMPACT KEY MAP
 PROJECT AREA 04
 BRIGHT ANGEL CREEK INTAKE RELOCATION
 AND PHANTOM RANCH DISTRIBUTION
 IMPROVEMENTS**

DATE
 DEC 2021
 FIGURE
 04-WL03



LEGEND:

-  AQUATIC RESOURCE TEMP IMPACT AREA
-  AQUATIC RESOURCE PERM IMPACT AREA
-  STUDY AREA
-  PERENNIAL STREAM AREA
-  WETLAND AREA
-  EPHEMERAL STREAM AREA
-  INTERMITTENT STREAM



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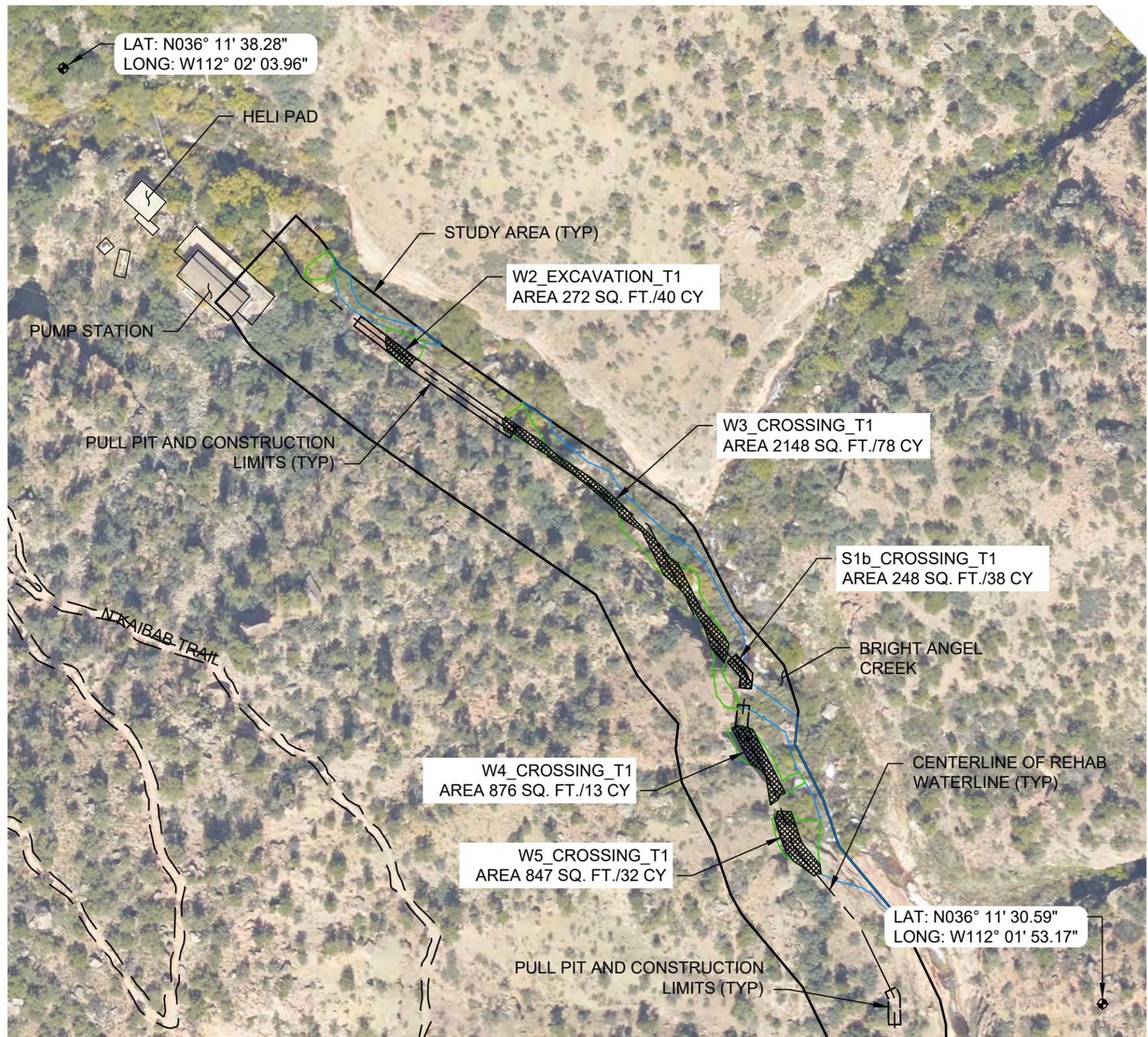
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**AQUATIC RESOURCE IMPACT KEY MAP
 PROJECT AREA 05
 ROCK SPRINGS TO COTTONWOOD
 CAMPGROUND PIPELINE REHABILITATION**

DATE
 DEC 2021
 FIGURE
 05-WL00



LEGEND:

-  AQUATIC RESOURCE TEMP IMPACT AREA
-  AQUATIC RESOURCE PERM IMPACT AREA
-  STUDY AREA
-  PERENNIAL STREAM AREA
-  WETLAND AREA
-  EPHEMERAL STREAM AREA
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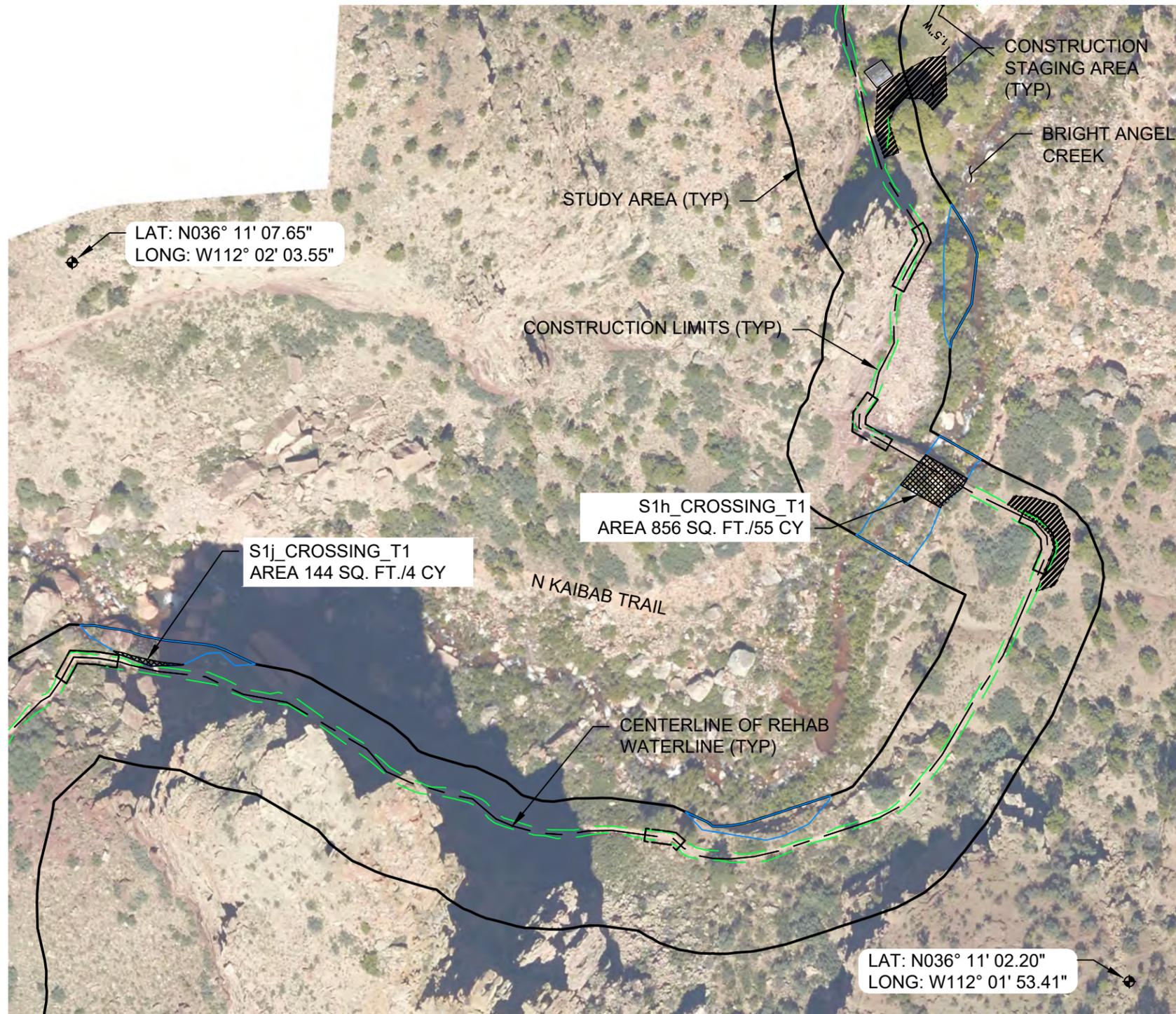
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**AQUATIC RESOURCE IMPACT AREAS
 PROJECT AREA 05
 ROCK SPRINGS TO COTTONWOOD
 CAMPGROUND PIPELINE REHABILITATION**

DATE
 DEC 2021
 FIGURE
 05-WL01



LEGEND:

-  AQUATIC RESOURCE TEMP IMPACT AREA
-  AQUATIC RESOURCE PERM IMPACT AREA
-  STUDY AREA
-  PERENNIAL STREAM AREA
-  WETLAND AREA
-  EPHEMERAL STREAM AREA
-  INTERMITTENT STREAM



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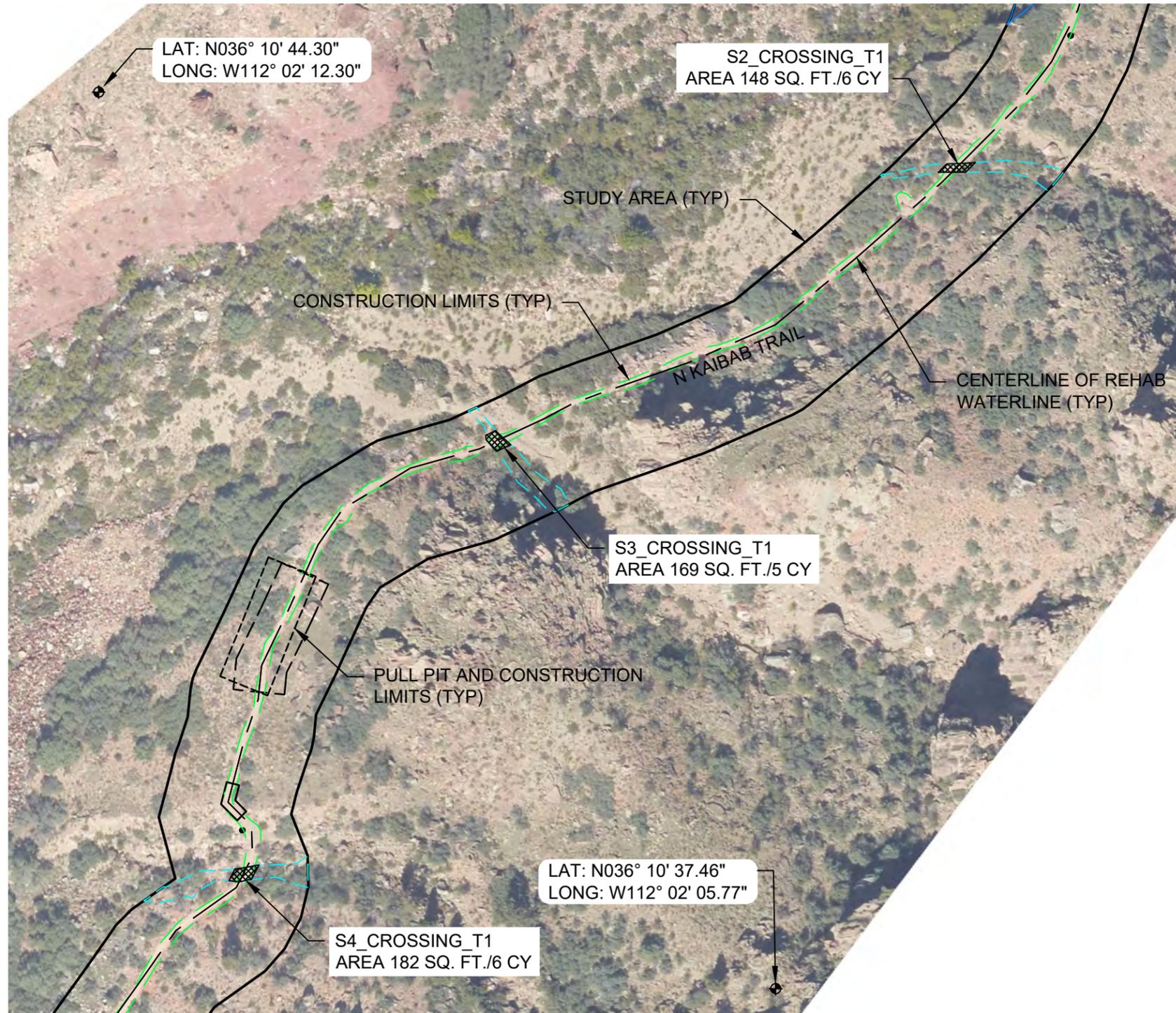
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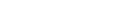


**AQUATIC RESOURCE IMPACT AREAS
 PROJECT AREA 05
 ROCK SPRINGS TO COTTONWOOD
 CAMPGROUND PIPELINE REHABILITATION**

DATE
 DEC 2021
 FIGURE
 05-WL02



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-  AQUATIC RESOURCE PERM IMPACT AREA
-  STUDY AREA
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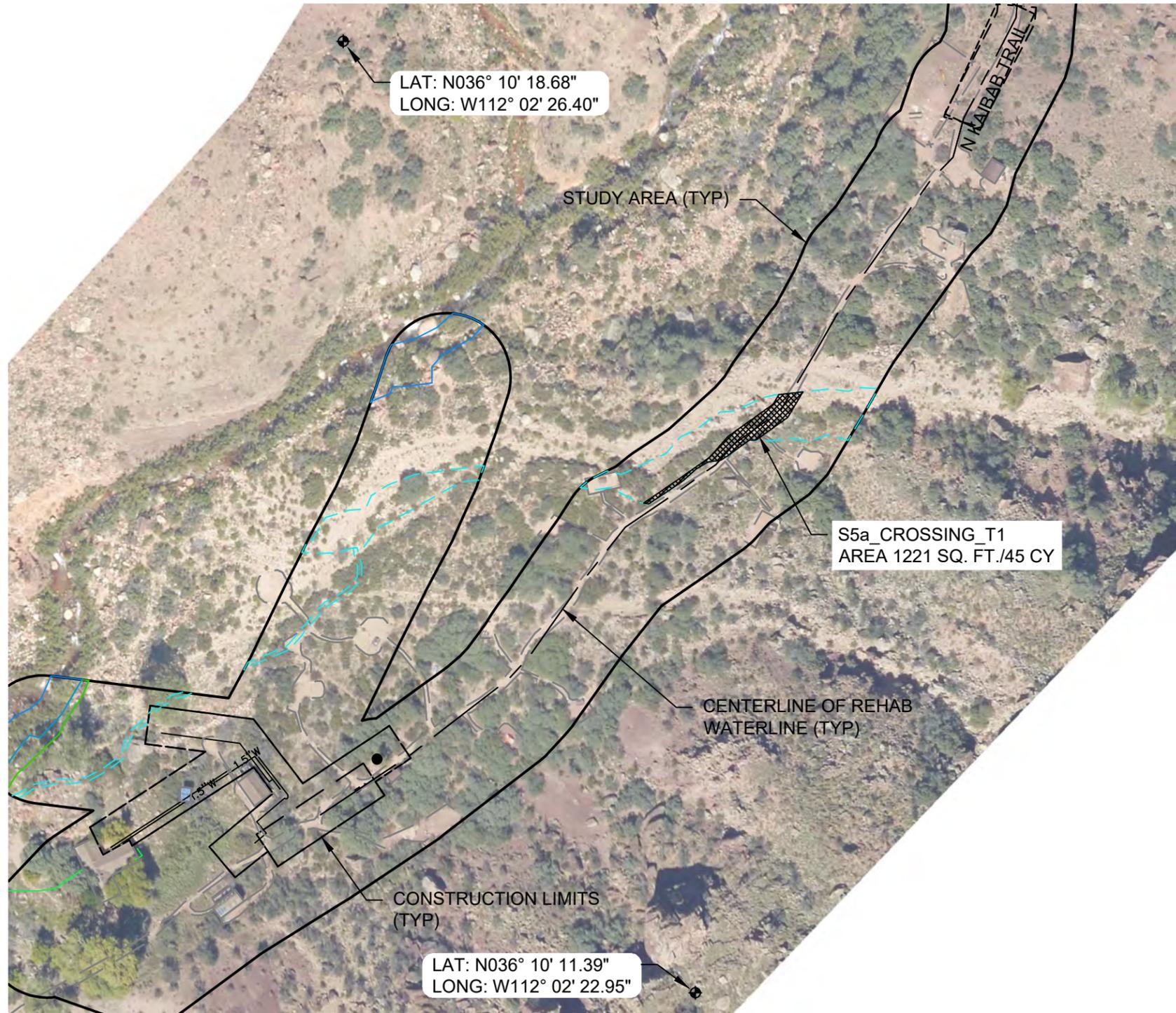
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**AQUATIC RESOURCE IMPACT AREAS
 PROJECT AREA 05
 ROCK SPRINGS TO COTTONWOOD
 CAMPGROUND PIPELINE REHABILITATION**

DATE
 DEC 2021
 FIGURE
 05-WL03



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- AQUATIC RESOURCE PERM IMPACT AREA
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 PROJECT AREA 05
 ROCK SPRINGS TO COTTONWOOD
 CAMPGROUND PIPELINE REHABILITATION**

DATE
 DEC 2021
 FIGURE
 05-WL04