

Appendix C

A Cultural Resources Study for the Napa Berryessa Resort Improvement District Water Treatment Upgrades Project

**1465 Steel Canyon Road, Napa County,
California**

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Napa Berryessa Resort Improvement District
Water Treatment Upgrades Project
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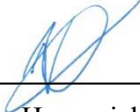
Virginia Hagensieker, B.A.
and
Janine M. Loyd, M.A./R.P.A.

December 14, 2012
revised
December 28, 2012



**A Cultural Resources Study for the
Napa Berryessa Resort Improvement District
Water Treatment Upgrades Project
1465 Steele Canyon Road, Napa County, California**

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December 14, 2012
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ABSTRACT

Tom Origer & Associates conducted a cultural resources study for the Napa Berryessa Resort Improvement District Water Treatment Upgrades Project near Lake Berryessa, Napa County, California. The study was requested by Richard Ross, Summit Engineering, Inc., and was designed to satisfy requirements of Section 106 of the National Historic Preservation Act. The Area of Potential Effects (APE) is located about 14 miles northeast of the city of Napa, and consists of four locations including approximately 12.3 acres of land and a 3,970 foot long corridor measuring 10 meters wide.

The project includes upgrades at the wastewater treatment plant (WWTP), water treatment plant (WTP), installing a backwash force main line, and expanding the number of wastewater ponds. Due to changes in the scope of work throughout this upgrades project, portions of the APE were surveyed and reports filed previously. This report synthesizes all cultural studies completed for the upgrade project.

This study included archival research at the Northwest Information Center, Sonoma State University (NWIC File No. 12-0567), examination of the library and files of Tom Origer & Associates, field inspection of the APE, and preliminary assessment of standing buildings. Field survey of the study area found no historic properties. Documentation pertaining to this study is on file at the offices of Tom Origer & Associates (File No. 12-101).

Synopsis

| | |
|-------------|--|
| Project: | Napa Berryessa Resort Improvement District Water Treatment Upgrade Project |
| Location: | 1465 Steele Canyon Road, Napa, California |
| Quadrangle: | Lake Berryessa and Capell Valley, California 7.5' series |
| Study Type: | Intensive pedestrian survey |
| Field Time: | Four person hours |
| Scope: | ~40 acres and a 3,970 foot long corridor |
| Finds: | No historic properties |

Project Personnel

Janine M. Loyd provided project oversight. Ms. Loyd has over 25 years experience working in Northern California cultural resources management. She has been with Tom Origer & Associates since 1991. She has worked on both prehistoric and historical archaeological sites, and has completed research and documentation of historical buildings. Ms. Loyd holds a Master of Arts in Archaeology and Heritage from the University of Leicester. She has completed extensive continuing education in regulatory compliance, planning local surveys, and identifying historical resources. She is affiliated with the Society for California Archaeology (Secretary of the Executive Board 2004-2006), the International Association for Obsidian Studies, the Society for American Archaeology, the Society for Historical Archaeology, Society of Architectural Historians, Vernacular Architecture Forum, and the Register of Professional Archaeologists (#1066030).

Virginia Hagensieker conducted field work and prepared the report for this project. Ms. Hagensieker has been with Tom Origer & Associates since May 2010. She holds a Bachelor of Arts in Anthropology from Sonoma State University, and is pursuing a Master of Arts in Cultural Resources Management at Sonoma State University. She is affiliated with the Society for California Archaeology.

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INTRODUCTION

This report describes a cultural resources study for the Napa Berryessa Resort Improvement District's Water Treatment Upgrades Project, 1465 Steele Canyon Road, Napa County, California. The study area is located about 14 miles northeast of the city of Napa, in eastern Napa County (Figure 1). Project plans include removing an existing cement-lined pond, installing pipes, replacing a concrete tank, replacing the existing water treatment plant building and demolishing its associated concrete tank, installing a backwash force main, creating four new wastewater ponds, a new pump house pad, and access roads. This study was requested by Richard Ross, Summit Engineering, Inc, and was designed to satisfy requirements of Section 106 of the National Historic Preservation Act. Documentation pertaining to this study is on file at Tom Origer & Associates (File No. 12-101).

Area of Potential Effects

The area of potential effects (APE) for this project includes approximately 12.3 acres of land, encompassing water treatment plant upgrades, installation of a backwash force main, wastewater treatment plant upgrades, and pond expansion.

Water treatment plant

The District proposes to replace the existing water treatment plant with new facilities and equipment; abandoning the existing facilities in place. The replacement includes three elements. All work for this upgrade will take place within the existing easement for the treatment plant (Exhibit A).

The water treatment plant system upgrade will involve installation of a new Robert Filter style package treatment plant. Installation of the system will include utility work to support the new facility, entailing ground disturbance up to five feet deep.

A new, pre-manufactured building will be constructed to house the new equipment and chemical system. Ground disturbing work for this element will be no deeper than five feet.

The backwash pump station upgrade will replace the existing pond system with two above ground tanks. Ground disturbance for this element of the water treatment plant improvement project will be no deeper than five feet.

Backwash force main

The proposed backwash forcemain will be a four inch diameter pipe laid less than five feet below the ground surface. The APE for the backwash forcemain includes a ten meter wide corridor centered on the route of the pipeline (Exhibit B-D).

Wastewater treatment plant upgrade

Upgrades to the wastewater treatment plant include two elements, upgrades to the plant itself, and removal of a pond. The APE for the wastewater treatment plant element includes approximately 1.2 acres within the existing facility footprint (Exhibit E). All soil disturbance, equipment storage and spoils storage will take place within the APE. The maximum depth of disturbance for work on this element will be 12 feet in the plant area.

For pond removal, the APE includes the pond area, and an additional 50 feet surrounding the pond, to accommodate equipment and vehicles (Exhibit E). The vertical APE will be a minimum of 15 feet; however, the vertical extent could be greater if soils below the existing pond have become contaminated.

Pond expansion

The District plans to expand the existing tailwater pond and build three new wastewater ponds to increase treated wastewater effluent storage, and to construct a new pond pump house to transport wastewater to the existing disposal field (Exhibit F). The combined surface area of the three proposed ponds is 3.8 acres, which will be excavated to a maximum depth of 31 feet. Berms will surround the ponds to increase storage. Storage and staging for this phase of work will be within the existing wastewater treatment plant yard, and transportation will use existing roads.

REGULATORY CONTEXT

Under Section 106 of the National Historic Preservation Act, when a federal agency is involved in an undertaking, it must take into account the effects of the undertaking on historic properties (36CFR Part 800). Compliance with Section 106 requires that agencies make an effort to identify historic properties that might be affected by a project, and gather information to evaluate their eligibility for inclusion on the National Register of Historic Places (National Register). Pursuant to Section 106, the goals of this study were to: 1) identify all historic resources within the project area; 2) offer a preliminary evaluation of the significance of the identified resources; 3) determine resource vulnerability to adverse impacts that could arise from project activities; and 4) offer recommendations designed to protect historic resource values, as warranted.

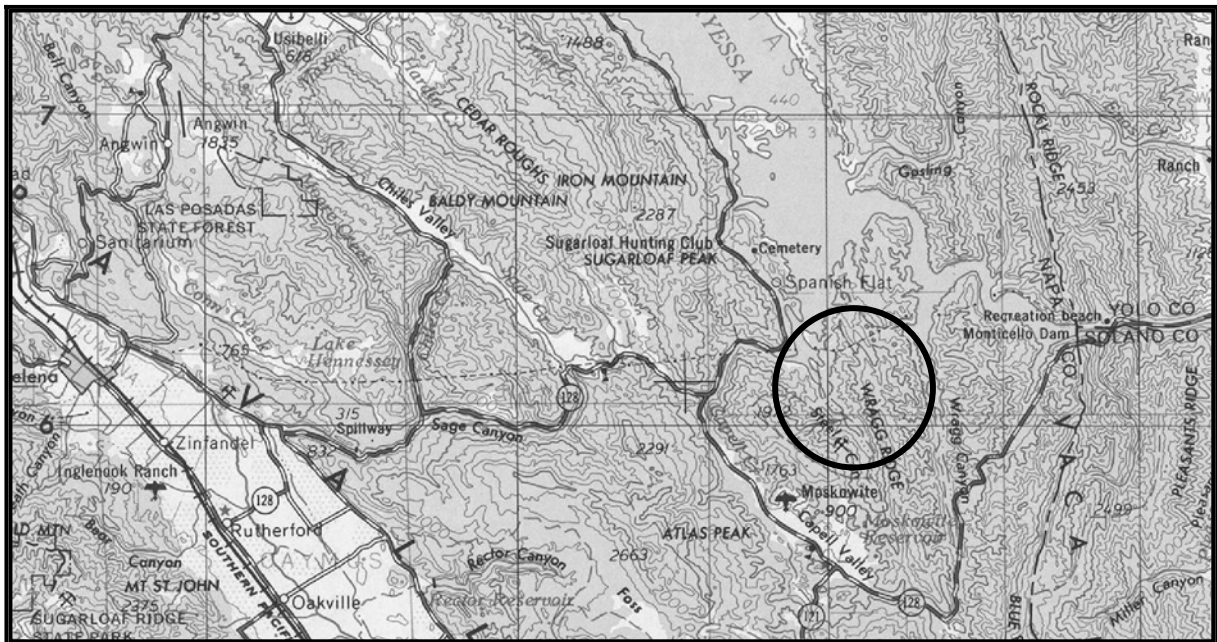


Figure 1. Project vicinity (adapted from the 1970 Santa Rosa 1:250,000-scale USGS map).

Resource Definitions

The National Register defines a historic property or historic resource as a district, site, building, structure, or object significant in American history, architecture, engineering, archaeology, and culture, and that may be of value to the nation as a whole or important only to the community in which it is located. These resource types are described by the National Park Service (NPS) as follows (NPS 1995:4-5).

Site. A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure.

Building. A building, such as a house, barn, church, hotel, or similar construction, is created principally to shelter any form of human activity. "Building" may also be used to refer to a historically and functionally related unit, such as a courthouse and jail, or a house and barn.

Structure. The term "structure" is used to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter.

Object. The term "object" is used to distinguish from buildings and structures those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed. Although it may be, by nature or design, movable, an object is associated with a specific setting or environment.

District. A district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development.

Significance Criteria

The importance of a historic resource is evaluated in terms of National Register criteria put forth in 36CFR60, as follows:

The quality of significance is present in properties that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. That are associated with the lives of persons significant in our past; or
- C. That embody the distinct characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That have yielded or may be likely to yield, information important in prehistory or history.

Additional Criteria Considerations

The National Park Service has provided additional guidance regarding particular classes of properties.

Ordinarily cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original

locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties *will qualify* if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

- a. A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
- b. A building or structure removed from its original location but which is primarily significant for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
- c. A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building associated with his or her productive life; or
- d. A cemetery that derives its primary importance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
- e. A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
- f. A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
- g. A property achieving significance within the past 50 years if it is of exceptional importance.

PROJECT SETTING

Area of Potential Effects Location and Environment

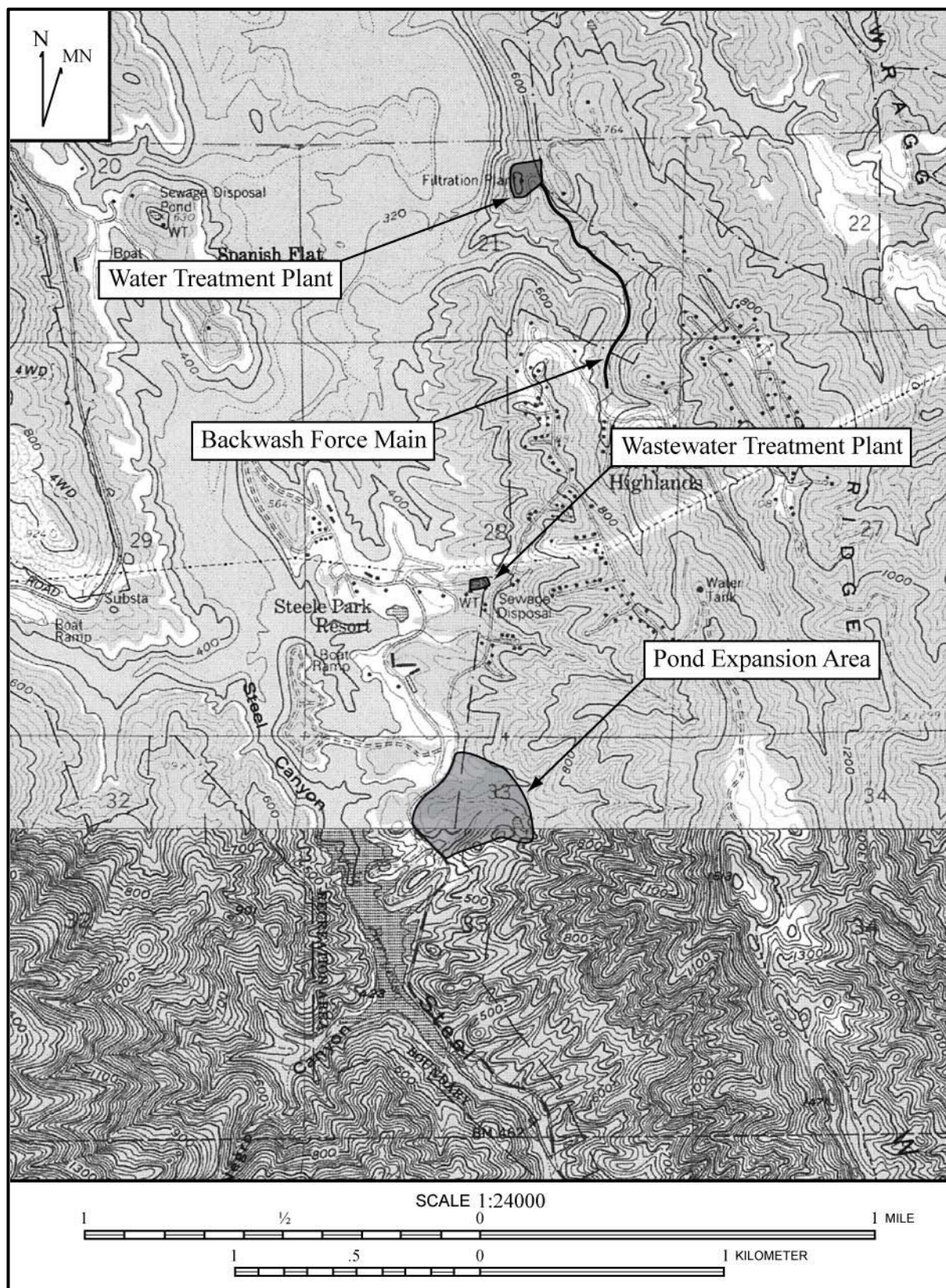
The Area of Potential Effects (APE) comprises four project locations within the Napa Berryessa Resort Improvement District (NBRID), located approximately 14 miles northeast of the city of Napa, as shown on the Lake Berryessa and Capell Valley, California 7.5' USGS topographic maps (Figure 2). The terrain ranges from steep to gentle slopes (Figures 3 and 4 in Appendix).

Hydrology

Prior to construction of the Lake Berryessa reservoir, the nearest perennial source of fresh water was Capell Creek approximately 1,000 feet west of and 300 feet lower than the APE.

Geology and Soils

The geology of the study area is of the Knoxville formation of the Jurassic period (199 million years ago - 145 million years ago) and marine sediment rock of the Cretaceous period (145 million years ago - 66 million years ago), primarily including shales, siltstones, sandstones, conglomerates, and serpentines (Koenig 1963). These formations predate humans by millions of years.



Soils within the study area are of the Bressa-Dibble complex (Lambert and Kashiwagi 1978: Sheet 29). This complex is a mix of Bressa silty loam and Dibble silty clay loam, primarily (Lambert and Kashiwagi 1978:10-11, 16-17). These soils are well-drained, formed from weathered sand stone and shale, and found on mountainous uplands. Bressa-Dibble soils typically support the growth of annual grasses and scattered oaks. Historically, these soils were used for grazing (Lambert and Kashiwagi 1978:11).

Cultural Setting

Archaeological evidence indicates that human occupation of California began at least 12,000 years ago (Fredrickson 1984:506). Early occupants appear to have had an economy based largely on hunting, with limited exchange, and social structures based on extended family units. Later, milling technology and an inferred acorn economy were introduced. This diversification of economy appears coeval with the development of sedentism, population growth, and expansion. Sociopolitical complexity and status distinctions based on wealth are also observable in the archaeological record, as evidenced by an increased range and distribution of trade goods (e.g., shell beads, obsidian tool stone), which are possible indicators of both status and increasingly complex exchange systems.

At the time of European settlement, the study area was situated within the linguistic territory of the Wintun, also referred to as the Patwin (Barrett 1908; Johnson 1978). The Wintun were hunter-gatherers who lived in rich environments that allowed for dense populations with complex social structures (Barrett 1908; Kroeber 1925). They settled in large, permanent villages about which were distributed seasonal camps and task-specific sites. Primary village sites were occupied throughout the year and other sites were visited in order to procure particular resources that were especially abundant or available only during certain seasons. Sites often were situated near fresh water sources and in ecotones where plant life and animal life were diverse and abundant. For more information about the Wintun see Barrett (1908), Kroeber (1925), and Johnson (1978).

STUDY PROCEDURES AND FINDINGS

Archival Study Procedures

Archival research included examination of the library and project files at Tom Origer & Associates. A review (NWIC File No. 12-0567) was completed of the archaeological site base maps and records, survey reports, and other materials on file at the Northwest Information Center (NWIC), Sonoma State University, Rohnert Park. Sources of information included but were not limited to the current listings of properties on the National Register of Historic Places (National Register), California Historical Landmarks, California Register of Historical Resources (California Register), and California Points of Historical Interest as listed in the Office of Historic Preservation's *Historic Property Directory* (OHP 2012).

Research also included an examination of historical maps to gain insight into the nature and extent of historical development in the general vicinity, and especially within the study area. Maps ranged from hand-drawn maps of the 1800s (e.g., General Land Office [GLO] plats) to topographic maps issued by the United States Geological Survey (USGS) and the Army Corps of Engineers (USACE) from the early to the middle 20th century.

In addition, ethnographic literature that describes appropriate Native American groups, county histories, and other primary and secondary sources were reviewed. Sources reviewed are listed in the "Materials Consulted" section of this report.

Archival Study Findings

Archival research found that the study area was previously included in the APE of a cultural resources study for the removal of mobile homes in the Steele Park Resort area (Nickles 2007). An earlier study may have included or been near the current study area (True and Baumhoff 1982). Tom Origer & Associates completed three previous studies for this project (Hagensieker and Loyd 2012a, 2012b, 2012c). No historic properties are recorded within a half-mile of the current study area. A comprehensive survey was conducted of the Lake Berryessa footprint prior to its creation in 1947 (Pacific Coast Area River Basin Surveys 1948). Numerous resources were recorded within the artificial lake bed, the nearest of which is a prehistoric site approximately three-quarters of a mile from the current APE.

There are no reported ethnographic sites in the vicinity (Barrett 1908; Kroeber 1925).

Historical maps show no buildings in or near the study area. (GLO 1860, 1879, 1884, 1978; USACE 1945; USGS 1951, 1959a, 1959b).

Field Survey Procedures

Virginia Hagensieker completed a mixed strategy field survey on December 6, 2012.

The treatment plant locations were examined intensively by walking in a zigzag pattern within corridors approximately 10 to 15 meters wide. Visibility was fair with light gravel being the chief hindrance.

The Backwash Force Main alignment was examined intensively by walking the alignment in a zigzag pattern within a 10 meter wide corridor. Visibility was good.

Portions of the Pond Expansion Area were examined intensively by walking in a zigzag pattern within corridors 10 to 15 meters wide where the terrain was gentle. Steeper areas were surveyed in corridors approximately 25 to 30 meters wide. Portions of the Pond Expansion Area were previously surveyed by the senior author prior to the finalizing of the project scope. These locations were not revisited. Visibility was fair to poor with vegetation and duff being the chief hindrances.

A hoe was used to clear small patches, as needed, so that the ground could be inspected. Erosion activity from the recent storms exposed subsurface soils for inspection in many places at all of the project locations.

Potential for subsurface deposits

Because the geologic formation within the APE predates evolution of humans by millions of years, and because of the nature of the soil development on moderate to steep slopes (i.e., soils develop in place rather than through alluvial or colluvial action), the potential for subsurface deposits is considered extremely slight. Therefore, no subsurface identification efforts were deemed necessary.

Field Survey Findings

No historic properties were found within the APE.

The NBRID Wastewater Treatment Facility was built in 1968 according to the plaque on the side of the WWTP building, therefore the WWTP building slated for replacement is not 50 years old. The

building is not associated with important events in our past, and has no clear association with significant people. It has no architectural distinction, being a standard, utilitarian building; and finally it has no potential to yield information important to history. Therefore, the building does not meet significance criteria for inclusion on the National Register, and no further work is considered necessary.

RECOMMENDATIONS

Known Resources

There are no historic properties within the APE, and no resource-specific recommendations are warranted.

Accidental Discovery

Due to the age of the geologic deposits in the study area, it is considered unlikely that buried archaeological materials could be found. The Lake Berryessa Historic Context shows the area to have no sensitivity for buried cultural materials (Holm *et. al* 2012). However, in the unlikely event of a discovery during construction, all soil disturbing work should be halted at the location of any discovery until a qualified archaeologist completes a significance evaluation of the find(s) pursuant to Section 106 of the National Historic Preservation Act (36CFR Part 800.13[b]). We recommend that a qualified archaeologist be consulted in the event that possible archaeological site indicators are found. Prehistoric archaeological site indicators expected to be found in the region include but are not limited to: obsidian and chert flakes and chipped stone tools; grinding and mashing implements such as slabs and handstones, and mortars and pestles; bedrock outcrops and boulders with mortar cups; and locally darkened midden soils containing some of the previously listed items plus fragments of bone, shellfish, and fire affected stones. Historic period site indicators generally include: fragments of glass, ceramic, and metal objects; milled or split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps).

The following actions are promulgated in Public Resources Code 5097.98 and Health and Human Safety Code 7050.5, and pertain to the discovery of human remains. If human remains are encountered, excavation or disturbance of the location must be halted in the vicinity of the find, and the county coroner contacted. If the coroner determines the remains are Native American, the coroner will contact the Native American Heritage Commission. The Native American Heritage Commission will identify the person or persons believed to be most likely descended from the deceased Native American. The most likely descendent makes recommendations regarding the treatment of the remains with appropriate dignity.

SUMMARY

Tom Origer & Associates conducted a cultural resources study for the Napa Berryessa Resort Improvement District's Water Treatment Upgrades Project, located at 1465 Steele Canyon Road, Napa County, California. The study was requested by Richard Ross, Summit Engineering, Inc., and was designed to satisfy requirements of Section 106 of the National Historic Preservation Act. No historic properties were found within the study area and no resource-specific recommendations were made.

MATERIALS CONSULTED

Barrett, S.

- 1908 *The Ethno-Geography of the Pomo and Neighboring Indians*. University of California Publications in American Archaeology and Ethnology Vol. 6, No. 1. University of California Press, Berkeley.

Fredrickson, D.

- 1984 The North Coastal Region. In *California Archaeology*, edited by M. Moratto. Academic Press, San Francisco.

General Land Office

- 1860 Plat of T8N;R3W. Department of the Interior, Washington, D.C.
- 1879 Plat of T8N;R3W. Department of the Interior, Washington, D.C.
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- 2012b *A Cultural Resources Study for the Napa Berryessa Resort Improvement District Wastewater Storage Ponds Project, Steel Canyon Road, Napa, Napa County, California*. May 2012. Document on file at the Northwest Information Center, Sonoma State University, Rohnert Park.
- 2012c *A Cultural Resources Study for the Napa Berryessa Resort Improvement District Wastewater Storage Ponds Project, Steel Canyon Road, Napa, Napa County, California*. September 2012. Document on file at the Northwest Information Center, Sonoma State University, Rohnert Park.

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- 1984 *California Archaeology*. Academic Press, San Francisco.

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- 1995 *How to Apply the National Register Criteria for Evaluation*. National Register Bulletin 15. U.S. Department of the Interior, Washington, D.C.

Nickles, A.

- 2007 *Cultural Resources Inspection of Proposed Mobile Home Removal at Lake Berryessa, Napa County, California*. Document S-35191 on file at the Northwest Information Center, Sonoma State University, Rohnert Park.

Office of Historic Preservation

- 1995 *Instructions for Recording Historic Resources*. Office of Historic Preservation, Sacramento.

- 2012 *Historic Property Directory*. Office of Historic Preservation, Sacramento.

Pacific Coast Area River Basin Surveys (PCARBS)

- 1948 *Appraisal of the Archaeological Resources of Monticello Reservoir Area, Napa County, California*. On file at the U.S. Bureau of Reclamation, Mid-Pacific Region, Division of Environmental Affairs, Sacramento, California.

Smith & Elliott

- 1878 *Illustrations of Napa County California with Historical Sketch*. Smith & Elliott, Oakland.

State of California Department of Parks and Recreation

- 1976 *California Inventory of Historic Resources*. Department of Parks and Recreation, Sacramento.

True, D. and M. Baumhoff

- 1982 *Archaeological Investigations at Lake Berryessa, California*. Document S-6052 on file at the Northwest Information Center, Sonoma State University, Rohnert Park.

United States Army of Corps Engineers

1945 Lake Berryessa / Capay 15' quadrangle. Department of the Interior, Washington, D.C.

United States Geological Survey

1951 Capell Valley 7.5' quadrangle [Photo revised 1968]. Geological Survey, Washington, D.C.

1959a Lake Berryessa 15' quadrangle. Geological Survey, Washington, D.C.

1959b Lake Berryessa 7.5' quadrangle [Photo revised 1993]. Geological Survey, Washington, D.C.

APPENDIX

Photographs



Figure 3. Project area overview; pond expansion



Figure 4. Project Area overview; pipeline route



Figure 5. WTP building

EXHIBITS

- A- Water Treatment Plant Plan (W 4.0)
- B- Backwash Force Main (W 4.1)
- C- Backwash Force Main (W 4.2)
- D- Backwash Force Main (W 4.3)
- E- WWTP Demolition Plan (WW 2.1)
- F- Pond Expansion Area (WW 4.0)

STORM WATER MANAGEMENT
KEY NOTES

| SYMBOL | DESCRIPTION |
|--------|--|
| | FIBER ROLL, SEE 1.1 |
| | GRAVEL BAG CHECK DAM, SEE 1.2 |
| | STORM DRAIN INLET PROTECTION, SEE 1.3 |
| | CONCRETE WASHOUT, SEE 1.4 |
| | STABILIZED CONSTRUCTION ENTRANCE/EXIT, SEE 1.5 |
| | ROCK RIP RAP OUTLET, SEE 1.6 |
| | LIMITS OF CONSTRUCTION/DISTURBANCE |

- REMOVE FOLLOWING UPON COMPLETION OF CONSTRUCTION

UTILITY KEY NOTES

| DESCRIPTION |
|---|
| 1. NOT USED |
| 2. POLE METER SED |
| 3. POLE TRANSFORMER, SED |
| 4. POLE TRANSFORMER TO BE INSTALLED, SED |
| 5. NOT USED |
| 6. FIXED BOLLARD, TYP OF 9 |
| 7. REMOVABLE BOLLARD, TYP OF 1 |
| 8. NOT USED |
| 9. RELOCATED (E) EMERGENCY GENERATOR |
| 10. (E) RAW WATER ELECTRICAL FEEDER, SED, TO REMAIN |
| 11. RAW WATER ELECTRICAL FEEDER, SED |
| 12. TREATED WATER PUMP PAD TO INCLUDE TWO END SUCTION CENTRIFUGAL PUMPS |
| 13. BACKWASH PUMP PAD TO INCLUDE TWO END SUCTION CENTRIFUGAL PUMPS |
| 14. SS TANK, SEE 1.10.4 |
| 15. RING FOUNDATION BY OTHERS, SEE TANK MANUFACTURER DRAWING |
| 16. CONNECT (N) 8" WFM TO (E) INFLUENT LINE |
| 17. CONNECT (N) 8" WFM TO (E) 8" WATER LINE |
| 18. (E) FENCE, VERIFY LOCATION, TO BE REMOVED |
| 19. APPROX. LOCATION OF (N) BARBED WIRE FENCE |
| 20. APPROX. LOCATION OF (E) GRADE BREAK |
| 21. (E) ENTRANCE |
| 22. (E) TREE, TYP |
| 23. 19,000 GAL BOLTED STEEL BACKWASH STORAGE TANK, 15' 8" X 16' |
| 24. 50,000 GAL BOLTED STEEL TREATED WATER STORAGE TANK, 24' 8" X 16' |

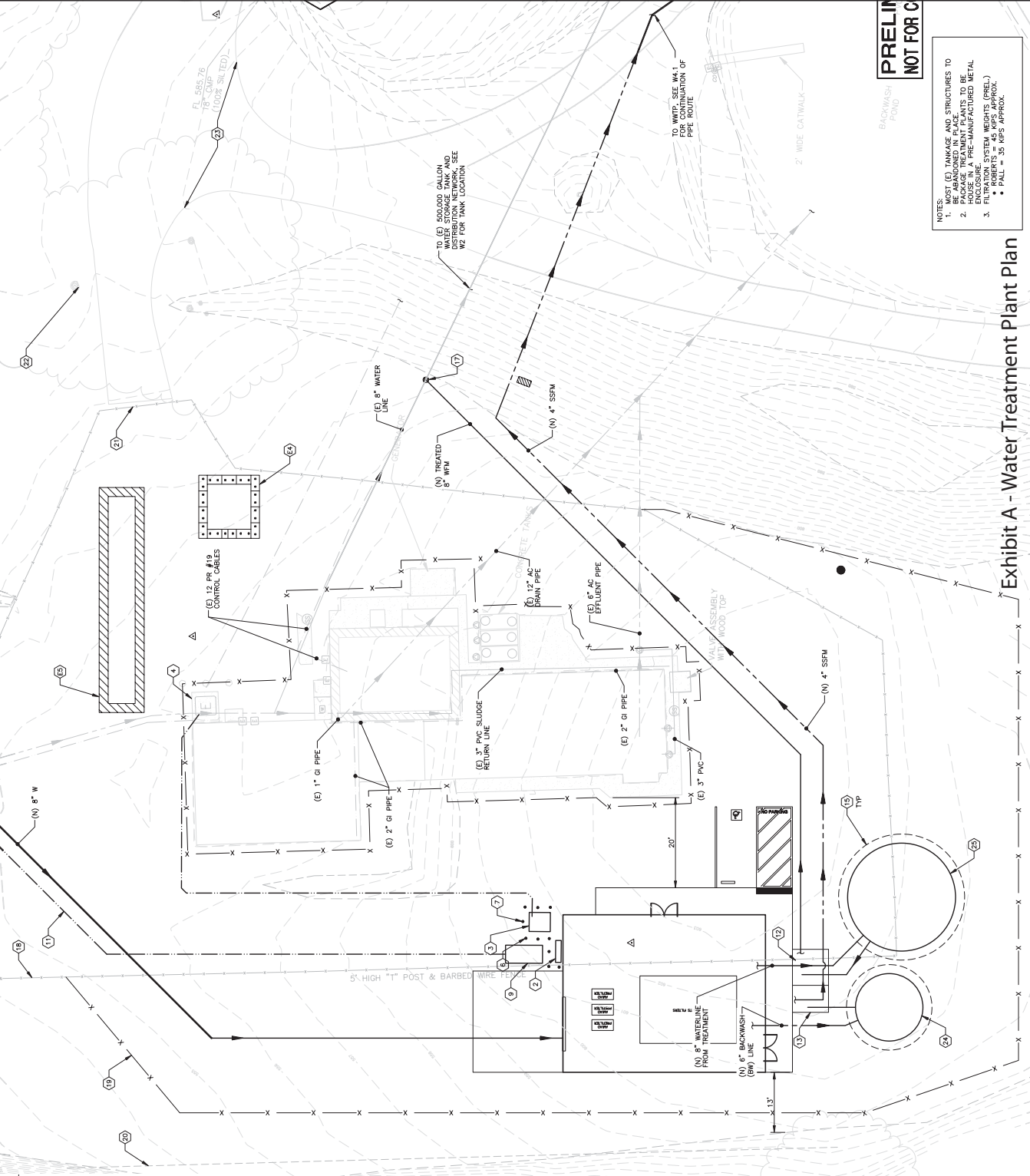
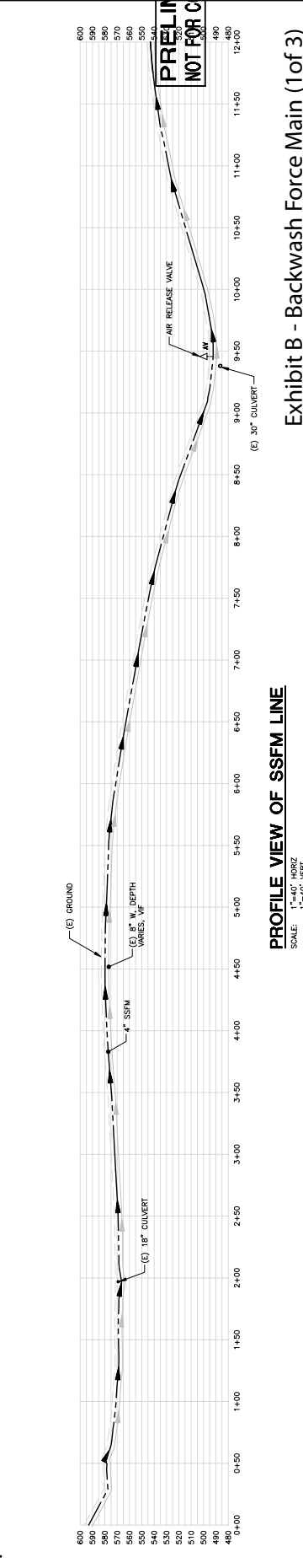
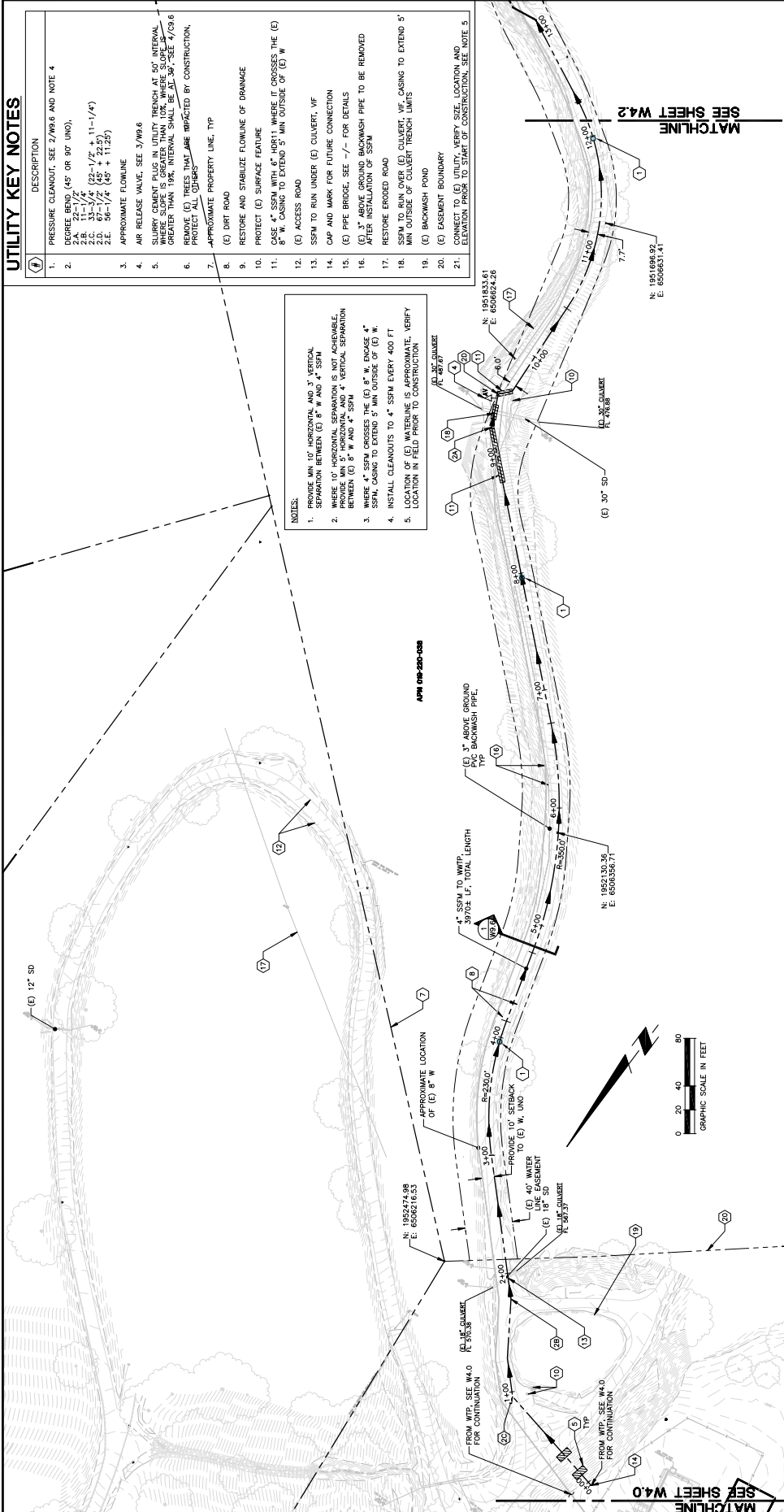
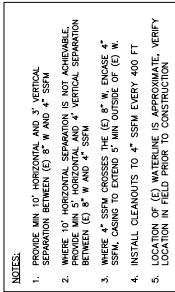


Exhibit A - Water Treatment Plant Plan

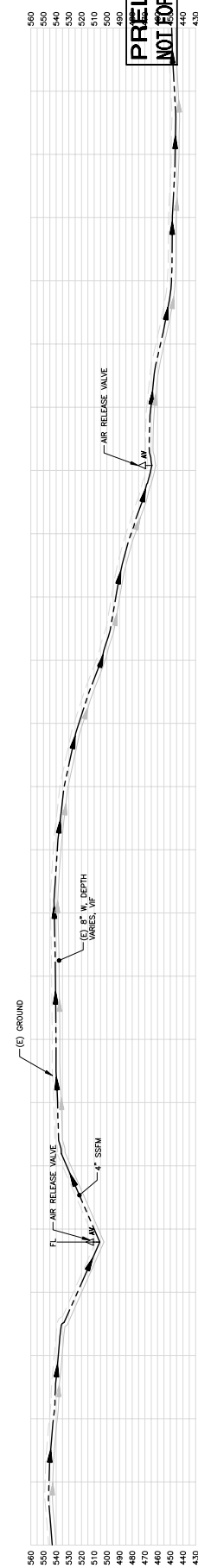
- NOTES:
- MOST (E) TANKAGE AND STRUCTURES TO BE PRECAST CONCRETE.
 - PACKAGE TREATMENT PLANTS TO BE HOUSE IN A PRE-MANUFACTURED METAL BUILDING.
 - FILTRATION SYSTEM WEIGHTS (PREL.)
 - ROBERTS = 45 KIPS APPROX.
 - FALL = 35 KIPS APPROX.

**PRELIMINARY
NOT FOR CONSTRUCTION**





| DESCRIPTION |
|---|
| 1. PRESSURE CLEANOUT, SEE 2/10/6.8 AND NOTE 4 |
| 2. DEGREE BEND, (45° OR 90° UNDO). |
| 2.A. $11\frac{1}{4}$ " |
| 2.B. $11\frac{1}{4}$ " |
| 2.C. $33\frac{1}{2}$ " \times $1\frac{1}{4}$ " (22'-1/2" \times 5'-1-1/4") |
| 2.D. $33\frac{1}{2}$ " \times $1\frac{1}{4}$ " (22'-1/2" \times 5'-1-1/4") |
| 2.E. $58\frac{1}{2}$ " \times $1\frac{1}{4}$ " (45' \times 11'-25") |
| 3. APPROXIMATE FLOWLINE |
| 4. AIR RELEASE VALVE, SEE 3/10/6.6 |
| 5. SUBMERGED VALVE, SEE TRENCH AT 80' INTERVAL. WHERE SLOPE IS GREATER THAN 10%, WHERE SLOPE IS GREATER THAN 19%, INTERVAL SHALL BE AT 30'. SEE 4/3/9.6 |
| 6. REMOVE (C) TREES THAT ARE IMPACTED BY CONSTRUCTION. PROTECT ALL OTHERS |
| 7. APPROXIMATE PROPERTY LINE, TYP |
| 8. (C) DIRT ROAD |
| 9. RESTORE AND STABILIZE FLOWLINE OF DRAINAGE |
| 10. PROTECT (C) SURFACE FEATURE |
| 11. CASE 1. SSM WITH 16" HORN! WHERE IT CROSSES THE (E) 16" CASING IS EXTENDED 5' MIN OUTSIDE OF (C) 16" |
| 12. (C) ACCESS ROAD |
| 13. SSM TO RUN UNDER (E) CULVERT, WF |
| 14. CAP AND MARK FOR FUTURE CONNECTION |
| 15. (C) PIPE BRIDGE, SEE -/- FOR DETAILS |
| 16. (C) 3" ABOVE GROUND BACKWASH PIPE TO BE REMOVED AFTER INSTALLATION OF SSM |
| 17. RESTORE ENCLOSED ROAD |
| 18. SSM TO RUN OVER (E) CULVERT, WF. CASING TO EXTEND 5' MIN OUTSIDE OF CULVERT TRENCH LIMITS |
| 19. (C) BACKWASH POND |
| 20. (C) EASEMENT BOUNDARY |
| 21. CONNECT TO (C) UTILITY PIPE. SEE LOCATION AND SIZE OF UTILITY PIPE ON SHEET 5. |

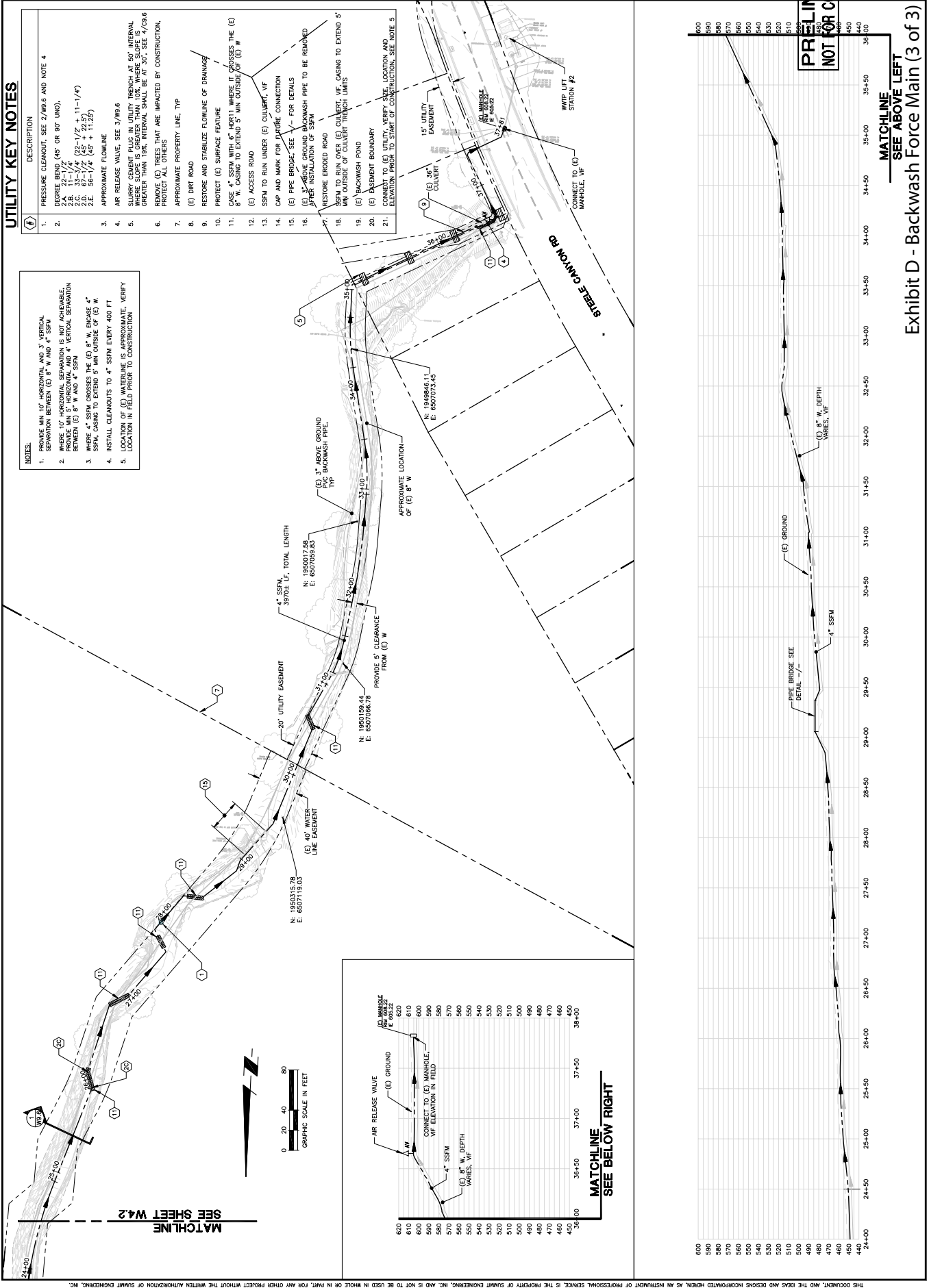


| | |
|-------------------|-----------------|
| DATE | 04-23-2012 |
| DESIGNED BY | W.S. |
| CHECKED BY | W.S. |
| PROJECT NO. | 2011152 |
| ISSUED FOR PERMIT | AS SHOWN |
| ISSUED FOR PERMIT | CN/MS |
| | CHECKED: ALG/RR |
| | SHEET |

PRELIMINARY
NOT FOR CONSTRUCTION

DATE: 04-23-2012
JOB NO.: 2011152
SCALE: AS SHOWN
DRAWN: CN/MS
CHECKED: ALG/RR
SHEET

W4.3



UTILITY KEY NOTES

- | NO. | DESCRIPTION |
|-----|---|
| 1. | PRESSURE CLEANOUT, SEE 2/10.6 AND NOTE 4 |
| 2. | GEORE BEING (45' OR 80' UNO), 2.6' 11'-1/4" (22'-1/2" + 11'-1/4") 2.0' 6'-7-1/2" (45' + 22.5') 2.2' 56'-1/4" (45' + 11.25') |
| 3. | APPROXIMATE FLOWLINE |
| 4. | AIR RELEASE VALVE, SEE 3/10.6 |
| 5. | SLURRY CEMENT PUMP IN UTILITY TRENCH AT 50' INTERVAL WHERE SLOPE IS GREATER THAN 10%, WHERE SLOPE IS GREATER THAN 10%, INTERVAL SHALL BE AT 30'. SEE 4/30.6 |
| 6. | REMOVE (E) TREES THAT ARE IMPACTED BY CONSTRUCTION, PROTECT ALL OTHERS |
| 7. | APPROXIMATE PROPERTY LINE, TYP |
| 8. | (E) DIRT ROAD |
| 9. | RESTORE AND STABILIZE FLOWLINE OF DRAINAGE |
| 10. | PROTECT (E) SURFACE FEATURE |
| 11. | POSSIBLE 4\"/> |

- NOTES:**
1. PROVIDE MIN 10' HORIZONTAL AND 3' VERTICAL SEPARATION BETWEEN (E) 8" W AND 4" SSFM
 2. WHERE 10' HORIZONTAL SEPARATION IS NOT ACHIEVABLE, PROVIDE MIN 5' HORIZONTAL AND 4' VERTICAL SEPARATION BETWEEN (E) 8" W AND 4" SSFM
 3. WHERE 4\"/>

SEE SHEET W4.2

MATCHLINE
SEE BELOW RIGHT

MATCHLINE
SEE ABOVE LEFT

Exhibit D - Backwash Force Main (3 of 3)

| | |
|-------------|-------------------|
| PROJECT NO. | 11-152 |
| DATE | 10/31/2012 |
| BY | RR |
| CHECKED | RR |
| DATE | 10/31/2012 |
| PROJECT | WWTP IMPROVEMENTS |



DATE: 02-01-2012
 JOB NO: 2011152
 SCALE: AS SHOWN
 DRAWN: BV/TF
 CHECKED: RR
 SHEET

WW2.1

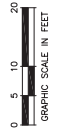
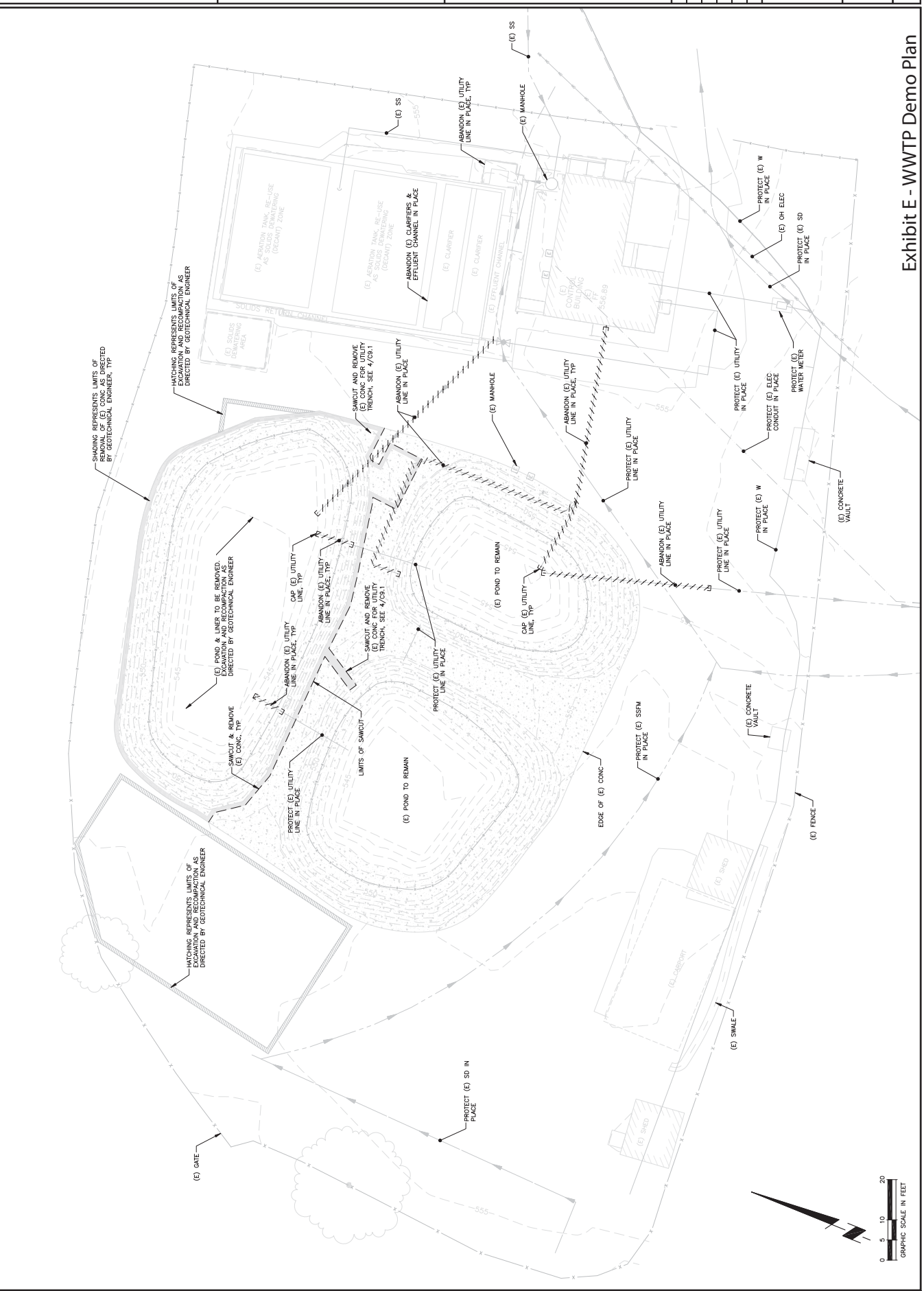


Exhibit E - WWTP Demo Plan

CHECKED: JLG/GG

SHEET

WW4.0

