



Napa County Regional Park and Open Space District

*Dedicated to the Preservation and Enjoyment
of the Natural Resources of Napa County*

ADDENDUM #1

Issued: August 12, 2014

The Napa County Regional Park and Open Space District

Camp Berryessa Improvement Project

Bid Date: Monday, September 15, 2014 10:00 am

The changes in this addendum shall be included in the Project and this addendum shall be part of the Project documents. All conditions not affected by this addendum shall remain unchanged.

The following are changes to be reflected in the drawings and/or specifications

1. **Construction of project completion date has been revised from December 1, 2014 to June 1, 2015.**
2. See revised sheets G00.07 and T03 for well pump specified in Section 11306, to be installed as a part of this project.
3. See attached revised Specification Section 13414.
4. See attached revised C03.04.
5. See revised sheets C02.05 and C02.06.
6. See revised sheet G00.06.
7. Question from Contractor: Section 0800, SC-6.06 states, "The Contractor shall not award work valued at more than fifty (50%) of the Contract Price to Subcontractor(s), without prior written approval of the Owner." Can this number be reduced to thirty (30) percent?

Answer: No, the Owner shall only need to give written approval for work granted by the Contractor to a Subcontractor if the amount of the work exceeds 50%.

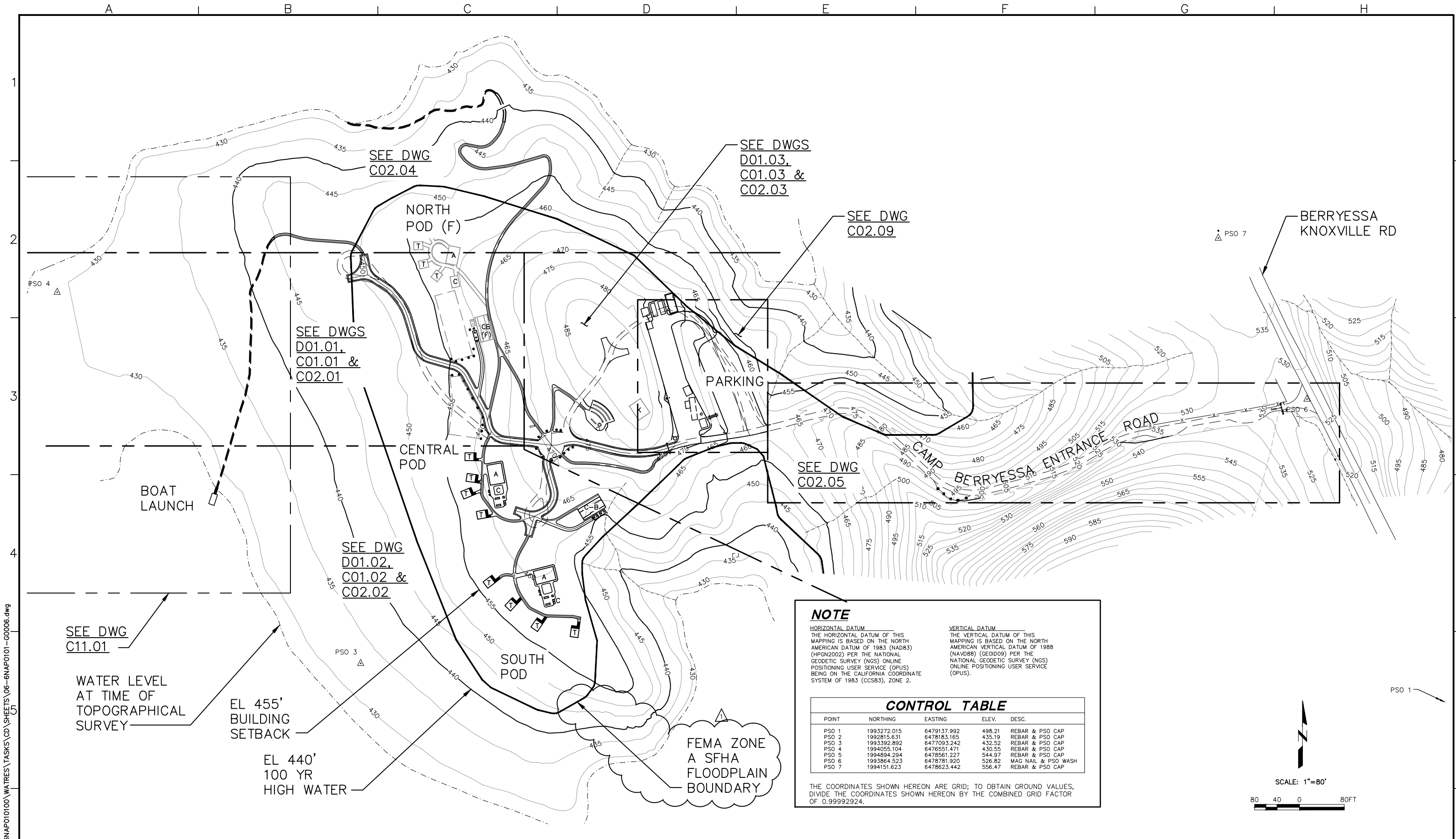
8. Question from Contractor: In section 02500 Paving and Surfacing Part 2.2H, Asphalt concrete per Caltrans specifications is listed, but the type and gradation of the mix are not specified. Please clarify.

Answer: See attached revised Specification section 02500

END OF ADDENDUM #1

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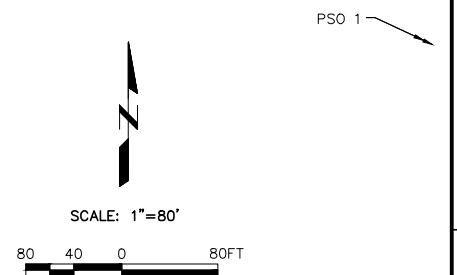
NOTE

HORIZONTAL DATUM
 THE HORIZONTAL DATUM OF THIS MAPPING IS BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83) (HPGN2002) PER THE NATIONAL GEODETIC SURVEY (NGS) ONLINE POSITIONING USER SERVICE (OPUS) BEING ON THE CALIFORNIA COORDINATE SYSTEM OF 1983 (CCS83), ZONE 2.

VERTICAL DATUM
 THE VERTICAL DATUM OF THIS MAPPING IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) (GEOID09) PER THE NATIONAL GEODETIC SURVEY (NGS) ONLINE POSITIONING USER SERVICE (OPUS).

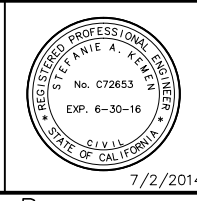
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POINT	NORTHING	EASTING	ELEV.	DESC.
PSO 1	1993272.015	6479137.992	498.21	REBAR & PSO CAP
PSO 2	1992815.631	6478183.165	435.19	REBAR & PSO CAP
PSO 3	1993392.892	6477093.242	432.52	REBAR & PSO CAP
PSO 4	1994055.104	6476551.471	430.55	REBAR & PSO CAP
PSO 5	1994894.294	6478561.227	544.97	REBAR & PSO CAP
PSO 6	1993864.523	6478781.920	526.82	MAG NAIL & PSO WASH
PSO 7	1994151.623	6478623.442	556.47	REBAR & PSO CAP

THE COORDINATES SHOWN HEREON ARE GRID; TO OBTAIN GROUND VALUES, DIVIDE THE COORDINATES SHOWN HEREON BY THE COMBINED GRID FACTOR OF 0.99992924.



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BID DRAWINGS



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Rev	Date	By	Description
1	8/6/14	SK	FEMA SFHA BNDY ADDED PER PW

ISSUED FOR BIDS
 ISSUED FOR CONSTRUCTION

Designed: ELL
 Drawn: JAC
 Checked: SAK
 Job No.: 6NAP0100

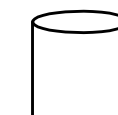




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NAPA COUNTY REGIONAL PARK
 AND OPEN SPACE DISTRICT
 CAMP BERRYESSA IMPROVEMENTS
 GENERAL
 OVERALL SITE PLAN/KEY MAP

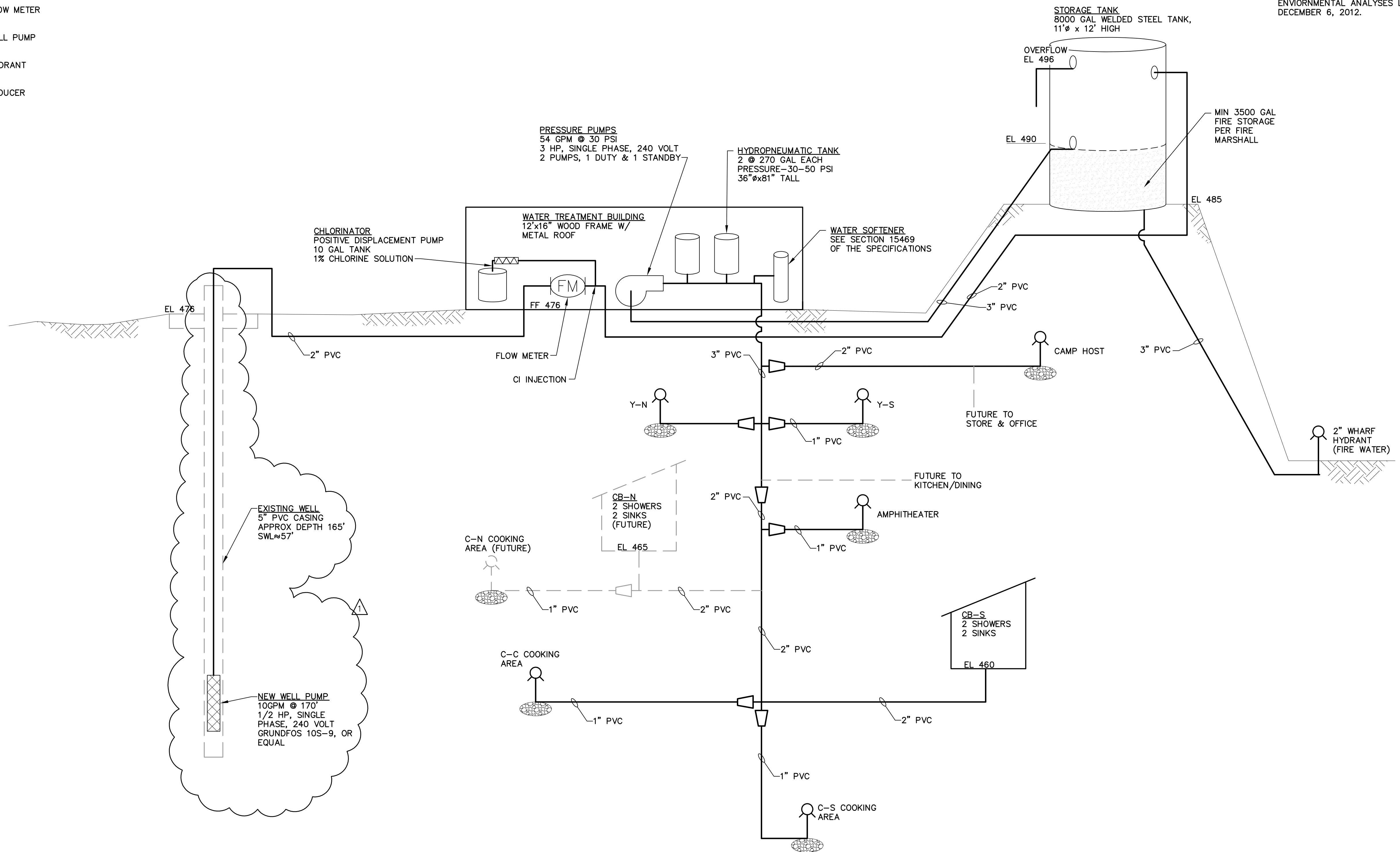
Scale: AS NOTED
 Drawing No.: G00.06
 Sheet No.: 6 of 70

SYMBOL LEGEND:

-  TANK
-  FLOW METER
-  WELL PUMP
-  HYDRANT
-  REDUCER

NOTES:

1. VALVES ARE NOT SHOWN.
2. ALL ELEVATIONS ARE APPROXIMATE.
3. WELL DATA IS BASED ON CALTEST ANALYTICAL LABORATORY ENVIRONMENTAL ANALYSES LAB ORDER NUMBER M110831, DATED DECEMBER 6, 2012.



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1	8/12/14	SK	WELL PUMP TO BE INSTALLED

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ISSUED FOR CONSTRUCTION	Drawn	JAC
	Checked	SAK
	Job No.	GNAP010100

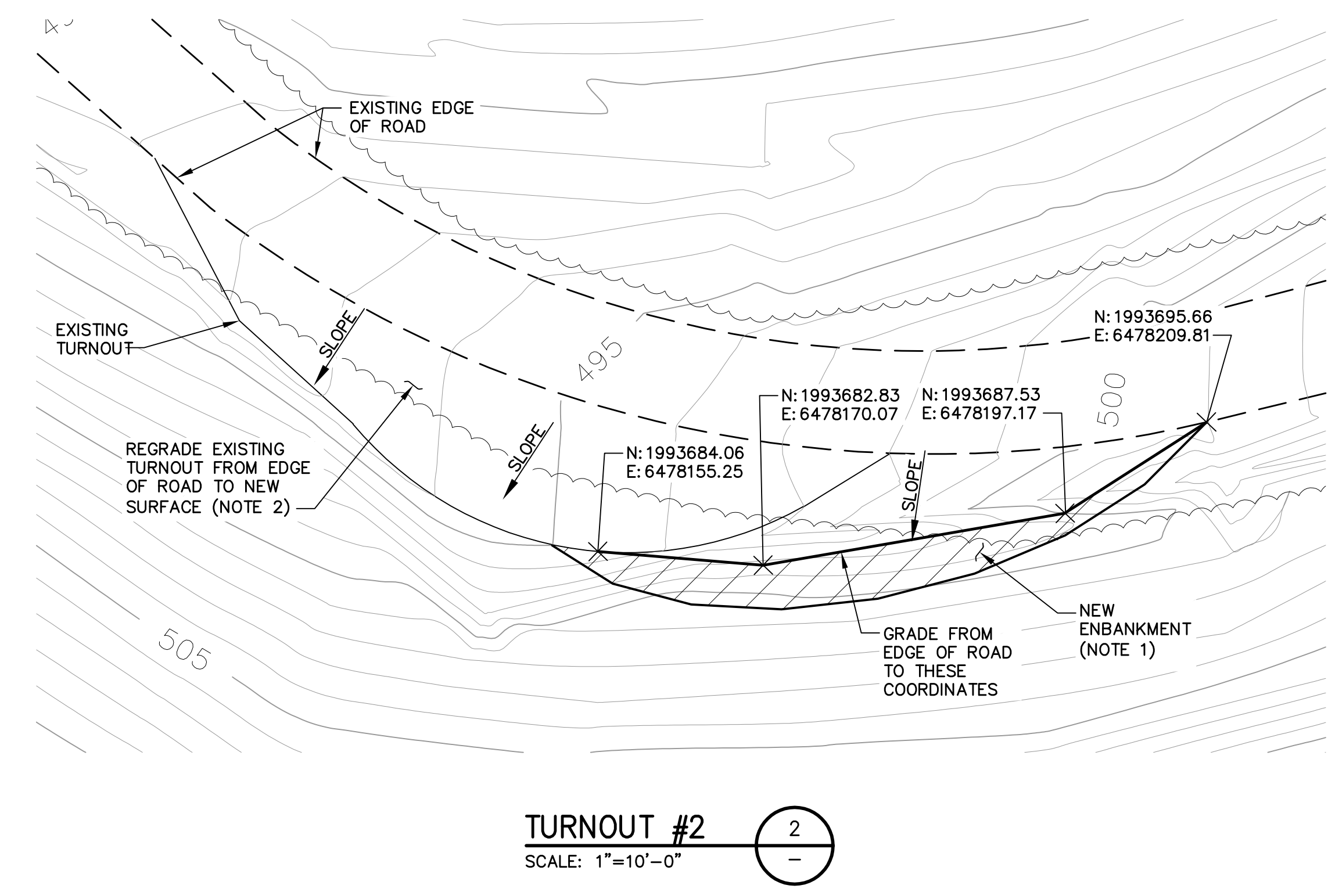
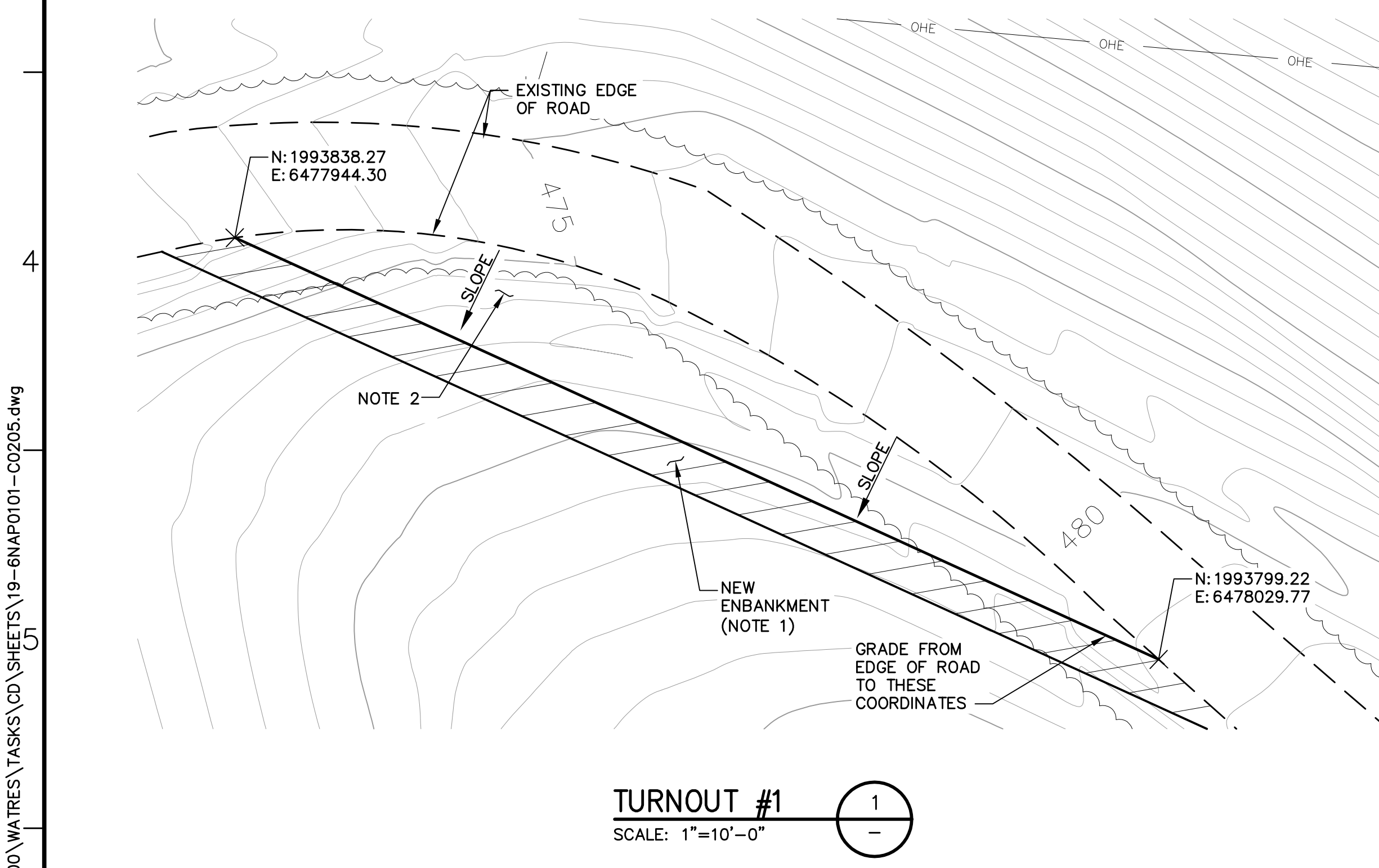
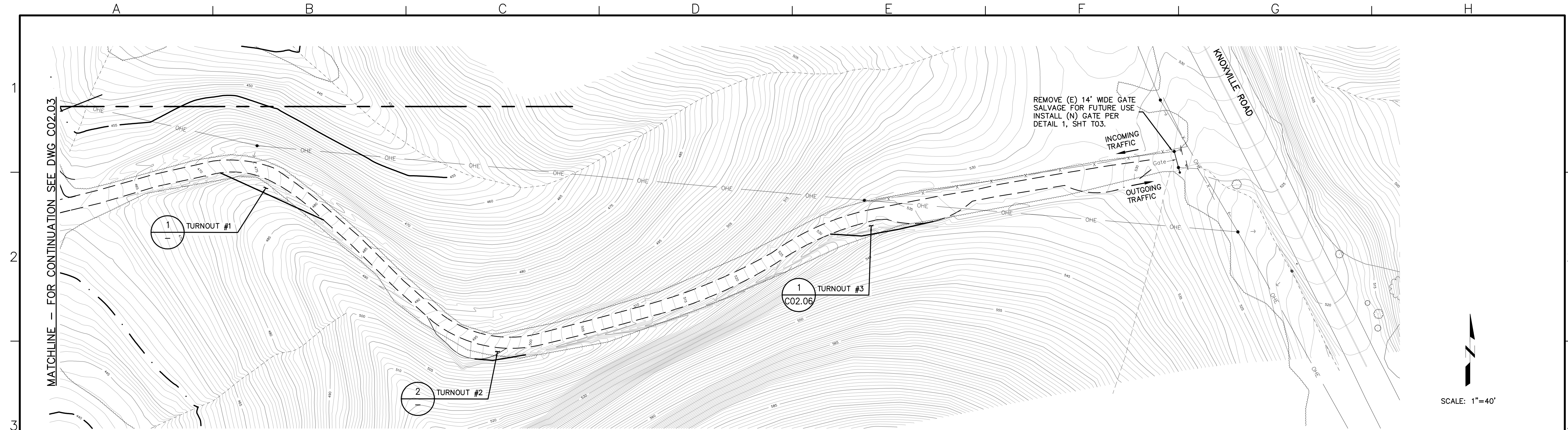
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NAPA COUNTY REGIONAL PARK AND OPEN SPACE DISTRICT
CAMP BERRYESSA IMPROVEMENTS
 GENERAL

WATER SYSTEM SCHEMATIC

Scale	NONE
Drawing No.	G00.07
Sheet No.	7 of 70



- NOTES:**
- CONTRACTOR SHALL SLOPE THE FACE OF THE NEW ENBANKMENT AT 2:1 IF INTO ROCK, 1:1 IS ACCEPTABLE.
 - FINISHED TURNOUT SURFACES SHALL BE SLOPED 5% FROM EDGE OF EXISTING ROAD.
 - THE OWNER SHALL CLEAR ALL VEGETATION 10' ON EITHER SIDE OF ENTRANCE ROAD.
 - BLUE SHALE GRAVEL WILL BE ADDED TO ENTRANCE ROAD AT THE END OF CONSTRUCTION. REFERENCE SPECIFICATION FOR GRAVEL QUANTITY, QUALITY, AND INSTALLATION METHOD REQUIRED.

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Rev	Date	By	Description		
1	8/12/14	SK	CROSS SLOPE REVISED PER PW		

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IF LINE IS NOT 2" SCALE ACCORDINGLY

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CAMP BERRYESSA IMPROVEMENTS

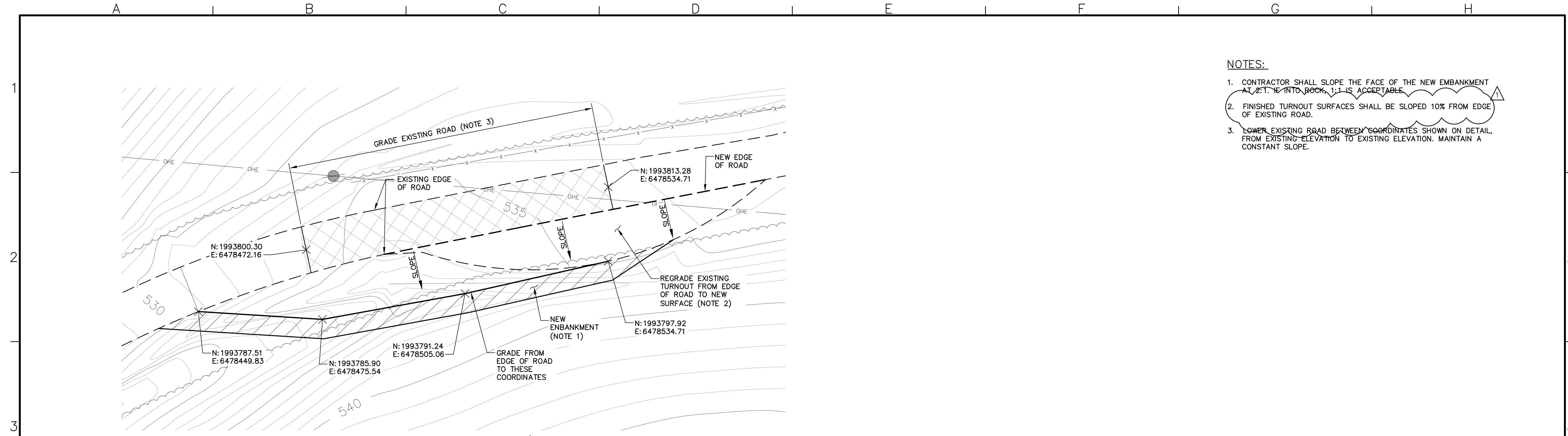
CIVIL

ENTRANCE ROAD IMPROVEMENTS
OVERALL PLAN & DETAILS

Scale
AS NOTED

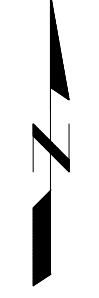
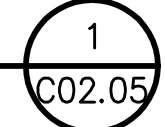
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C02.05

Sheet No.
19 of 70



- NOTES:**
1. CONTRACTOR SHALL SLOPE THE FACE OF THE NEW EMBANKMENT AT 2:1. IF INTO ROCK, 1:1 IS ACCEPTABLE.
 2. FINISHED TURNOUT SURFACES SHALL BE SLOPED 10% FROM EDGE OF EXISTING ROAD.
 3. LOWER EXISTING ROAD BETWEEN COORDINATES SHOWN ON DETAIL, FROM EXISTING ELEVATION TO EXISTING ELEVATION. MAINTAIN A CONSTANT SLOPE.

TURNOUT #3
SCALE: 1"=10'-0"



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SKEMEN

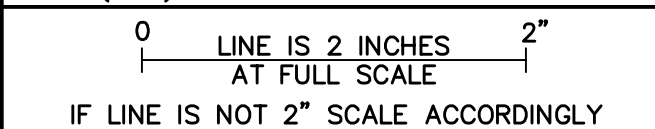
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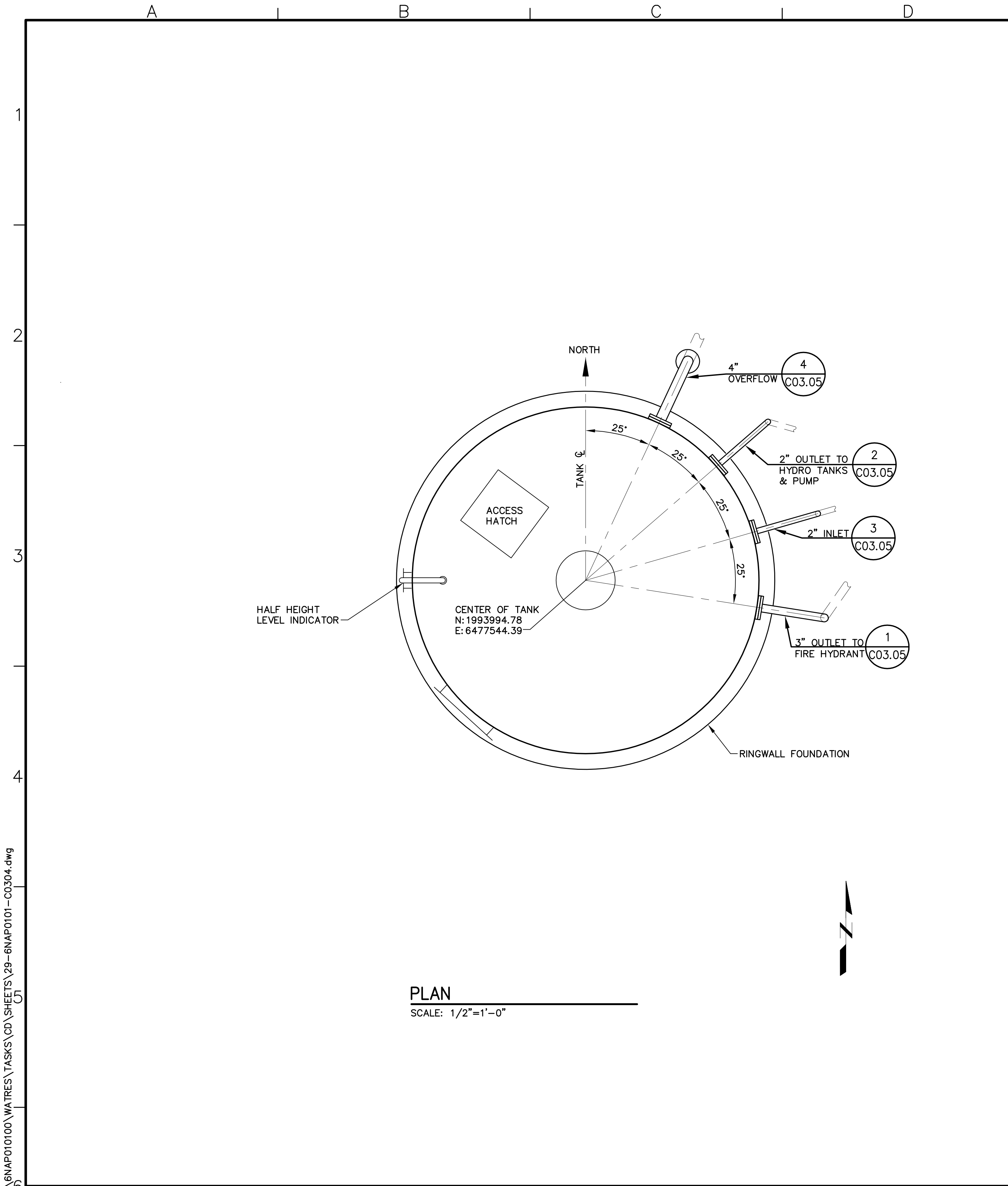
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				Job No.
				6NAP010100
Rev	Date	By	Description	
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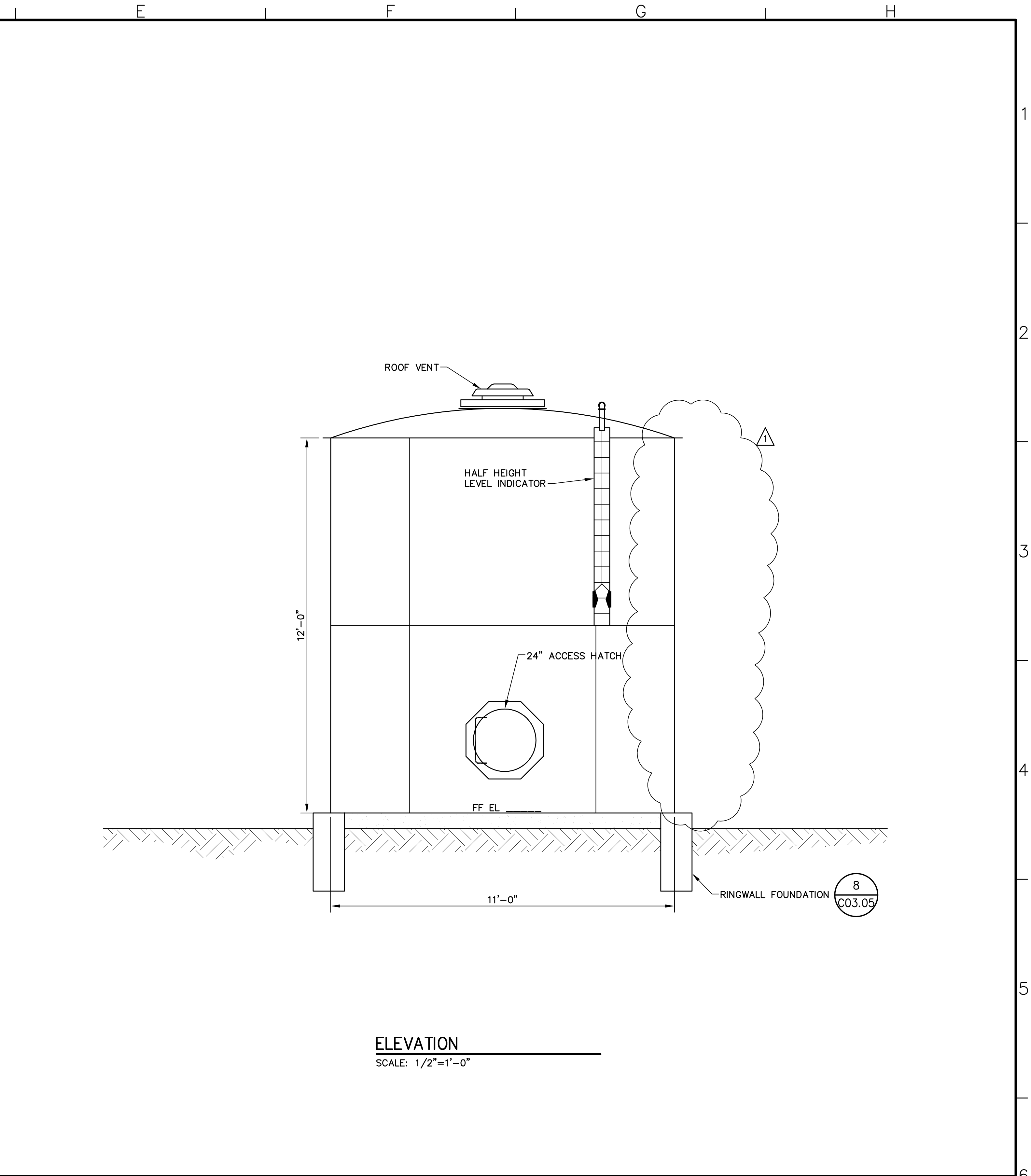


NAPA COUNTY REGIONAL PARK
AND OPEN SPACE DISTRICT
CAMP BERRYESSA IMPROVEMENTS
CIVIL
ENTRANCE ROAD IMPROVEMENTS
DETAILS 2

Scale
AS NOTED
Drawing No.
C02.06
Sheet No.
20 of 70



PLAN
SCALE: 1/2"=1'-0"



ELEVATION
SCALE: 1/2"=1'-0"

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BID DRAWINGS

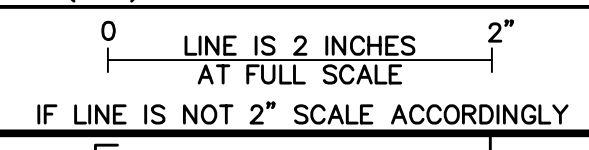


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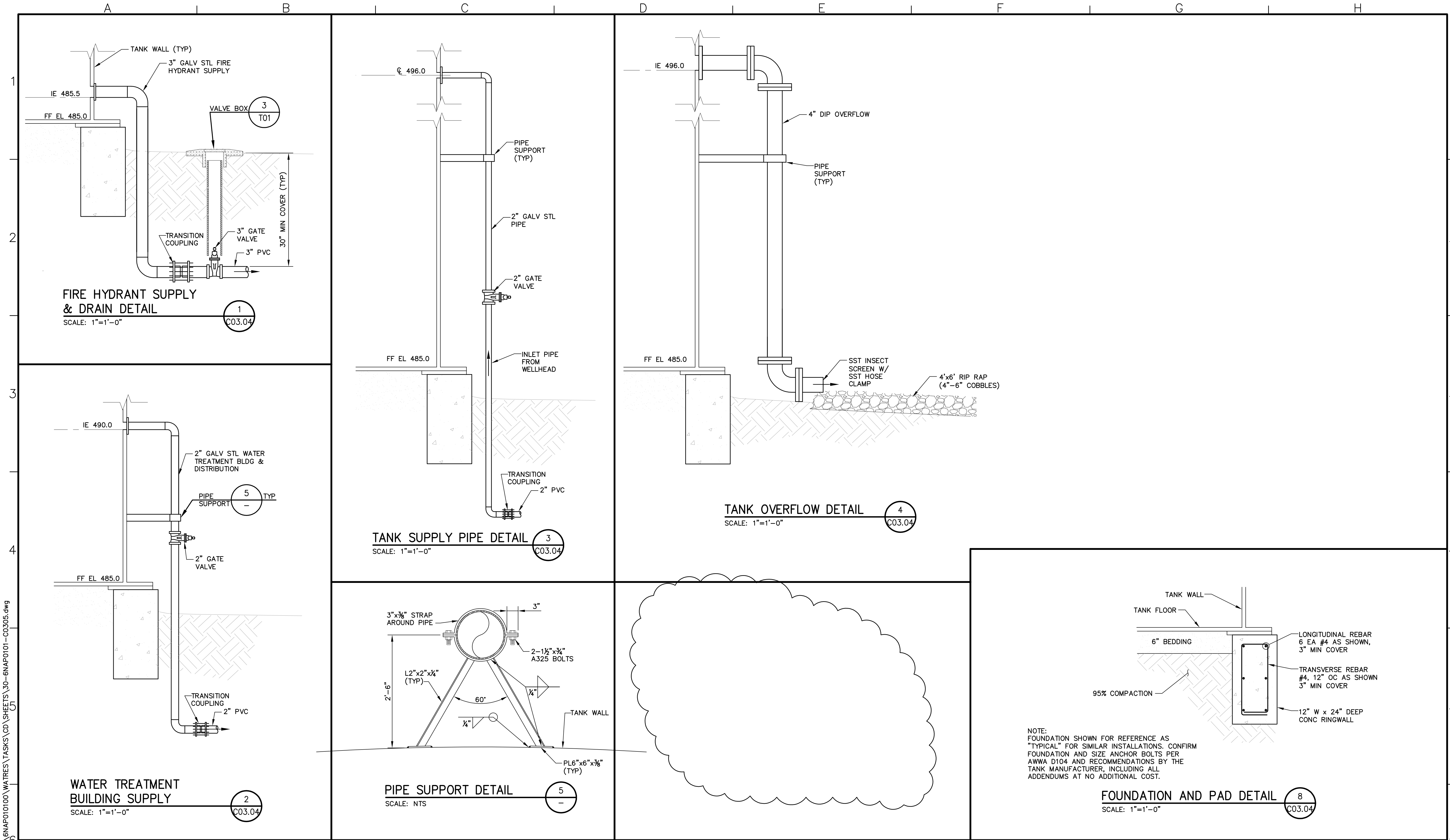
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CAMP BERRYESSA IMPROVEMENTS

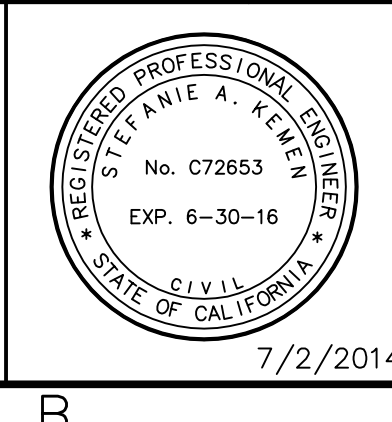
CIVIL
WATER TANK PLAN & ELEVATION

Scale	AS NOTED
Drawing No.	C03.04
Sheet No.	29 of 70



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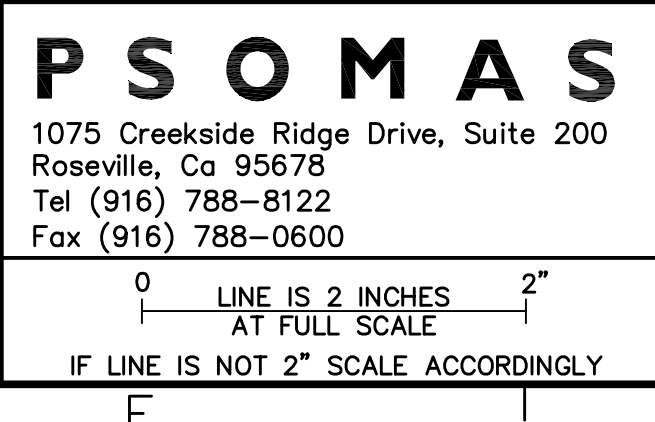
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ISSUED FOR CONSTRUCTION	Drawn	JAC	
	Checked	SAK	
	Job No.	BNAP010100	
Rev	Date	By	Description
Δ	8/12/14	SK	EXTERIOR LADDER DETAIL DELETED

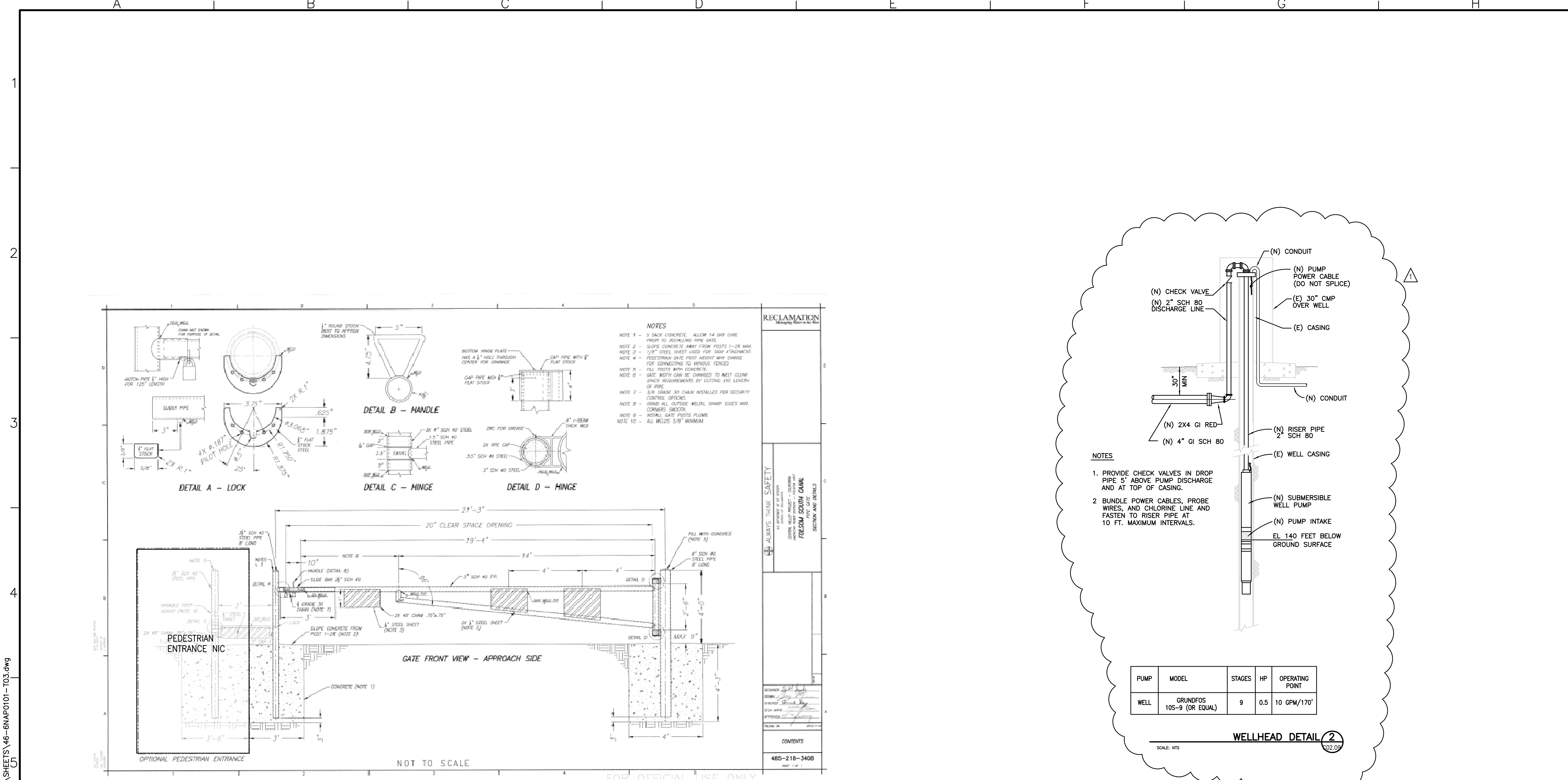
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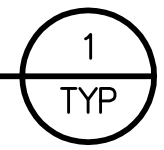
NAPA COUNTY REGIONAL PARK AND OPEN SPACE DISTRICT
CAMP BERRYESSA IMPROVEMENTS
CIVIL

Scale AS NOTED
Drawing No. **C03.05**
Sheet No. 30 of 70

WATER TANK DETAILS



GATE DETAIL
NO SCALE



- NOTES**
- NOTE 1 - 3 SACK CONCRETE. ALLOW 1-4 DAY CURE PRIOR TO INSTALLING PIPE GATE.
 - NOTE 2 - SLOPE CONCRETE AWAY FROM POSTS 1-2 IN BANK.
 - NOTE 3 - 1/8" STEEL SHEET USED FOR SOUV ATTACHMENT.
 - NOTE 4 - PEDESTRIAN GATE POST HEIGHT MAY VARY DEPENDING ON CONNECTING TO HANDS/FENCES.
 - NOTE 5 - FILL POSTS WITH CONCRETE.
 - NOTE 6 - GATE WIDTH CAN BE CHANGED TO MEET CLEAR SPACE REQUIREMENTS BY CUTTING END LENGTH OF PIPE.
 - NOTE 7 - 3/8 GRADE 80 CHAIN INSTALLED FOR SECURITY CONTROL. OPTIONAL.
 - NOTE 8 - GRIND ALL OUTSIDE WELDS, SWAMP EDGES AND CORNERS SMOOTH.
 - NOTE 9 - REMOVE GATE POSTS ROUNDS.
 - NOTE 10 - ALL WELDS 5/8" MINIMUM.

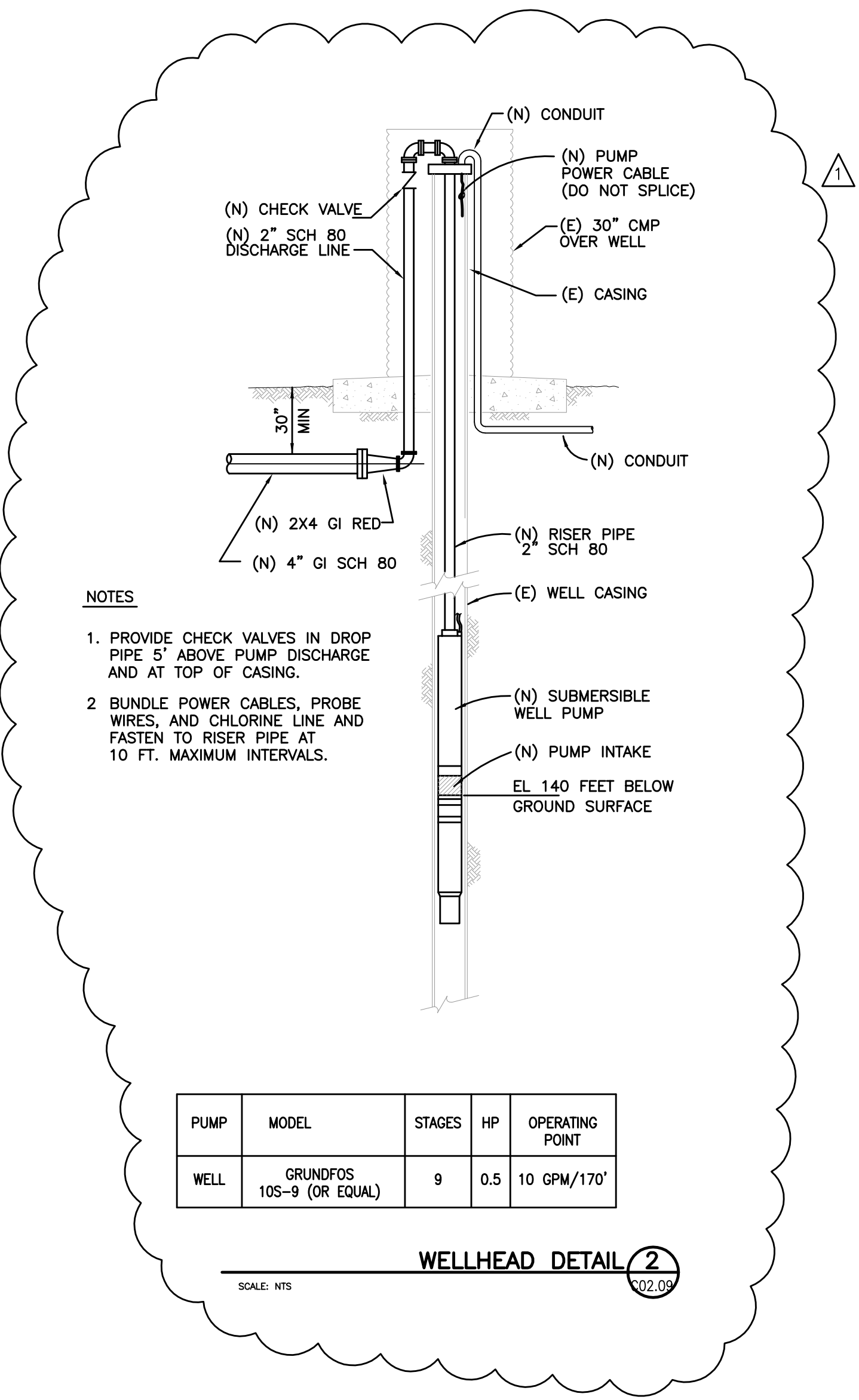
RECLAMATION
Managing Water in Our West

ALWAYS THINK SAFETY
CALIFORNIA REGISTERED PROFESSIONAL ENGINEER
FOLESON COUNTY CANAL
SECTION AND DETAILS

DESIGNED BY: [Signature]
DRAWN BY: [Signature]
CHECKED BY: [Signature]
DATE: 8/12/14

COMMENTS

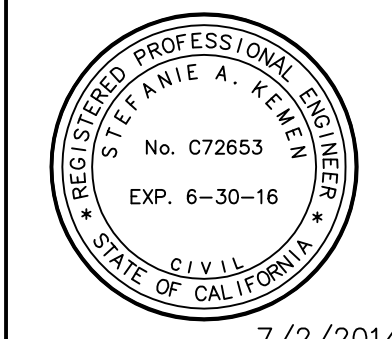
485-218-3408
PAGE 1 OF 1



- NOTES**
1. PROVIDE CHECK VALVES IN DROP PIPE 5' ABOVE PUMP DISCHARGE AND AT TOP OF CASING.
 2. BUNDLE POWER CABLES, PROBE WIRES, AND CHLORINE LINE AND FASTEN TO RISER PIPE AT 10 FT. MAXIMUM INTERVALS.

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Rev	Date	By	Description
1	8/12/14	SK	WELL PUMP TO BE INSTALLED

ISSUED FOR BIDS	Designed	ELL
ISSUED FOR CONSTRUCTION	Drawn	JAC
	Checked	SAK
	Job No.	BNAP010100

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**NAPA COUNTY REGIONAL PARK AND OPEN SPACE DISTRICT
CAMP BERRYESSA IMPROVEMENTS**

TYPICAL DETAILS
DETAILS 3

Scale	NONE
Drawing No.	T03
Sheet No.	46 of 70

**SECTION 02500
PAVING AND SURFACING**

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Aggregate base, portland concrete paving, and asphaltic concrete paving for ADA parking area.

B. Related sections:

1. Additional requirements specified elsewhere:
 - a. Submittals Procedures: Section 01330
 - b. Quality Control: Section 00700
2. Related Work specified elsewhere:
 - a. Earthwork: Section 02200
 - b. Cast-in-Place Concrete: Section 03001

1.2 REFERENCES

A. Reference standards:

1. ASTM C29: Unit Weight and Voids in Aggregate.
2. ASTM C88: Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
3. ASTM C117: Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing.
4. ASTM C126: Sieve or Screen Analysis of Fine and Coarse Aggregates.
5. ASTM C128: Specific Gravity Test and Absorption of Fine Aggregate.
6. ASTM D4: Bitumen Content.
7. ASTM D5: Penetration of Bituminous Material.
8. ASTM D70: Specific Gravity of Semi-Solid Bituminous Materials.
9. ASTM D93: Flash Point by Density-Martens Closed Tester.
10. ASTM D113: Ductility of Bituminous Materials.
11. ASTM D1188: Bulk Specific Gravity of Compacted Bituminous Mixtures Using Paraffin Coated Specimens.
12. ASTM D2041: Theoretical Maximum Specific Gravity of Bituminous Paving Mixtures.
13. ASTM D2172: Quantities Extraction of Bitumen from Bituminous Paving Mixtures.
14. ASTM D2419: Sand Equivalent Value of Soils and Fine Aggregate.
15. ASTM D290: Bituminous Mixing Plant Inspection.
16. ASTM D946: Asphalt Cement for Use in Pavement Construction.
17. ASTM D692: Coarse Aggregate for Bituminous Paving.
18. ASTM D1073: Fine Aggregate for Bituminous Paving Mixtures.
19. ASTM D1016: Cutback Asphalt (Slow Curing Type).
20. ASTM D2027: Cutback Asphalt (Medium Curing Type).
21. ASTM D2028: Cutback Asphalt (Rapid Curing Type).

22. A.I. MS-2: Mix Design Method for Asphalt Concrete.
23. CALTRANS: Standard specifications.

1.3 (Not Used)

1.4 SYSTEM DESCRIPTION

A. Design requirements:

1. Density:
 - a. Minimum acceptable density of in-place course materials is 97 percent of recorded laboratory specimen density.
2. Design mix:
 - a. Determine design mix based upon aggregates furnished:
 - 1) By independent testing laboratory at Contractor's expense.
 - 2) Grade dependent upon temperature.
 - 3) Acceptable to Owner's Representative.
3. Allowable loading:
 - a. Based on AASHTO standards and H-20 loading.

B. Performance requirements:

1. Paving to meet California and local requirements for texture, density, and surface smoothness.

1.5 SUBMITTALS

A. Product data:

1. Samples: Provide samples of materials for laboratory testing and job-mix design (Contractor to provide).

B. Test reports: Submit laboratory reports for following material tests:

1. Coarse and fine aggregate from each material source and each required grading.
 - a. Sieve analysis: ASTM C136 (AASHTO T19).
 - b. Unit weight of slag: ASTM C29 (AASHTO T19).
 - c. Soundness: ASTM C89 (AASHTO T104).
 - d. Sand equivalent: ASTM D2419 (AASHTO T176).
 - e. Abrasion of coarse aggregate: ASTM 131 (AASHTO T96), for surface coarse aggregates only.
2. Asphalt cement for each penetration grade.
 - a. Penetration: ASTM D5 (AASHTO T49).
 - b. Viscosity (Kinematic): ASTM D2170 (AASHTO T201).
 - c. Flash point: ASTM D92 (AASHTO T48).
 - d. Ductility: ASTM D113 (AASHTO T51).

- e. Solubility: ASTM D4 (AASHTO T44).
- f. Specific gravity: ASTM D70 (AASHTO T43).
- 3. Job-mix design mixtures for each material or grade.
 - a. Bulk specific gravity for fine aggregate: ASTM C128 (AASHTO T84).
- 4. Uncompacted asphalt concrete mix: maximum specific gravity ASTM D2041 (AASHTO T209).
- 5. Compacted asphalt concrete mix.
 - a. Bulk density: ASTM D1188 (AASHTO T166).
 - b. Marshall stability and flow: ASTM D1559.
- 6. Density and voids analysis.
 - a. Provide each series of asphalt concrete mixture test specimens in accordance with A.I. MS-2 "Mix Design Methods for Asphalt Concrete."
 - b. Use Marshall method of mix design unless otherwise directed or acceptable to Owner's Representative.
- 7. Sampling and testing of asphalt concrete mixtures for quality control during paving operations (provided by Owner).
 - a. Uncompacted asphalt concrete mix.
 - 1) Asphalt cement content: ASTM D2172 (AASHTO T164).
 - 2) Penetration of recovered asphalt cement: ASTM D5 (AASHTO T49).
 - 3) Ductility of recovered asphalt cement: ASTM D113 (AASHTO T51).
 - b. Compacted asphalt concrete mix.
 - 1) Bulk density: ASTM D1188 (AASHTO T166).
 - 2) Marshall stability and flow: ASTM D1559.
 - c. Perform at least one test for each day's paving.
- 8. Asphalt plant inspection: ASTM D290.

1.6 QUALITY ASSURANCE

A. Qualifications:

- 1. The Contractor shall be regularly engaged in construction of aggregate base and asphalt concrete pavement for a period of not less than five (5) years.

1.7 (Not Used)

1.8 PROJECT/SITE CONDITIONS

A. Environmental requirements:

- 1. Do not place asphaltic concrete when air temperature is 50 degrees F or below.
- 2. Do not place asphaltic concrete when subgrade temperature is projected to be 40 degrees F or below in the following 24 hours.

B. Existing condition:

- 1. The Contractor is to visit Site and familiarize himself with existing Site conditions.

PART 2 - PRODUCTS

2.1 (Not Used)

2.2 MATERIALS

- A. Aggregate base: Per Section 02200, Road Base.
- B. Tack coat: Emulsified asphalt: SS-1 or SS-1h.
- C. Asphalt cement: ASTM D946, grade determined by design mix.
- D. Aggregate for asphalt concrete, general:
 - 1. Sound, angular, crushed stone, crushed gravel, or crushed slag: ASTM D692.
 - 2. Sand, stone or slag screening: ASTM D1073.
 - 3. Provide aggregate in gradations for various courses to comply with local highway standards, CTSS 39.202 - Class A/B/C.
- E. Base course aggregates:
 - 1. Uncrushed gravel may be used in mixture if it meets design criteria specified.
 - 2. Provide uniform quality combined aggregates with a minimum sand equivalent value: 40 for heavy traffic areas.
- F. Surface course aggregates:
 - 1. Provide natural sand, unless sand prepared from stone, slag, or gravel or combinations are required to suit local conditions.
 - 2. Provide uniform quality combined aggregates with a minimum sand equivalent value: 50 for heavy traffic areas.
- G. Prime coat:
 - 1. Cut-back liquid asphalt.
 - 2. Slow-curing type: ASTM D2026, Grade or
 - 3. Medium-curing type: ASTM D2027, Grade or
 - 4. Rapid-curing type: ASTM D2028, Grade.
- H. Asphalt concrete per Caltrans specifications, type B, ½ inch maximum grading.
- I. Portland cement concrete:
 - 1. Per Specification Section 03001, Cast-In-Place Concrete.

2.3 (Not Used)

2.4 EQUIPMENT

- A. Bituminous pavers: Self-propelled, spreads without tearing surfaces, and controls pavement edges to true lines without use of stationary forms.
- B. Rolling equipment:
 - 1. Pneumatic tired roller.

2. Two (2) or three (3) wheeled steel roller.
- C. Hand tools: Provide rakes, lutes, shovels, tampers, smoothing irons, pavement cutters, portable heaters, and other miscellaneous small tools.
- D. Portland Cement Concrete:
 1. Per Section 03001, Cast-In-Place Concrete.

2.5 (Not Used)

2.6 ACCESSORIES

- A. Line paint: FS TT-P-115, Class A traffic paint; colors as selected by Owner's Representative.

2.7 MIXES

- A. Comply with ASTM D995 for material storage, control and mixing, and for plant equipment and operation.
- B. Stockpiles:
 1. Keep each component of various-sized combined aggregates in separate stockpiles.
 2. Maintain stockpiles so that separate aggregate sizes will not be intermixed and to prevent segregation.
- C. Heating:
 1. Heat asphalt cement at mixing plant to viscosity at which it can be uniformly distributed throughout mixture.
 2. Use lowest possible temperature to suit temperature-viscosity characteristics of asphalt.
 3. Do not exceed 350 degrees F (176.6 degrees C).
- D. Aggregate:
 1. Heat-dry aggregates to moisture content of not more than 5 percent.
 2. Deliver to mixer at recommended temperature to suit penetration grade and viscosity characteristics of asphalt cement, ambient temperature, and workability of mixture.
 3. Accurately weigh or measure dry aggregates and weigh or meter asphalt cement to comply with job-mix formula requirements.
- E. Mix aggregate and asphalt cement to achieve 90 to 95 percent coated particles for base mixtures and 85 to 90 percent coated particles for surface mixture, per ASTM D2489.
- F. Transporting:
 1. From mixing site in trucks having tight, clean compartments.

2. Coat hauling compartments with lime-water mixture to prevent sticking.
3. Elevate and drain compartment of excess solution before loading mix.
4. Provide covers over asphalt concrete mixture to protect from weather and to prevent loss of heat.
5. During periods of cold weather or for long distance deliveries, provide insulation around entire truck bed surfaces.

2.8 FABRICATION (Not Used)

2.9 SOURCE QUALITY CONTROL

- A. Provide State of California weigh tickets on all asphalt emulsion used on Work.
- B. Provide certificate of compliance for asphalt mix including components, temperature, weights (gross and tare) and time of departure from plant.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of conditions:
 1. Record existing elevations in areas where asphalt paving exists.
 2. Check subgrade to verify compaction meets requirements.
 3. Check subgrade for conformity with elevations and sections immediately before placing aggregate base material.

3.2 PREPARATION

- A. Adjacent structures:
 1. The edges of contact surfaces such as curbs, manholes, sidewalks and walls to be painted with tack coat to provide bonded watertight joints.
 2. Protect structures to prevent staining on surfaces.
- B. Surface preparation:
 1. Place road base material in compacted layers not more than 6 inches thick.
 2. Spread, shape, and compact all aggregate base material deposited on subgrade during the same day.
 3. Remove loose and foreign material from compacted road base surface immediately before application of paving.
- C. Prime coat:
 1. Uniformly apply at rate of 0.20 to 0.50 gal/sq yd. over compacted and cleaned road base surface.
 2. Apply enough material to penetrate and seal, but not flood surface.

3. Allow to cure and dry as long as required to attain penetration and evaporation of volatiles and in no case less than 24 hours unless otherwise acceptable to Owner's Representative.
4. Blot excess prime coat with just enough sand to prevent pick-up under traffic.
5. Remove loose sand before paving.

D. Tack coat:

1. Dilute material with equal parts of water and apply to contact surfaces of previously constructed asphalt concrete or Portland cement concrete and surfaces.
2. Apply at rate of 0.05 to 0.15 gal/sq yd. of surface.
3. Apply tack coat by brush to contact surfaces of curbs, gutters, manholes, and other structures projecting into or abutting asphalt concrete pavement.
4. Allow to dry until tack coat is at correct tackiness to receive pavement.
5. Where asphaltic concrete will adhere to surface, tack coat may be eliminated by Owner's Representative.

E. Not Used

3.3 INSTALLATION

A. Placement:

1. Place asphalt concrete mixture on prepared surface, spread, and strike-off using paving machine.
2. Complete pavement over full width of section on each day's run.
3. Minimum temp of 225 degrees F for mixture during placement.
4. Inaccessible and small areas may be placed by hand.
5. Conform to grade, cross-section, finish thickness, and density indicated.
6. Paver placing:
 - a. Unless otherwise directed, begin placing along centerline of areas on crowned section, and at high side on one-way slope, and in direction of traffic flow.
 - b. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips.
 - c. Complete base courses before placing surface courses.
 - d. Place mixture in as continuous an operation as practicable.
7. Hand placing:
 - a. Spread, tamp, and finish mixture using hand tools in areas where machine spreading is not possible, as acceptable to Owner's Representative.
 - b. Place mixture at a rate that will insure handling and compaction before mixture becomes cooler than acceptable working temperature.
8. Joints:
 - a. Construct transverse joint at right angles to centerline when operations are suspended long enough for mixture to chill.
 - b. Construct joints to have same texture, density and smoothness as adjacent sections of asphalt concrete course.
 - c. Clean contact surfaces free of sand, dirt, or other objectionable material and apply tack coat.
 - d. Offset transverse joints in succeeding courses not less than 24 inches.

- e. Cut back edge of previously placed course to expose an even, vertical surface for full course thickness.
- f. Offset longitudinal joints in succeeding courses not less than 6 inches.
- g. When edges of longitudinal joints are irregular, honeycombed, or inadequately compacted, cut back unsatisfactory sections to expose an even, vertical surface for full course thickness.
- h. Where wearing course constructed in even number of strips; place one (1) longitudinal joint on centerline of road.
- i. Where wearing course constructed in odd number of strips; place centerline of one (1) strip on centerline of road.

B. Compaction:

- 1. Provide rollers to obtain required pavement density.
- 2. Begin rolling operations when mixture will bear weight of roller without excess displacement.
- 3. Do not permit heavy equipment, including rollers, to stand on finished surface before it has thoroughly cooled or set.
- 4. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
- 5. Start rolling longitudinally at extreme lower side of sections and proceed toward center of pavement. Roll to slightly different lengths on alternate roller runs.
- 6. Do not roll centers of sections first under any circumstances.
- 7. Breakdown rolling:
 - a. Accomplish breakdown or initial rolling immediately following rolling of transverse and longitudinal joints and outside edge.
 - b. Operate rollers as close as possible to paver without causing pavement displacement.
 - c. Check crown, grade, and smoothness after breakdown rolling.
 - d. Repair displaced areas by loosening at once with lutes or rakes and filling, if required, with hot loose material before continuing rolling.
- 8. Second rolling:
 - a. Follow breakdown rolling as soon as possible, while mixture is hot and in condition for compaction.
 - b. Continue second rolling until mixture has been thoroughly compacted.
- 9. Finish rolling:
 - a. Perform finish rolling while mixture is still warm enough for removal of roller marks.
 - b. Continue rolling until roller marks are eliminated and course has attained specified density.
- 10. Patching:
 - a. Remove and replace defective areas.
 - b. Cut out and fill with fresh, hot asphalt concrete.
 - c. Compact by rolling to specified surface density and smoothness.
 - d. Remove deficient areas for full depth of course.
 - e. Cut sides perpendicular and parallel to direction of traffic with edges vertical.
 - f. Apply tack coat to exposed surfaces before placing new asphalt concrete mixture.

C. Tolerances:

1. Thickness: Variations from drawings:
 - a. Base course: 1/2-inch±.
 - b. Surface course: 1/2-inch±.
 - c. Total combined thickness: $1/2\text{-inch} \pm 1/2 + 1/2 = 1$.
 2. Surface smoothness:
 - a. Test using a 10-foot straightedge applied perpendicular to direction of trench.
 - b. 1/4-inch per foot from nearest point of contact.
 3. Elevations:
 - a. Match existing elevations at structures.
 - b. Adjust and level existing valve boxes, etc. to match final asphalt grade.
- D. Line painting:
1. General: Apply two (2) coats of paint to clean, dry surfaces; do not thin paint.
 2. Striping and symbols: As shown at asphalt and Portland Cement concrete pavement, walks, stairs and ramps.
 3. Colors:
 - a. Striping and lettering: White.
 - b. Disabled access: Blue; match Color No. 15090 of Federal Standard 595A.
 - c. Fire lane no parking: Red per El Dorado County Fire District requirements with white lettering.

3.4 FIELD QUALITY CONTROL

- A. Field tests:
1. Test in-place for density, thickness, and surface smoothness.
 2. Final surfaces of uniform texture conforming to required grades and cross-sections.
 3. Take not less than 4-inch diameter pavement specimens for each completed course from locations as directed by Owner's Representative.
 4. Repair holes from test specimens as specified for patching defective work.
- B. Inspection:
1. Do not permit pockets or depressions where water may pool.
 2. Replaced surface to be even with existing pavement.
 3. Test using a 10-foot straightedge applied perpendicular to direction of trench.
 4. 1/4-inch per foot from nearest point of contact.

3.5 (Not Used)

3.6 CLEANING

- A. After completion of paving operations, clean surfaces of excess or spilled asphalt materials to satisfaction of Owner's Representative.

3.7 (Not Used)

3.8 PROTECTION

- A. After final rolling, do not permit vehicular traffic on asphalt concrete pavement until it has cooled and hardened, and in no case, sooner than six (6) hours.
- B. Provide barricades and warning devices as required to protect pavement and general public.
- C. Cover openings of structure in area of paving until permanent coverings are placed.

END OF SECTION

SECTION 13414
SHOP FABRICATED WATER STORAGE TANK

PART 1 – GENERAL

1.1 DESCRIPTION

- A. This specification covers furnishing of all labor, material, equipment, tools, services and erection of 10,000 gallon nominal, shop coated, welded steel water tank as shown on Drawings and specified herein.
- B. The welded steel tank shall conform to requirements of AWWA D100, latest edition.

1.2 DESIGN CRITERIA

- A. Design loads: The tank structure shall be designed in accordance with the following:
 - 1. Minimum capacity 10,000 gallons
 - 2. Inside diameter 12' max
 - 3. Tank height approximately 10 feet
 - 4. Earthquake Seismic zone 4
 - 5. Specific Gravity of contents 1.0
 - 6. Wind load 100 mph, Exposure Category B
 - 7. Deck load 25 psf
 - 8. Allowable Soil Bearing 1,000 psf
 - 9. Design standard AWWA D100

1.3 HEALTH EFFECTS

- A. The health effects of materials or products that come into contact with drinking water shall be evaluated for contaminants or impurities which may be imparted directly or indirectly to drinking water in accordance with NSF Standard 61.

1.4 SUBMITTALS

- A. As specified in Section 01330.
- B. Shop Drawings: Submit shop drawings of welded steel tank and all accessories for review and approval by Engineer prior to beginning any related shop fabrication or erection. Include sufficient data to show that tank and accessories conform to requirements to these Specifications.

Submittals shall include:

1. Complete structural calculations, including forces that must be resisted by foundation, maximum and allowable stresses for steel shell, floor, and roof. Tank shall be designed using rational methods in accordance with accepted engineering practice. Calculations shall be stamped and signed by a civil or structural engineer registered in the State of California.
2. Detailed fabrication and erection drawings and details for tank and all accessories. Include drawings for all shell, roof and floor penetrations and bolt holes for mounting accessories.
3. Certified mill tests on steel plate and structural members demonstrating that physical and chemical requirements of this Specification have been met.
4. Submit Supplier's certificate of compliance with NSF Standard 61.
5. Submit foundation design.
6. Submit Anchor Holdown Design.

1.5 QUALIFICATIONS OF TANK MAUFACTURER AND INSTALLER

- A. The Supplier and installer shall have 5 years experience and be a specialist in design, fabrication, and erection of welded steel tanks and appurtenances. Tank erection shall be supervised by tank Supplier trained personnel.
- B. Provide a list of at least five (5) tanks presently in potable water service designed to AWWA D100 standard, of equal or greater size, operating satisfactory for a minimum of five (5) years, including telephone number of Owner's Representative.

1.6 PRODUCT HANDLING

- A. Tank shall be transported to site in vehicle of adequate size and weight capacity for tank. Use straps to hold tank in place during transport. Use of chains will be grounds for rejection of tank.
- B. Lift tank directly from truck and place on completed foundation. Do not store tank on site.

1.7 WARRANTY

- A. The tank Supplier shall warrant tank against any defects in workmanship and materials for a period of one (1) year from date of shipment. In the event any such defect should appear, it should be reported in writing to Supplier during warranty period.

PART 2 – PRODUCTS

2.1 TANK

- A. The Supplier shall furnish, erect and test tank, as required by AWWA D100. The Supplier shall be completely responsible for construction and satisfactory performance of tank during guarantee period. The tank shall conform to AWWA D100 and to latest edition Uniform Building Code, and to the requirements of Drawings and these Specifications. The supplier shall submit for approval complete and detailed drawings for tank and appurtenances.
- B. Tank shell sheets shall have mild strength per ASTM A607, Grade 30 and high strength per ASTM A607, Grade 50. All shell penetrations and bolt holes for mounting of accessories shall be factory fabricated after surface preparation and prior to cleaning.

2.3 ROLLED STEEL STRUCTURAL SHAPES

- A. Material shall conform to AWWA D100, Section 2.5 and ASTM A36 or ASTM A992.

2.7 ROOF VENT

- A. A 20 inch screened vent shall be provided on roof. The vent shall be fabricated to provide removable screened openings between vertical support members of vent. The screened openings of vent shall be sized by Supplier to all venting of a 300 gpm pumping rate. An effective area of 75% of screen opening shall be assumed. The screen shall consist of one layer of Type 316 stainless steel: 16 x 16 x 0.018 wire mesh insect screen.

2.8 TANK ACCESSORIES

- A. 1 – 24” shell manhole: Provide a 24”, minimum, hinged shell manhole located as shown on Drawings. The center of manhole shall be located 30 inches above bottom of tank.
- B. 2” potable outlet nozzle.
- C. 3” fill line outlet nozzle.
- D. 2” inlet nozzle.
- E. 4” overflow with downcomer and steel external overflow pipe and supports. Overflow pipe assembly shall be galvanized.
- F. Exterior Ladder – Do not provide an external ladder.
- G. Identification Plate: Provide stainless steel Supplier’s nameplate listing tank serial number, tank diameter and height, and maximum design capacity.

- H. Liquid Level Indicator: Provide half-height liquid level indicator with gauge board. Superior Tank Model #2400, or equal, with Type 316 stainless steel internals and complete with float and target board assembly.

PART 3 – EXECUTION

3.1 TANK SITE EXCAVATION AND GRADING

- A. Per Section 02300.

3.2 FOUNDATION

- A. Provide concrete ring wall as shown. Anchor tank to ring wall in accordance with Supplier's recommendations.

3.3 PROTECTIVE COATING

- A. General: All metal plates, supports, members and miscellaneous parts, except bolts, shall be factory coated in accordance with AWWA D102, latest edition. Field coating, other than touch-up, will not be permitted.

3.4 CONSTRUCTION

- A. Field erection of factory coated welded steel tank shall be in strict compliance with Supplier's recommendations and performed by Supplier's employees or certified erection crew. Prior to placing water in tank, a "holiday" inspection of entire tank, corners included, will be provided and performed by Supplier in presence of Owner's Representative. Touch-up coating shall be done per Supplier's recommendations where needed and as directed.

3.5 CLEANING

- A. General: Cleaning shall be done after tank placement and all connections have been made. All inside surfaces below high water level will be inspected by Owner's Representative prior to chlorination and leakage testing; touch-up shall be done as directed.
- B. Cleaning: Remove all tools, rags and any other material not part of structure or its accessories from tank interior. Thoroughly clean interior surfaces or shell floor and accessories of tank using a high-pressure water jet, sweeping, scrubbing or other equally effective means. Discharge or otherwise remove all water, dirt and foreign material, accumulated in cleaning operation from tank. Dispose as directed by Owner's Representative

3.6 DISINFECTION

- A. General: After testing has been satisfactorily completed, tank shall be disinfected.
- B. Standards: Disinfect interior surfaces accordance with AWWA C652-86.

3.7 LEAKAGE TESTING

- A. Retention of chlorine solution for a 24-hour period during disinfection will also constitute tank leakage test. Repair any leaks disclosed in test, and repeat required test for leakage. After holding period, purge all highly chlorinated water from drain piping. Subject to satisfactory bacteriological sampling and testing, acceptable aesthetic quality, and adjustment of free chlorine residual to a concentration of not more than two parts per million (2 mg/l), tank may be put into service.

3.8 BACTERIOLOGICAL SAMPLING AND TESTING

- A. After chlorination is completed, and before tank is placed in service, sample water from full tank and submit sample to proper authorities as directed for bacteriological testing. If results of testing are unsatisfactory (positive), repeat disinfection, sampling and testing until two consecutive samples are satisfactory (negative).

3.9 ANNIVERSARY INSPECTION

- A. On or before the one year anniversary date of final acceptance of tank, and prior to end of warranty period, Contractor shall arrange for Supplier's factory trained representative to make a visual inspection of tank interior coatings and accessories, and immediate area surrounding tanks and shall notify Owner's Representative at least ten working days prior to scheduled date of inspection. The Owner's Representative will be present during inspection. A written summary of this inspection shall be filed with Owner's Representative

END OF SECTION