Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # 2020069035

Project Title: Forbestown Ditch Pipeline Project

Lead Agency: North Yuba Water District | Contact Person: Jeff Maupin
Mailing Address: 8691 La Porte Road | Phone: 530-675-2567
City: Brownsville | Zip: 95919 | County: Yuba

Project Location: County: Butte/Yuba | City/Nearest Community: Forbestown
Cross Streets: Woodleaf Tunnel Road and La Porte Road | Zip Code: 95941
Longitude/Latitude (degrees, minutes and seconds): 39 ° 33 ′ 7.20 ″ N / 121 ° 11 ′ 38.08 ″ W | Total Acres:
Assessor's Parcel No.: Multiple | Section: Multiple | Twp.: Multiple | Range: Multiple | Base: Meridian
Within 2 Miles: State Hwy #: N/A | Waterways: Oroleve Creek, Woodleaf Creek
Airports: N/A | Railways: N/A | Schools: N/A

Document Type:

CEQA: ☐ NOP ☐ Draft EIR | NEPA: ☐ NOI | Other: ☐ Joint Document
☐ Early Cons ☐ Supplement/Subsequent EIR | ☐ EA | ☐ Final Document
☐ Neg Dec (Prior SCH No.) | ☐ Draft EIS | ☐ Other:
☒ Mit Neg Dec Other: | ☐ FONSI

Governor's Office of Planning & Research
JUN 23 2020
STATE CLEARINGHOUSE

Local Action Type:

☐ General Plan Update ☐ Specific Plan ☐ Rezone ☐ Annexation
☐ General Plan Amendment ☐ Master Plan ☐ Prezone ☐ Redevelopment
☐ General Plan Element ☐ Planned Unit Development ☐ Use Permit ☐ Coastal Permit
☐ Community Plan ☐ Site Plan ☐ Land Division (Subdivision, etc.) ☒ Other: Development

Development Type:

☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational:
☐ Recreational:
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type ____ MW
☐ Waste Treatment: Type ____ MGD
☐ Hazardous Waste: Type
☒ Other: Ditch Piping

Project Issues Discussed in Document:

☐ Aesthetic/Visual ☐ Fiscal ☐ Recreation/Parks ☐ Vegetation
☐ Agricultural Land ☐ Flood Plain/Flooding ☐ Schools/Universities ☐ Water Quality
☒ Air Quality ☐ Forest Land/Fire Hazard ☐ Septic Systems ☐ Water Supply/Groundwater
☒ Archeological/Historical ☐ Geologic/Seismic ☐ Sewer Capacity ☐ Wetland/Riparian
☒ Biological Resources ☐ Minerals ☐ Soil Erosion/Compaction/Grading ☐ Growth Inducement
☐ Coastal Zone ☐ Noise ☐ Solid Waste ☐ Land Use
☐ Drainage/Absorption ☐ Population/Housing Balance ☐ Toxic/Hazardous ☐ Cumulative Effects
☐ Economic/Jobs ☐ Public Services/Facilities ☐ Traffic/Circulation ☐ Other:

Present Land Use/Zoning/General Plan Designation:

Multiple including TPZ and RR-5

Project Description: *(please use a separate page if necessary)*
See Attached Project Description

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Revised 2010

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

_____ Air Resources Board
_____ Boating & Waterways, Department of
_____ California Emergency Management Agency
_____ California Highway Patrol
_____ Caltrans District #_____
_____ Caltrans Division of Aeronautics
_____ Caltrans Planning
_____ Central Valley Flood Protection Board
_____ Coachella Valley Mtns. Conservancy
_____ Coastal Commission
_____ Colorado River Board
_____ Conservation, Department of
_____ Corrections, Department of
_____ Delta Protection Commission
_____ Education, Department of
_____ Energy Commission
_____ Fish & Game Region #_____
_____ Food & Agriculture, Department of
_____ Forestry and Fire Protection, Department of
_____ General Services, Department of
_____ Health Services, Department of
_____ Housing & Community Development
_____ Native American Heritage Commission
_____ Office of Historic Preservation
_____ Office of Public School Construction
_____ Parks & Recreation, Department of
_____ Pesticide Regulation, Department of
_____ Public Utilities Commission
_____ Regional WQCB #_____
_____ Resources Agency
_____ Resources Recycling and Recovery, Department of
_____ S.F. Bay Conservation & Development Comm.
_____ San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
_____ San Joaquin River Conservancy
_____ Santa Monica Mtns. Conservancy
_____ State Lands Commission
_____ SWRCB: Clean Water Grants
_____ SWRCB: Water Quality
_____ SWRCB: Water Rights
_____ Tahoe Regional Planning Agency
_____ Toxic Substances Control, Department of
_____ Water Resources, Department of
_____ Other: _____
_____ Other: _____

Local Public Review Period (to be filled in by lead agency)

Starting Date 6-24-20 Ending Date 7-23-20

Lead Agency (Complete if applicable):

Consulting Firm: NorthStar
Address: 111 Mission Ranch Blvd Suite 100
City/State/Zip: Chico CA 95926
Contact: Matt Rogers
Phone: 530-894-1600

Applicant: North Yuba Water District
Address: 8691 La Porte Road
City/State/Zip: Brownsville CA 95919
Phone: 530-675-2567

Signature of Lead Agency Representative: _____ **Date:** 6/19/20

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

PROJECT DESCRIPTION

PROJECT LOCATION

The Forbestown Ditch is located in Butte and Yuba Counties and begins near the community of Woodleaf. The ditch is within Sections 33 and 34, Township 20 North, Range 07 East, Sections 3-9, Township 19 North, Range 07 East, and Section 12, Township 19 North, Range 06 East of the Clipper Mills United States Geologic Survey (USGS) 7.5-minute quadrangle and Sections 11 and 12, Township 19 North, Range 06 East of the Forbestown USGS 7.5-minute quadrangle. The total length of the Forbestown Ditch is approximately 10 miles broken into two sections, the upper section is approximately eight miles and begins at the Woodleaf Penstock South Fork gauging station (SF 14) and travels to the inlet of the Costa Creek Siphon. The upper section, for the most part, meanders parallel to the natural topographic contours. The lower section is approximately two miles long and begins at the outlet of the Costa Creek Siphon and runs through several residential areas and ends at the Water Treatment Plant located in Forbestown.

Introduction and Background

The North Yuba Water District (NYWD) is proposing to implement the Forbestown Ditch Piping Project. The purpose of the project is to replace the open, unlined ditch with a 42-inch pipeline which would convey raw water while reducing water leakage and losses, increase water supply reliability, and improve water quality at the Forbestown Water Treatment Plant.

The NYWD receives surface water from the South Fork of the Feather River conveyed via the Forbestown Ditch to the Forbestown Water Treatment Plant. From there, water is then conveyed to the surrounding communities of Forbestown, Challenge, Rackerby, and Brownsville. The NYWD Forbestown Water Treatment Plant has a maximum storage capacity of ten days without additional inflows for adequate conveyance of water. The NYWD depends on this water supply to provide treated domestic and agricultural supply water, as well as fire suppression flows, to customers within its service areas. The NYWD's raw water conveyance infrastructure has deteriorated over the years and currently does not meet operational requirements.

The Forbestown Ditch was completed in 1857 by the South Feather Water Company, over the intervening years portions of the ditch were sold to various entities. It was constructed to divert water from the Feather River to gold mining encampments from high along the western slope of the Sierra Nevada all the way to Oroville. As mining faded over the years, the water was then used for irrigation purposes, and by the end of World War I people began to move into the area due to Pacific Gas and Electric's project to construct hydroelectric facilities in the Feather River canyon. Ultimately, the ditch was acquired by South Feather Water and Power Agency (SFWPA). Around 1968, substantial construction modifications of the overall water delivery system were constructed to accommodate increased water demands. The modifications included the construction of tunnels, surge tanks, siphons, diversion flumes and numerous upgrades to the ditch itself, including lining portions of the interior with gunite. The NYWD operates in partnership with SFWPA for conveyance of agricultural, domestic, and hydroelectric water supplies. In 2011, SFWPA transferred all right and title of the Forbestown Ditch to NYWD.

The existing open Forbestown Ditch was constructed in native soil, it was constructed by completing a high side excavation, which was side cast and compacted to provide a low side embankment berm. In general, the resultant trapezoidal ditch consists of a four-foot-wide bottom with 1:1 side slopes

and is approximately four feet deep. The low side berm has an approximate top width of four feet with an approximate 2:1 downhill embankment fill slope.

Purpose and Need

The purpose of the project is to improve the existing water conveyance system and increase its efficiency by reducing raw water loss and minimize environmental contamination. The open unlined conveyance system is susceptible to both natural and man-made pollutants, vandalism, damage due to fire, unauthorized withdrawals, and significant water losses. The current conveyance does not reliably deliver raw water capacities due to water losses.

There are several areas along the 10-mile alignment that are vulnerable to slope instability and overtopping during severe storm events. Through the years, several failures and areas of distress have occurred that have caused disruptions or complete stoppages to water conveyance. The most recent failure occurred in the winter of 2016/2017 during an extended and intense period of rainfall which created completely saturated soil conditions and caused low side berm failures in two different locations. A preliminary study of these locations opined one area was adversely affected by slope creep and shallow slope failures while the other area is being adversely affected by rotational and translation slope failures and local slope creep. The geotechnical report stated the piping of the ditch would have a net benefit of reducing the amount of water introduced to subsurface soils, which would ultimately increase the stability of the slopes below the ditch.

In addition to storm related emergencies that can overwhelm the water delivery system, another risk associated with the open and unlined channel are significant water losses due to surge flows that cannot be utilized during storm events, leakage, evaporation, evapotranspiration, and unpermitted water diversion. It is estimated that between 50-70% of flows are lost to leakage and evaporation respectively.

The open and unlined ditch is causing water quality concerns at NYWD's Forbestown Water Treatment Plant. The treatment plant's Waste Discharge Requirements from the NYWD's permit renewal requires significantly reduced mineral concentrations from overflows at the treatment plant's on-site storage reservoir. The open channel can be affected by a variety of issues from the surrounding land such as animal waste or local grazing practices which can cause bacterial contamination when surface runoff enters the ditch and is conveyed to the Water Treatment Facility.

In summary, the project provides the following benefits: 1) Improves existing water supply reliability in all years and especially during dry and extended drought years; 2) Removes the potential for contamination and; 3) Provides net increases slope stability in areas prone to failure.

Project Components

The proposed project involves the piping of the Forbestown Ditch from its origination at the Woodleaf Surge Tower to the Forbestown Water Treatment Facility. The primary component of the project is the installation of a 42-inch high density polyethlene (HDPE) pipe, however, there are a number of other components that are necessary to install the pipe along the alignment including access ports, turnouts, sheet flow drainage areas, modified wooden flumes, open channel to pipe transitions, pipe to open channel transitions, siphon inlet to pipe connections, siphon outlet to pipe connections, pipe to pipe connections, road crossings, and culverts. The details of each of these components are described below in more detail and can be seen in **Attachment A** – Draft Project Details.

The project will involve the placement of the new pipe within the current ditch alignment. The pipe utilized will be HDPE ADS N-12, which provides a smooth interior wall and corrugated exterior wall providing durability and hydraulic efficiency. This type of pipe was selected because of its ease of installation and flexibility which allows for minor sagging and deformation. Additionally, the integrated bell and gasket makes it a cost-effective option as it does not require an extra coupler, grout, or special equipment for installation.

The installation methods would be different between the upper section of the ditch (Woodleaf Surge Tank to Costa Creek Siphon inlet) and the lower section (Costa Creek Siphon outfall to Forbestown Water Treatment Facility). The upper section would include the placement of the 42-inch HDPE pipe within the ditch at grade. The pipe would be stabilized with anchor blocks and pipe straps approximately every 10 feet. The anchor block would be precast concrete with a saddle that the pipe would seat within. The blocks are approximately 6 inches tall, 12 inches deep, and 54 inches long with an insert on each end for pipe straps. The insert would be a galvanized bolt and washer that would provide an attachment point for the straps. The straps would be a galvanized metal strap. Minor excavations within the ditch may be necessary to remove organic material and sediment to a competent subgrade material that will allow for the level placement of the anchor blocks. Directly adjacent to the pipe an overland sheet flow ditch would be excavated on the side of the pipe opposite the berm. This small ditch would convey overland sheet flow downstream to sheet flow drainage areas where this water can be conveyed from the alignment. This small ditch would be approximately one foot across at the bottom and 0.5 feet tall and a total width of two feet minimally. In the upper portion of the alignment, a tight corner is present where the existing ditch berm will be excavated towards the ditch at approximate 3:1 slopes to provide a smooth transition from the berm to the ditch. An overland flow ditch would be constructed to convey sheet flow beneath the 42-inch HDPE pipe and across the newly excavated ditch berm. The overland sheet flow ditch would be lined with geotextile fabric and rock slope protection (RSP) and it would be approximately five feet wide at the bottom, approximately one foot deep with a total width of seven feet. An inlet catch basin would be excavated at the upper portion of the overland sheet flow ditch to facilitate water movement under the HDPE pipe and across the berm.

Installation in the lower section of the ditch would include the placement of the pipe within the existing alignment and covered on top with a minimum of one foot of backfill material to be even with the existing ground level. The pipe would be stabilized with the same anchor blocks as the upper section to prevent the pipe from floating due to hydrostatic uplift pressure. This pipe anchoring system would be placed approximately every 20 feet. Because the pipe would be buried and backfilled, approximately nine footbridges that span the existing ditch would need to be removed.

The low side earthen berm exists at its current height to maintain freeboard in the ditch. With the piping of the ditch, freeboard height will no longer need to be maintained, therefore, approximately two feet of the top portion of the berm will be excavated and used as backfill material. The excavation of the top portion of the berm will create a wider access road (approximately six feet wide) sufficient in size to allow small all-terrain utility vehicles and mini excavators to access the entire length of the pipe.

Access Ports

Access into the pipe for maintenance and observation will be achieved through the placement of pipe access ports. Two port configurations will be utilized within the alignment. The first will be utilized in the upper portion of the ditch from SF14 to the Costa Creek Siphon.

In the lower portion of the ditch, from the bottom of the Costa Creek Siphon to the Forbestown Treatment Plant the pipe access port would be placed in the pipe alignment and the structure will be covered with backfill material to be even with the existing grade as the pipe is buried in this portion.

For both configurations, the access ports will be constructed utilizing an ADS HDPE pipe tee fitting pointing upward to provide continuity within the conveyance system. The top of the tee fitting will have a cast-in-place or pre-fabricated concrete frame around the pipe with a lockable diamond plate cover or equivalent. The access ports will be placed along the alignment approximately every 1,000 linear feet.

For pipe access ports within the upper portion of the ditch, a pipe access embankment will be constructed around the concrete frame. The embankment will utilize existing native backfill material excavated from the adjacent berm to prevent movement. Immediately upstream from the pipe access port a sheet flow drainage would be placed to convey overland sheet flow out of the flow ditch prior to it reaching the access port structure.

Sheet Flow Drainage

There are several areas where overland sheet flow is concentrated and flows into the ditch. This surface water is assumed to contribute to mineral and bacterial contamination observed at the Forbestown Treatment Plant. This surface water will no longer be captured in the conveyance system once pipe is installed. This water will still flow into the ditch; however, it will be released to natural elevational drainage courses using sheet flow drainages. The installation of these sheet flow drainages beneath the main pipe line will prevent water from ponding and causing hydrostatic uplift pressure and soil saturation. At areas determined to be overland sheet flow concentration sites, these sheet flow drainages installed beneath the conveyance system will divert flows out of the ditch.

Where designated, sheet flow drainage ditches would be installed from the existing alignment running beneath the 42-inch HDPE pipe and traveling across the earthen berm. The sheet flow drainage ditch would be approximately five feet wide at the bottom and approximately one foot deep. The earthen berm would need to be excavated to provide a smooth transition from the top of the earthen berm to the bottom of the drainage ditch and alignment. The drainage ditch would be lined with RSP and geotextile fabric to protect against any scour. The inlet would have a catch basin excavated in the ditch to collect the sheet flow and direct it out. A four-foot-wide barrier will be constructed at the downstream side of the sheet flow drainage ditch to prevent any surface water from bypassing the drainage area and continuing down the alignment.

Turnouts

In the event any portion of the pipeline requires flows to be diverted and released out of the system, a turnout would be installed. Five turnout areas needing structures have been identified where they will be installed. The turnout structure will be a 60 inch by 60-inch precast concrete box with two canal gates installed at each outlet. The structure will be within the pipe alignment and will have a 42-inch HDPE outlet pipe. The outlet of the pipe will be protected with RSP and geotextile fabric. The outlet pipe will be installed at approximately two percent slope to facilitate water flow from the turnout. The structure will be covered with approximately one foot of native backfill material from the top portion of the berm for protection of the outfall pipe.

Additionally, a sheet flow drainage as described above would be placed upstream of the turnout to direct over land sheet flow collected in the ditch beneath the 42-inch HDPE pipe and out of the alignment.

Open Channel to Pipe Transitions

Several open channel to pipe transitions occur along the alignment, as portions of the existing ditch have been lined with concrete. In areas where the concrete is in good condition and functional, as such it will remain. To facilitate water flows into the piped ditch from these open channels the construction of headwalls to direct water into the pipe will be necessary. There will be two types of headwalls constructed to direct flows: one utilizing quickcrete bags anchored into the toe of the ditch for stabilization, and the other utilizing shotcrete to form the headwall. For open earth channel to pipe transitions quickcrete bags would be utilized to construct the headwall. In open shotcrete channels to pipe transitions, shotcrete will be utilized to form the headwall. In both cases, the 42-inch HDPE pipe would be mitered to provide a smooth transition from the headwall into the pipe. A trash rack will be constructed to remove large debris from entering the piped portion. The trash rack will be approximately 50 inches long and oriented to properly capture debris. The trash rack would consist of metal pipes oriented vertically with one pipe oriented horizontally at the bottom. It would be attached to the pipe by a metal plate with a bolt and washer.

Pipe to Open Channel Transitions

As previously mentioned, there are a number of concrete lined sections within the existing alignment that are in good condition and will remain in place. At the downstream side of these lined sections the concrete will need to transition into the 42-inch HDPE pipe. Two types of pipe to open channel transitions will be installed depending on the location within the alignment, one in the upper portion and one in the lower portion of the ditch.

In the upper portion of the alignment just upstream of the transition from pipe to open channel backfill material would be placed over the 42-inch HDPE pipe level with the existing berm. The backfill material would be sloped to the transition. At the outfall of the pipe RSP would be placed along both the slope of the backfill material and extending approximately five feet from the end of the pipe. The RSP would be underlaid by geotextile fabric. Upstream of the backfill a sheet flow drainage area would be installed as previously described to remove excess water from the alignment.

In the lower portion of the alignment the 42-inch HDPE pipe is buried, as such, the backfill material will be sloped towards the transition of the pipe to the open channel. The slope would be protected with RSP underlaid by geotextile fabric. Additionally, an RSP apron would extend approximately five feet beyond the end of the pipe to protect against scour.

Modified Wood Flumes

Several wood flumes are present within the ditch alignment. These wooden flumes will need to be modified for the piping of the ditch. To facilitate placement of the 42-inch HDPE pipe in these structures the existing supports on the flume will be removed and replaced. New top supports will be approximately 2" by 4" by 80" while side supports will be approximately 2" by 4" by 55". New wood supports for the bottom of the pipe will be approximately 2" by 4" by 34" and will connect to the side supports to stabilize the pipe within the flume. Wood shims may be installed below the pipe to maintain a positive slope facilitating flow. New supports for the pipe will be installed

approximately every 10 feet within the wooden flume sections. Wooden walkways will be installed along the top portion of the flume.

HDPE Pipe to Corrugated Metal Pipe Connection

In places where the new 42-inch HDPE pipe must be connected to existing corrugated metal pipe (CMP), a double wide pipe coupler would be utilized at the connection point. The coupler would be one size larger in diameter in order to provide suitable overlap between the two pipe types. The HDPE pipe will have an internal coupler spigot adapter to facilitate a smooth transition between pipe types. A HDPE pipe reducer would be utilized to connect the different sized pipes to the existing corrugated metal pipes. A minor excavation will be necessary within the ditch to avoid soil intrusion into the pipes. The excavation would be back-filled with Class II bedding (crushed rock or gravel) to a depth of approximately six inches.

HDPE Pipe to Reinforced Concrete Pipe Connection

Large diameter (48 inch) concrete reinforced pipe is present within the ditch alignment. It has been determined to be in good condition and will be left in place. To facilitate connection of the new HDPE pipe to the reinforced concrete pipe, a cast-in-place concrete encasement will be constructed. Minor excavations will be necessary to seat the concrete encasement. These excavations would be backfilled to support the collar. The encasement will have non-woven geotextile wrapped around the connection of the two pipes. A 48-inch HDPE pipe will be connected to the existing concrete pipe with an internal coupler spigot adapter. Additionally, a pipe reducer with matching inverts will transition the 42-inch HDPE pipe into the 48-inch HDPE pipe and into the 48-inch concrete pipe.

Pipe to Siphon Connections

Pipe to Siphon Inlet Connection (Woodleaf and Oroleve Siphons)

To facilitate the installation of pipe at the Woodleaf and Oroleve siphons the construction of an eight-inch-thick headwall will be necessary. The existing trash rack will be removed and salvaged, if possible. Stainless steel clamps and non-shrink patching compound will be placed at the end of the pipe to attach it to the newly constructed headwall. The existing covers at the siphons will need to be modified to fit the new inlet configuration. Non-shrink patching compound will be used to attach the pipe to the existing siphon.

A sheet flow drainage area would be installed upstream of the siphon (as previously described in the sheet flow drainage section) to facilitate the removal of any excess sheet flow from the alignment.

Siphon Inlet to Pipe Connection (Beehive Siphon)

At the Beehive Siphon, the 42-inch HDPE pipe will need to be attached to the inlet. An eight-inch-thick concrete headwall will be constructed to seat the pipe into the siphon. Non-shrink patching compound will be utilized around the outside of the pipe to ensure attachment of the pipe to the newly constructed headwall. The cover would be modified to fit the new inlet configuration. The structure would be backfilled.

Siphon Outlet to Pipe Connection (Beehive Siphon)

At the Beehive Siphon the 42-inch HDPE pipe will need to be attached to the outlet. An eight-inch-thick concrete headwall will be constructed to seat the pipe into the siphon, the bottom of the headwall would be shaped to provide a smooth transition from the headwall to the pipe. Stainless steel clamps and non-shrink patching compound will be placed around the end of the pipe to ensure attachment to the newly constructed headwall. Retainer hooks would be placed into the existing concrete to attach a diamond plate access door to the top of the siphon outlet.

Dirt Road Crossings

There are approximately 21 areas along the alignment where dirt roads cross the Forbestown Ditch. In these areas, there are corrugated metal pipes that convey water beneath the roadway. These corrugated metal pipes would be removed to make way for the 42-inch HDPE pipe and the road crossings would remain. The side slopes of the road would be sloped and a sheet flow drainage area would be placed upstream of the road to remove sheet flow accumulated next to the 42-inch HDPE pipe from the Forbestown Ditch. Aggregate base would be installed on the top of the roadway and it would be compacted.

Culverts

Five culverts will be installed beneath Woodleaf Tunnel Road to facilitate roadside drainage. The culverts would be 18 inches in diameter and approximately 20 feet long. A small inlet catch basin would be excavated to facilitate flow into the inlet of the culvert and an RSP facing would be installed on the outfall of each culvert to protect against scour.

Staging and Access Roads

Access to the project site would be accomplished using established roads the District uses to inspect and perform routine maintenance on the ditch. Five staging areas have been identified along the ditch alignment with four occurring in the upper portion of the ditch and one occurring in the lower portion. Additional materials may be stored at the North Yuba Water District yard located in Brownsville on La Porte Road. Construction materials would be staged within these areas and along the berm directly adjacent to the ditch. See **Figure 2** for a depiction of the proposed staging areas.

Construction Methods, Timing, and Equipment

Construction Methods and Timing

It is anticipated that construction of the entire alignment will take three years due to the overall length of the alignment. Construction is set to take place in the late fall when irrigation water deliveries for customers has ceased, generally around October. Construction will continue through the fall and winter and conclude in the spring when irrigation water deliveries commence, generally May. During the non-irrigation season, water must be delivered to the Forbestown Treatment Plant to provide drinking water supplies for the communities within the District. During the construction season, water must be delivered down the ditch to the Forbestown Treatment Plant every 10 days. Therefore, it is anticipated, the contractor will work for 10 days and then have a three day stand down period while water is delivered to the treatment plant for drinking water supplies. This pattern would continue for the entirety of the construction period from approximately October to May.

Construction may be broken into three separate phases (one during each construction season) depending on a number of considerations including inclement weather, construction issues, site

conditions, etc. It is anticipated the first phase (first construction season) would be from the SF14 at the upper end of the ditch to the Oroleve Siphon. Subsequent, phases would move from the bottom of the Oroleve Siphon towards the Forbestown Treatment Plant. Construction would travel in a linear fashion along the Forbestown Ditch moving from the upper portion to the lower portion. Construction is anticipated to begin in the Fall of 2020.

Construction Equipment

Construction equipment would depend on the contractor's planned operation, such equipment may include, but is not limited to excavators, mini excavators, backhoes, front end loader, off-road hauling trucks, compactors, pickup trucks, generators, and welding equipment.