

March 21, 2026

Board of Supervisors
Mendocino County
501 Low Gap Road
Ukiah, CA 95482

RE: Bella Vista Request for a Tab H – Referral to the Board of Supervisors

Dear Mendocino County Supervisors.

On February 25, 2026, we submitted two Tab-H requests to the Department of Transportation for the Bella Vista Estates project. The Tab-H requests involved deviation from development standards for the utilization of 1) rolled curb and gutter rather than a vertical curb and gutter standard and 2) utilization of high-density polyethylene pipe (HDPE) rather than reinforced concrete pipe (RCP) for storm drainage purposes (**See Attached Requests, Attachment A**).

On March 13, 2026, we were provided with memo responses to our request from the Mendocino County Department of Transportation (MDOT) (**See Attached Memo Response, Attachment B**).

Rolled Curb and Gutter

County Response – Conditionally Approved

MDOT has reviewed our request and has conditionally approved it, with the desire that the Sonoma County rolled curb and gutter standard be utilized.

That standard includes installing rebar at three locations. MDOT's desire to include rebar is to better withstand vehicle loads, as rolled curbs allow vehicles to roll up into the driveway.

Discussion

Concrete strength is measured in pounds per square inch (PSI). This number represents how much compressive force the concrete can withstand before failure. Higher PSI generally means stronger, denser concrete. The local conventional PSI range is:

- 2,500 to 3,000 for sidewalks, patios, and non-bearing slabs
- 3,000 to 4,000 for commercial slabs, parking lots, and moderate vehicle traffic
- 4,000 to 5,000 for structural footings, industrial floors, and heavy vehicle uses
- 6,000+ for high-rise construction and specialized applications.

PSI alone does not determine whether a concrete application performs over the long term. Rather, actual field performance depends on the subgrade preparation and compaction, slab thickness, load distribution, joint layout, and spacing.

For example, a 5,000 PSI slab placed on a poorly prepared subgrade will fail sooner than a properly installed 4,000 PSI slab on a stable subgrade. Strength starts below the concrete, not just in the mix.

In this instance, our improvement plans call for using the Mendocino County Standard (A40B Note 5), which requires a 95% compaction rate for the subgrade below the concrete. A compaction rate ensures stability for foundations, slabs, and pavements by reducing spaces between soil particles.

Our concrete mix will also be 6 sacks (number of bags Portland Cement per yard), another Mendocino County Standard (A 40B Note 1). Concrete with 6 sacks yields a compressive strength of approximately 4,000 PSI, which is suitable for commercial slabs, parking lots, and moderate vehicle traffic, far exceeding the need for a curb, gutter or sidewalk. Further, as required by Mendocino County standards, any concrete with a strength over 3,000 PSI would require additional special inspections.

The inclusion of rebar would result not only in additional costs for the project and future homeowners but would also be utilized for an application that does not require additional structural integrity (i.e., a commercial building or parking structure). The addition of rebar would actually cause an increase in future maintenance costs, if removal of the concrete is required for future maintenance of street or utility infrastructure. The rebar would make demolition and replacement of material more difficult.

In short, the integrity of concrete as a rolled curb and gutter meets or exceeds industry standards. The installation of rebar in the rolled curb and gutter complicates the project construction and adds no value, as the application does not require it.

Request

Utilize a rolled curb and gutter standard without the inclusion of rebar.

High-Density Polyethylene Pipe (HDPE)

County Response – Denied

Although HDPE is a standard material for the County (**See Standard, Attachment C**), MDOT reviewed our request and has denied it. Stating that the use of HDPE for storm drains results in high replacement costs in the event of wildfire damage.

Discussion

The desire to utilize RCP is not rooted in as a Mitigation, but rather part of a Condition of Approval No. 47.b, which says:

Minimum culvert and storm drainage size shall be of sufficient width to allow for maintenance and replacement of drainage facilities, shall be RCP or an acceptable alternative material, and shall be subject to the approval of Mendocino County Department of Transportation and shall be shown on the Final Map. that says "RCP or other approved material".

The above conditions provide ample latitude to avoid using RCP. Further, Mendocino County has an adopted HDPE standard (Section 64 – Plastic Storm Drain).

HDPE or similar plastic materials will be incorporated into the project for a range of infrastructure needs, including homes, junction boxes, transformers, and backflow devices, all of which are, to some degree, susceptible to damage in the event of a wildfire.

Utility	Composition
Pacific Gas and Electric	Rigid Polyvinyl Chloride (PVC) Compound
Sanitary Sewer	Polyvinyl Chloride (PVC)
Water	Rigid PVC Compound (C900), Polyethylene
Comcast	Polyvinyl Chloride (PVC - Schedule 40) or HDPE

HDPE offers a superior combination of longevity, cost-effectiveness, and resilience compared to traditional RCP. Modern research suggests that HDPE offers a service life exceeding 100 years, even under high-stress conditions. The product creates a scenario in which root intrusion, which destroys concrete lines, would be prevented. HDPE also has the ability to bend and move with the earth rather than snap or crack, which is a critical safety measure in earthquake-prone California.

RCP installations often rely on mortar or mastic joints that are not fully watertight, leading to soil infiltration and potential sinkholes over time. RCP installation and shipping are also time-consuming and costly.

Case Study – Paradise

In 2018 the “Camp Fire” destroyed the town of Paradise. As such, portions of the infrastructure were also destroyed or damaged. The Paradise Irrigation Department (PID), which provides water to the town, “found that the buried polyethylene was undamaged from direct contact with heat”. Further, PID is currently using HDPE to replace its previous pipe system, which included lead and galvanized steel (See ASPE Pipeline – Rebuilding of Paradise Counts on HDPE Pipe, Attachment C). The article goes on to note that contamination was found in the PID due to sources at the ends of lateral pipes that burned (buildings), not from the HDPE pipe itself, which was undamaged.

In this case, there are no lateral connections to the storm drain systems.

Request

Utilize HDPE for storm drainage, which will not “daylight” directly, but rather terminate into concrete improvements such as a drain-inlet or concrete flared end section.

We would be happy to ensure that the HDPE is at least 4 feet away from any daylight scenario.



Rebuilding of Paradise Counts on HDPE Pipe

November 9, 2020



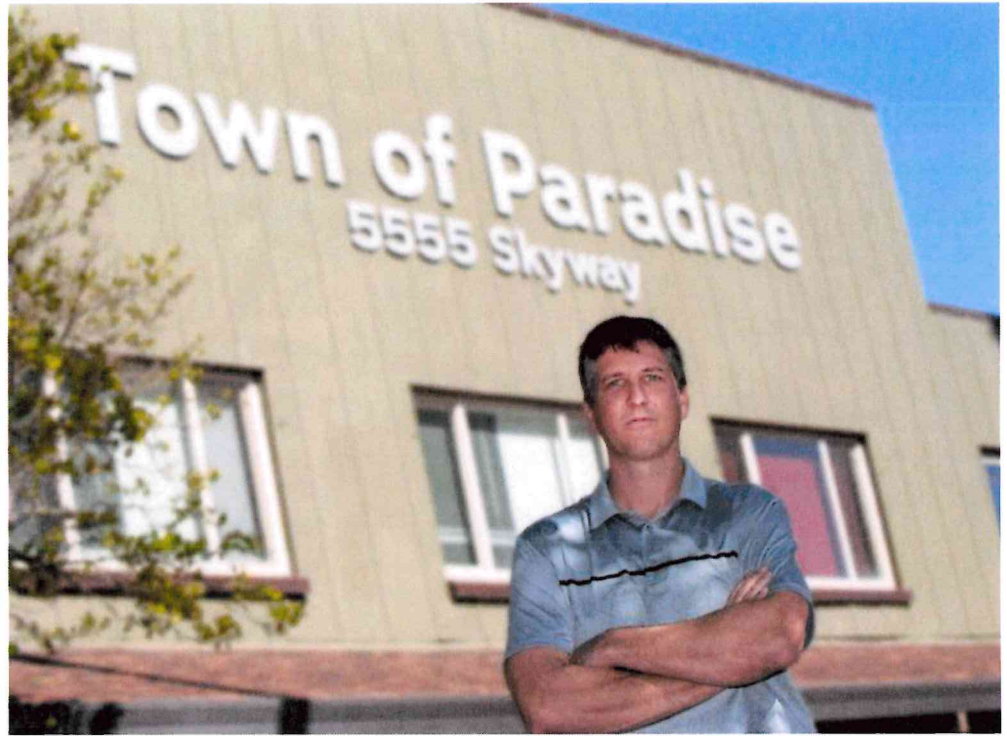
The rebuilding of the town in Paradise, California that was destroyed by the Camp Fire continues with a focus on the rapid replacement of water service lines. “When we’re done, there will be about 315,000 feet of new HDPE service lines,” stated Kevin Phillips, Town Manager for the Town of Paradise.

Prior to the 2018 fire, the town had a population of 26,000. During 17 days starting on November 8, 2018, the fire destroyed some 150,000 acres and nearly 19,000 homes and buildings.

The Paradise Irrigation Department is replacing all water service lines using high-density polyethylene (HDPE) PE 4710 pipe in diameters of one to two inches. The pipe, PolyFlex™ CTS potable water service tubing from Advanced Drainage Systems, Inc. (ADS), is resistant to rot and corrosion, can be easily installed, and is consistent with industry specifications for potable water.

“This SDR 9 PolyFlex tubing from ADS is produced in accordance with AWWA Standard C901, and meets NSF 14 and 61 standards,” explained Camille George Rubeiz, PE, F. ASCE, Co-Chair, HDPE Municipal Advisory Board and Senior Director of Engineering, Municipal and Industrial Division of the Plastics Pipe Institute, Inc. (PPI). “This means that the pipe is certified for potable water systems because it meets or exceeds the requirements for health effects in drinking

water components, and also the performance criteria of plastic piping components as stipulated by NSF. PE 4710 compounds offer an excellent level of performance for trenchless and open cut installations. The PE 4710 HDPE pipe can be used with increased flow capacities plus increased resistance to surge events and fatigue. The ANSI/AWWA C906-15 standard includes PE 4710 for sizes up to 65 inches and recognizes the increased durability and reliability of HDPE pressure pipe used in water systems.”



Kevin Phillips, Town Manager, Town of Paradise

After the fire, accusations were made that sections of burnt plastic pipe found above ground created benzene, which found its way into the Paradise water system. The Plastics Pipe Institute, the major North American trade association, investigated.

“These claims are patently false,” stated David Fink, PPI President. “There has been no evidence that plastic pipes are responsible for the production of benzene or any other contaminant due to the heating of the pipes during the Camp Fire. It’s clear that the contamination was from the millions of tons of the fire-ravaged environment that got sucked into water system.”

According to Phillips, “What the district saw was that the contamination from the fire was not associated with any particular pipe material and that even the galvanized and copper pipes that were in the ground saw the same amount of contamination as the polyethylene. There was a similar percentage of contaminated service laterals with those other materials as there was with polyethylene. So, we decided to continue to use polyethylene because of the ease of use and the cost being the best on the market. We felt it would be the best choice for the rebuilding of Paradise.

“This town was built during many, many decades. When they first started building it, the pipes in the ground were actually lead. During the boom in the 1950s, most of the pipes that went into the ground were galvanized steel. There were issues with corrosion so the district moved to copper pipe which, at that time, was the industry standard. Again, there were flexibility and corrosion issues especially with the acidic soil conditions. And so, the district finally moved to polyethylene because of the durability and made that our standard. We felt it would be in the ground for many, many years. Even after the fires, we found the buried polyethylene was undamaged from direct contact with heat. The issue we

found was contamination in the majority of service laterals which served burned structures, regardless of material type, so we needed to replace those service lines. It [the HDPE pipe] also gave us the ability to come back and upsize those service lines to support the rebuild and meet with customers' requirements for their meters and fire service. PE seems to be the best product to meet those needs. Seismically, it's flexible and can handle the movement up here. It's easy to pull in trenchless which makes it beneficial for the rebuild process.

"We felt the best form of protection for our service laterals was not the material itself but just putting in backflow protection to reduce the chance of contamination entering the system during a depressurization event. Again, we believe the occurrence of contamination wasn't associated with the material of the piping, it was associated with the depressurization, contamination being drawn into the system, and how long the system was disconnected to allow that contamination to adsorb into the pipe walls."

Phillips estimates that the new Town of Paradise will take nearly 20 years to be back to where it was prior to the Camp Fire.

"It takes a long time to build homes," he said. "We have had a huge surge of building permits issued in the Town of Paradise. There is a ton of pressure on getting new water service to those new rebuilds. And with polyethylene, it has created efficiencies so that we can get out there and get a service line in within an hour or two of that request. Once we get there and onsite, it's very easy to get in that water line because of the use of polyethylene.

"By use of the polyethylene and the ability for us to get it in without a lot of problems and be able to get it in the street and work around issues that might be there, such as rocks and other services that are coming underground. It makes the rebuild process and getting the water service back a lot easier than it would be if we had to bore through with a steel or copper (pipe). PE is our standard moving forward and throughout the rebuild process."

Additionally, large diameter N-12@ corrugated HDPE pipe from ADS is being used on several stormwater drainage projects in Paradise. These include the Paradise tennis courts and the Paradise softball field.

As a service to the industry, the PPI recently published its analysis of benzene contamination found at the site of the 2018 Camp Fire catastrophe in and around Paradise. The 13-page report, PPI Document TR-51 "Investigation of Benzene in Drinking Water Following the "Camp Fire" in Paradise, CA", is available free at the PPI website:

plasticpipe.org/pdf/ppi-tr-51-2020.pdf.

More information can be found at plasticpipe.org.

Source: [Plastics Pipe Institute](https://plasticpipe.org)

[plastic piping](https://plasticpipe.org)