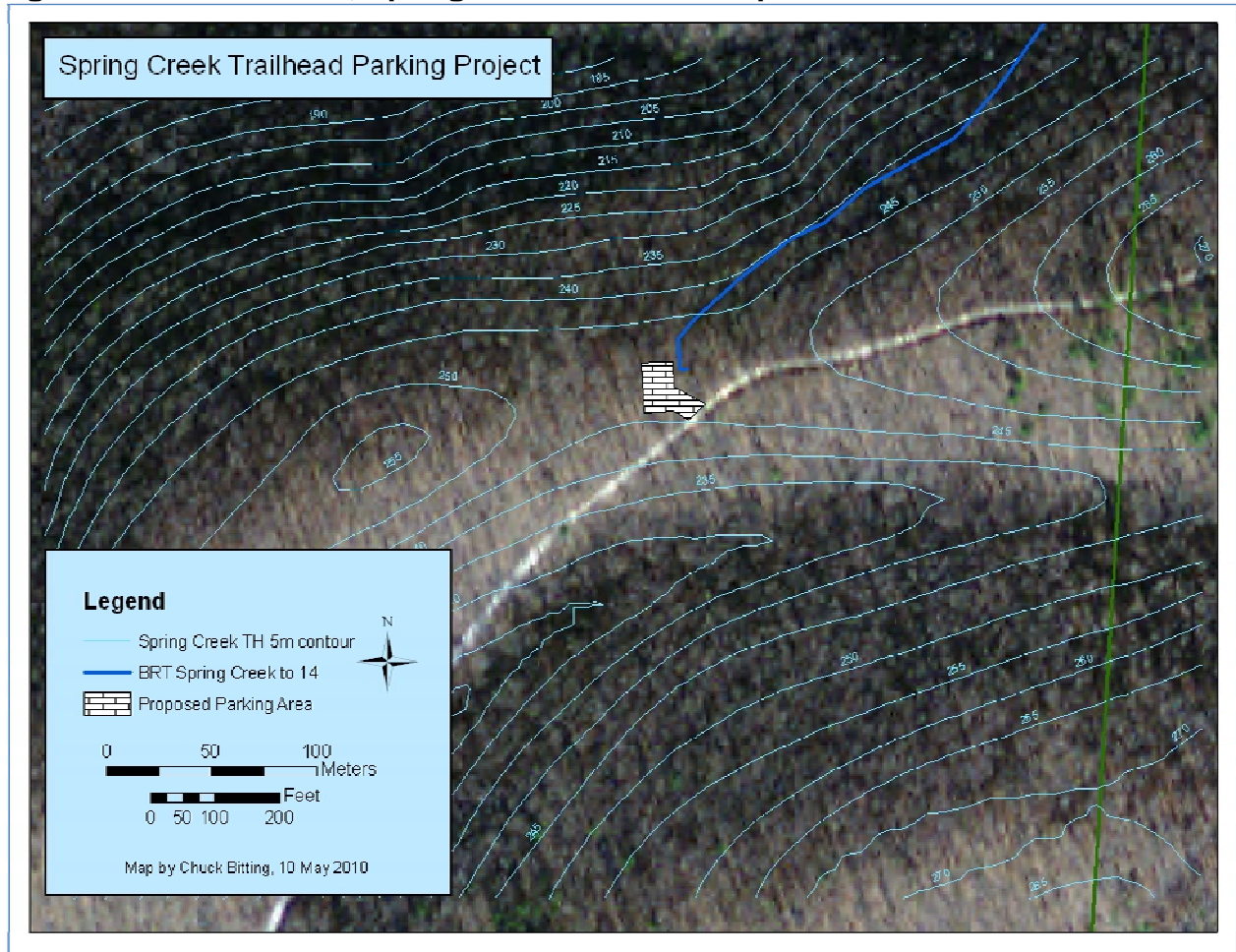
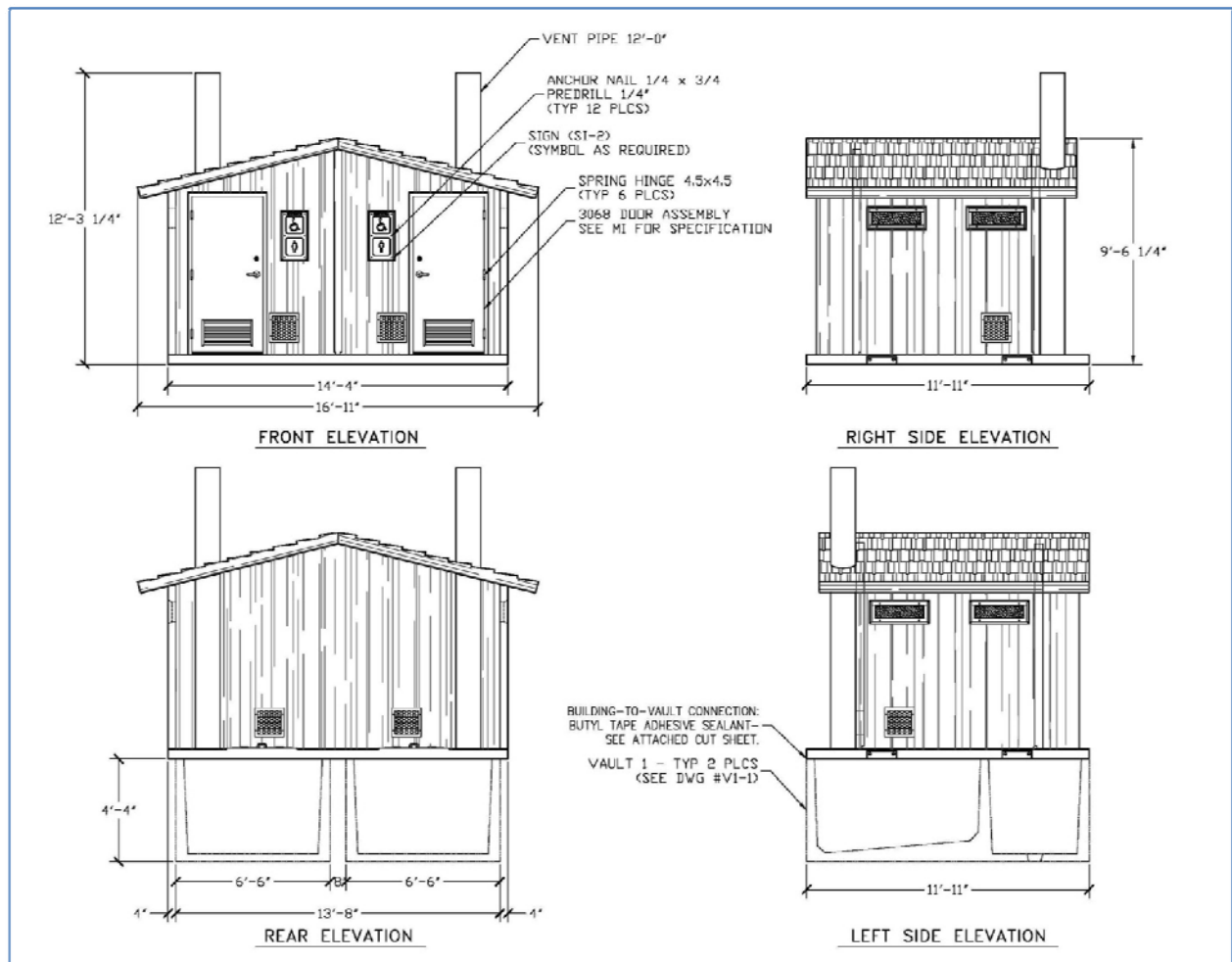


**Figure 4 – Alternative B, Spring Creek Trailhead Improvements****Hasty Landing**

**Planned Improvements** – A new canoe walkway would be constructed directly from the parking lot to the gravel bar, where excessive social trailing is causing deep bank erosion and destabilization. Additionally, the existing walkway at the downstream end of the parking area would be stabilized and barriers would be installed to prevent the use of existing social trails as well as prevent the development of new social trails. Area of social trails would be restored by revegetating them. Various devices like large rocks and fence railing would be installed to direct foot traffic down canoe walkway. Two large trees in the parking area would be removed to improve vehicle maneuvering and increase parking space. The parking area would be slightly expanded by squaring off the corners and re-graded to improve control of stormwater runoff. A modern, two-room double vault toilet facility with Sweet Smelling Technology would be installed in one of three locations; slightly uphill from the existing cabana style facility, about 150 – 200 feet uphill of the existing cabana style facility or directly across the access road from the existing cabana style facility, at the



edge of the parking lot. The exact location is dependent on the outcome of the geotechnical drilling. The facility restroom facility proposed for placement at Hasty would be a concrete building that with a plastic lined concrete vault. Site preparations for installing the new facility would require an area of approximately 25' by 30' to be graded to create a level site for the facility. The "Sweet Smelling Toilet" system principally relies on solar gain to warm the air within a 12" black vault flue pipe, creating positive air pressure in the pipe, and thus a draft is pulled from the negative air pressure within the vault (tank). The goal is to cause the air in the restroom to go down the riser (toilet), through the vault, and exit up the flue pipe, keeping odor out of the restroom. In order to achieve adequate air flow in the flue pipe it must be exposed to sunlight as much as possible. By orienting the building with the rear to the south and removing any shrubs and trees that would "shade" the pipe maximum solar gain can be achieved. Trees would need to be removed up to a distance of 50' from the east, south and west sides of the building to get sufficient exposure. The amount of vegetation removed for each possible site location would be 0.015483 acre for Option A, 0.037001 acre for Option B, and 0.021399 acre for Option C.



Figures of proposed restroom facilities in Tioga configuration, courtesy of CXT Precast Products ([www.cxtinc.co](http://www.cxtinc.co))





- **Use/Operation of the Facility** – The improved facility would continue to be primarily for use by visitors. Access by emergency responders would be improved during periods of heavy use.
- **Utilities** – This facility would not require any utilities.
- **Access** – Access to the gravel-bar by way of the two canoe walkways would be improved by decreasing the slope of the main, direct walkway from the middle of the parking area and restoration of the walkway at the end of the parking area. Both

walkways would be stabilized using natural materials designed to stay put during flood events. The main, central walkway would be constructed of large limestone blocks cut and placed to make shallow steps down to the gravel bar. Minor retaining walls made of materials designed to match the limestone formations in the area would be installed on each side of the main ramp to further stabilize the walkway and tie the slopes. Pedestrian access to the new restroom would be improved by the addition of a new path from the parking lot along the south side of the entrance road. A few trees and undergrowth would be cleared to make way for the new path. The trail would consist of a combination of earthen pathway and wooden or wooden-like board walks.

- **Parking** – The existing parking area would be slightly expanded by squaring off the corners to make the most efficient use of the space. Two trees located within the parking area would be removed to improve vehicle maneuvering. The parking surface would be removed, re-graded, and graveled using approximately 30 to 60 CY of local crushed rock to improve drainage and reduce the erosion of gravel into the river following heavy rain and flood events. The entrance road would be resurfaced with approximately 15 to 30 CY of local crushed rock.



- **Revegetation** - Very little revegetation would be required because, with the exception of the social trails, the only area cleared and grubbed for the project would be that which would either be graveled for vehicle traffic or packed down for pedestrian traffic. Any excess areas disturbed by construction would be revegetated using native species. The social trail that splits off of the walkway at the southeast end of the parking lot would be restored using native species that can withstand heavy flood events, such as the switchcane (*Arundinaria gigantea*) that already grows around the trail.
- **Construction Staging** – The landing should remain open throughout the construction phase; however, portions of it may be temporarily closed while construction activities are taking place. Construction would take place during the fall when the potential for severe flooding is lowest.
- **Environmental Protection** – As required by Section 402 of the CWA, the NPS may need to obtain a Stormwater Construction permit from ADEQ. The permit includes the requirement

to complete an erosion control plan and use Best Available Technology to ensure the project does not contribute sediments and oily run-off from construction vehicles to the river. The project may also require consultation with and permits from the U.S. Army Corps of Engineers under Section 404 of the CWA and Water Quality Certification from the ADEQ under Section 401 of the CWA.

**Figure 5 – Alternative B, Hasty Landing Improvements**

