

Description of Bridge Design– Pedestrian Bridge Replacement over Brookhaven Creek

This project proposes the construction of a permanent pedestrian bridge to replace a previously existing structure over Brookhaven Creek, which was removed due to flood-related damage and safety concerns. The bridge connects the Westchester Townhomes' internal sidewalk system to the community pool facility. The replacement bridge will tie into the existing sidewalk paths and match the original bridge's grades and elevations to ensure continuity, accessibility, and aesthetic consistency.

Scope of Work:

1. Bridge Alignment and Integration:

- The new structure will be installed in the same location as the original bridge and will tie into the existing sidewalk approaches on both sides.
- The grades and elevations of the new structure will match those of the former bridge, ensuring seamless ADA-compliant pedestrian access without altering the existing slope or alignment.

2. Structural Components:

- Two W12x40 steel I-beams (12-inch tall) will serve as the primary load-bearing members.
- Each beam will span 50 feet, with a 20-foot clear span over the creek and 15 feet of overhang on either side, anchored into grade for structural stability.
- Beams will be spaced 8 feet apart, center-to-center.

3. Decking and Concrete Slab:

- Treated $\frac{3}{4}$ -inch plywood will be temporarily installed between the beams as a base for forming the concrete slab.
- A plastic sheeting layer will be installed over the plywood to prevent concrete seepage into the creek during pouring.
- An 11-inch thick reinforced concrete slab will be poured in place, integrally connecting the two beams to form a monolithic deck.

4. Rebar Reinforcement:

- #4 rebar will be installed in two layers (top and bottom), forming a 12-inch grid in both directions.
- The grid system will be tied and welded at all joints for maximum reinforcement integrity and load distribution.

5. Environmental and Site Considerations:

- No heavy equipment will enter the creek bed; all construction will occur from the top of the banks.
- Erosion control barriers and protective sheeting will be used to safeguard the creek from sediment or concrete runoff.
- All work will comply with floodplain and environmental protection standards as applicable.

6. Use and Load Rating:

- The bridge is designed for pedestrian traffic only, including foot traffic from residents and seasonal access to the pool area.
- No motorized vehicles, bicycles, or livestock will use the bridge.

7. Timeline:

- Construction will begin immediately following permit approval and be completed within 30 calendar days.
- All work will occur during daylight hours and pose no disruption to natural water flow.