

Holmes Run Bike Trail Study

Preferred Alternative

City of Alexandria, Virginia
Prepared by STV Incorporated

May 6, 2013

The Holmes Run Bike Trail is within the Holmes Run flood channel in the vicinity of I-395 to the fair weather crossing. High-water events often render the trail impassible in this area. Studies were conducted, which included various improvements along the trail to provide an accessible path that would remain passable during high water events.

Consideration was taken to remove the trail from the flood channel. These options included a new tunnel under I-395 approximately 22-feet above the existing tunnel leading to a midblock crossing on Van Dorn Street, raising the existing trail and tunnels under I-395 and Van Dorn Street approximately 5-feet, and constructing an impervious flood wall along the existing trail.

Options to replace the existing fair weather crossing included a new pedestrian bridge or low profile crossing. While the low profile crossing would remain above the waterline in minor high water events, it would likely be submerged during larger storms.

Preferred Alternative

The preferred alternative will maintain the trail at its existing elevation until it nears the existing fair weather crossing. From that point, it will be raised to meet a new pedestrian bridge across Holmes Run. The existing stairs will be removed and replaced by the new pedestrian bridge at the southern end, providing an accessible route of travel will be provided through the site.

During high water events, the Holmes Run Trail will not be passable. However, the proposed pedestrian bridge will continue to provide access across Holmes Run between the northbound and southbound lanes of Holmes Run Parkway during these times.

The existing lighting in the I-395 tunnel will be upgraded and/or repaired.

Emergency call boxes will be included at the head of the trail and on either end of the pedestrian bridge. Further studies should be conducted to determine additional locations along the extent of Holmes Run Trail.

The estimated cost for the preferred alternative is \$1,247,598 (refer to attached cost estimate). This includes major quantities and a 40% contingency. Included in this estimate is an item for repairs to the existing Holmes Run Trail.

Section E-E

Refer to attached layout plans. Section E-E consists of an 8-inch-thick reinforced concrete (RC) box structure and retaining wall to support the proposed bike trail. In order to not infringe on the waterway, the outer edge of the trail will be in line with the existing grade. A 1-foot-thick retaining wall, in conjunction with an 8-inch vertical RC wall, will be required to support the 14-foot-wide RC slab. See Figure 1.

The trail will ascend at a 4.9% slope to connect the existing trail to the new pedestrian bridge. This section of box structure and retaining wall is estimated to be approximately 240 feet long. The existing trail adjacent to the new structure will be removed.

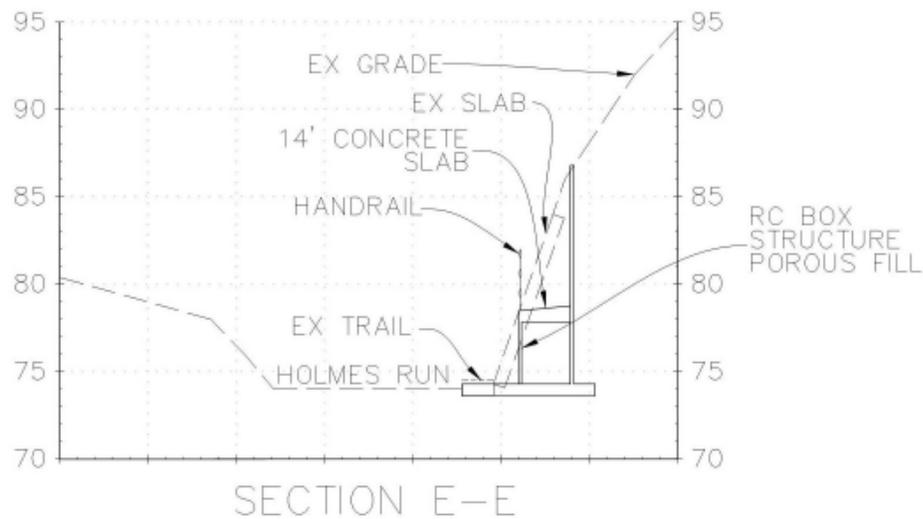


Figure 1: Section E-E. 5:1 vertical exaggeration

It is not anticipated that Section E-E will require stream diversion during fair weather times. However, because much of the construction will take place within the flood channel, precaution should be taken to ensure that construction will be protected during a potential high water event.

Temporary support of excavation will be required at the base of the slopes.

Section F-F

Section F-F consists of a 150-foot-long, 14-foot-wide simple-span, prefabricated, pedestrian bridge. Standard construction practices can be used. The elevation of the bridge is intended to be 1-foot above the historic high water line, so that it will remain passable during high water events. See Figure 2.

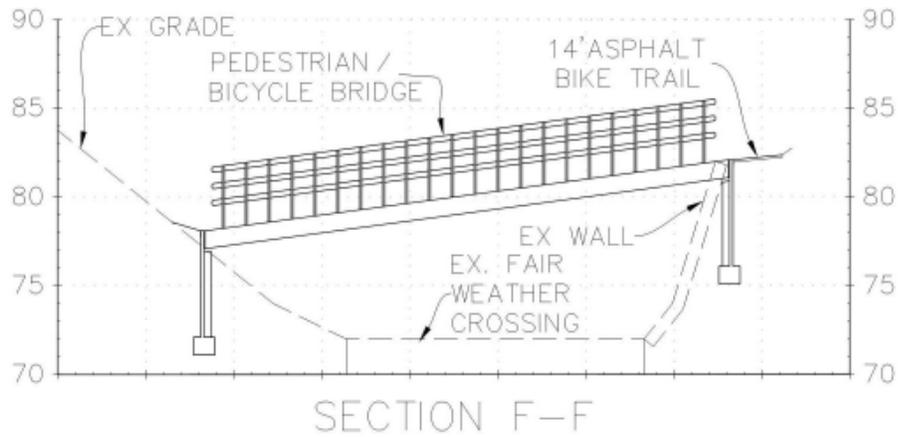


Figure 2: Section F-F. 5:1 vertical exaggeration

The abutments will be cast in place and will require stream diversion. Although minimal diversion will be required for the stream's average flow, precaution should be taken to ensure that construction will be protected during a potential high water event.

Temporary support of excavation will be required at the base of the slopes.



Figure 3: Typical prefabricated pedestrian bridge

The approaches to the pedestrian bridge will be reconstructed to adjust the grade and connect to the proposed bridge.

Because the pedestrian bridge and approaches may partially lie within the Holmes Run flood channel, further studies and permitting may be required prior to their construction.

On-Street Component

The proposed pedestrian bridge will remain passable during high water events. However, as discussed earlier, because much of the trail will remain at the existing elevation, adjacent to Holmes Run, it will be passable only during fair weather times.

When the trail is not passable for pedestrians and cyclists due to high water, an alternate on-street route will be available, connecting the proposed Ripley Street pedestrian bridge with the Beauregard Street corridor. This route will follow Holmes Run Parkway, North Van Dorn Street, Sanger Avenue, and North Beauregard Street. See Figure 4.

Pedestrians and cyclists could re-join Holmes Run Trail at the trailhead on the southbound side of North Beauregard Street, or continue along Beauregard Street. Due to the proximity of Holmes Run to the trail in this area, the trail may not be passable during high water events.

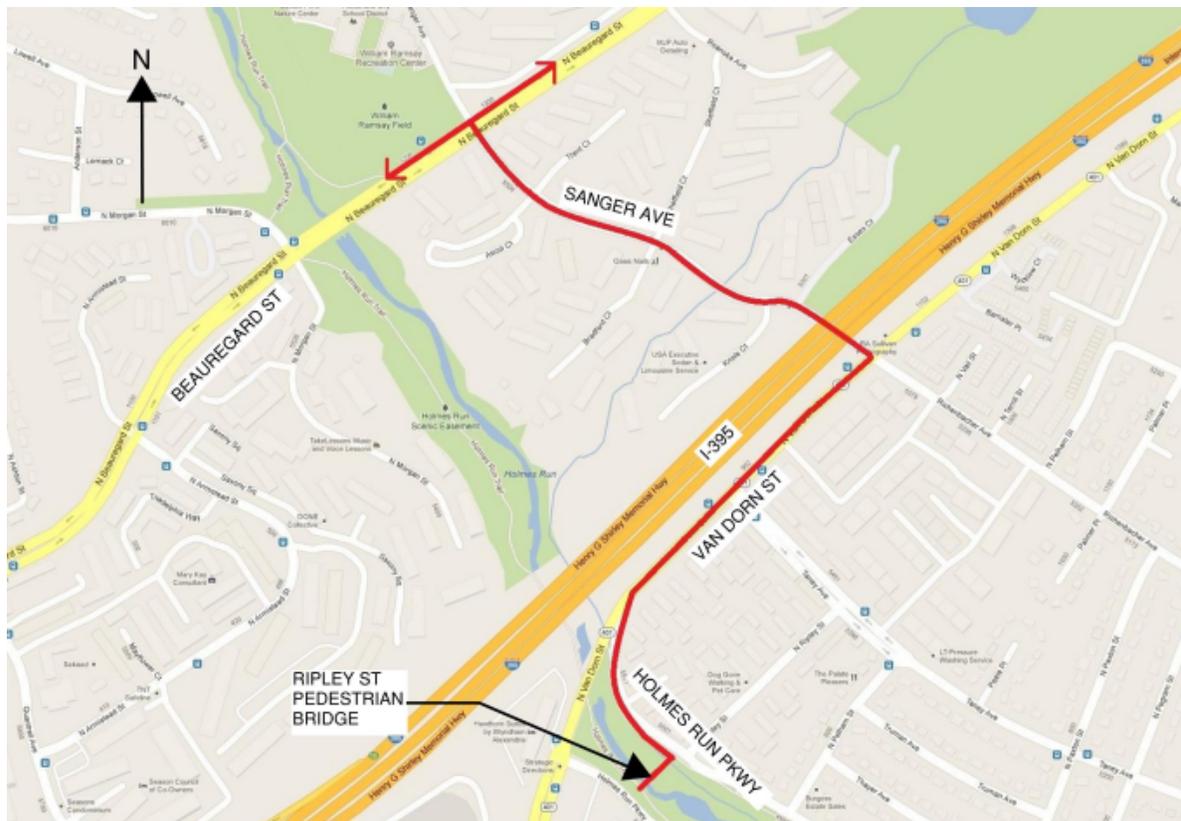
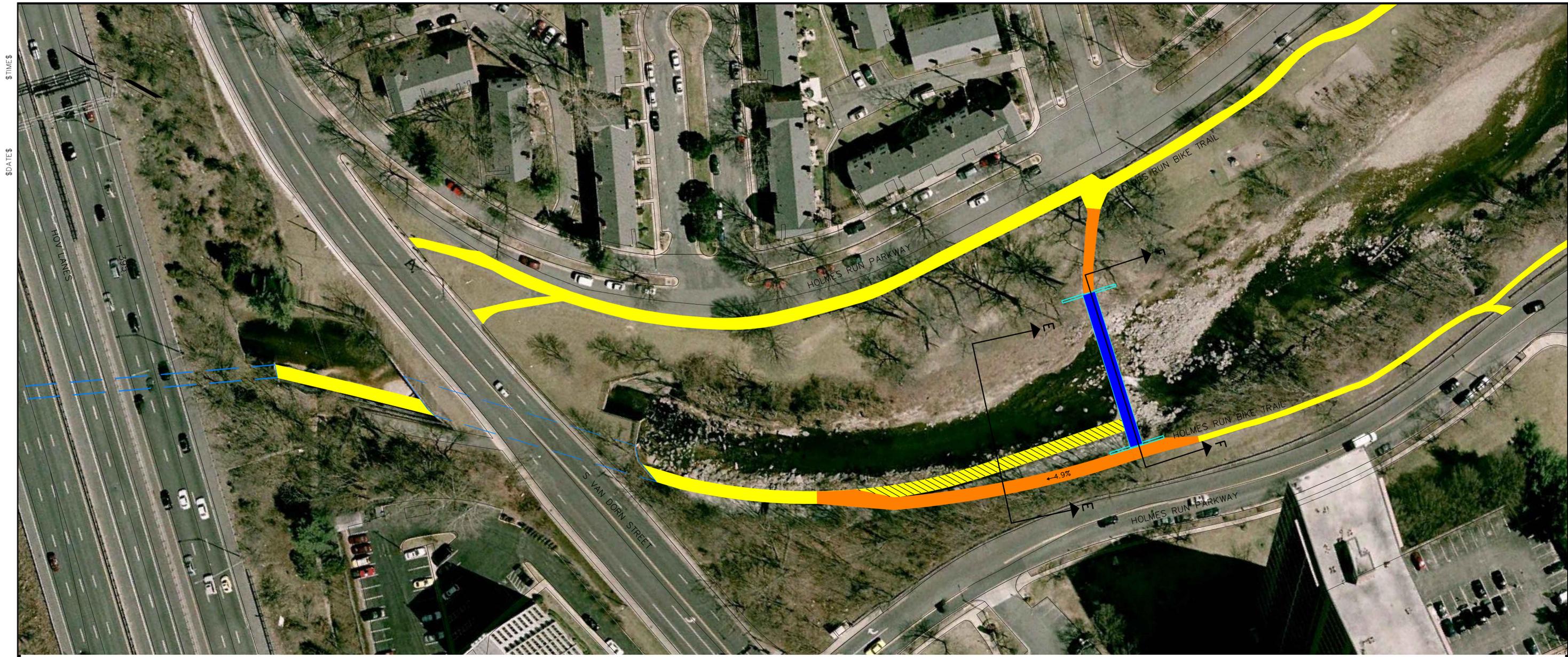


Figure 4: On-Street Route Map

Because of the limited pavement and right-of-way widths available, dedicated bicycle lanes cannot be constructed without significant impacts. Instead, Shared Lane Markings (“sharrows”) and signs for cyclists will be implemented. See Figure 5. The existing sidewalks along the entire route will be used by pedestrians.



Figure 5: Typical Shared Lane Markings

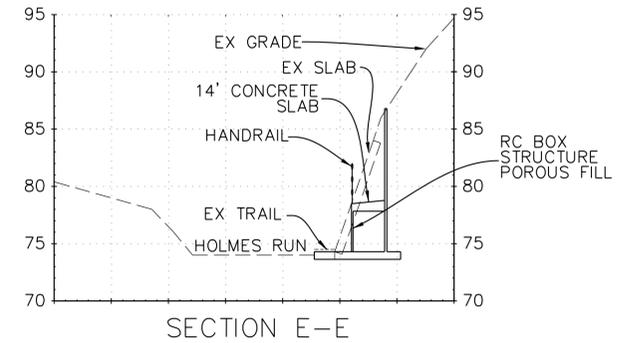


LEGEND

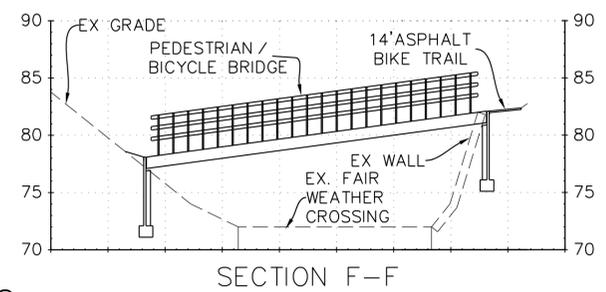
-  EXISTING TUNNEL
-  EXISTING TRAIL
-  DEMO EXISTING TRAIL
-  PROPOSED TRAIL
-  PROPOSED PEDESTRIAN BRIDGE

LAYOUT PLAN

SCALE: 1" = 40'-0"



SECTION E-E



SECTION F-F

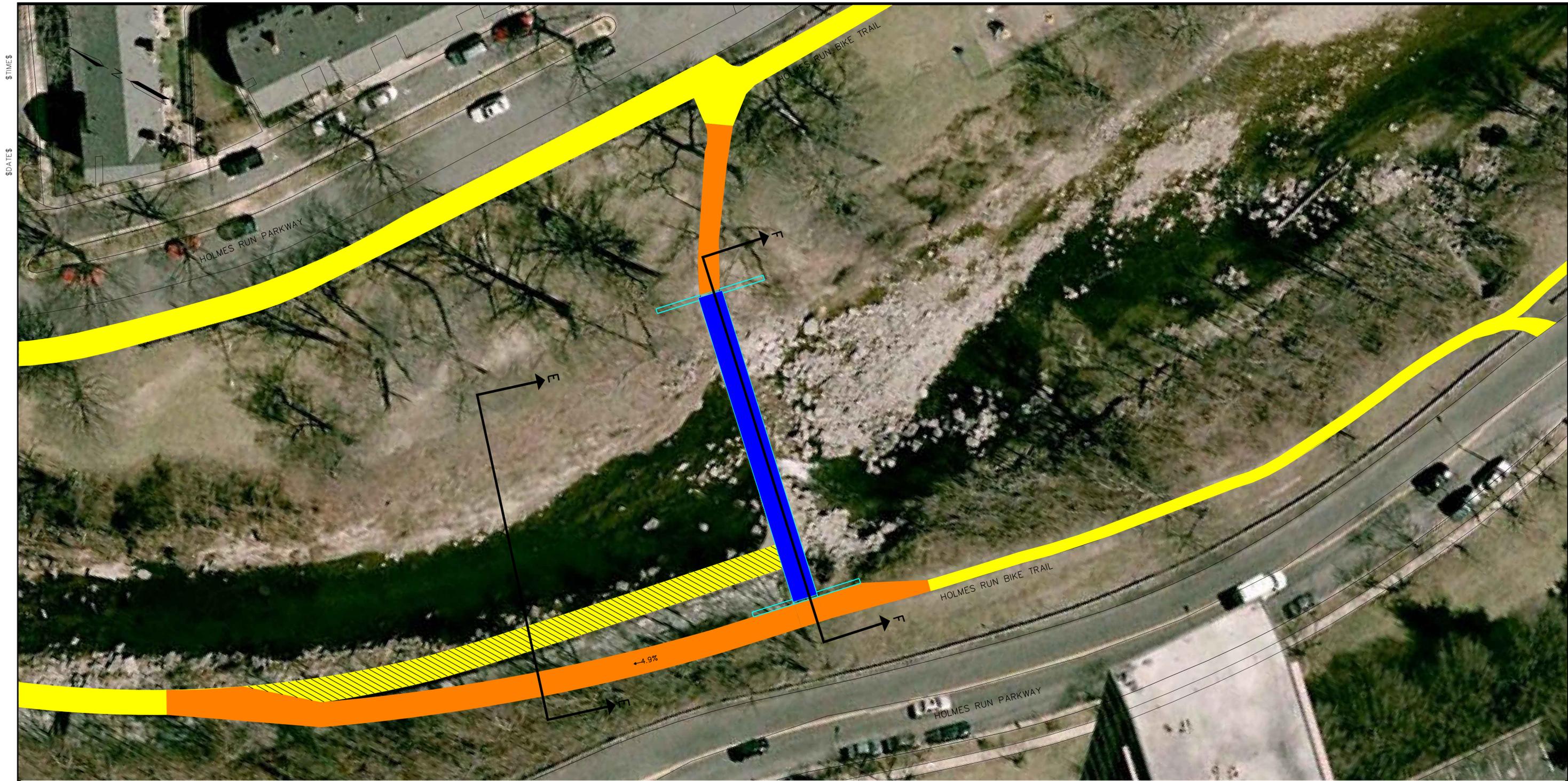
SECTIONS
N.T.S.

REV. NO.:	REVISION:	DRAWN BY:	CHECKED BY:



CLIENT: CITY OF ALEXANDRIA
 TITLE: PREFERRED ALTERNATIVE

DATE:	PROJECT:
HORIZONTAL SCALE:	HOLMES RUN BIKE TRAIL STUDY
VERTICAL SCALE:	
DRAWN BY:	ATTACHED REFERENCE FILES:
DESIGNED BY:	JOB NUMBER:
CHECKED BY:	SHEET NUMBER:
	1 OF 2



LEGEND

- EXISTING TRAIL
- PROPOSED TRAIL
- DEMO EXISTING TRAIL
- PROPOSED PEDESTRIAN BRIDGE

LAYOUT PLAN
SCALE: 1" = 20'-0"

REV. NO.:	REVISION:	DRAWN BY:	CHECKED BY:



CLIENT: CITY OF ALEXANDRIA
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DATE:	PROJECT: HOLMES RUN BIKE TRAIL STUDY		
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