

# **P** **STAKEHOLDER COORDINATION – TECHNICAL MEMORANDUMS**

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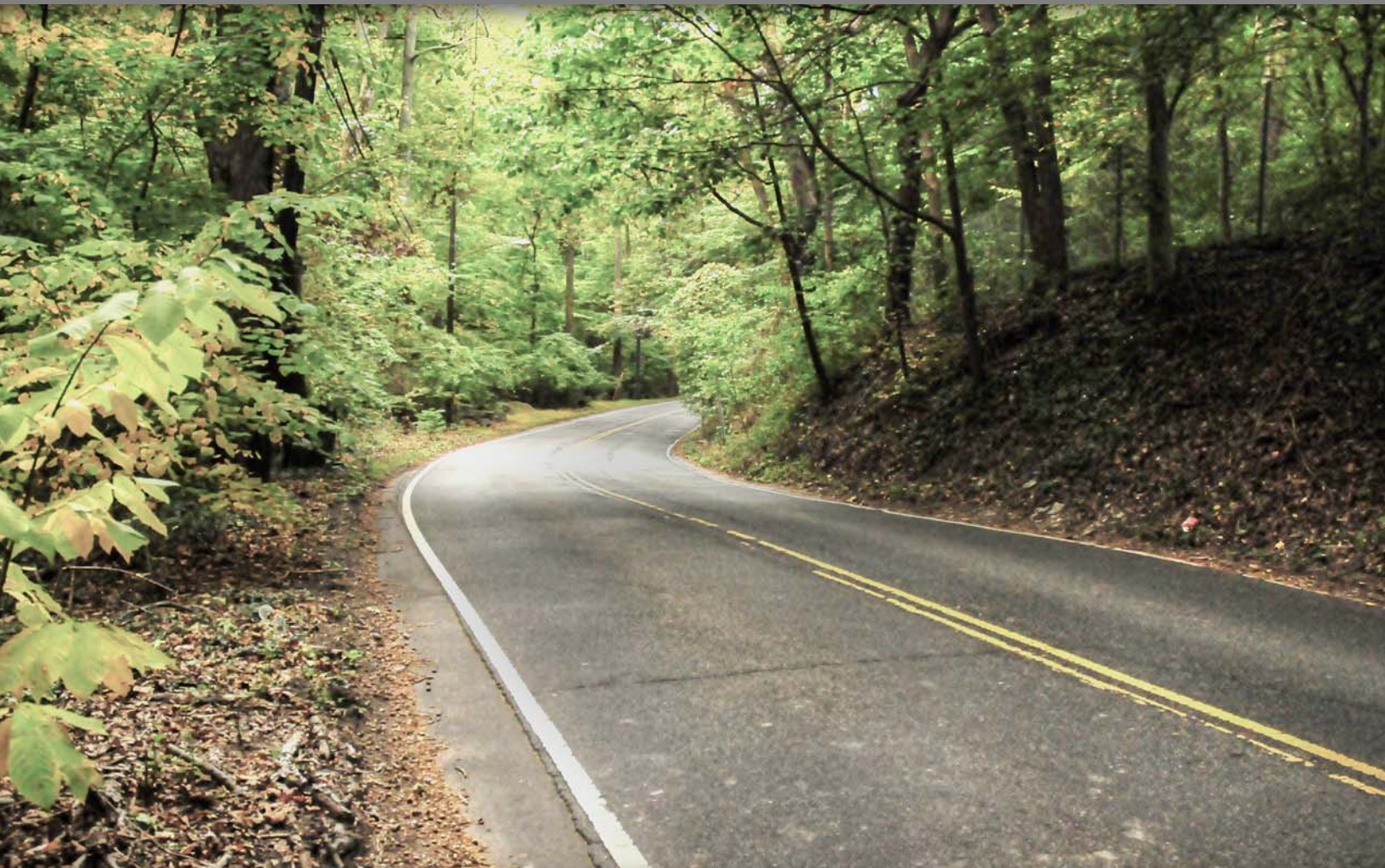
Following release of the initial EA, DDOT continued coordination with major stakeholder/property owners along the project corridor. Technical memoranda were submitted to the Hillwood Estate, U.S. State Department and the National Park Service. These memorandums provided an overview of the proposed project as well as site specific information regarding potential impacts to each of the properties. Copies of each are included in this appendix in the following order:

- Summary of Impacts to Properties of Sovereign Nations
- Summary of Impacts to Hillwood Estate, Museum, and Gardens
- Summary of Impacts to Rock Creek Park

# REHABILITATION OF BROAD BRANCH ROAD, NW WASHINGTON, DC

February 2018

## SUMMARY OF IMPACTS TO PROPERTIES OF SOVEREIGN NATIONS





# **Summary of Impacts to Properties of Sovereign Nations Identified in the Environmental Assessment for Rehabilitation of Broad Branch Road, NW**

Prepared for  
Federal Highway Administration  
and  
District Department of Transportation

February 2018

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# 1 INTRODUCTION

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The Federal Highway Administration (FHWA) in conjunction with the District Department of Transportation (DDOT) and in cooperation with the National Park Service (NPS), are proposing the rehabilitation of a 1.5-mile segment of Broad Branch Road, NW, between Linnean Avenue, NW and Beach Drive, NW, a portion of which abuts the southwestern border of Rock Creek Park. The existing two-lane Broad Branch Road lies almost entirely within DDOT right-of-way and is maintained by DDOT.

Five properties along DDOT's Broad Branch Road right-of-way are owned by foreign countries for use as residences for their ambassadors to the United States (**Figure 1**). Sovereign Nations that own property from north to south along Broad Branch Road include: Tunisia, Ivory Coast, Peru, Malaysia, and Italy. The main entrance to the ambassador's residence for the Ivory Coast is from Broad Branch Road. Ambassadors' residences for Tunisia, Malaysia, and Italy are accessible from Broad Branch Road; however, these entrances appear to be secondary. A gatehouse at the entrance to the Italian embassy residence occurs along Broad Branch Road. There is no access to the Peruvian embassy residence from Broad Branch Road.

The existing roadway is located within DDOT right-of-way, with minor exceptions. The single encroachment on the west side of the Broad Branch Road occurs where a curve in the southbound lane enters private property owned by a Sovereign Nation (the Republic of Peru). The location of the roadway, outside of the DDOT-owned right-of-way, may be due to inconsistencies in survey bounds that existed when the current Broad Branch Road was constructed or may be the result of previous repaving projects. This Environmental Assessment (EA) will serve to provide the appropriate action needed to correct the inconsistency, which may include an easement, land transfer, or permit.

In addition, existing features of Sovereign Nation property extend into DDOT right-of-way. A portion of the stone retaining walls at the entrance to the Gatehouse driveway at La Villa Firenze, the residence of the Ambassador of Italy, extends into DDOT's existing right-of-way.

The EA evaluates one No Action (or no build) alternative and three Candidate Build Alternatives. The three Candidate Build Alternatives were developed to address the deficiencies in the existing roadway infrastructure and stormwater management systems and improve the safety of motorists, pedestrians, and bicyclists. Alternative 2 is the narrowest build alternative and basically rebuilds the roadway with two 10-foot travel lanes on its existing alignment. Alternative 3 adds a 6-foot wide sidewalk on the west side of the roadway for the entire length. Alternative 4 is the widest of the build alternatives and consists of two 10-foot travel lanes, a 6-foot wide sidewalk on the west side, and a 4-foot wide bike lane on the east side.



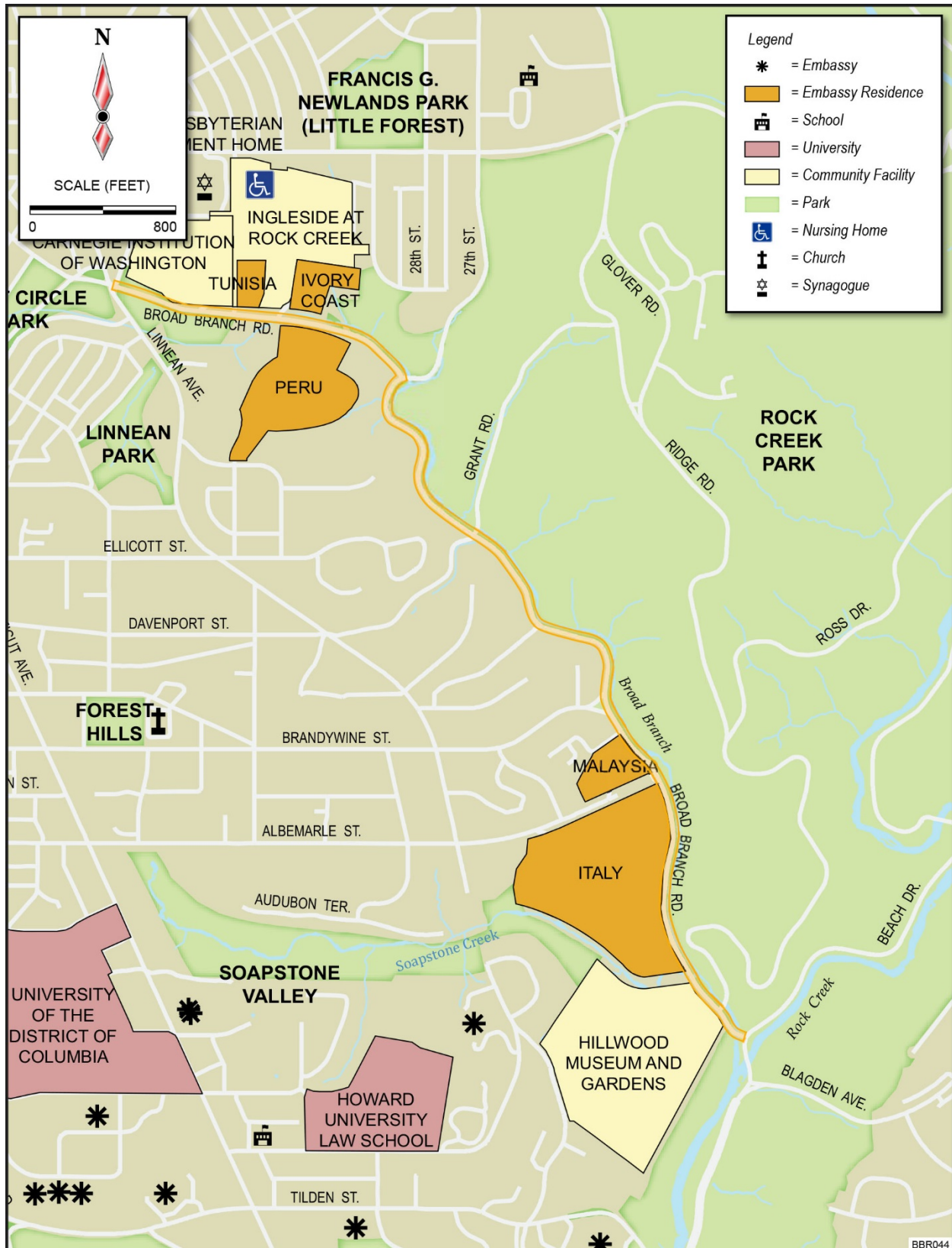


Figure 1. Locations of Embassy Residences Owned by Sovereign Nations in the Broad Branch Road Project Area

## 1.1 ALTERNATIVES

**No Action Alternative 1** consists of only short-term minor restoration activities (safety and routine maintenance) that maintain the continuing operation of the existing roadway.

**Candidate Build Alternative 2** consists of two 10-foot wide travel lanes with standard curb and gutter on the east side with either a standard curb and gutter or linear rain garden (bio-swale) to capture stormwater runoff on the west side (see **Figure 2**). The 10-foot wide linear rain garden will be provided for approximately 1,000 feet south of Linnean Avenue. Retaining walls will be provided on both sides of the roadway as needed to keep proposed improvements within the DDOT-owned right-of-way. The existing storm drain outfall locations will be maintained and stormwater management will be improved by providing bio-swales/rain gardens where space is available along with water quality catch basins. The proposed improvements also include the replacement of the Soapstone Creek culvert. The total estimated project cost is \$29.0 million. The approximate construction duration is 24 months.

**Candidate Build Alternative 3** consists of two 10-foot wide travel lanes, a 6-foot wide sidewalk on the west side of the roadway for the entire length, and standard curb and gutter (see **Figure 3**). A 10-foot wide linear rain garden will be provided between the sidewalk and roadway for approximately 1,000 feet south of Linnean Avenue where the curb and gutter will be located along the east side only. South of that, a 4-foot wide planting strip will separate the sidewalk and roadway. The proposed sidewalk will be extended from the end of the DDOT right-of-way to the Rock Creek Park parking lot just north of Beach Drive. Additional right-of-way will be required in some locations to accommodate the proposed sidewalks and planting strips. Retaining walls will be provided on both sides of the roadway as needed to minimize steep side slopes. The existing storm drain outfall locations will be maintained and stormwater management will be improved by providing bio-swales/ rain gardens where space is available along with water quality catch basins and the Soapstone Creek culvert will be replaced. The total estimated project cost is \$34.2 million. The approximate construction duration is 30 months.

**Candidate Build Alternative 4** is the wider of the two alternatives and consists of two 10-foot wide travel lanes, a 6-foot wide sidewalk on the west side, a 4-foot wide bike lane on east side, and standard curb and gutter on both sides of the roadway (see **Figure 3**). A 10-foot- wide linear rain garden will be provided between the sidewalk and roadway for approximately 1,000 feet southward of Linnean Avenue where the curb and gutter will be located along the east side only. South of that a 4-foot wide planting strip will separate the sidewalk and roadway for the western length of the project and the curb and gutter will be located on both sides. Alternative 4 also extends the proposed sidewalk to the Rock Creek Park parking lot. Retaining walls will be provided on both sides of the roadway as needed to minimize steep side slopes. Like Alternative 3, additional right-of- way will be required in some locations to accommodate the proposed sidewalk and planting strip, as well as the retaining walls on the east side. The existing storm drain outfall locations will be maintained and stormwater management will be improved by providing bio-swales/rain gardens where space is available along with water quality catch basins. The Soapstone Creek culvert will also be replaced. The total estimated project cost is \$37.1 million. The approximate construction duration is 36 months.



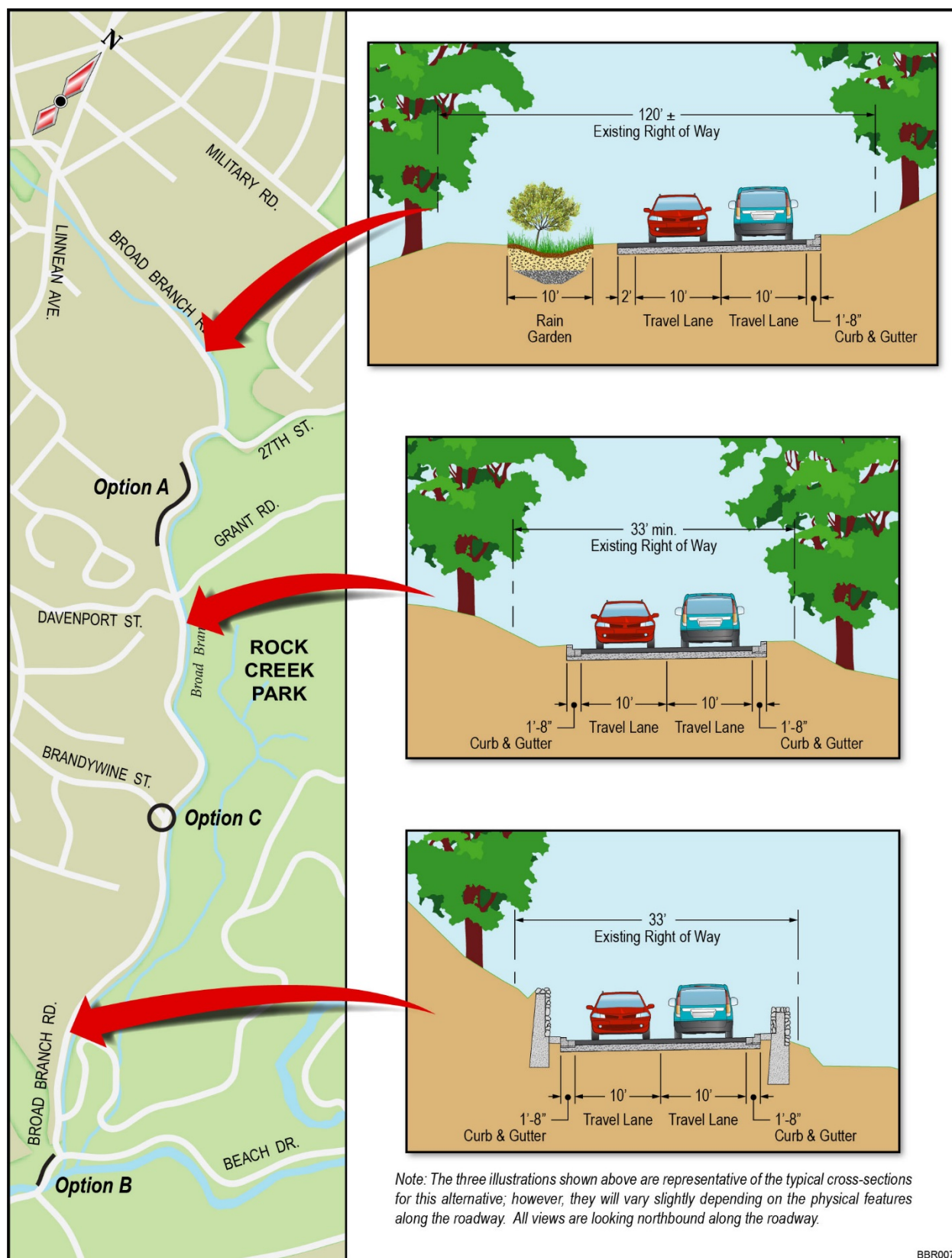


Figure 2. Candidate Build Alternative 2

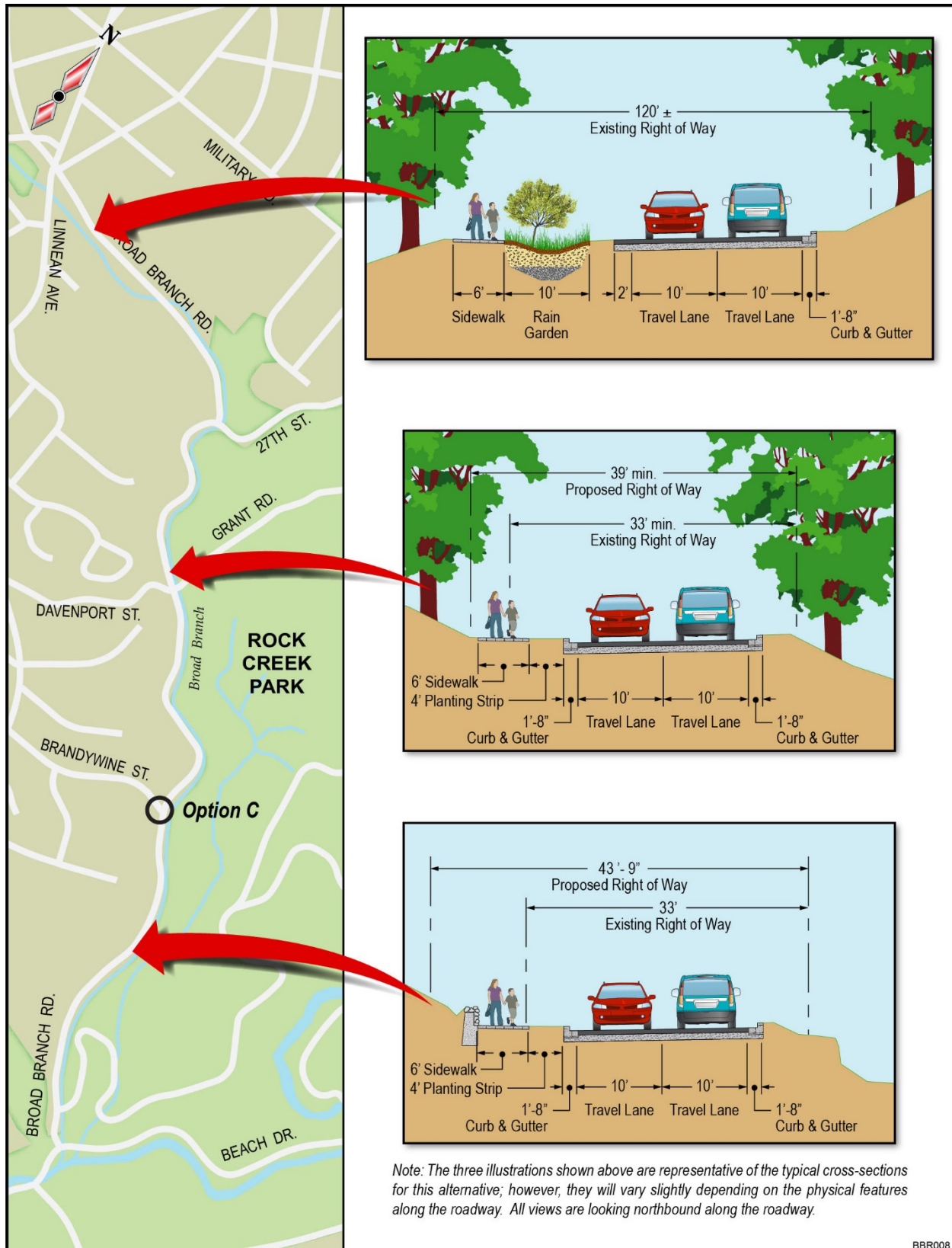


Figure 3. Candidate Build Alternative 3



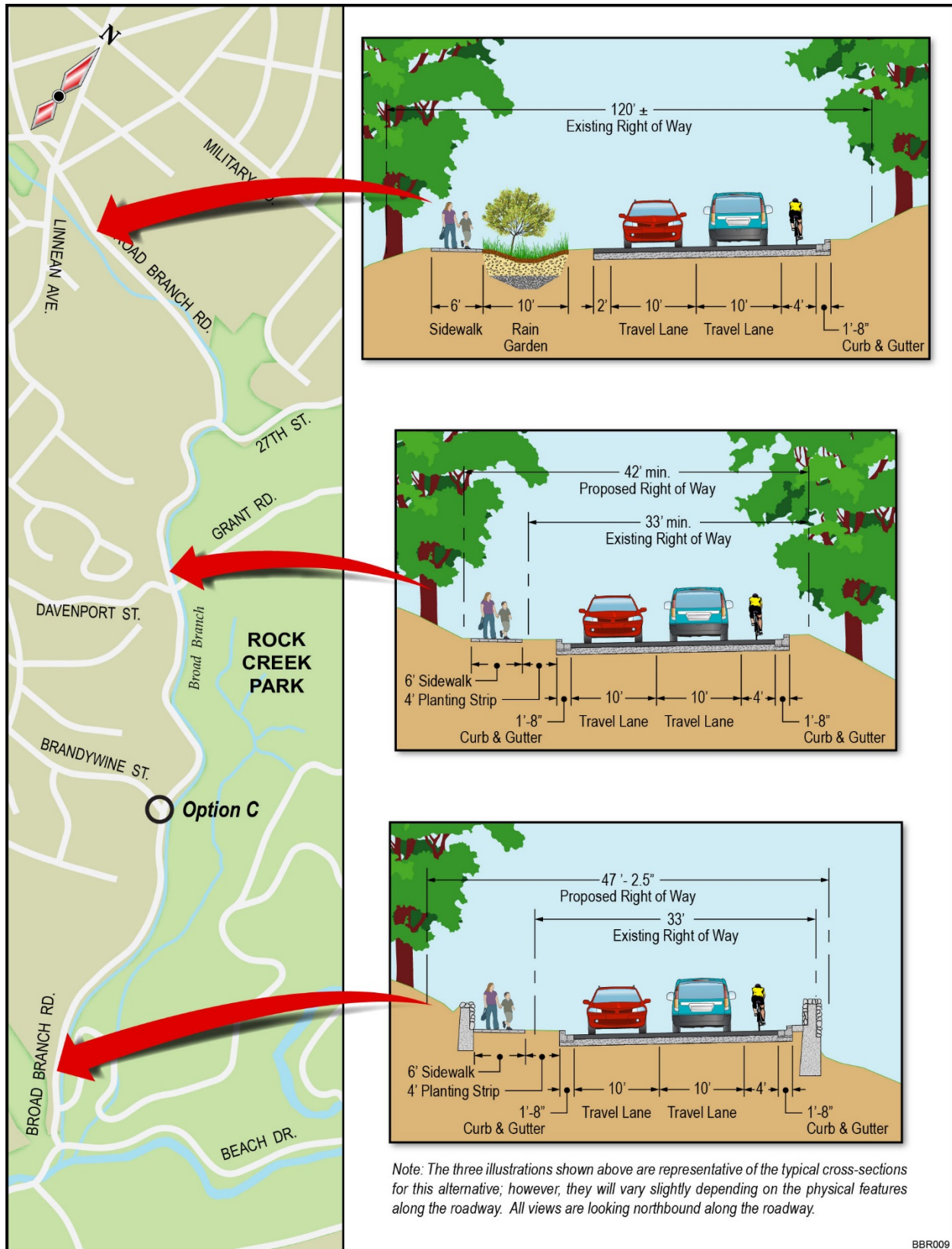


Figure 4. Candidate Build Alternative 4

# 2 POTENTIAL IMPACTS

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Potential impacts from the No-Build and Candidate Build Alternatives 3 and 4 to properties of Sovereign Nations in the project area were evaluated. The resource areas subject to potential impacts from implementation of the Alternatives and detailed in the EA include Land Use and Cultural Resources. Summaries of these potential impacts are provided in the following.

## 2.1 LAND USE

### ALTERNATIVE 1 – NO ACTION ALTERNATIVE

Under the No Action Alternative, Broad Branch Road would not be reconstructed, but only repaved within the DDOT right-of-way, and existing conditions would remain unchanged. There would be no new impacts to land belonging to Sovereign Nations; however, the existing right-of-way encroachment at the Peruvian Ambassador's residence could be addressed.

### ALTERNATIVE 2

Under Candidate Build Alternative 2, grading for construction would require a temporary easement on lands belong to Malaysia resulting in negligible, short-term impacts to foreign property. No permanent structures would be constructed outside existing DDOT right-of-way.

### ALTERNATIVES 3 AND 4

Under Alternatives 3 and 4, additional right-of-way would need to be acquired within lands belonging to three Sovereign Nations (Peru, Italy, and Malaysia) for permanent construction of retaining walls and sidewalks, resulting in encroachments on foreign properties (see **Table 1** and **Map Sheets 1 - 10**). The areas needed are located on the fringe of the noted properties and would not alter the ability of the embassy residences to function as intended.

**Table 1. Encroachment on Sovereign Nation Properties**

Sovereign Nation Property	Alternative 3	Alternative 4
Peru	3,038 sq. ft. / 282 sq. m	4,350 sq. ft. / 404 sq. m
Malaysia	3,519 sq. ft. / 327 sq. m	4,381 sq. ft. / 407 sq. m
Italy	14,725 sq. ft. / 1,368 sq. m	18,239 sq. ft. / 1,694 sq. m

## 2.2 CULTURAL RESOURCES

### LA VILLA FIRENZE (RESIDENCE OF THE ITALIAN AMBASSADOR) - RETAINING WALLS

Stone retaining walls along the driveway entrance at the Gatehouse of La Villa Firenze have been determined to be contributing elements to the La Villa Firenze estate, determined eligible for listing in the National Register of Historic Places (see **Figure 5**).

#### ALTERNATIVE 1 – NO ACTION ALTERNATIVE

Under the No Action Alternative, Broad Branch Road would not be reconstructed, but only repaved within the DDOT right-of-way, and existing conditions would remain unchanged. There would be no impacts to land belonging to Sovereign Nations.



**Figure 5. Stone Retaining Walls at the Driveway Entrance of the Gatehouse at La Villa Firenze**  
(Residence of the Italian Ambassador)

#### ALTERNATIVE 2

The stone retaining walls associated with the gatehouse at La Villa Firenze would be impacted by implementation of Alternative 2. The portions of the stone retaining walls that occur within DDOT's existing right-of-way would be removed as part of construction of the roadway.

#### ALTERNATIVES 3 AND 4

The stone retaining walls associated with the gatehouse at La Villa Firenze would be impacted by implementation of Alternatives 3 and 4. In addition to the portions of the walls that occur within existing DDOT right-of-way, several more feet of the walls would be affected by the proposed right-of-way expansion and roadway construction under Alternatives 3 and 4. Alternative 4 would remove more wall than Alternative 3 (to accommodate a general westward shift of the roadway for both a sidewalk and bike lane).

Removal of any portion of the stone retaining walls would constitute an adverse effect under Section 106 of the National Historic Preservation Act (NHPA). DDOT is conducting consultation with the DC State Historic Preservation Office (DC SHPO), the Advisory Council on Historic Preservation (ACHP), the National Park Service (NPS), and other agencies, as necessary, to identify appropriate measures to avoid, minimize, or resolve adverse effects from the implementation of the project.

# MAP SHEETS

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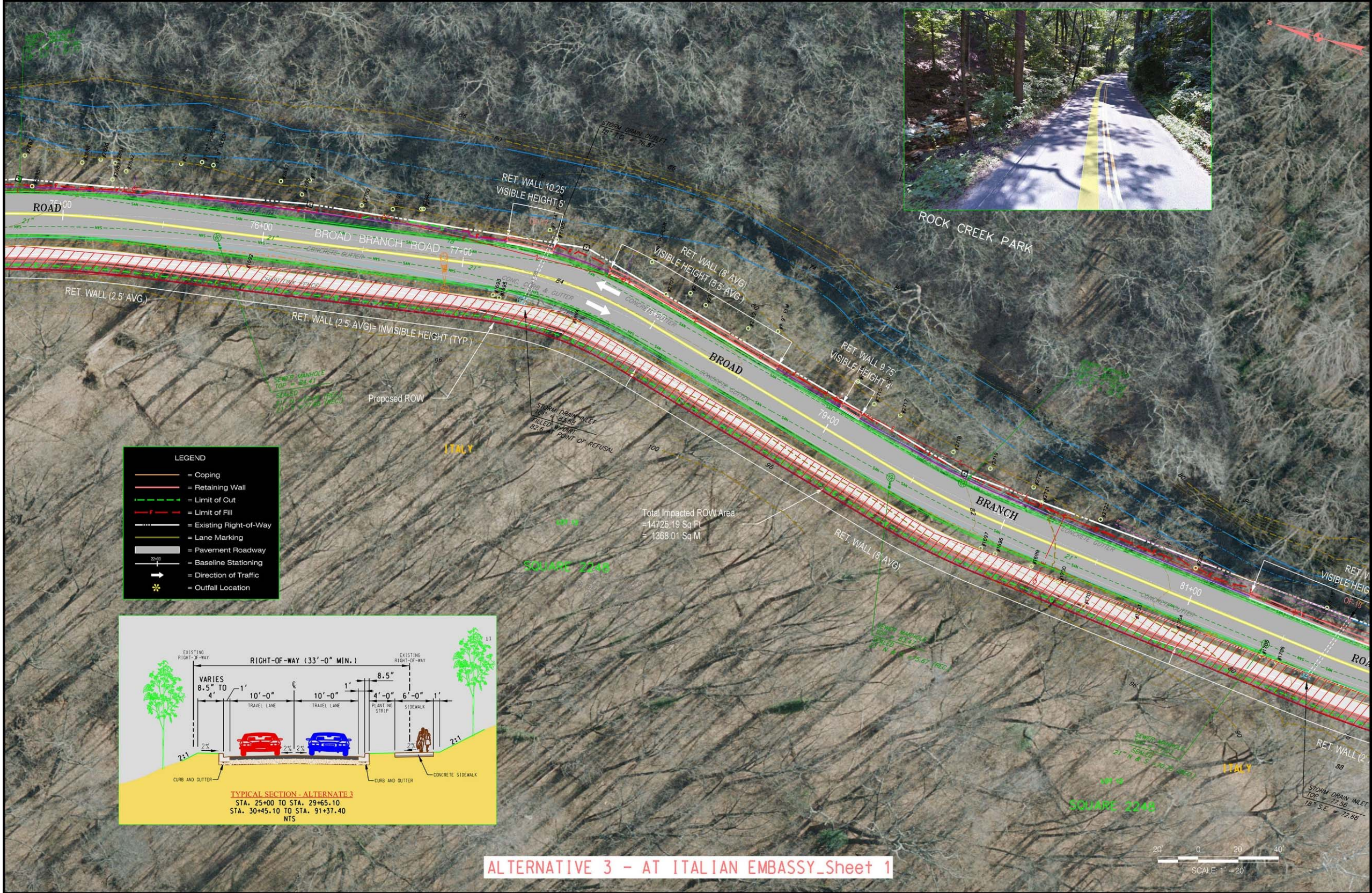






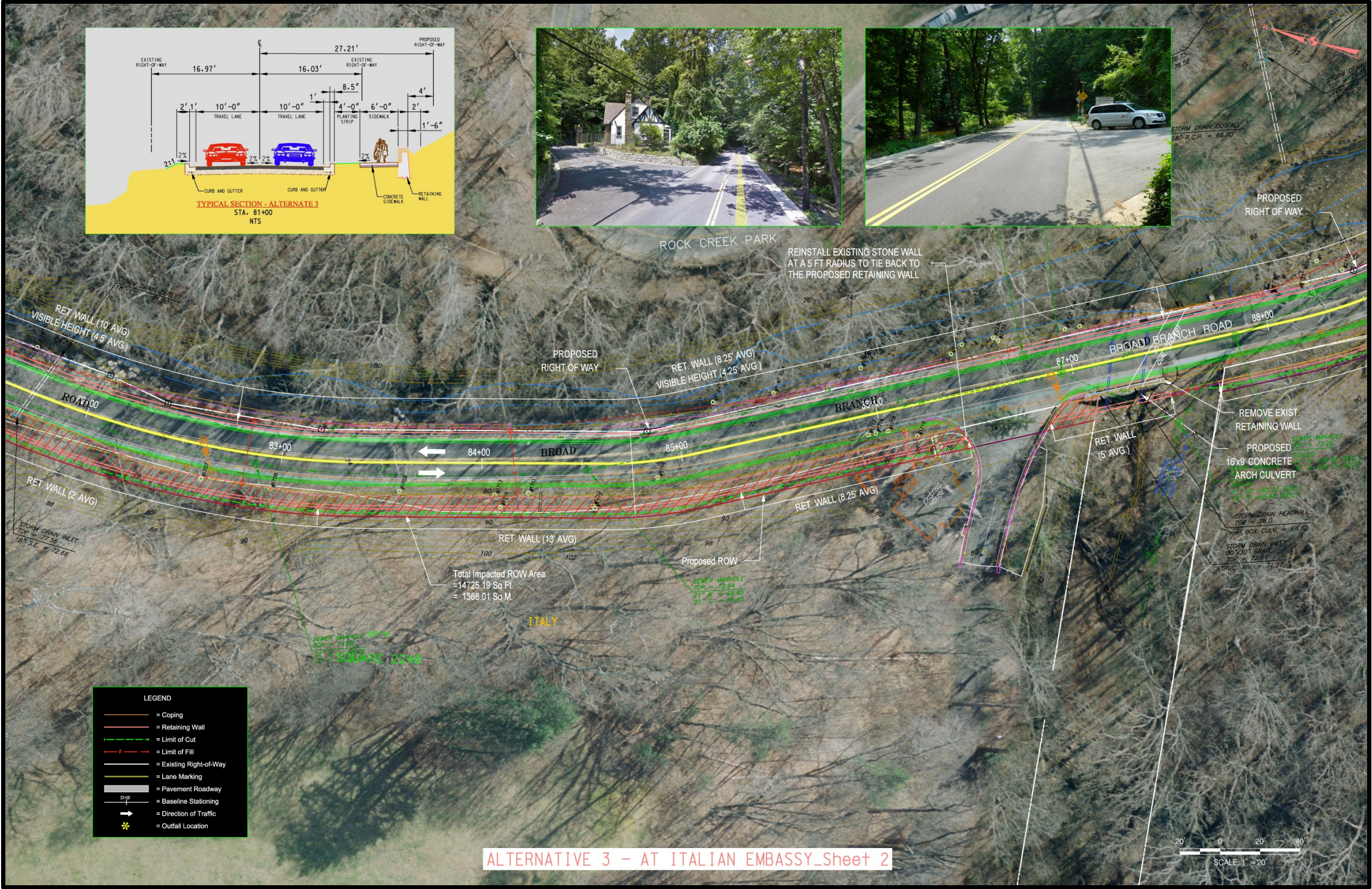






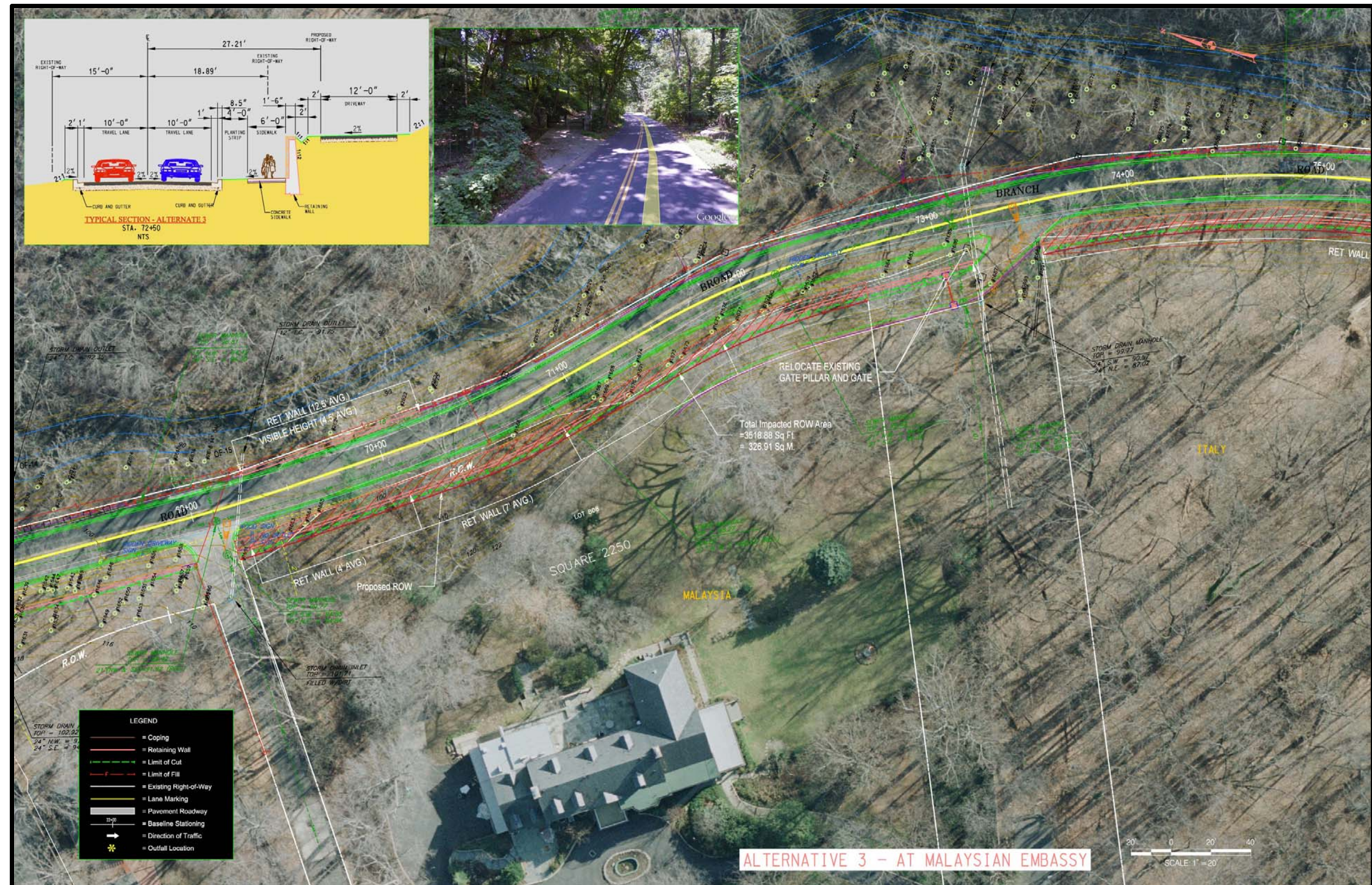
Map Sheet 3. Areas of Proposed Right-of-Way Encroachment and Roadway Features under Alternative 3 on Property of Italy  
(Sheet 1)





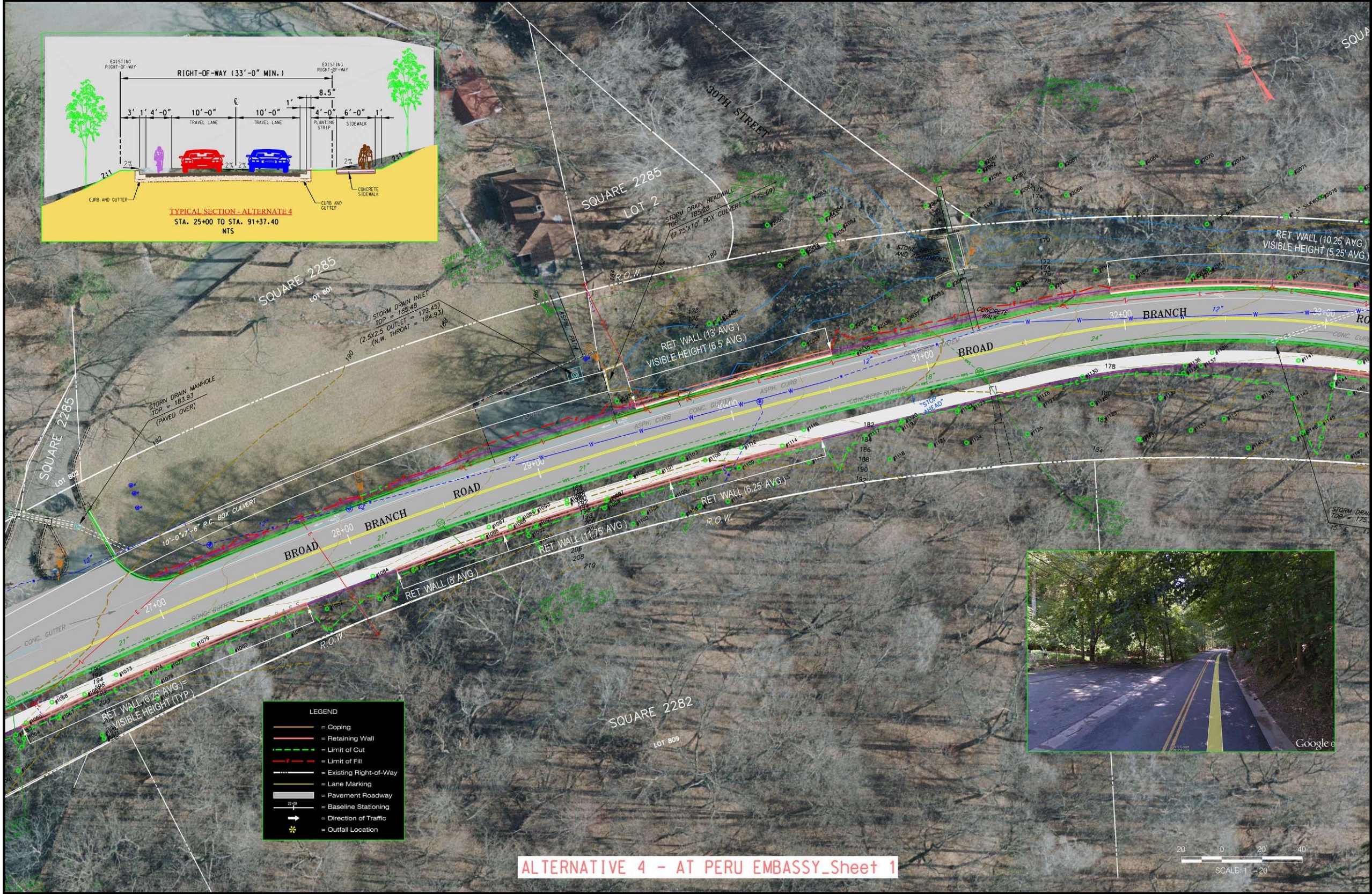
Map Sheet 4. Areas of Proposed Right-of-Way Encroachment and Roadway Features under Alternative 3 on Property of Italy  
(Sheet 2)



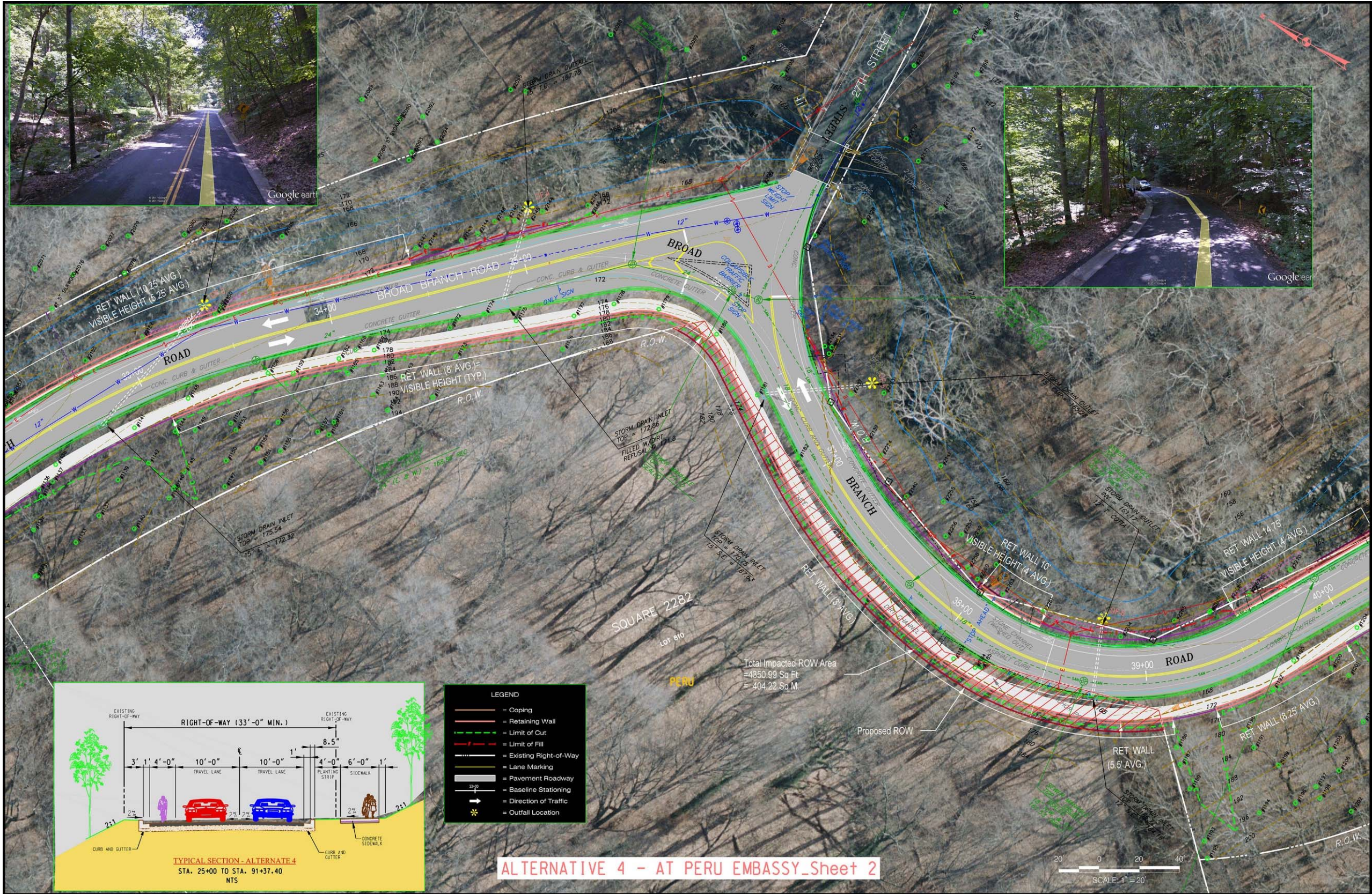


Map Sheet 5. Areas of Proposed Right-of-Way Encroachment and Roadway Features under Alternative 3 on Property of Malaysia



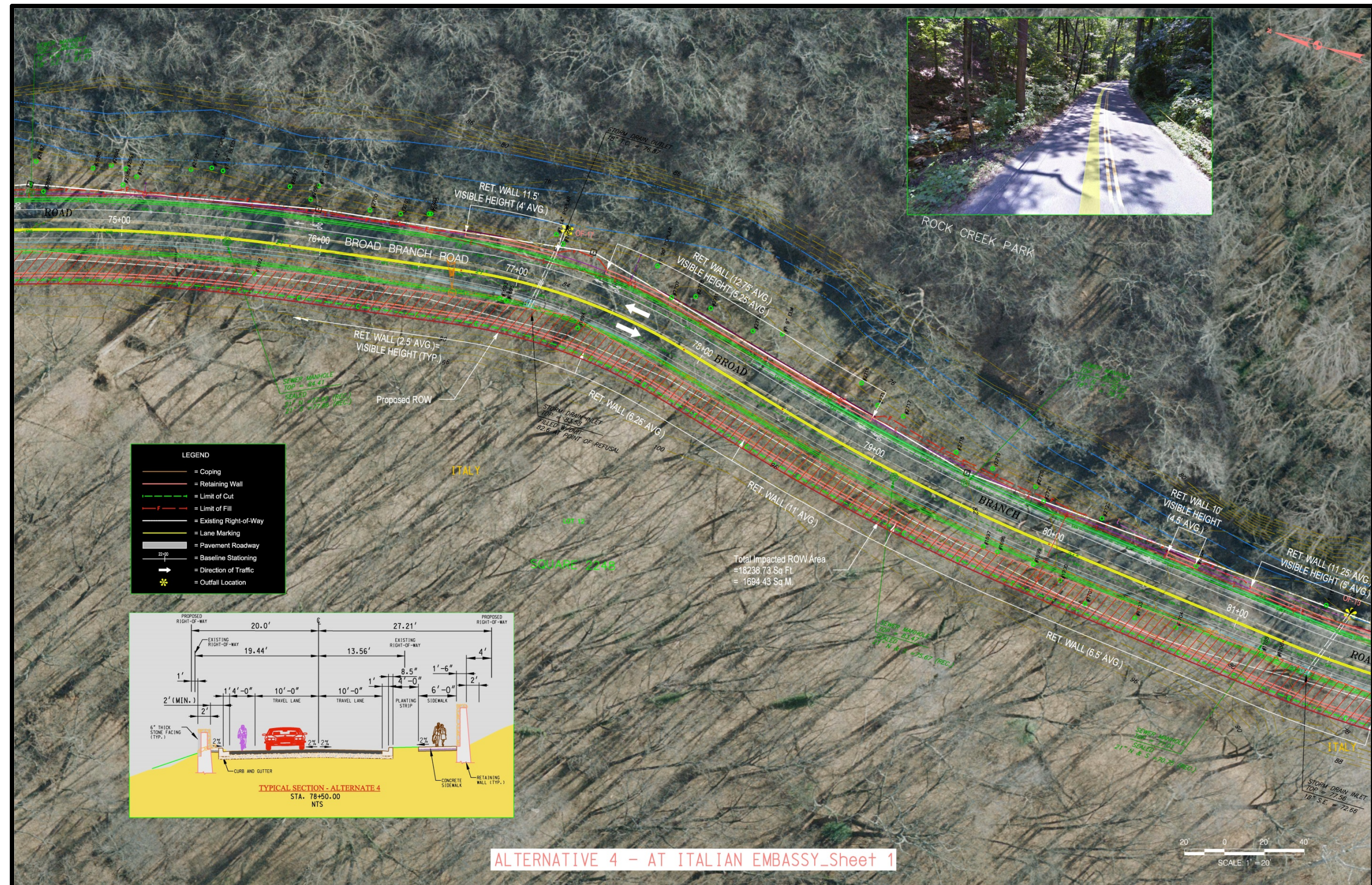






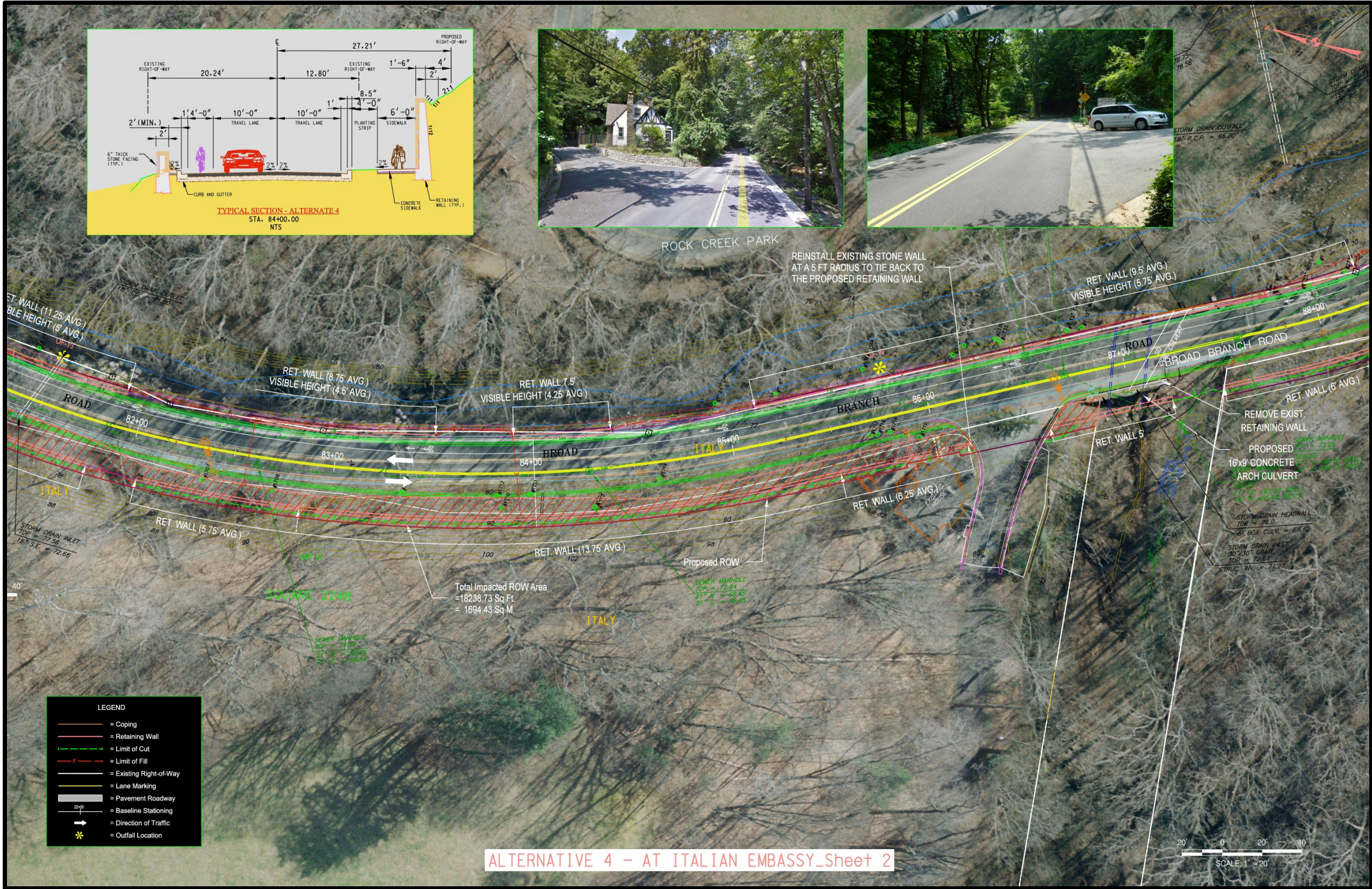
Map Sheet 7. Areas of Proposed Right-of-Way Encroachment and Roadway Features under Alternative 4 on Property of Peru (Sheet 2)





Map Sheet 8. Areas of Proposed Right-of-Way Encroachment and Roadway Features under Alternative 4 on Property of Italy (Sheet 1)

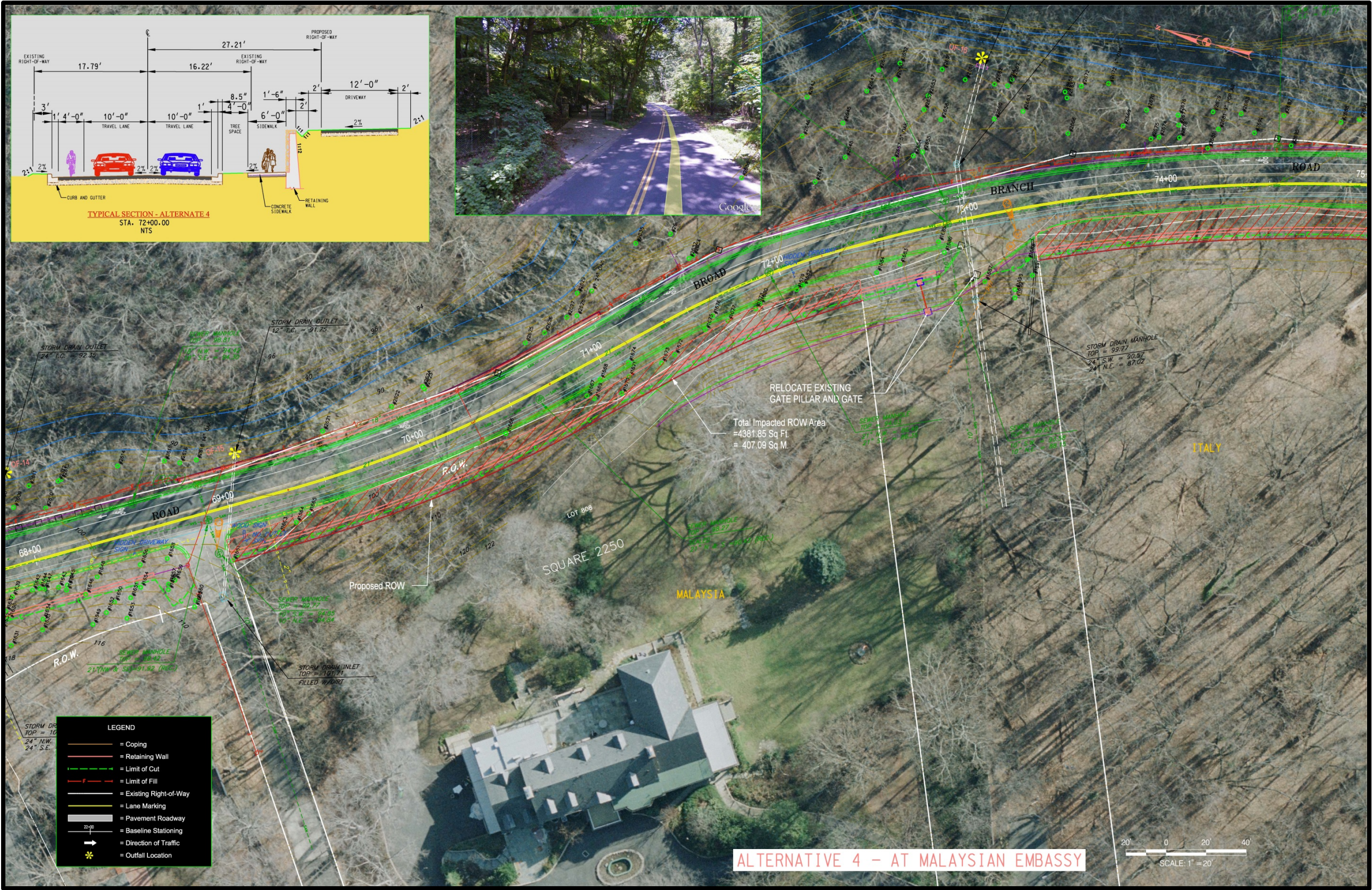




Map Sheet 9. Areas of Proposed Right-of-Way Encroachment and Roadway Features under Alternative 4 on Property of Italy

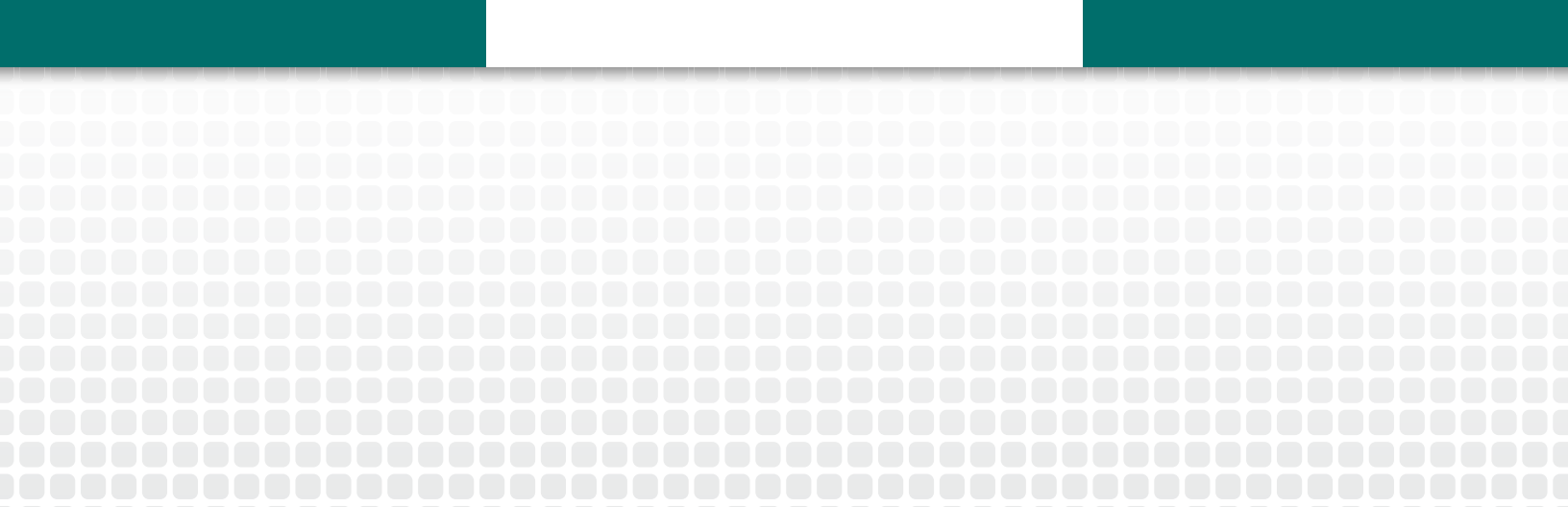
(Sheet 2)





Map Sheet 10. Areas of Proposed Right-of-Way Encroachment and Roadway Features under Alternative 4 on Property of Malaysia





District Department of Transportation  
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# REHABILITATION OF BROAD BRANCH ROAD, NW WASHINGTON, DC

January 2014

## SUMMARY OF IMPACTS TO HILLWOOD ESTATE, MUSEUM, AND GARDENS



**Summary of Impacts to  
Hillwood Estate, Museum, and Gardens  
Identified in the Environmental Assessment for  
Rehabilitation of Broad Branch Road, NW**

Prepared for  
Federal Highway Administration  
and  
District Department of Transportation

January 2014



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# 1 INTRODUCTION

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The Federal Highway Administration (FHWA) in conjunction with the District Department of Transportation (DDOT) and in cooperation with the National Park Service (NPS), are proposing the rehabilitation of a 1.5-mile segment of Broad Branch Road, NW, between Linnean Avenue, NW and Beach Drive, NW, a portion of which abuts the southwestern border of Rock Creek Park. The existing two-lane Broad Branch Road lies almost entirely within DDOT right-of-way and is maintained by DDOT.

Several properties along DDOT's Broad Branch Road right-of-way are owned by private institutional landowners for use as community and educational facilities (**Figure 1**). Private institutions that own property from north to south along Broad Branch Road include: the Carnegie Institution of Washington Department of Terrestrial Magnetism and Geophysical Laboratory (education), Ingleside Manor at the Presbyterian Home (medical/retirement facility) and Hillwood Estate, Museum, and Gardens (education). Of these three facilities in the project area, the potential for impacts from implementing the project have only been identified as occurring on the Hillwood property. The northeastern edge of the Hillwood property abuts the west side of Broad Branch Road. The main entrance to Hillwood is from a private driveway off of Linnean Avenue, NW; there is no access to the property from Broad Branch Road. The portion of the property along the road is heavily vegetated with dense tree growth; no buildings or structures on the Hillwood property are visible from Broad Branch Road or from trails in Rock Creek Park on the east side of the road.

The project is being analyzed in an Environmental Assessment (EA) which evaluates several alternatives for rehabilitation of the roadway, including one No Action (no build) alternative and three Candidate Build Alternatives. The existing roadway is located within DDOT right-of-way, with minor exceptions. There are no existing right-of-way encroachments on the Hillwood estate. The three Candidate Build Alternatives were developed to correct deficiencies in the existing roadway infrastructure and stormwater management systems and improve the safety of motorists, pedestrians, and bicyclists.

Alternative 2 is the narrowest build alternative that meets the purpose and need of the project and consists of reconstructing the two 10-foot travel lanes with new curb and gutter to improve drainage. Alternative 2 also includes an option (Option B) which provides a 6-foot wide sidewalk on the west side of Broad Branch Road from the entrance to the Soapstone Valley Trail to the parking lot entrance just north of Beach Drive. The sidewalk would improve linkages between park facilities along the roadway. This option requires a retaining wall, varying in height from 3.5 to 12 feet, along most of the sidewalk's length as well as a grass planting strip which separates the sidewalk from the vehicular travel lane. Portions of the proposed wall and sidewalk occur west of the DDOT right-of-way on the Hillwood Estate, Museum, and Gardens.

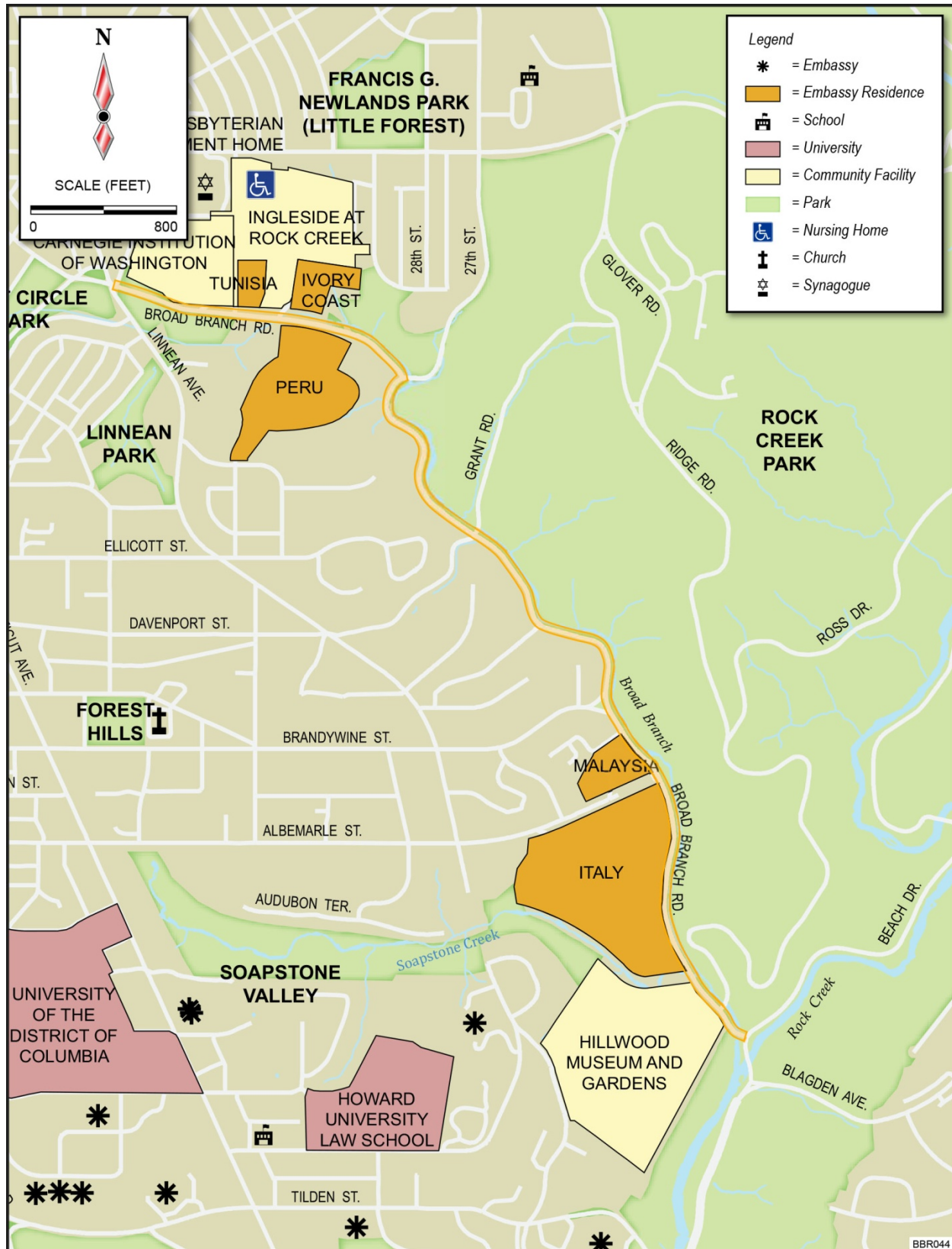


Figure 1. Location of Hillwood Estates, Museum, and Gardens



Construction of this option would require acquisition of right-of-way on the Hillwood property for the new roadway elements and grading beyond the edge of the retaining wall. The portion of the sidewalk and retaining wall on National Park Service property would be built as part of a temporary construction easement and would not require permanent right-of-way acquisition.

Alternative 3 consists of reconstructing the two 10-foot travel lanes with new curb and gutter for improved drainage plus a 6-foot wide sidewalk on the west side of the roadway for the entire length of the roadway (including the portion of sidewalk, retaining wall, and planting strip on the edge of the Hillwood property under Alternative 2, Option B). There would be a slight westward shift in the roadway alignment to accommodate sections of the new sidewalk. Similar to Alternative 2, the southern segment of this alternative would encroach on the Hillwood property.

Alternative 4 is the widest of the build alternatives and consists of reconstructing the two 10-foot travel lanes, new curb and gutter, a 6-foot wide sidewalk on the west side, and a 4-foot wide bike lane on east side. Like Alternative 3, this alternative would require a slight westward shift in the roadway alignment to accommodate the addition of the new pedestrian and cycling facilities. The southern segment of this alternative would also encroach on the Hillwood property.

Additional information on each of the Candidate Build Alternatives is presented in the brochure included as Attachment A.

# 2

## POTENTIAL IMPACTS

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Potential impacts from each of the Candidate Build Alternatives (including Option B) to the Hillwood Estate, Museum, and Gardens were evaluated and detailed in the Land Use and Cultural Resource sections of the document. Summaries of potential impacts are provided in the following.

### 2.1 LAND USE

#### ALTERNATIVE 1 – NO ACTION ALTERNATIVE

Under the No Action Alternative, Broad Branch Road would not be reconstructed, but only repaved within the DDOT right-of-way, and existing conditions would remain unchanged. There would be no impacts to the property owned by Hillwood Estate, Museum, and Gardens.

#### ALTERNATIVE 2

No temporary grading, permanent construction, easements, or right-of way acquisition would be required on the Hillwood property with the proposed reconstruction of Broad Branch Road under Alternative 2.

#### ALTERNATIVES 2 (WITH OPTION B), 3 AND 4

Under Option B for Candidate Build Alternative 2, a sidewalk would be added to the southern end of the roadway corridor connecting the Soapstone Valley Trail with the National Park Service parking lot near Beach Drive. With the construction of the sidewalk, improvements beyond the DDOT right-of-way would require an additional 3,737 square feet (0.09 acre) on the Hillwood Estate, Museum, and Garden property (**Figure 2**). Work would include temporary disturbance from grading (cutting) into the existing slope and permanent construction of the sidewalk and retaining wall. DDOT would acquire right-of-way from Hillwood for construction of the permanent structures. The area needed would not alter the ability of the property to function as intended and the roadway improvements would not be visible from buildings and structures on the estate.

Under Candidate Build Alternatives 3 and 4, temporary disturbance and permanent construction for a new sidewalk and retaining wall similar to Option B would occur on the edge of the Hillwood property. Because the alignment of the roadway would shift slightly toward the west side under Alternative 3, and shift slightly more under Alternative 4, the total area of disturbance also increases under each alternative compared with Option B of Alternative 2. Under Alternative 3, the area of impact would increase to 3,777 square feet (0.09 acre). Under Alternative 4, the most area would be impacted, approximately 4,462 square feet (0.10 acre). Right-of-way would also need to be acquired for permanent construction of the sidewalk and



retaining wall, resulting in minor additional encroachments on this property (**Figure 3 and Figure 4**). The area needed would not alter the ability of the property to function as intended and the roadway improvements would not be visible from buildings and structures on the estate.

## 2.2 CULTURAL RESOURCES

DDOT has initiated consultation with the DC State Historic Preservation Office (DC SHPO) to comply with Section 106 of the National Historic Preservation Act which requires agencies to consider the effects of their proposed project on historic properties. DDOT has identified historic properties (cultural resources eligible for the National Register of Historic Places [NRHP]) in the Broad Branch Road project area and assessed potential effects (impacts) on those properties. At the request of the DC SHPO (per comments received on the Draft Section 106 Cultural Resources and Effects Report), the Hillwood Estate, Museum and Gardens is considered eligible for the NRHP for the purposes of this undertaking.

Due to the steep slope along the edge of the property adjacent to Broad Branch Road, none of the new roadway features would be visible from buildings, structures, or formal gardens and landscaping on the Hillwood estate, which are generally located in the center of the parcel. Further, dense, mature tree growth along the property edge provides vegetative screening to and from a paved parking area located closest to Broad Branch Road on the Hillwood parcel. Because the project will not increase vehicular capacity, no additional audible intrusions will result from rehabilitation of the road. Historic properties at Hillwood Estate, Museum, and Gardens will not be affected (impacted) under any of the Candidate Build Alternatives.



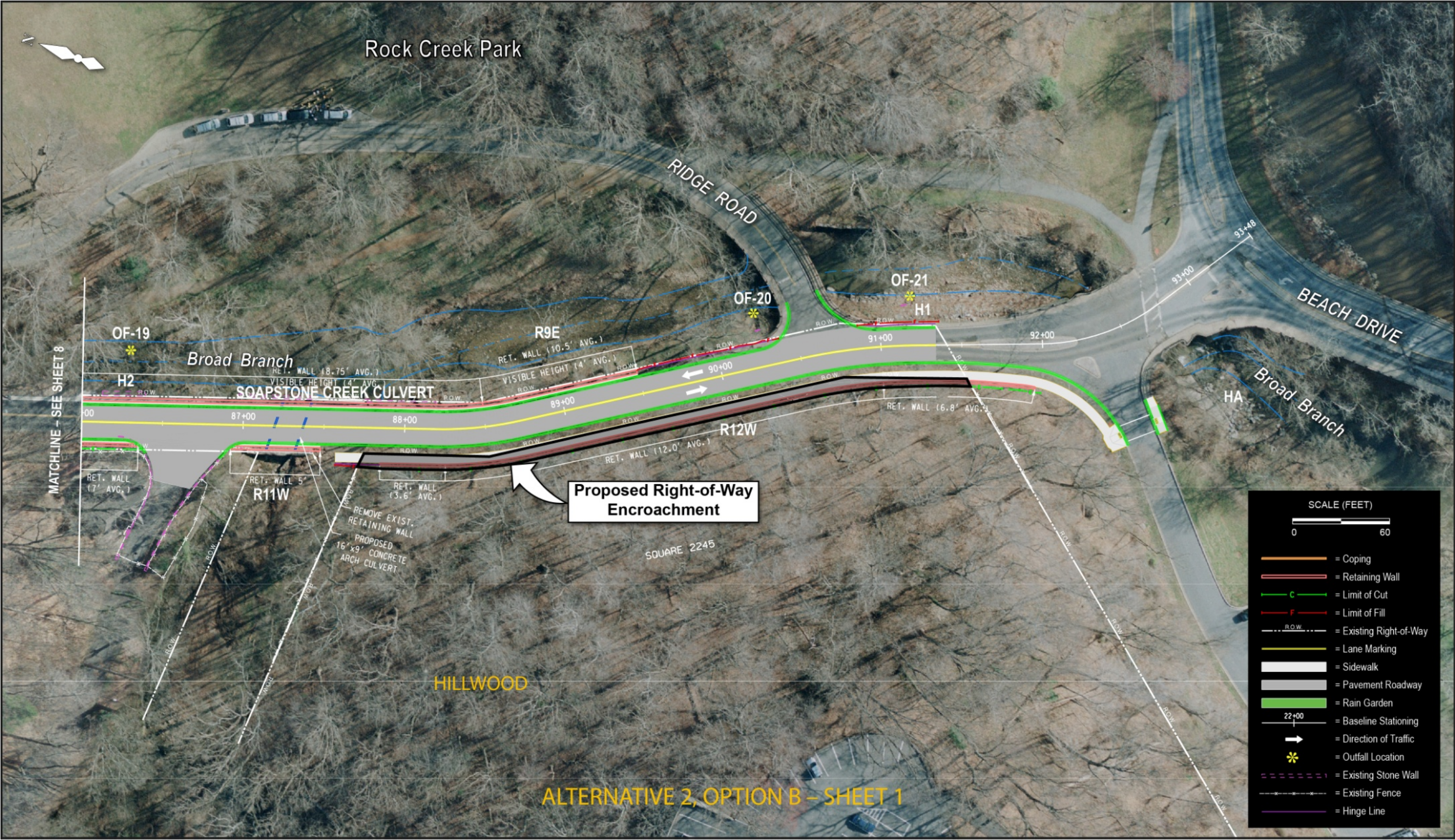


Figure 2. Roadway Features and Proposed Right-of-Way Encroachment - Alternative 2, Option B



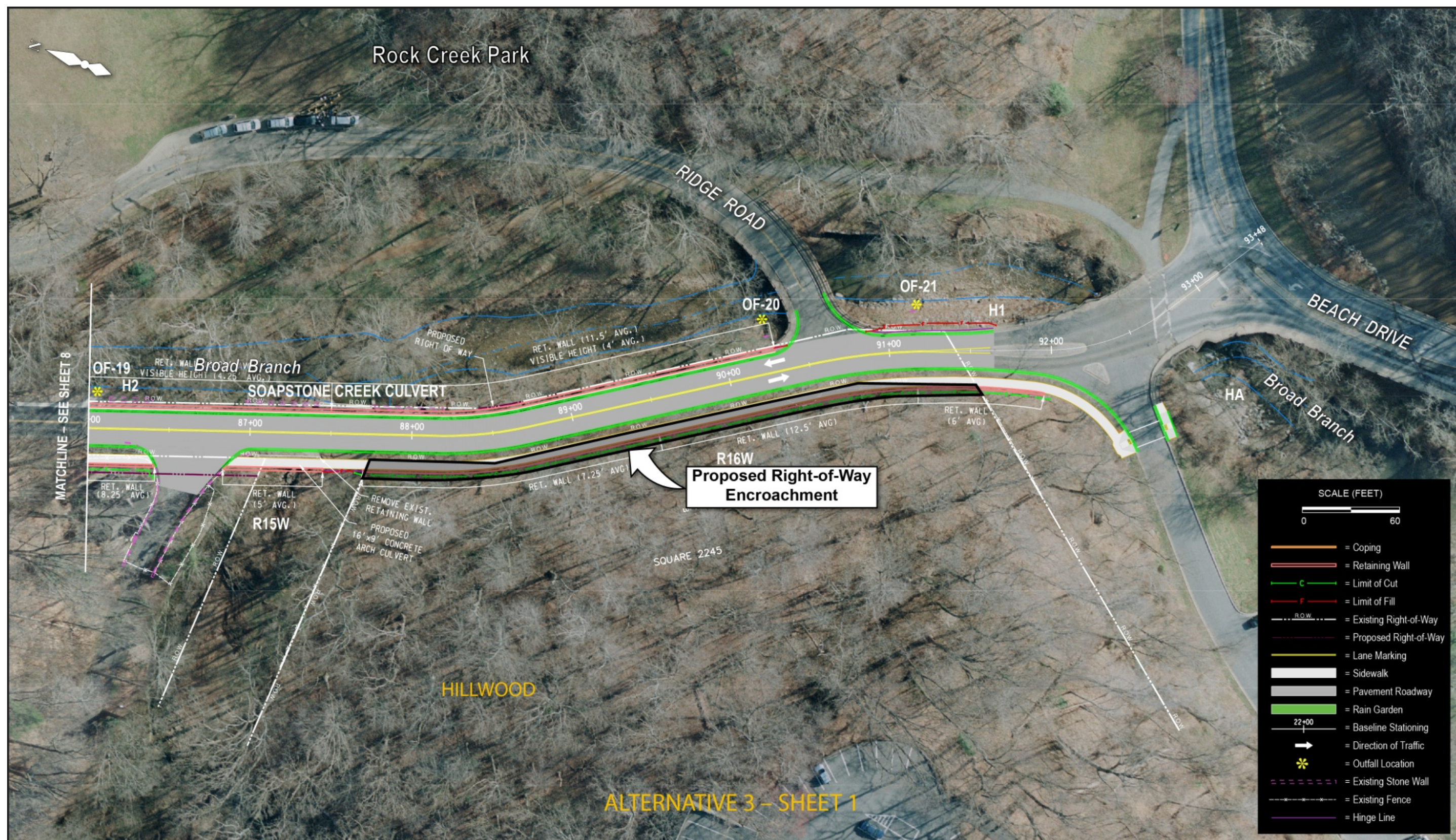


Figure 3. Roadway Features and Proposed Right-of-Way Encroachment - Alternative 3



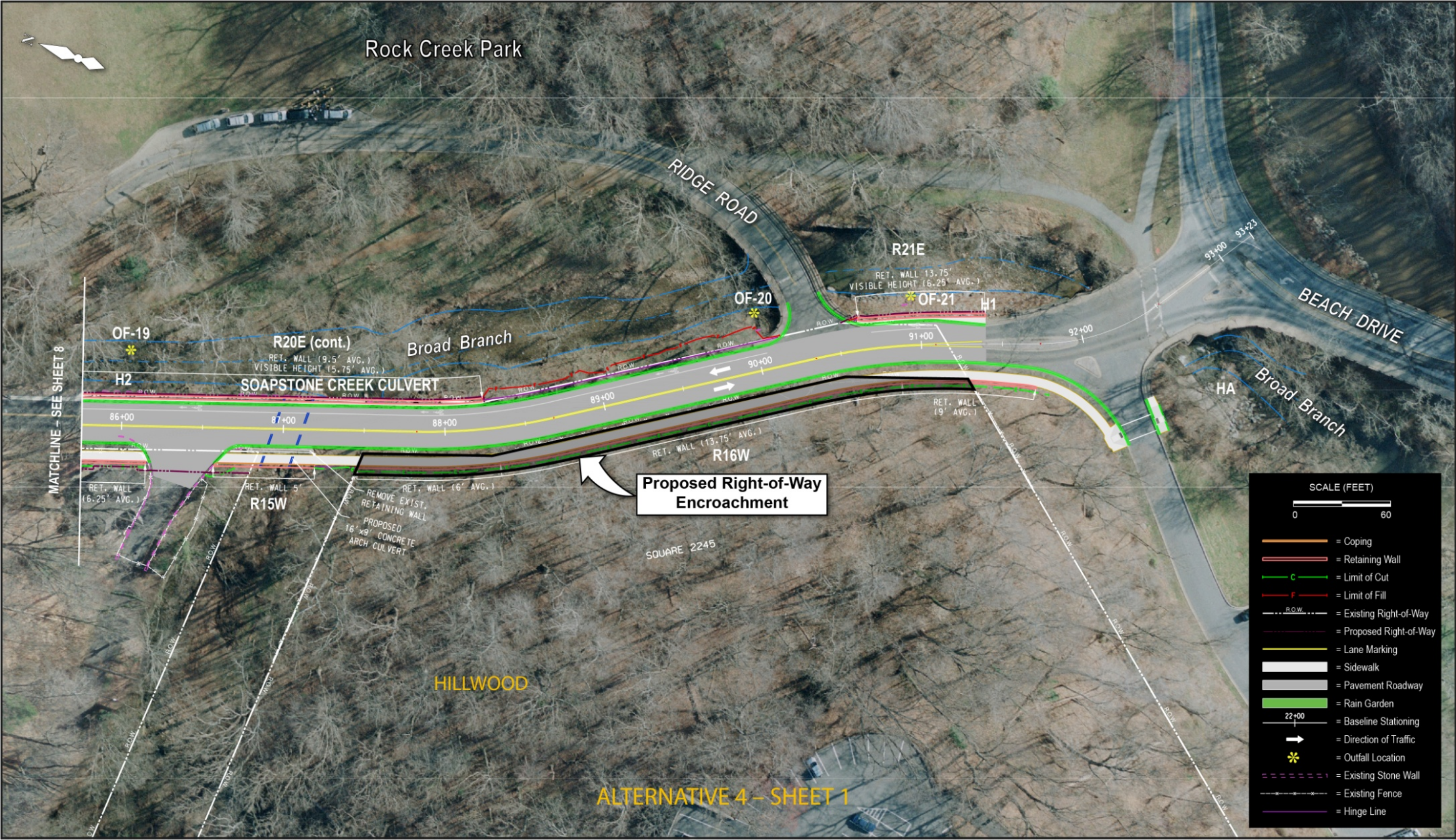


Figure 4. Roadway Features and Proposed Right-of-Way Encroachment - Alternative 4

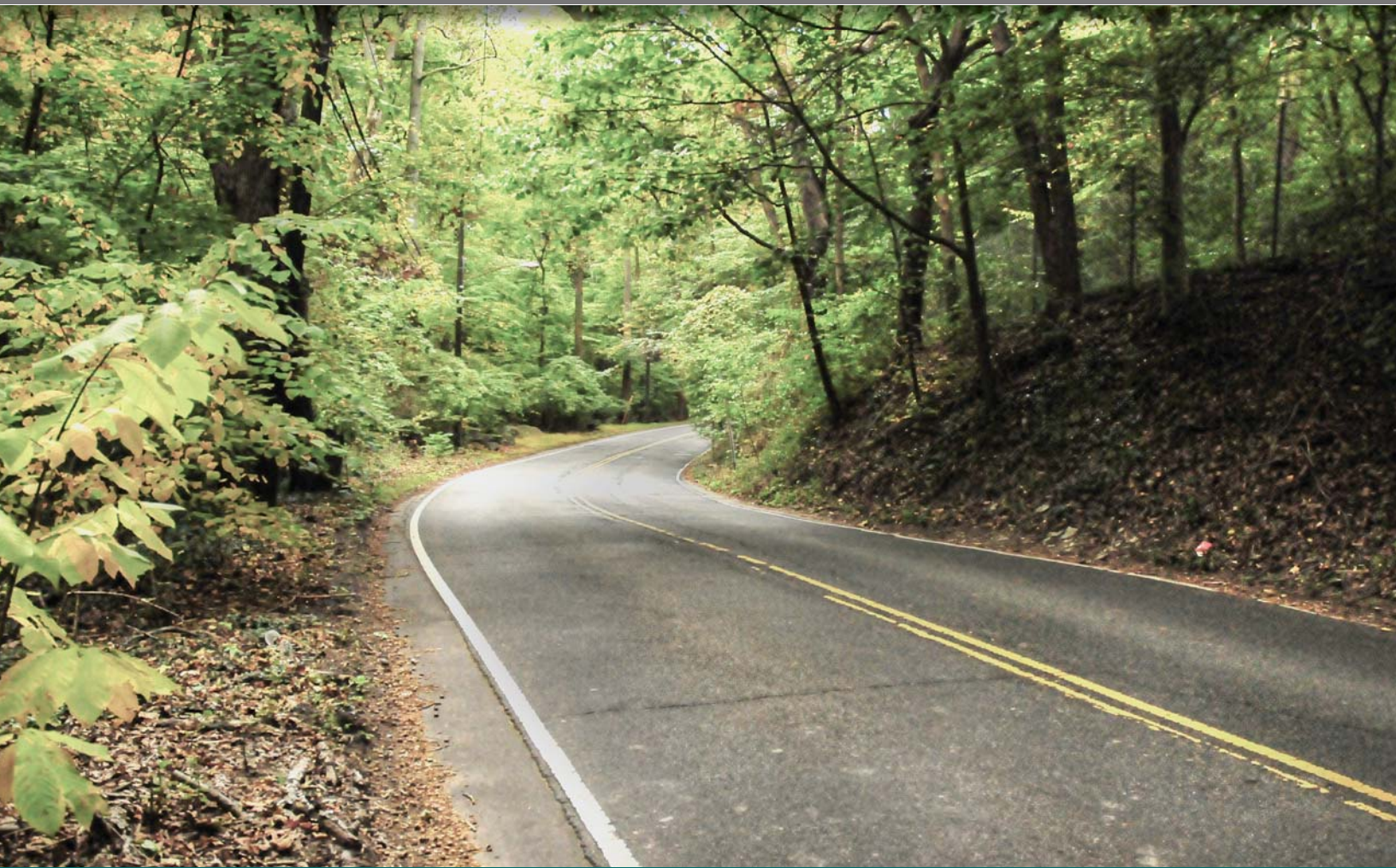


# A PROJECT BROCHURE

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# REHABILITATION OF BROAD BRANCH ROAD, NW WASHINGTON, DC





## WELCOME

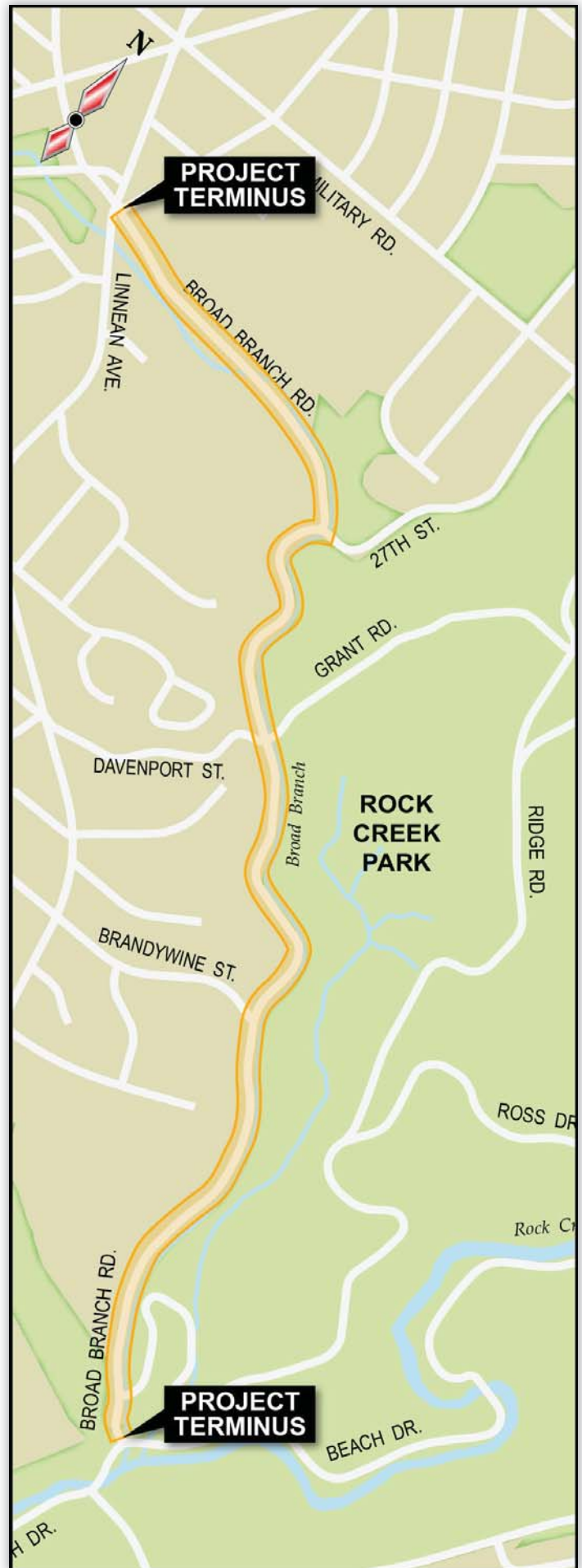
The Federal Highway Administration (FHWA) and the District Department of Transportation (DDOT), in cooperation with the National Park Service (NPS), are proposing the rehabilitation of the 1.5-mile segment of Broad Branch Road, between Linnean Avenue and Beach Drive, NW along the western border of Rock Creek Park. The Environmental Assessment (EA) for the project has been prepared in accordance with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act.

## BACKGROUND

The rehabilitation of Broad Branch Road was originally placed on DDOT's schedule of planned improvements because of the apparent needs for roadway repair and the desire for a safer facility. Failing drainage, poor lighting, limited sight distances, and speeding are creating unsafe conditions. Aging infrastructure has also been cited as a deficiency in the roadway corridor, in particular, the culvert carrying Broad Branch Road over Soapstone Creek, which has been temporarily repaired after partial collapse and requires permanent replacement.

The uncontrolled runoff from elevated parcels to the west of the roadway has contributed in large part to the deterioration of this two-lane roadway. The large volume of stormwater has had detrimental effects on the adjacent streambeds in Rock Creek Park, which is owned by NPS and located immediately east of Broad Branch Road over most of its length. The need for a total solution involving improvements on national park properties has resulted in the NPS serving as a Cooperating Agency in the development of the EA.

The District Department of the Environment (DDOE) is currently working with DDOT and NPS in conducting a stream restoration "daylighting" project to an unnamed tributary of Broad Branch near the northern end of the proposed roadway improvement.





## PURPOSE AND NEED

The purpose of the proposed action is to rehabilitate Broad Branch Road to satisfy operational, safety, and multi-modal transportation needs. Context sensitive solutions will take into account the adjoining land uses – residential, foreign diplomatic properties, institutional developments, and wooded areas including Rock Creek Park.

The needs for improvements to Broad Branch Road relate primarily to:

- Deficiencies in the existing roadway infrastructure and stormwater management system;
- Safety of motorists, pedestrians, and bicyclists; and,
- Linkages to serve pedestrian and bicycle travel along the roadway and into Rock Creek Park.



*The existing roadway has deteriorated pavement and poor drainage and lacks safe means for bicyclists and pedestrians.*

## ALTERNATIVES

Alternatives development consisted of a multi-step collaborative process with the DDOT study team, stakeholders, and the public to develop a range of alternatives that incorporate elements to address each of the project's needs: roadway improvements, stormwater management, and bicyclist and pedestrian facilities.

Input was gathered during two rounds of public and agency meetings to assist in the development of alternatives. Seven different concepts were developed at the public meetings ranging in width from 22 to 33 feet. In addition, 22 concepts were developed by agency representatives, ranging in width from 22 to 41 feet. The existing right-of-way ranges from 33 feet to 120 feet wide.

Along its 1.5-mile length, Broad Branch Road also varies in its topography and roadway cross-section. Therefore, the project considered variable cross-sections based on the project's purpose and need and the available right-of-way.

Ultimately, the No Action Alternative, three Candidate Build Alternatives, and three options to complement the proposed improvements in the roadway corridor were analyzed in detail in the EA. These alternatives are described on the following pages.

### NO ACTION ALTERNATIVE 1

Under the No Action Alternative (Alternative 1), the improvements to Broad Branch Road would include short-term minor restoration activities (safety and routine maintenance) that maintain the continuing operation of the existing roadway. While the No Action Alternative does not meet the purpose and need of the project, it provides a basis for comparing the environmental consequences of the Candidate Build Alternatives (see Summary of Environmental Impacts on page 7).

### CANDIDATE BUILD ALTERNATIVE 2

Alternative 2 represents the minimum width alternative that meets the project's purpose and need. This alternative consists of two 10-foot wide travel lanes with standard curb and gutter on the east side with either a standard curb and gutter or linear rain garden (bio-swale) to capture stormwater runoff on the west side. The 10-foot wide linear rain garden will be provided for approximately 1,000 feet south of Linnean Avenue. Retaining walls will be provided on both sides of the



roadway as needed to keep proposed improvements within existing DDOT-owned right-of-way. The existing storm drain outfall locations will be maintained and stormwater management will be improved by providing bio-swales/rain gardens where space is available along with water quality catch basins. The proposed improvements also include replacement of the Soapstone Creek culvert. The total estimated project cost is \$29.0 million. The approximate construction duration is 24 months.

### **CANDIDATE BUILD ALTERNATIVE 3**

Alternative 3 consists of two 10-foot wide travel lanes, a 6-foot wide sidewalk on the west side of the roadway for the entire length, and standard curb and gutter. A 10-foot wide linear rain garden will be provided between the sidewalk and roadway for approximately 1,000 feet south of Linnean Avenue where the curb and gutter will be located along the east side only. South of that, a 4-foot wide planting strip will separate the sidewalk and roadway. The proposed sidewalk will be extended from the end of the DDOT right-of-way to the Rock Creek Park parking lot just north of Beach Drive. Additional right-of-way will be required in some locations to accommodate the proposed sidewalks and planting strips. Retaining walls will be provided on both sides of the roadway as needed to minimize steep side slopes. The existing storm drain outfall locations will be maintained and stormwater management will be improved by providing bio-swales/rain gardens where space is available along with water quality catch basins. Similar to Alternative 2, the Soapstone Creek culvert will be replaced. The total estimated project cost is \$34.2 million. The approximate construction duration is 30 months.

### **CANDIDATE BUILD ALTERNATIVE 4**

Alternative 4 is the widest of the project alternatives and consists of two 10-foot wide travel lanes, a 6-foot wide sidewalk on the west side, a 4-foot wide bike lane on east side, and standard curb and gutter on both sides of the roadway. A 10-foot-wide linear rain garden will be provided between the sidewalk and roadway for approximately 1,000 feet southward of Linnean Avenue where the curb and gutter will be located along the east side only. South of that a 4-foot wide planting strip will separate the sidewalk and roadway for the western length of the project and the curb and gutter will be located on both sides. Alternative 4 also extends the proposed sidewalk to the Rock Creek Park parking lot. Retaining walls will be provided on both sides of the roadway as needed to minimize steep side slopes. Like Alternative 3, additional right-of-way will be required in some locations to accommodate the proposed sidewalk and planting strip, as well as the retaining walls on the east side. The existing storm drain outfall locations will be maintained and stormwater management will be improved by providing bio-swales/rain gardens where space is available along with water quality catch basins. The culvert carrying Soapstone Creek will also be replaced. The total estimated project cost is \$37.1 million. The approximate construction duration is 36 months.

## **OPTIONS**

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### **OPTION A – EXPANDED RETAINING WALL (Candidate Build Alternative 2 only)**

Option A includes an expanded retaining wall along the west side of the roadway in a segment bordering residential development. This option increases the length of the retaining wall from approximately 70 feet to approximately 560 feet. The longer wall will reduce the amount of cut for roadway side slopes required for rehabilitation of the roadway within the existing right-of-way. The shorter (70 foot) retaining wall meets the desired requirement to maintain the existing right-of-way but would require additional cut for side slopes, increasing the potential for erosion in this area.

### **OPTION B – SIDEWALK (Candidate Build Alternative 2 only)**

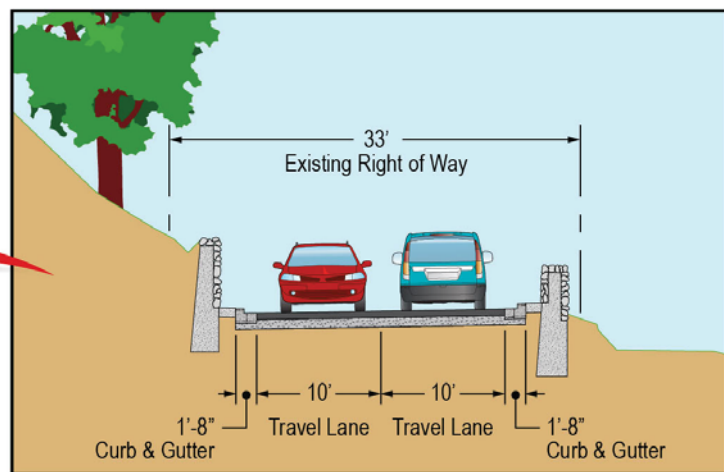
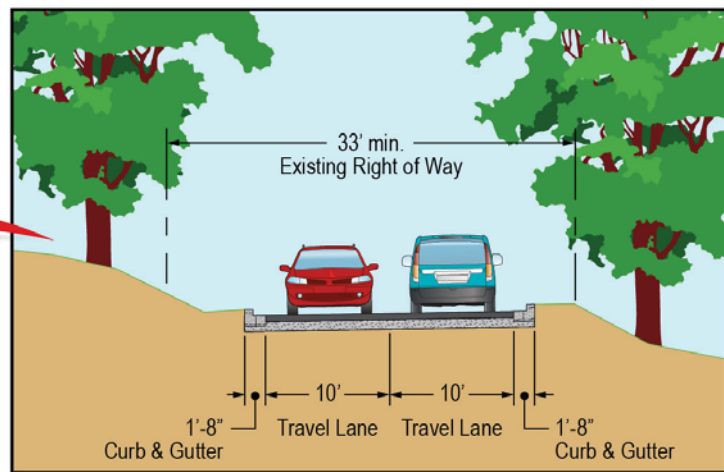
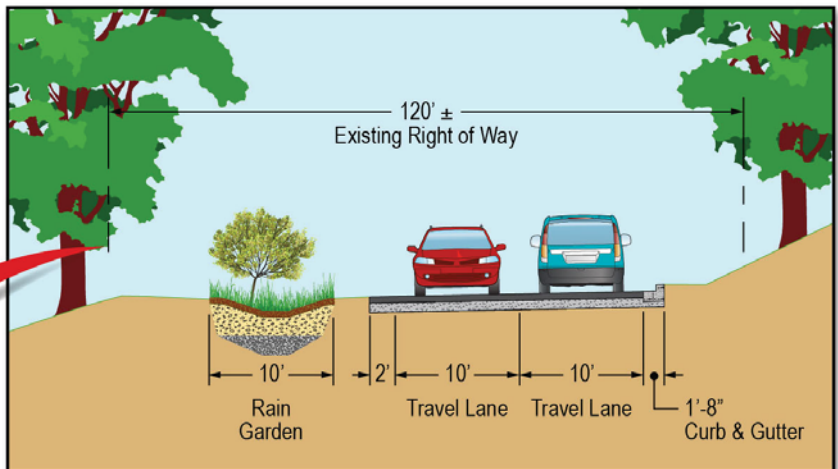
An optional 6-foot wide sidewalk with a retaining wall can be provided on the west side of Broad Branch Road from Soapstone Creek to the parking lot entrance just north of Beach Drive. This option improves linkages between park facilities along the roadway. Portions of the proposed wall and sidewalk occur to the west and south of DDOT-owned right-of-way and are located on privately owned and NPS-owned properties. Construction of the sidewalk and wall would be accomplished through a combination of right-of-way acquisition on private property and temporary easements on NPS property.

### **OPTION C – T-INTERSECTION AT BRANDYWINE STREET (All Candidate Build Alternatives)**

A new T-intersection is proposed at Brandywine Street to replace the existing forked Y-intersection. The reconfiguration of this intersection is being proposed to reduce the paved area and incorporate additional low impact development (LID) techniques in the roadway design with rain gardens in the interior corners of the new intersection. The reconfigured intersection will also improve roadway safety by minimizing crash risk for northbound drivers on Broad Branch Road turning left onto Brandywine Street. Requiring drivers to stop at a stop sign at the T-intersection, instead of yielding as with the existing Y-intersection, will also reduce speeds at the intersection.



## CANDIDATE BUILD ALTERNATIVE 2

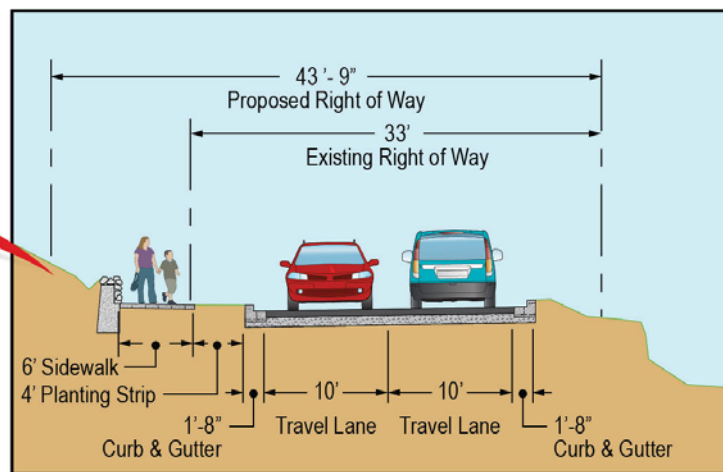
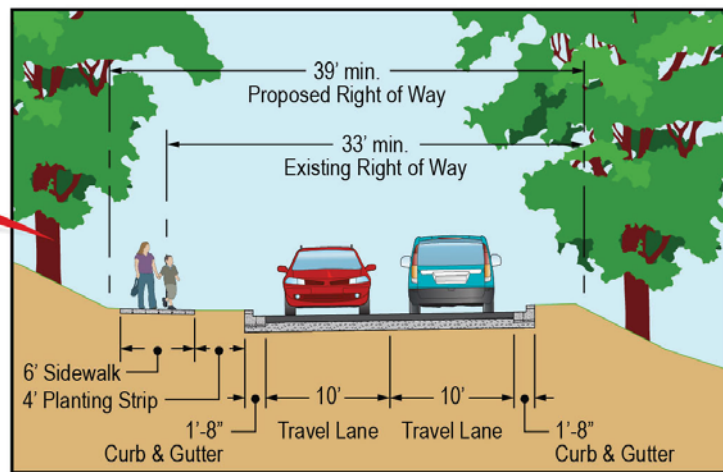
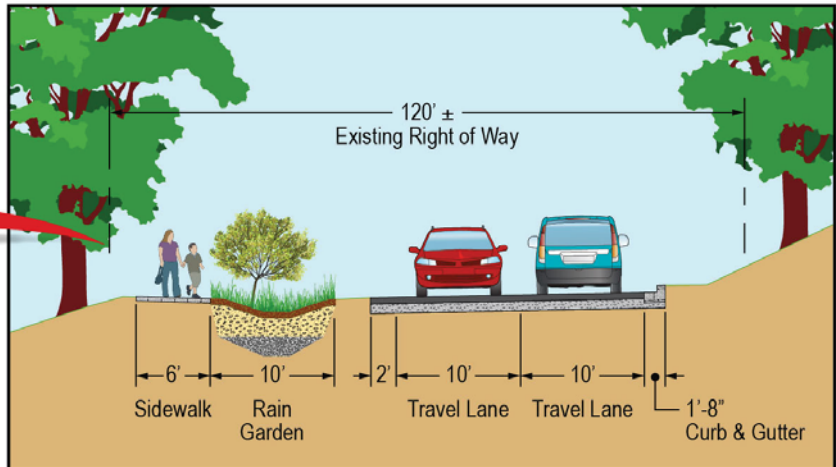
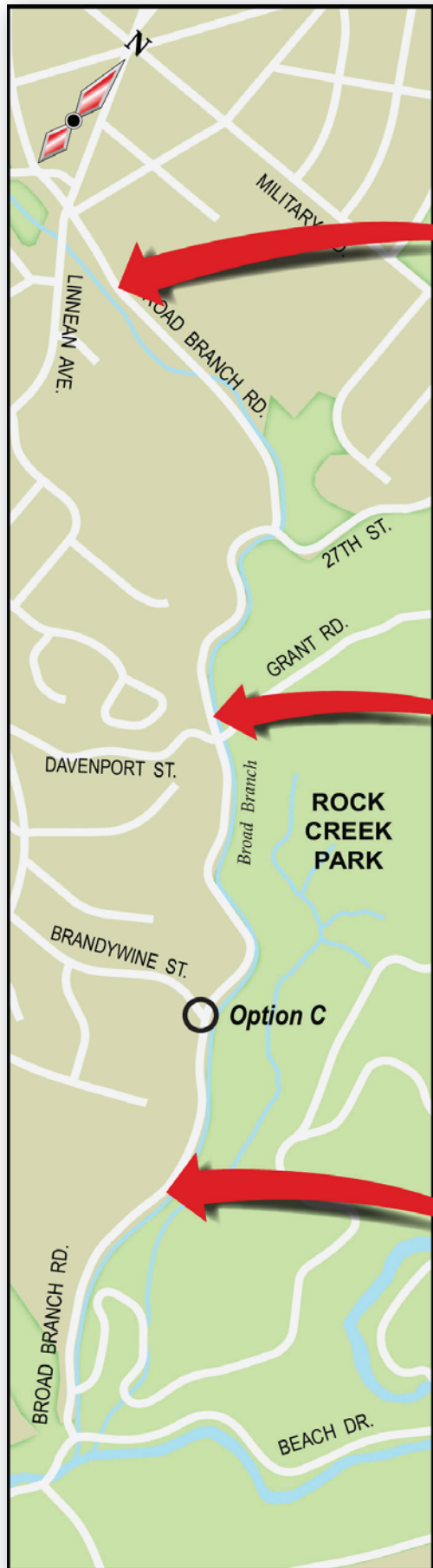


*Note: The three illustrations shown above are representative of the typical cross-sections for this alternative; however, they will vary slightly depending on the physical features along the roadway. All views are looking northbound along the roadway.*

BBR007



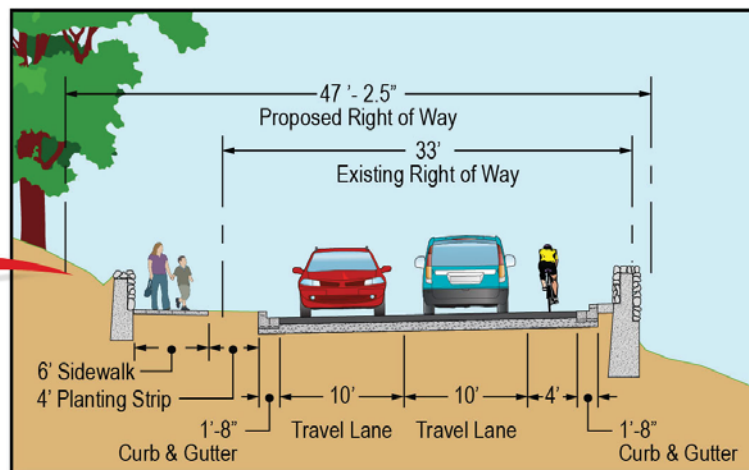
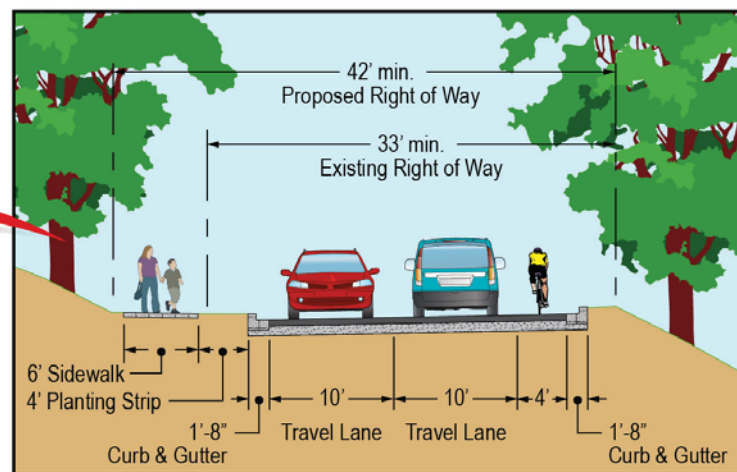
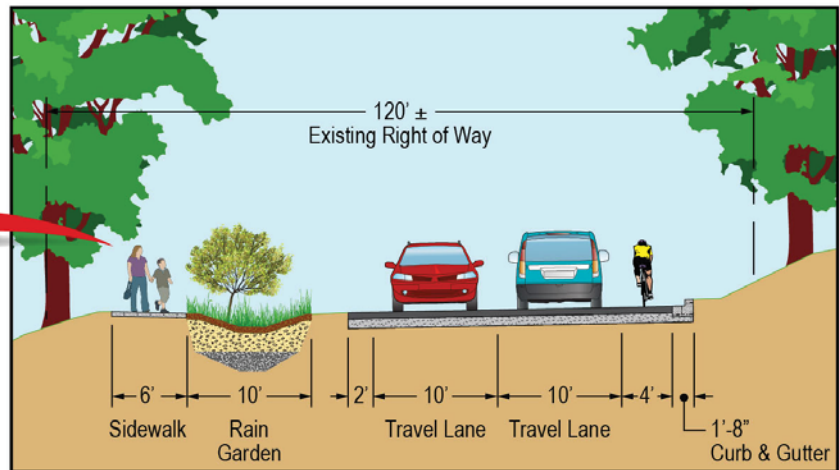
## CANDIDATE BUILD ALTERNATIVE 3



Note: The three illustrations shown above are representative of the typical cross-sections for this alternative; however, they will vary slightly depending on the physical features along the roadway. All views are looking northbound along the roadway.

BBR008

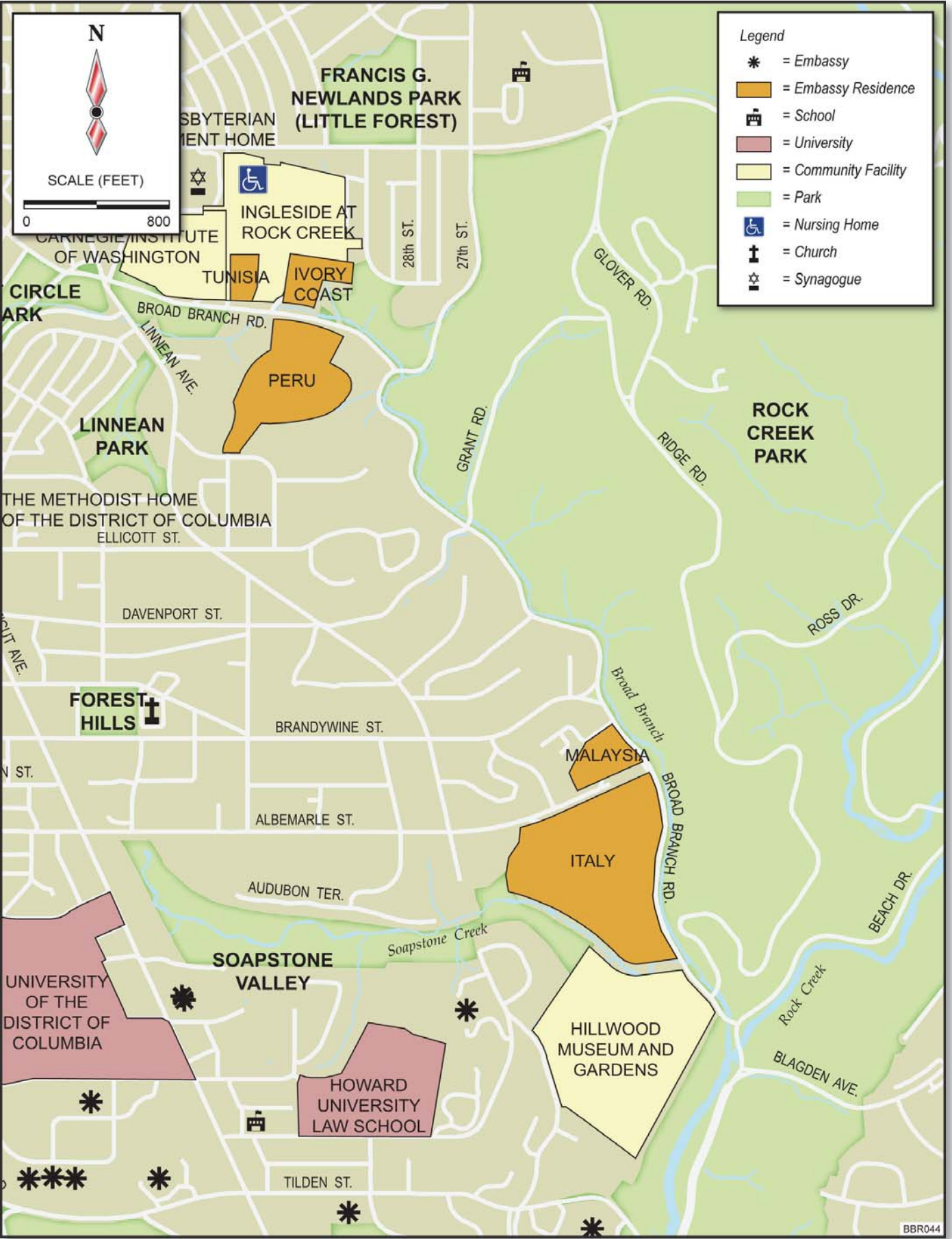




Note: The three illustrations shown above are representative of the typical cross-sections for this alternative; however, they will vary slightly depending on the physical features along the roadway. All views are looking northbound along the roadway.



COMMUNITY FACILITIES IN THE PROJECT AREA





## PROJECT SCHEDULE

Milestone	Date
Project Kick-off	March 2011
Public Scoping Meeting	July 2011
Initial Alternatives	Summer 2012
Public Alternatives Meeting	November 2012
Environmental Assessment	September 2013
Public Hearing	October 2013
Decision Document	Winter 2013

## TELL US WHAT YOU THINK

### Mail

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Parsons Transportation Group  
100 M Street, SE, Suite 1200  
Washington, DC 20003

### Project Website

[www.BroadBranchRdEA.com](http://www.BroadBranchRdEA.com)

### Email

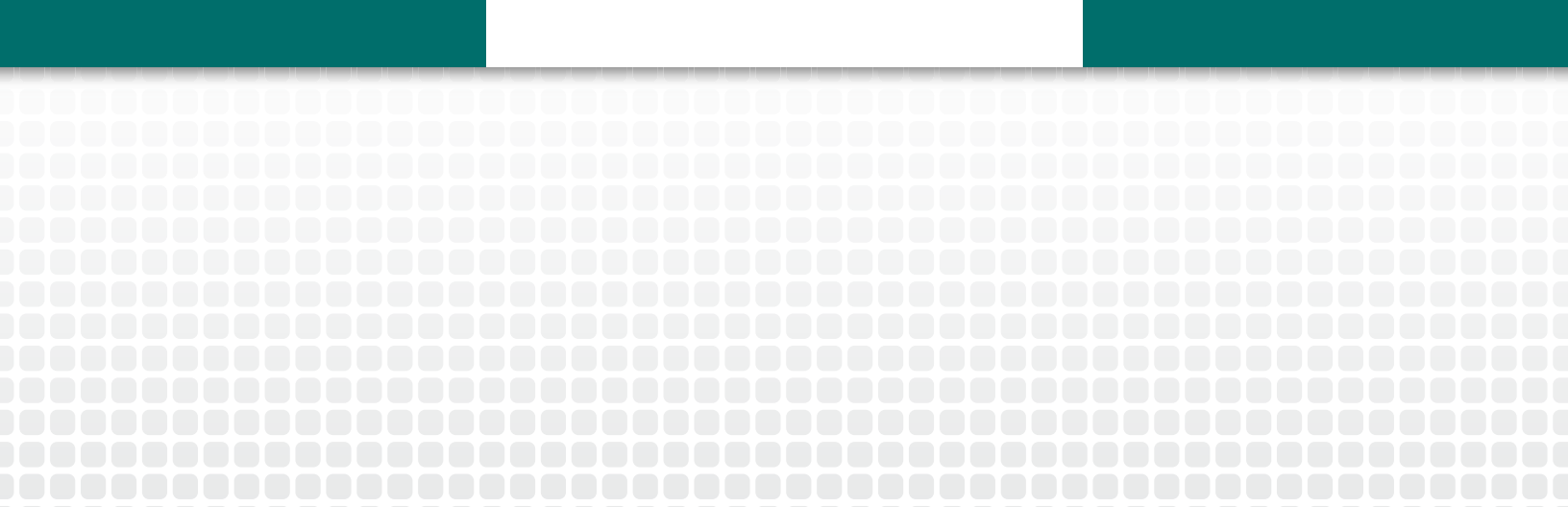
[BroadBranch@parsons.com](mailto:BroadBranch@parsons.com)

*Thank you for your interest and participation in this project.*

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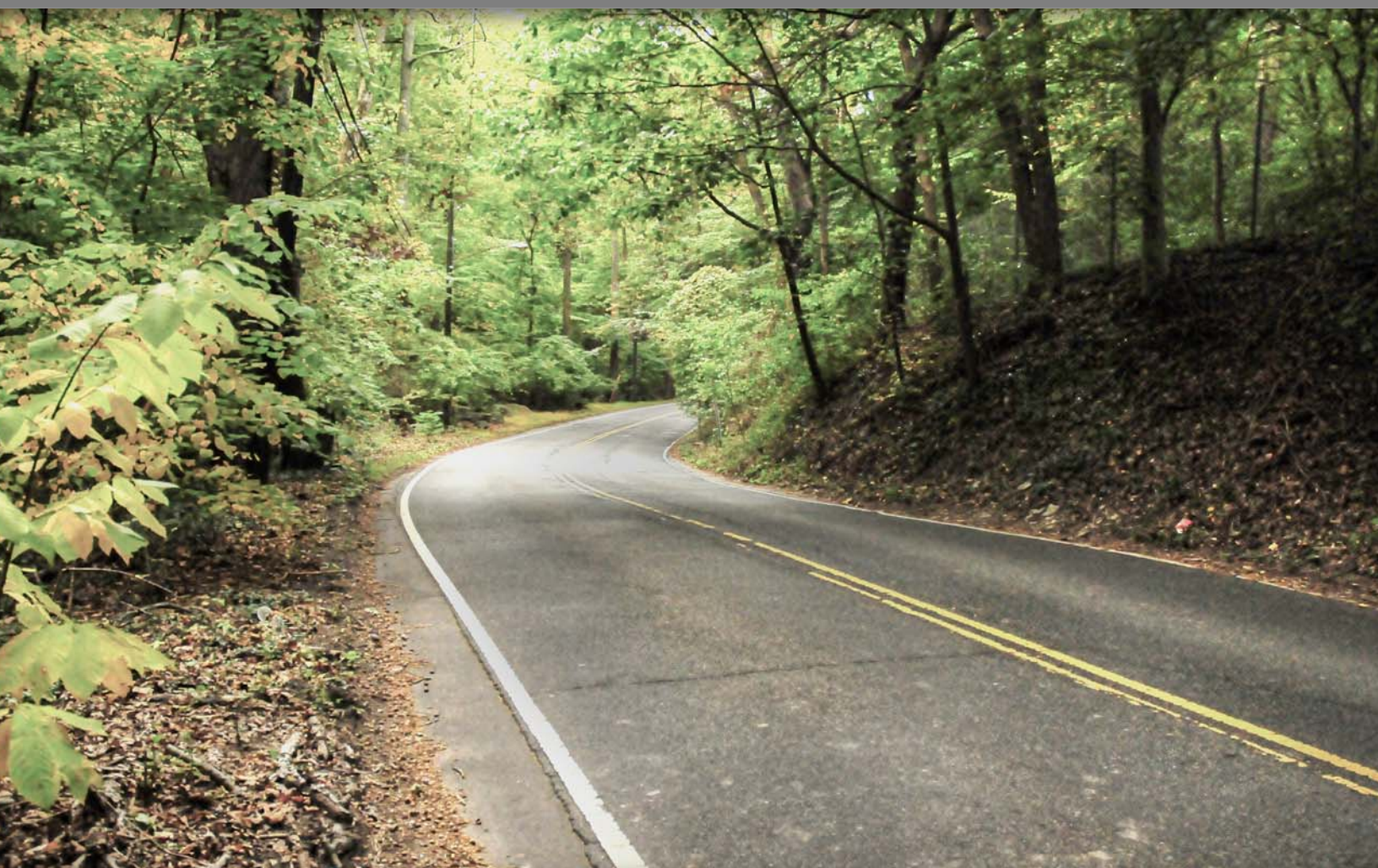
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# REHABILITATION OF BROAD BRANCH ROAD, NW WASHINGTON, DC

April 2018

## SUMMARY OF IMPACTS TO ROCK CREEK PARK





**Summary of Impacts to Rock Creek Park  
As Identified in the Environmental Assessment for the  
Rehabilitation of Broad Branch Road, NW**

Prepared for  
Federal Highway Administration  
and  
District Department of Transportation

April 2018



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# 1 INTRODUCTION

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The Federal Highway Administration (FHWA) in conjunction with the District Department of Transportation (DDOT) and in cooperation with the National Park Service (NPS), are proposing the rehabilitation of a 1.5-mile segment of Broad Branch Road, NW, between Linnean Avenue, NW and Beach Drive, NW. As shown in Figure 1, the majority of the roadway abuts the southwestern border of Rock Creek Park. The existing two-lane Broad Branch Road lies almost entirely within DDOT right-of-way and is maintained by DDOT. An Environmental Assessment (EA) assessing the potential impacts of the proposed improvements was approved by FHWA and DDOT on October 9, 2014.

The EA evaluated one No Action (or no build) alternative and three Candidate Build Alternatives. The three Candidate Build Alternatives were developed to address the deficiencies in the existing roadway infrastructure and stormwater management systems and improve the safety of motorists, pedestrians, and bicyclists. Alternative 2 is the narrowest of the build alternative and basically rebuilds the roadway with two 10-foot travel lanes on its existing alignment. Alternative 3 includes the same two 10-foot travel lanes but adds a 6-foot wide sidewalk on the west side of the roadway for the entire length. Alternative 4 is the widest of the build alternatives and consists of two 10-foot travel lanes, a 6-foot wide sidewalk on the west side, and a 4-foot wide bike lane on the east side. Each of these alternatives are described and illustrated in the following section.

The existing roadway is located within DDOT right-of-way, with minor exceptions. The single encroachment on the west side of the Broad Branch Road occurs where a curve in the southbound lane enters private property owned by a Sovereign Nation (the Republic of Peru). The location of the roadway, outside of the DDOT-owned right-of-way, may be due to inconsistencies in survey bounds that existed when the current Broad Branch Road was constructed or may be the result of previous repaving projects. The Final EA will serve to provide the appropriate action needed to correct the inconsistency, which may include an easement, land transfer, or permit.

Five properties along DDOT's Broad Branch Road right-of-way are owned by foreign countries for use as residences for their ambassadors to the United States (see Figure 1). In order to avoid any encroachment upon these sovereign nation's properties, all widening of the roadway is proposed on the eastern side of the existing roadway. As a result, there can be minor encroachments onto Rock Creek Park – a national park owned and managed by the National Park Service. The majority of the park-owned property adjacent the roadway consists of steep grades leading from the roadway down to Broad Branch. In many sections the steep grade along the roadway is maintained with retaining walls which are in various stages of disrepair.



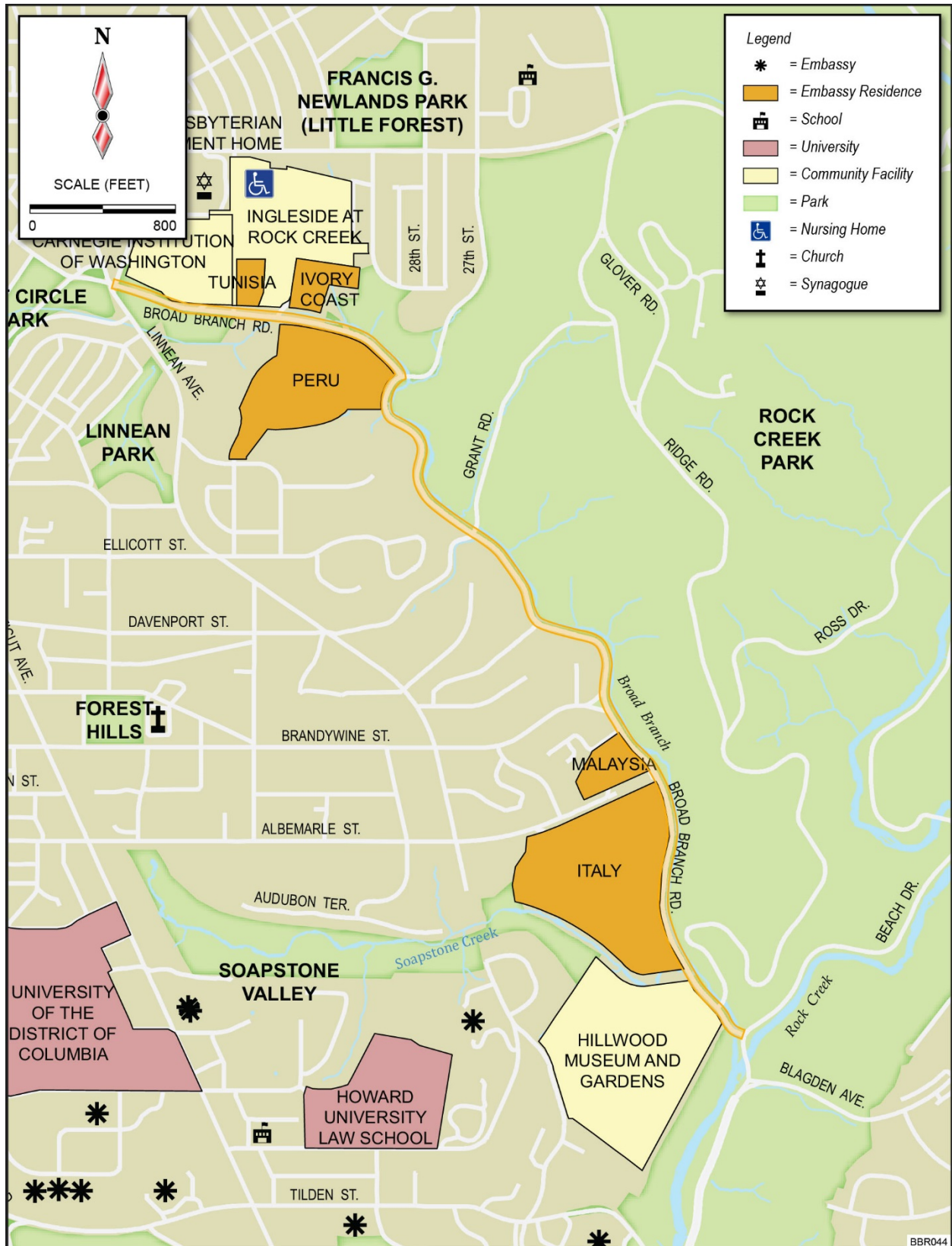


Figure 1. Broad Branch Road Project Area



## 1.1 CANDIDATE ALTERNATIVES PRESENTED IN ENVIRONMENTAL ASSESSMENT

**No Action Alternative 1** consists of only short-term minor restoration activities (safety and routine maintenance) that maintain the continuing operation of the existing roadway.

**Candidate Build Alternative 2** consists of two 10-foot wide travel lanes with standard curb and gutter on the east side with either a standard curb and gutter or linear rain garden (bio-swale) to capture stormwater runoff on the west side (see **Figure 2**). The 10-foot wide linear rain garden will be provided for approximately 1,000 feet south of Linnean Avenue. Retaining walls will be provided on both sides of the roadway as needed to keep proposed improvements within the DDOT-owned right-of-way. The existing storm drain outfall locations will be maintained and stormwater management will be improved by providing bio-swales/rain gardens where space is available along with water quality catch basins. The proposed improvements also include the replacement of the Soapstone Creek culvert. The total estimated project cost is \$29.0 million. The approximate construction duration is 24 months.

**Candidate Build Alternative 3** consists of two 10-foot wide travel lanes, a 6-foot wide sidewalk on the west side of the roadway for the entire length, and standard curb and gutter (see **Figure 3**). A 10-foot wide linear rain garden will be provided between the sidewalk and roadway for approximately 1,000 feet south of Linnean Avenue where the curb and gutter will be located along the east side only. South of that, a 4-foot wide planting strip will separate the sidewalk and roadway. The proposed sidewalk will be extended from the end of the DDOT right-of-way to the Rock Creek Park parking lot just north of Beach Drive. Additional right-of-way will be required in some locations to accommodate the proposed sidewalks and planting strips. Retaining walls will be provided on both sides of the roadway as needed to minimize steep side slopes. The existing storm drain outfall locations will be maintained and stormwater management will be improved by providing bio-swales/ rain gardens where space is available along with water quality catch basins and the Soapstone Creek culvert will be replaced. The total estimated project cost is \$34.2 million. The approximate construction duration is 30 months.

**Candidate Build Alternative 4** is the wider of the three alternatives and consists of two 10-foot wide travel lanes, a 6-foot wide sidewalk on the west side, a 4-foot wide bike lane on east side, and standard curb and gutter on both sides of the roadway (see **Figure 3**). A 10-foot- wide linear rain garden will be provided between the sidewalk and roadway for approximately 1,000 feet southward of Linnean Avenue where the curb and gutter will be located along the east side only. South of that a 4-foot wide planting strip will separate the sidewalk and roadway for the western length of the project and the curb and gutter will be located on both sides. Alternative 4 also extends the proposed sidewalk to the Rock Creek Park parking lot. Retaining walls will be provided on both sides of the roadway as needed to minimize steep side slopes. Like Alternative 3, additional right-of- way will be required in some locations to accommodate the proposed sidewalk and planting strip, as well as the retaining walls on the east side. The existing storm drain outfall locations will be maintained and stormwater management will be improved by providing bio-swales/rain gardens where space is available along with water quality catch basins. The Soapstone Creek culvert will also be replaced. The total estimated project cost is \$37.1 million. The approximate construction duration is 36 months.



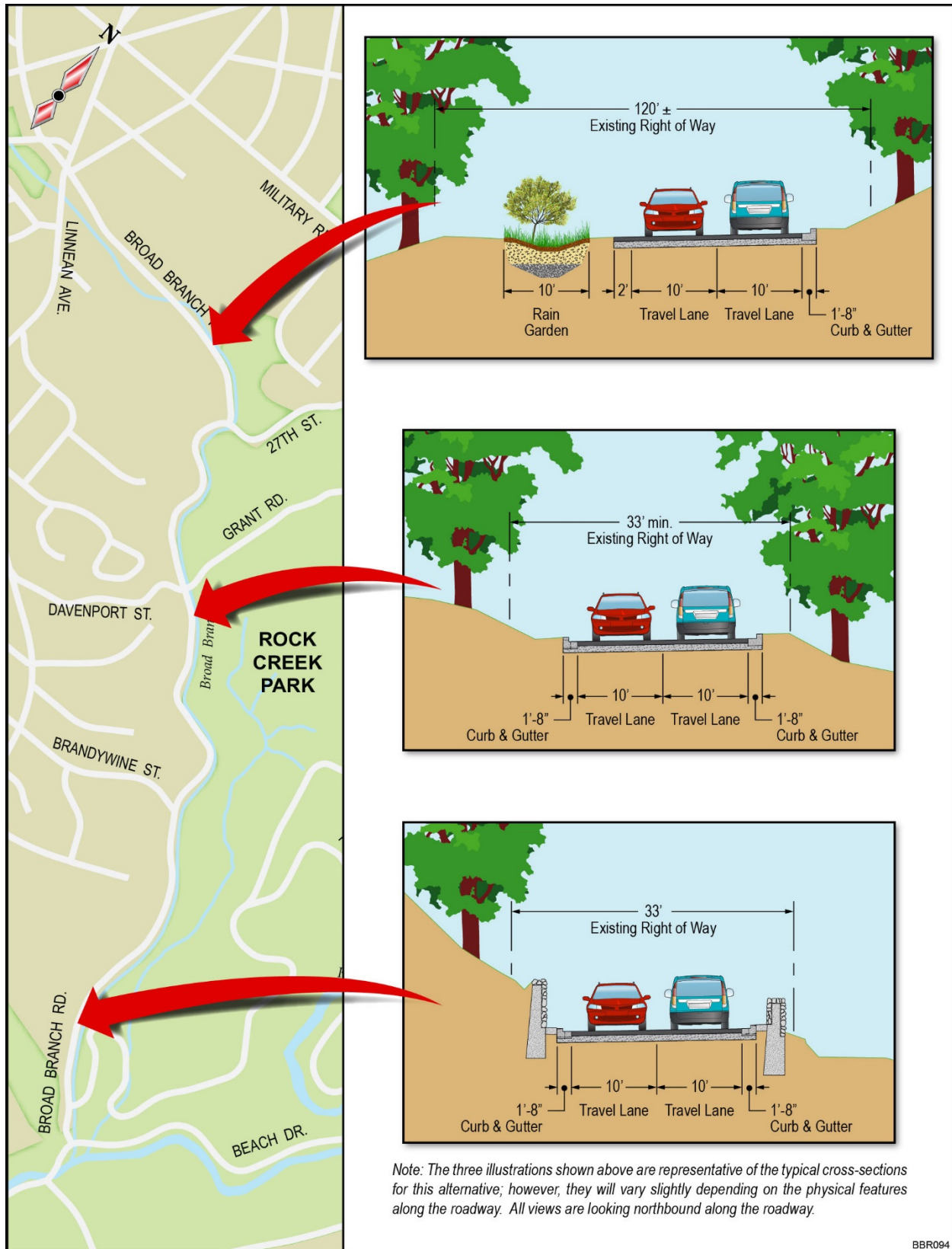


Figure 2. Candidate Build Alternative 2



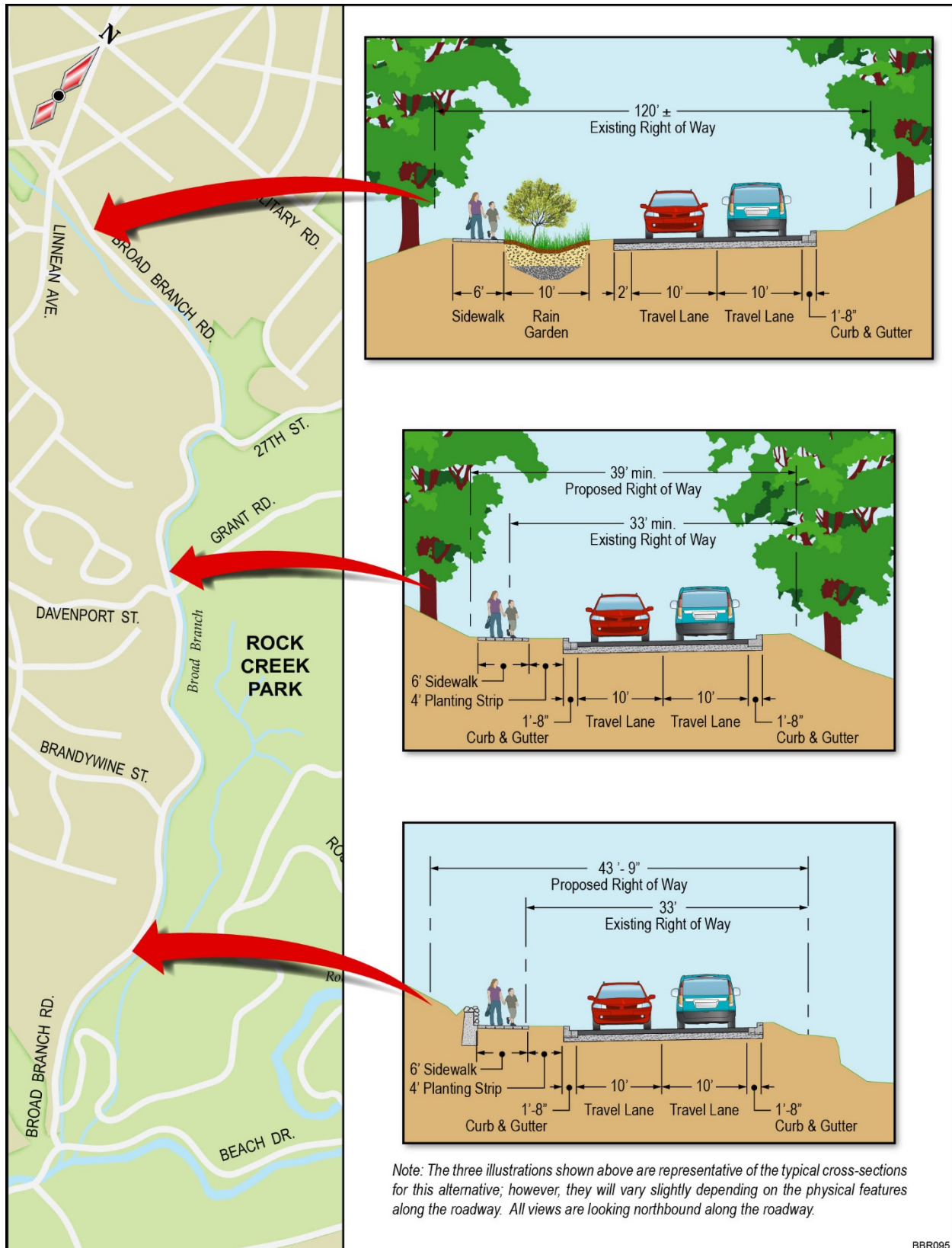


Figure 3. Candidate Build Alternative 3



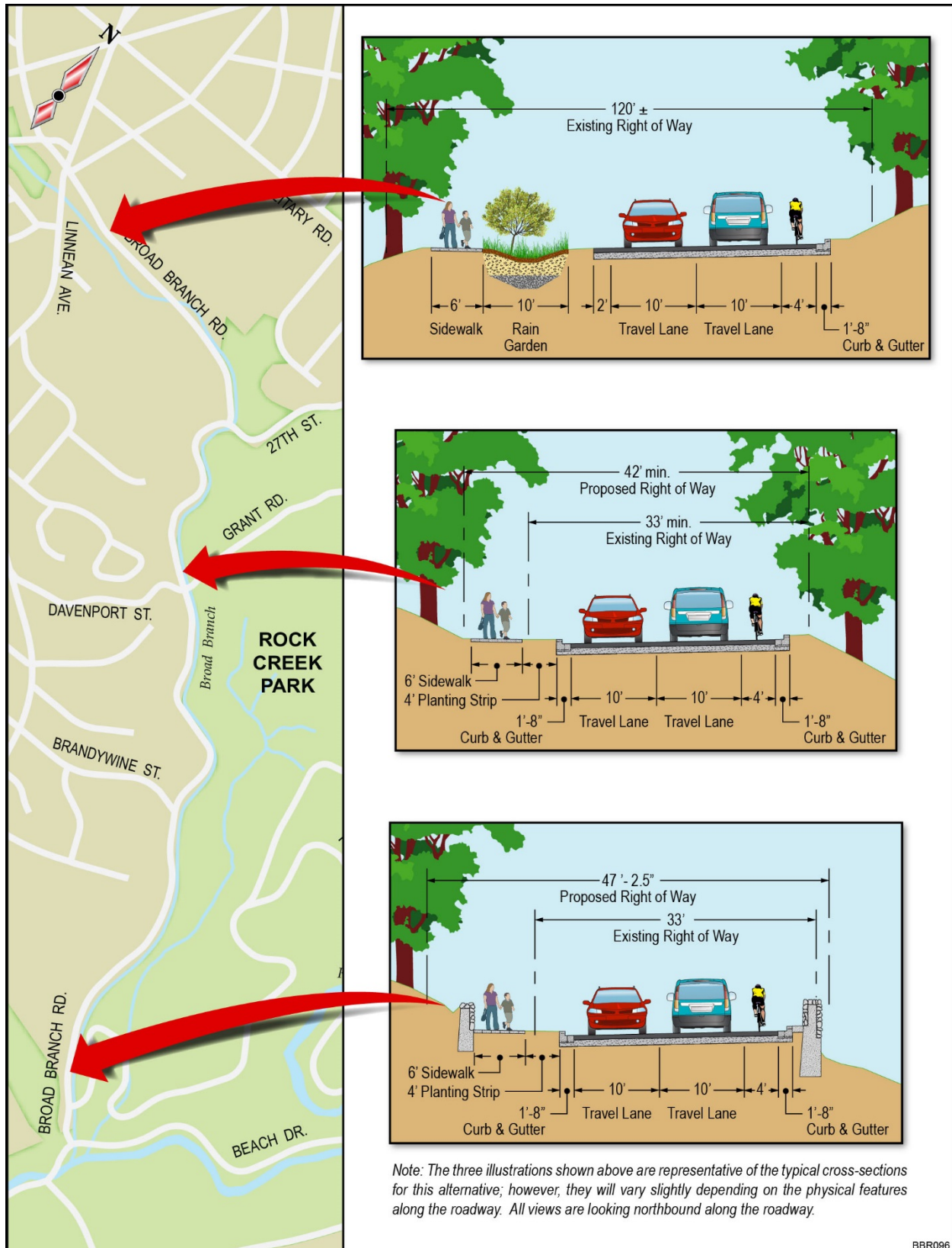


Figure 4. Candidate Build Alternative 4



## 1.2 DDOT'S RECOMMENDED ALTERNATIVE

To minimize encroachments outside of the existing right-of-way while still meeting the project's purpose and need, DDOT is recommending a modified version of Alternative 3 (as presented in the Environmental Assessment and described above).

**Candidate Build Alternative 3 Modified** would be identical to Alternative 3 with the exception of the width of sidewalks in front of the three sovereign nation lands on the west side of the roadway. To minimize encroachments onto National Park Service lands on the east side of the roadway, the sidewalks along the embassy properties would be reduced to a 5-foot width (see **Figure 5**). These reduced-width sidewalks are consistent with American Disability Act (ADA) standards.

Conceptual designs for the modified alternative indicate 7 locations where minor encroachments upon National Park Service lands could occur. These are shown in Figure 5 and described in more detail in the following section.



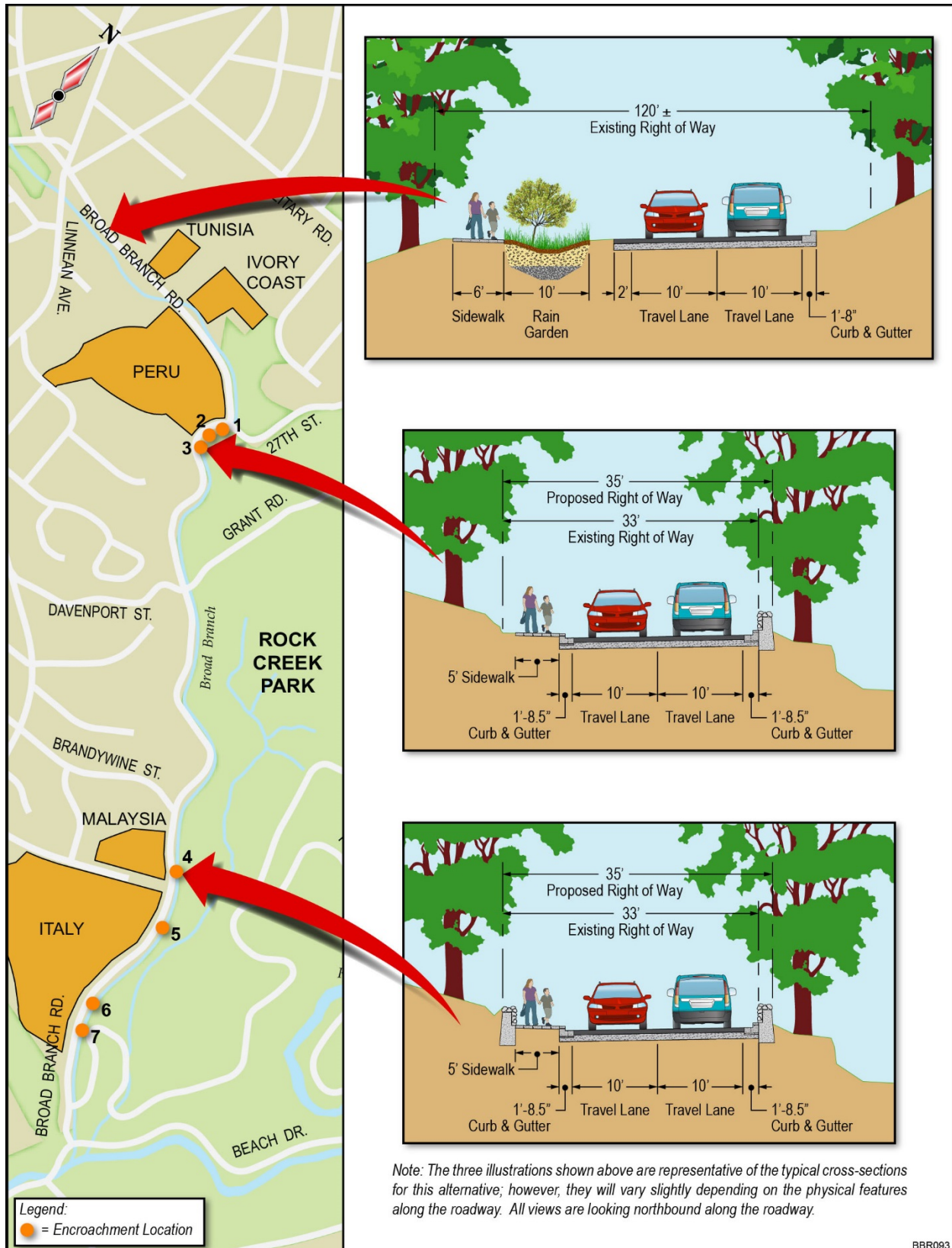


Figure 5. Candidate Build Alternative 3 Modified



# 2

## POTENTIAL IMPACTS

The Environmental Assessment documented in detail the potential impacts from the No-Build and three Candidate Build Alternatives upon the human, cultural and natural environments. In recognition of the potential encroachments upon Rock Creek Park and thus a potential Section 4(f) use of the park property, DDOT further investigated the design of Alternative 3 to minimize such use. The following documents the minimal impacts associated with the modified alternative.

### 2.1 ENCROACHMENT UPON ROCK CREEK PARK

Under Candidate Build Alternative 3 Modified, additional right-of-way would need to be acquired from National Park Service lands at 7 locations for the permanent construction of the roadway, sidewalks and associated retaining walls (see **Table 1** and **Map Sheets 1 - 4**). Temporary encroachments would be required for excavation as well as replacement of stormwater outfall pipes. Once construction is complete, the ground surface would be restored to its original elevation and re-vegetated as appropriate.

**Table 1. Encroachment on Rock Creek Park**

Encroachment Area	Map Sheet	Roadway Encroachment		
		Length (Linear Feet)	Average Width (Linear Feet)	Area (Square Feet)
Location 1	1	32.33	0.36	11.52
Location 2	1	30.78	1.57	48.33
Location 3	1	12.52	0.85	10.63
Location 4	2	17.55	0.26	4.50
Location 5	3	32.43	0.47	15.12
Location 6	4	125.51	1.08	136.09
Location 7	4	22.58	0.43	9.64
<b>Total</b>	NA	273.70	NA	235.83

As shown in Table 1 most of the encroachment areas are less than 1 foot in width and generally occur along the steep grade between the existing roadway and Broad Branch. These encroachments would not alter the function or use of the affected park property and therefore represent a minimal use of the Section 4(f) resource.



# MAP SHEETS

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Map Sheet 1 of 4  
Alternative 3 Modified - Right-of-Way Encroachment





Map Sheet 2 of 4  
Alternative 3 Modified - Right-of-Way Encroachment





Map Sheet 3 of 4  
Alternative 3 Modified - Right-of-Way Encroachment





Map Sheet 4 of 4  
Alternative 3 Modified - Right-of-Way Encroachment



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