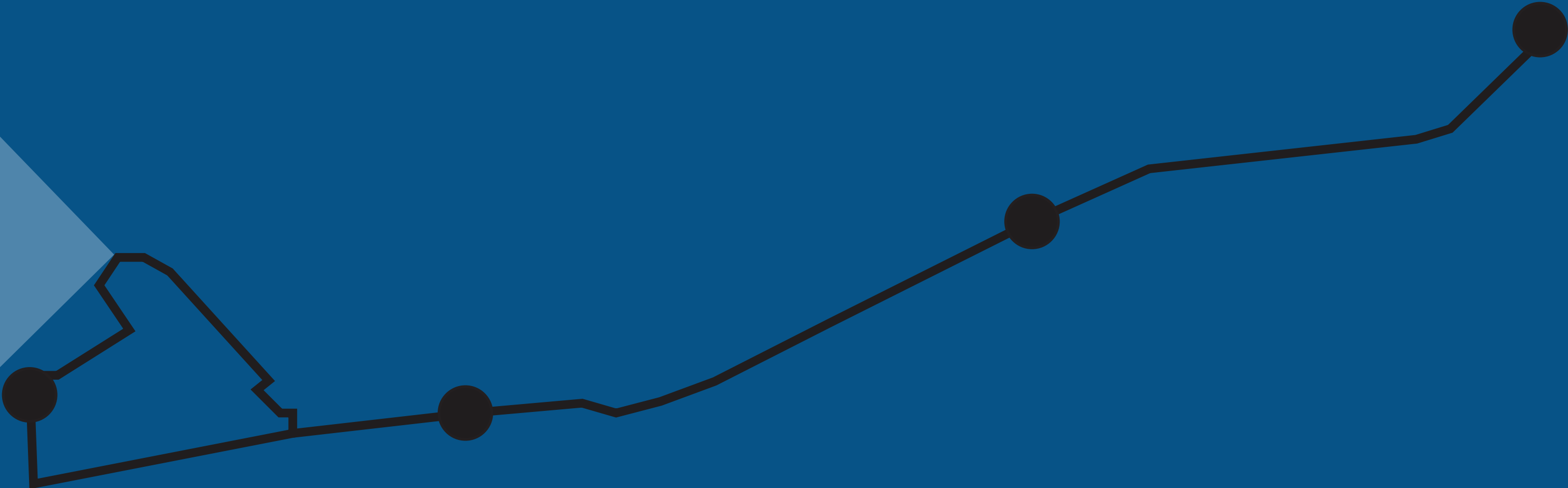


CENTRAL AVENUE CONNECTOR TRAIL

30% Design Project: Phase I—Addison Road Segment



THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
PRINCE GEORGE'S COUNTY PLANNING DEPARTMENT



JANUARY 2017



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30% Design Project: Phase I—Addison Road Segment

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
PRINCE GEORGE'S COUNTY PLANNING DEPARTMENT

Central Avenue
Connector Trail
TOD

JANUARY 2017

The Maryland-National Capital Park and Planning Commission
Prince George's County Planning Department
14741 Governor Oden Bowie Drive
Upper Marlboro, Maryland 20772

www.pgplanning.org

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EXECUTIVE SUMMARY

The Maryland-National Capital Park and Planning Commission (M-NCPPC), Prince George's County Planning Department has initiated the 30% Design of the Central Avenue Connector Trail (CACT): Phase I—Addison Road segment. This design report presents a summary of the trail design, stakeholder and community engagement tasks undertaken, and an implementation plan with the goal of advancing the project toward construction.

Phase 1 (Implementation) consists of a one-mile segment of roadside trail along MD 214 (Central Avenue) in the Seat Pleasant area of Prince George's County, Maryland. Central Avenue, a six-lane divided urban arterial with a posted speed limit of 30 miles per hour, provides regional transportation access between downtown Washington, D.C. and the eastern suburbs in Prince George's County. Conditions for pedestrians along the road are currently stressful with high volumes of local and commuter traffic and high average vehicle travel speeds along Central Avenue.

EXECUTIVE SUMMARY

Phase I was prioritized by M-NCPPC to enhance local bicycle and pedestrian access to the Addison Road-Seat Pleasant Metro Station, which is centrally located on this portion of the trail. The Metro station provides regional transit service via the Washington Metropolitan Area Transit Administration (WMATA) Metro Blue Line. Construction of a trail will achieve multiple goals, including enhancement of transportation accessibility to disadvantaged communities within the Central Avenue corridor, and opportunities to improve health by providing active transportation facilities in a separated environment.

Existing conditions along this section of Central Avenue are generally stressful for bicyclists and pedestrians. Vehicles regularly exceed the posted speed limit. Crossing Central Avenue is challenging due to limited signalized intersections, which essentially makes the road a barrier between local residents and schools, parks, shopping centers, and the Metro station. During completion of this report, two pedestrian fatalities have occurred at the existing mid-block crossing of Central Avenue at the Addison Road-Seat Pleasant Metro Station entrance, which is currently unsignalized. The first occurred on Wednesday, July 20, 2016 and the second on Wednesday, September 21, 2016. Although sidewalks are provided along most of the corridor, all are located adjacent to the curb and, in some areas, are less than five feet wide. The road grade exceeds five percent in some locations, including the area just east of the entrance to the Metro station, which limits accessibility to persons with disabilities.

The proposed design includes construction of a 12-foot-wide asphalt trail between Addison Plaza and Pepper Mill Drive. The trail facility is designed to achieve a maximum five percent grade in accordance with the Americans with Disabilities Act (ADA). A variable width grass buffer is provided between the Central Avenue curb and edge of trail, with a minimum two-foot buffer provided where constrained by right-of-way or utilities, and greater separation provided where feasible. An improved crosswalk is proposed at the Pepper Mill Drive intersection, which is currently not marked as a crosswalk or controlled by a traffic signal. Additional improvements at intersections along the trail are recommended to reduce the barrier effect of Central Avenue. At uncontrolled crossings, it is recommended that a traffic signal or grade-separated structures should be evaluated during final design of the trail.

Implementation of the trail is primarily dependent on identifying a funding source to complete final design and construction of the trail. The CACT project has strong community support. Additional projects that improve traffic safety along Central Avenue should also be completed to ensure safety and accessibility for residents when the trail is constructed.



View of project area from Addison Road-Seat Pleasant Metro Station.



West-facing view along MD 214 (Central Avenue).



Entrance to Metro station.



Example of side path.



MD 214 (Central Avenue).



MD 214 (Central Avenue).



Example of bikeshare station.



Example of bike patrol officer.

Key Opportunities and Challenges

Key Issues identified during preparation of the 30% Design included the following:

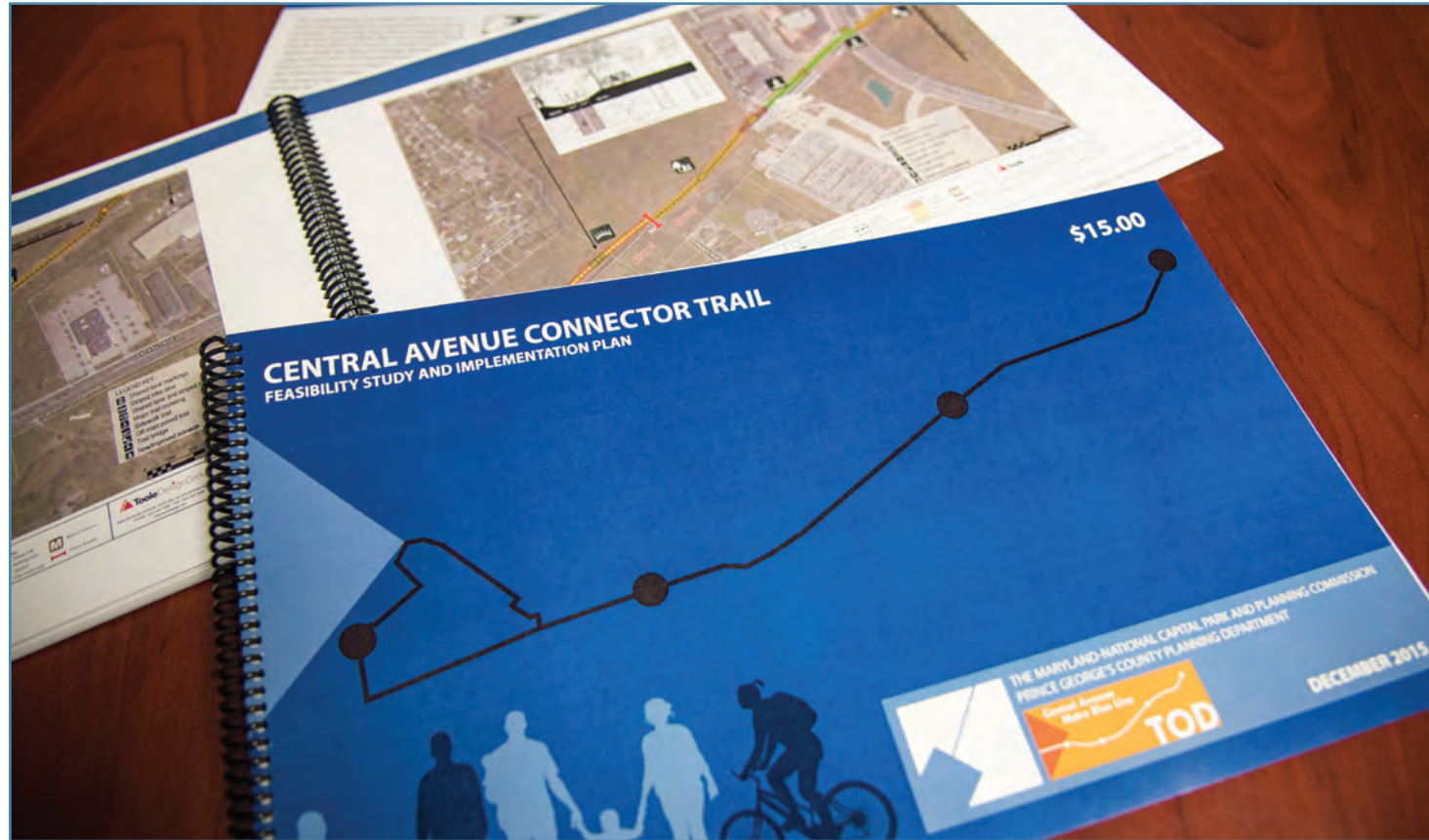
- **Safe road crossings** are critical to the success of the CACT. Specific to the trail design is the proposed multilane trail crossing of Central Avenue at Pepper Mill Drive. Installation of a traffic signal or grade-separated structure to serve the trail crossing are recommended. There are concerns related to high vehicle operating speeds on Central Avenue and multiple fatalities that have occurred at the existing Addison Road-Seat Pleasant Metro Station entrance crosswalk, which is currently unsignalized.
- **Pedestrian safety** along Central Avenue is a general concern within the corridor. The Maryland State Highway Administration (SHA) is currently completing a Pedestrian Road Safety Audit (PRSA) to improve conditions along the corridor. To facilitate trail access, proposed measures including adoption of a school zone speed limit and establishment of automated speed enforcement are necessary to address speeding along this section of the trail. In addition, installation of traffic signals at the Addison Road-Seat Pleasant Metro Station entrance, Cabin Branch Drive, and Pepper Mill Drive are recommended in order to reduce the potential for future fatalities at uncontrolled crosswalks, to improve access between communities and the trail and to facilitate the trail crossing at Pepper Mill Drive.
- **Safety and security** along the trail alignment were key concerns raised during community outreach activities. Installation of CCTV cameras, emergency call boxes, and police patrols of the trail will be necessary to provide a sense of security. Pedestrian-level lighting is proposed with the design to ensure high visibility along the trail 24 hours a day.
- **Environmentally sensitive design** of the trail was a common desire of stakeholders and the community. A palette of options, such as permeable pavement and micro-bioretenion, is included in the 30% Design.
- **Trail amenities**—including a range of features such as waysides, benches, bike maintenance racks, USB charging stations, recycling and waste containers, wayfinding signing, and mile markers—are among the options identified during the process that may be incorporated into the final design. Branding and programming of the trail should be developed in consultation with the community during preparation of the final design.
- **Maintenance funding**, to ensure that the trail is managed as a community asset, was a desire of stakeholders and the community. The determination of maintenance responsibility within the County, and the establishment of an annual maintenance and operation budget for the trail, are necessary to advance the project to implementation. An initial annual maintenance and operation budget of \$15,000–\$25,000 is recommended based on published urban trails maintenance data.
- **Collaboration** between County agencies, property owners, stakeholders, and the community will be necessary to ensure a successful outcome for the project.



INTRODUCTION

This 30% Design Plan has been prepared for Phase I of the CACT, located in the Seat Pleasant area of Prince George's County, Maryland. The primary goal of this project is to develop design plans and identify costs to construct a one-mile segment of trail that will improve access between the surrounding communities and the Addison Road-Seat Pleasant Metro Station on the WMATA Metro Blue Line. The design includes a survey of existing conditions adjacent to MD 214 (Central Avenue) between Addison Plaza and Pepper Mill Drive along the south side of the highway.

The primary objective of the preliminary design phase is to develop a comprehensive assessment of existing site conditions and resources and to develop a preliminary trail design that minimizes impacts to resources while maximizing the safety, functionality, and operations of the trail and adjacent transportation facilities. Transportation assets include roads, transit, and other pedestrian and bicycle facilities. The 30% Design Plan identifies key design features, utility adjustments, and property impacts required to construct the trail. This report outlines an implementation plan, key details of the design, permitting requirements, and trail costs. The ultimate goal is to provide information needed by M-NCPPC to pursue funding for the next phase of the project.



Objectives

This project complements ongoing planning and revitalization efforts in the Central Avenue-Metro Blue Line Corridor. The CACT was an outgrowth of multiple planning and implementation efforts led by the Prince George's County Planning Department to enhance safety, mobility, connectivity, and livability within the corridor.

The CACT was one of the top implementation priorities identified in the 2014 *Central Avenue-Metro Blue Line Corridor TOD Implementation Project Mobility Study*. A subsequent Feasibility Study and Implementation Plan was completed in 2016 to analyze implementation needs, leverage grant funding, outline design considerations, and identify next steps.

Goals and Benefits

M-NCPPC identified numerous benefits offered by the CACT to the local community. These include:

- Improved pedestrian and cyclist safety
- Enhanced mobility and access to the Blue Line Metro Stations
- Improved connections to neighborhoods
- Additional recreational and active lifestyle opportunities

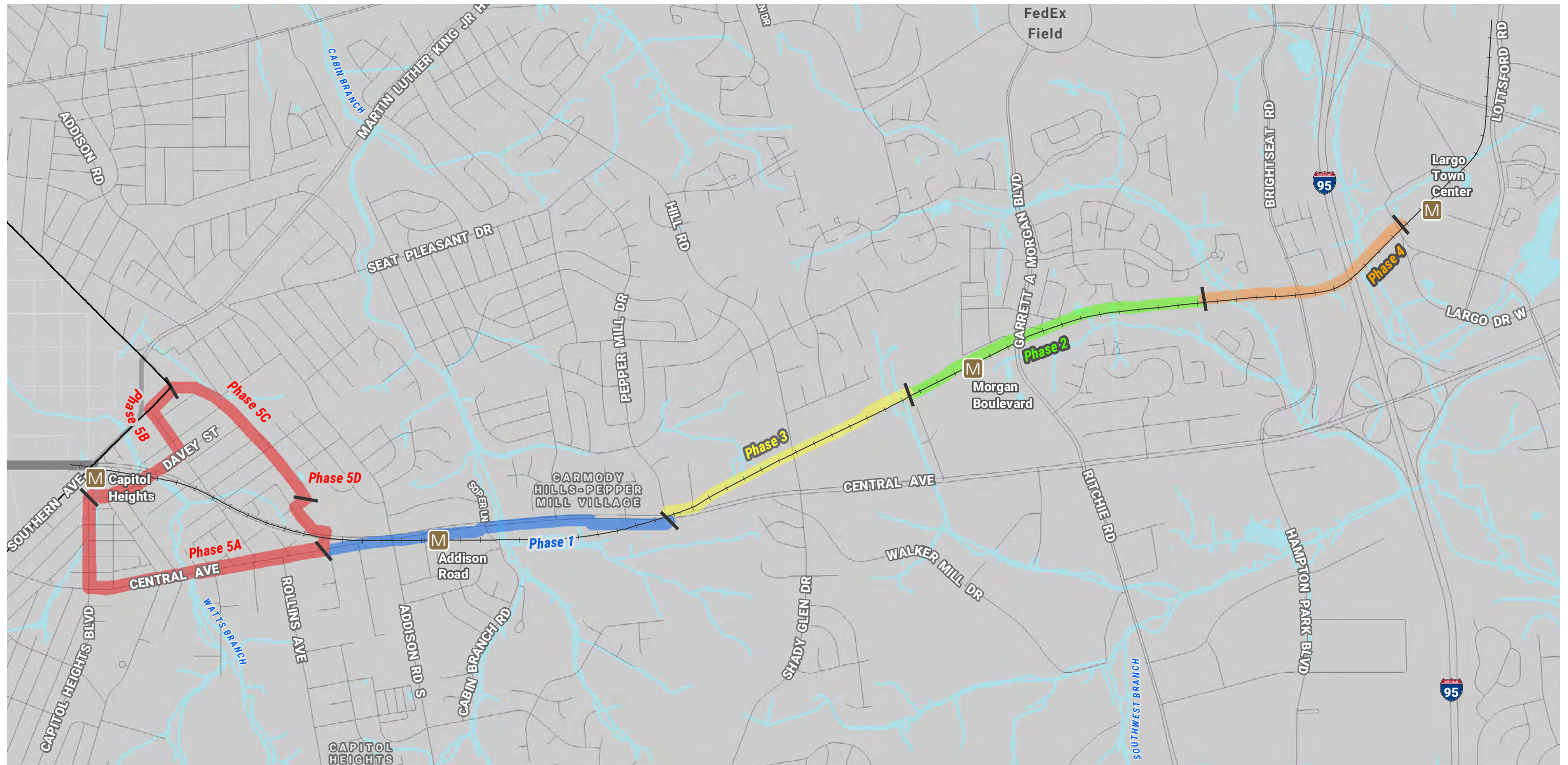
Context

The complete CACT alignment consists of approximately four miles of trail from Capitol Heights, Maryland to Largo, Maryland. The Phase I—Addison Road segment is located within the western portion of the overall project and was prioritized to achieve the goals listed above. Phases 1 through 5 (Implementation) are depicted in Figure 1. Phase 1 is highlighted in blue. The remaining phases of the trail have all been funded for design. Phase II consists of implementation Phases 2, 3, 5 and an alternative alignment for Phase 4 (Beltway crossing). Phase II 30 percent design work is underway and is scheduled to be completed in early 2018. Phase III (Implementation Phase 4) design work will commence in the spring of 2017.

Completion of the trail will provide a multimodal, active transportation option between Washington, D.C. and Largo Town Center. Four stations on the Metro Blue Line will be directly accessible via the trail, including Capitol Heights (Phase 5, highlighted in red), Addison Road (Phase 1), Morgan Boulevard (Phases 2 and 3, highlighted in green and yellow) and Largo Town Center (Phase 4, highlighted in orange).



Figure 1. Central Avenue Connector Trail Corridor



The Maryland-National Capital Park and Planning Commission
 Prince George's County Planning Department

Central Avenue Connector Trail

Implementation_Phase	Other
1	Metro Stations
2	Railroads
3	
4	
5	



EXISTING CONDITIONS

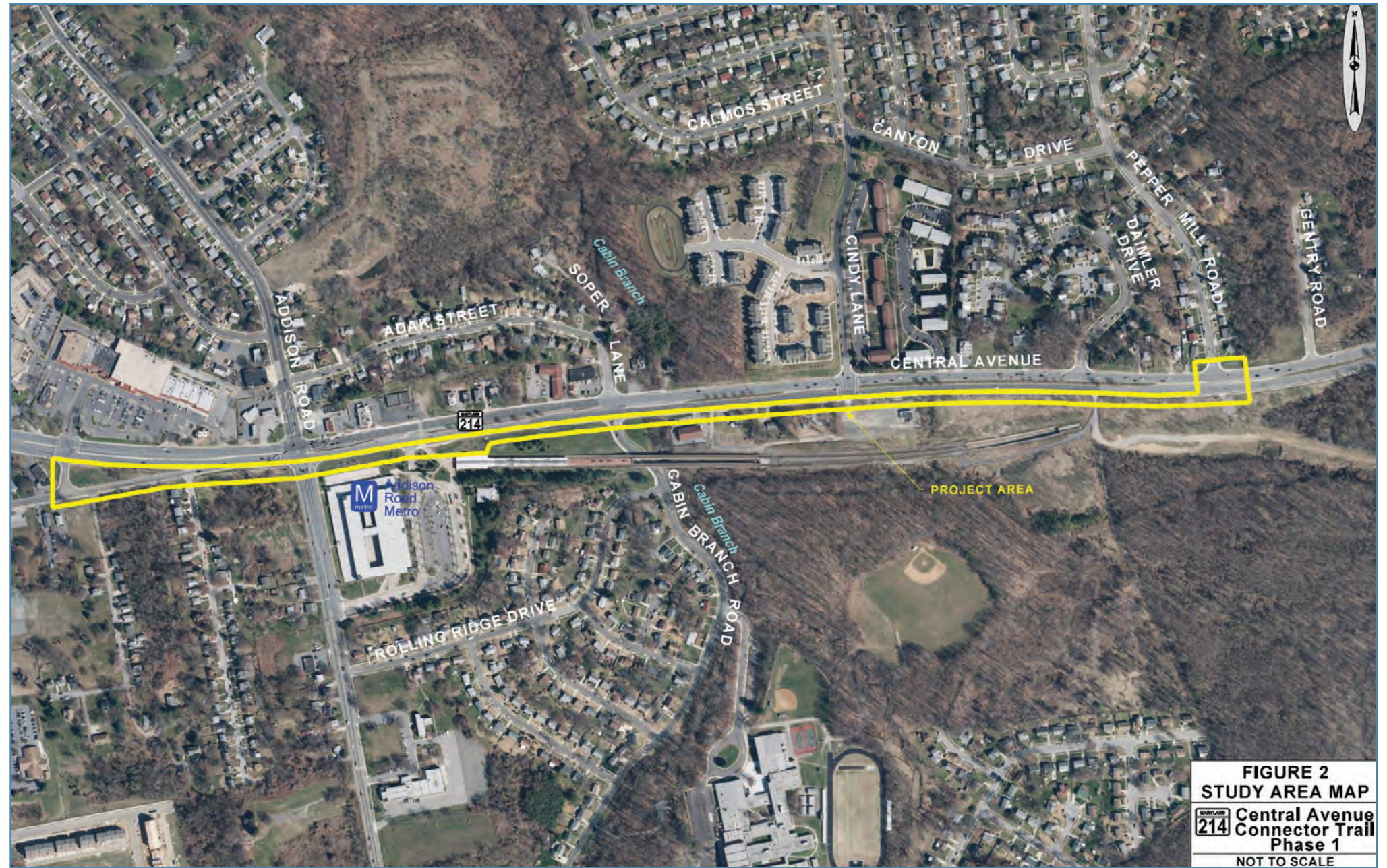
A field review of the CACT Phase I corridor was conducted on March 18, 2016 with the project team and key stakeholders. The purpose of the field review was to familiarize the project team with the site and to identify opportunities and constraints. It was observed that vehicle speeds on Central Avenue appear to significantly exceed the posted speed limit of 30 miles per hour. Speeding is a concern at trail crossing locations, like the existing crosswalk at the Addison Road-Seat Pleasant Metro Station, which is unsignalized. In several locations, grade constraints and potential drainage impacts were observed. The presence of overhead utilities may necessitate relocation of some utility poles to remove conflicts.

Site Description

MD 214 (Central Avenue) is designated by the Maryland State Highway Administration (SHA) as an east-west, six-lane divided urban arterial roadway. The proposed trail segment is located along the south side of Central Avenue between Addison Plaza and Pepper Mill Drive. Existing development along Central Avenue includes a mix of commercial developments and residential communities. The entrance to the Addison Road-Seat Pleasant Metro Station is located just east of the intersection of Central Avenue and Addison Road, which provides an alternative transportation opportunity to the surrounding community. (See Figure 2 for a map of the study area.)

This segment of Central Avenue consists of three travel lanes in both the eastbound and westbound directions that are divided by a raised median. Central Avenue has a posted speed limit of 30 miles per hour within the study area. There is continuous overhead street lighting along the entire length of Central Avenue, however, lighting is relatively poor due to the spacing of light fixtures. Sidewalks are provided along both sides of Addison Road; they are generally five feet in width and located immediately behind the curb. Variable width (one- to three-foot) shoulders are provided along significant portions of the roadway, which, with consideration of vehicular volumes and speed, creates an inhospitable environment for cyclists on the road. Horizontally, this section of Central Avenue meanders along a series of generous reverse curves. Vertically, the road includes a series of gradual curves, with roadway slope of approximately six percent in the areas immediately east and west of the Addison Road-Seat Pleasant Metro Station. Traffic signals are provided at the intersections of Central Avenue with Addison Plaza, Addison Road, and Cindy Lane. The intersection with Old Central Avenue provides yield-controlled eastbound right-out access only. The remaining intersecting streets include the Addison Road-Seat Pleasant Metro Station entrance, Cabin Branch Avenue, and Pepper Mill Drive, which are side street stop controlled. Several commercial and residential driveways are located on the south side of the road along the proposed trail alignment.

Figure 2. CACT Phase I Study Area



Transit

A key benefit of the CACT project is the opportunity to connect residents with transportation options, including regional Metrorail, Metrobus, and County bus service. The Metro Blue Line provides connectivity between Springfield, Virginia and Largo, Maryland with direct access to downtown Washington, D.C. and Ronald Reagan Washington National Airport. Metrobus service includes fixed-route bus service on the C21, C22, C27, C29, F14, J12, P12, V14, and V15 routes. In addition, the County's TheBus service, managed by DPW&T provides service on Route 23 along the Central Avenue corridor, with connecting north-south service on Routes 18 and 20 provided via the Addison Road-Seat Pleasant Metro Station.



Metrobus on Central Avenue.



Metro Blue Line.

Site Survey

A topographic survey was completed by Capitol Development Design, Inc. (CDDI) for the corridor in March 2016. The survey limits were from the Addison Plaza Shopping Center intersection to Pepper Mill Drive. The survey was bounded by the face of curb of the eastbound MD 214 (Central Avenue) travel lane and was collected approximately 50 feet south of the curb. The survey includes curb, sidewalk, fences, utility surface features, utility marks provided by Miss Utility, trees, signs, sidewalks, and driveway entrances. CDDI completed research of available land records and a field survey of property monuments to prepare a property mosaic and establish the southern right-of-way line for Central Avenue. This field run survey was utilized to prepare the 30% Design Plan for the trail.

Utilities

A Utility Composite was developed based on available information provided by utility companies and surface features identified during the field run survey. All line styles are depicted according to record (DATR) and color-coded in accordance with SHA standards. The utility composite represents a Quality Level C/D Survey.

Table 1 presents the Utility Records received and outstanding requests for utility data.



Table 1. Utility Collection Report

Utility Company	MISS Utility Notification List	Date Requested	Date received	Comments
Comcast-UTILIQUEST	2/10/16	3/29/16	4/4/16	Place utility composite copy of plat in Utility Project Directory. 6/27/16—Requested additional information on legends and all utilities OH?
PEPCO-OCCLS	2/10/16	3/29/16	4/1/16	Place utility composite copy of plats and cover letter in utility project directory.
VERIZON	2/10/16	3/29/2016 and 4/4/16	6/20/16	6/20/16—Received As-Built Records and placed in project directory. 6/30/16—Discussion with Mary Polk of Verizon 301-282-2463 about fiber optic handboxes found west of Addison Road. She said that Verizon records only show manholes and conduits no handboxes or direct buried cables.
WASHINGTON-GAS-UTILIQUEST	2/10/16	3/28/16	4/6/16	3/28/16—Contacted William Mazzoli 703-750-5184, my map request login did not work, William said my profile was not forwarded to the new system, please send error information, will contact IT Department, meanwhile send request to email MappingResearch@washgas.com for record drawings. 3/30/16, 4/4/16 and 4/6/16 checked on status of utility records request. 4/6/16 received and placed utility plats in utility project directory.
WSSC-PINPOINT UG	2/10/16	3/28/16	3/28/16	Acquired online and placed Water and Sewer in Utility Project Directory
PG COUNTY GOVT-S&N LOCATOR	2/10/16			As of 7/1/16 no response.



30% DESIGN

The CACT alignment was designed to be direct and pleasant, meeting the required design standards outlined in the following pages while minimizing impacts to existing site features. Given the urban setting of the trail and that it will run parallel to Central Avenue, there are numerous existing utilities above and below ground within the corridor. The trail was designed to minimize utility impacts. In locations with existing underground utilities it was assumed that impervious asphalt would be required, while in areas with no existing utilities pervious asphalt is proposed. To satisfy stormwater management requirements, the trail was also designed to minimize earthwork requirements while meeting the profile slope requirements. At driveway crossings, it is assumed that the trail will be Portland Cement Concrete and has been designed per SHA entrance details. Additionally, all intersection curb ramps have been designed to meet SHA and Federal ADA requirements.

This design report highlights key elements and considerations of the 30% Design for Phase I of the CACT. The design was prepared in consultation with stakeholders, property owners, and community participants as discussed in the following sections of the report. A review comment and response matrix is provided in Appendix D.

Figure 3. CACT Concept Plan





Design Standards

Applicable federal, state, and local design standards and guidelines have been referenced in preparation of the 30% Design Plan for the CACT. Key design references include the following:

- AASHTO Guide for the Development of Bicycle Facilities, Fourth Edition (2012):** This publication by the American Association of State Highway and Transportation Officials (AASHTO) serves as the primary reference for design of bikeways. The design guidelines address a range of criteria including design speeds, clear zone, horizontal and vertical alignment, sight distance, and intersection treatments.
- SHA Bicycle Policy and Design Guidelines (January, 2015):** Because the CACT alignment is within state right-of-way, criteria outlined in the SHA policy and design guidelines apply to the design of any portions of the trail located within public right-of-way.
- SHA Manual of Uniform Traffic Control Devices (MD MUTCD) (2011):** Design of traffic control devices within the State of Maryland—including signs, pavement markings and traffic signals—must comply with the guidelines presented in the MD MUTCD.
- NACTO Urban Bikeway Design Guide (March, 2014):** The National Association of City Transportation Officials (NACTO) design guide provides valuable guidance for traffic control treatments along bikeways and at intersections.
- FHWA Separated Bike Land Planning and Design Guide (May, 2015):** A recent publication by the U.S. Department of Transportation Federal Highway Administration (FHWA), this guide provides some of the most current guidance for the treatment of separated bikeways, with specific discussion of intersection design considerations and methods to address conflict points.
- WMATA Adjacent Construction Project Manual, Revision 5a (September, 2015):** Because the trail is located on, and adjacent to, properties owned by WMATA, the design must adhere to all criteria set forth in the manual. Requirements outline access to WMATA facilities and design specific criteria such as trail grade and lighting requirements.

Known exceptions to design standards are noted in Table 2.

Table 2. Design Exceptions

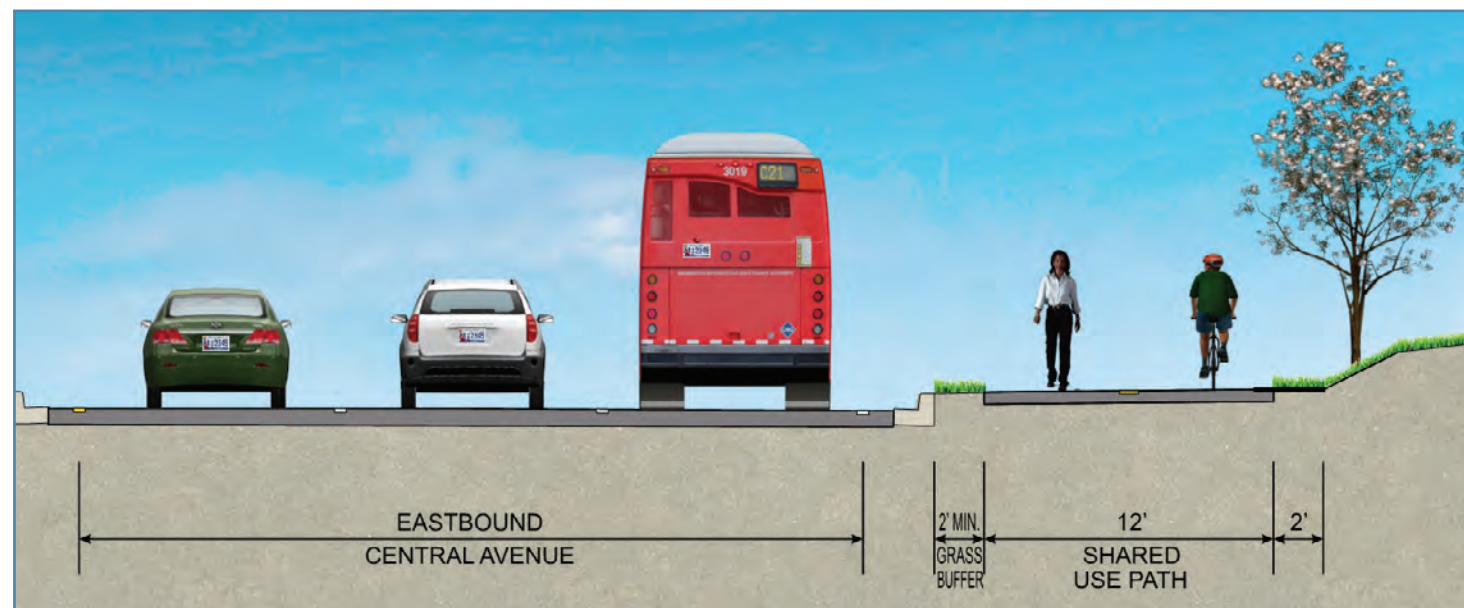
Type	Location	Sheet No.	Length (feet)	Width Provided (feet)	Reason
Buffer	Station 14+40 to 15+55	7-8	Approximately 115	2	Narrow median between Central Avenue and Old Central Avenue.
Buffer	Station 23+20 to 24+75	8	Approximately 145	2	Reduce impacts due to limited right-of-way, grading, and drainage.
Buffer	Station 51+10 to 59+50	11-12	Approximately 840	2	Reduce impacts due to limited right-of-way, existing utilities, and grading.
Buffer	Station 58+60 to 59+60	12-13	Approximately 60	0	Required to minimize impacts to an existing driveway with a grading of 20 percent.
Buffer	Station 61+25 to 64+75	13	Approximately 350	2	Reduce impacts due to limited right-of-way, existing utilities, and grading.
Trail Width	Station 23+60 to 24+50	8	Approximately 90	9	Required to prevent off-site impacts with grading and avoid impact to existing drainage ditches.
Trail Width	Station 58+60 to 59+60	12-13	Approximately 60	8	Required to minimize impacts to an existing driveway with a grading of 20 percent.



Typical Section

The CACT includes a 12-foot-wide asphalt trail, with 2-foot unpaved shoulders located south of the Central Avenue curb. This typical section is depicted in Figure 3. A minimum 2-foot grass buffer is proposed in sections where the trail would be constructed immediately adjacent to Central Avenue, which is required in several locations due to constraints including limited right-of-way or utilities. In areas where greater right-of-way is available, or where Metro property can accommodate wider grass buffers, the CACT alignment has been located farther from the road. At locations where constraints prevent installation of the full typical section, a reduced-width asphalt trail would be installed with the full two-foot grass buffer provided between the trail and roadway and a reduced one-foot shoulder provided adjacent to any conflict points like utility poles.

Figure 4. Typical Section



The CACT alignment runs along the south side of MD 214 from the intersections of Addison Plaza Shopping Center on the west to Pepper Mill Drive on the east, a distance of approximately 5,480 feet (1.04 miles). The majority of the trail will be located within the existing right-of-way of MD 214; however, the trail diverts away from the roadway in locations where WMATA property abuts the trail. The alignment benefits from limited interaction with vehicles and five significant street intersection crossings: Old Central Avenue, Addison Road, Addison Road-Seat Pleasant Metro Station entrance, Cabin Branch Road, and Central Avenue at Pepper Mill Drive. The trail crosses 15 driveways, which provide access to adjacent residential homes, businesses, and vacant parcels.

Because the CACT will enhance access to the Metro Blue Line stations, WMATA has indicated that locating the trail on their property will provide mutual benefit to Metro operations and Prince George's County. The trail alignment includes significant portions of WMATA-owned property where the trail alignment has been set back from the road. Adjacent to the Addison Road-Seat Pleasant Metro Station the additional trail alignment is necessary to provide an accessible five percent grade between Addison Road and Cabin Branch Road. Along the eastern portion of the project, the trail alignment has been located behind existing utility poles to reduce required utility relocation. Utilizing the WMATA properties provides a favorable environment by providing generous grass buffers and ensuring that grades will meet ADA criteria. A rendering of the trail environment is depicted in Figure 4.



Existing conditions.



Future trail conditions.

Stormwater Management

The proposed trail alignment will result in approximately 1.16 acres of new impervious area and 0.39 acre of redeveloped impervious area. The proposed removal of existing sidewalks, duplicate driveway entrances, and other impervious areas will result in approximately 0.30 acre of impervious area removal. A combination of pervious pavement, micro-bioretenion, and bioswales are proposed to treat the required stormwater for this project.

A total of approximately 23,000 square feet of pervious pavement is proposed within the trail footprint in the following locations (approximately): Station 30+30 to Station 32+40, Station 43+14 to Station 48+55, Station 64+80 to Station 70+65, and Station 71+05 to Station 76+82. A 12-inch subbase is recommended to provide the maximum extent of stormwater treatment. Pervious pavement was not proposed in trail sections that have utilities under the proposed trail section or within four feet of the proposed trail section. Per the Maryland Department of Environment (MDE) manual, pervious pavement was also not proposed in trail sections located in Hydrologic Soil Group D soils. In addition, since the subbase of pervious pavement cannot be located on top of compacted fill, pervious pavement was not proposed in fill sections with over two feet of fill.

Two micro-bioretenions are also proposed to treat stormwater. One proposed micro-bioretenion is located in the open area to the south of the proposed trail near Station 11+00. This proposed micro-bioretenion can treat approximately 0.15 acre of impervious area from Old Central Avenue. The other proposed micro-bioretenion is located to the south of the proposed trail alignment near Station 50+50. This proposed micro-bioretenion can treat approximately 0.14 acre of impervious area from Cabin Branch Road. A proposed SHA standard COG inlet will convey drainage to the proposed facility.

Two bioswales are also proposed along the trail to treat stormwater management. One bioswale is located to the north of the proposed trail from Station 65+50 to Station 70+50. There are several utility lines that cross the proposed bioswale laterally. The bioretention media will be broken around the utility lines to prevent infiltration within five feet of the utilities. A proposed open back inlet will direct drainage from MD 214 (Central Avenue) to the proposed bioswale. Pervious pavement is proposed in the trail footprint in this section; therefore, the proposed bioswale will provide additional treatment that can be used to offset sections of the trail alignment where stormwater management is not possible due to limited space or existing utility conflicts. The second bioswale is proposed in the grass median created by the removal of the left turn lane near Station 77. This bioswale will treat drainage from MD 214 (Central Avenue), which will be conveyed to the facility through an open back inlet. The treatment provided by this facility can be used to offset sections of the trail where stormwater management is not possible.



Example of stormwater management.



Example of stormwater management.

Structures

Several retaining walls listed in Table 3 are proposed to limit the impact to adjacent properties and utilities along the trail alignment. Walls would be constructed of conventional materials, to be determined in future stages of design.

Table 3. Proposed Structures

Wall	Location	Drawing Number	Purpose
1	Station 22+0 to 24+20	8	Prevent off-site grading.
2	Station 51+40 to 52+20	11	Accommodate fill slope over existing culvert.
3	Station 54+75 to 56+00	12	Accommodate cut slope at right-of-way.
4	Station 56+70 to 59+00	12	Accommodate cut slope at right-of-way.



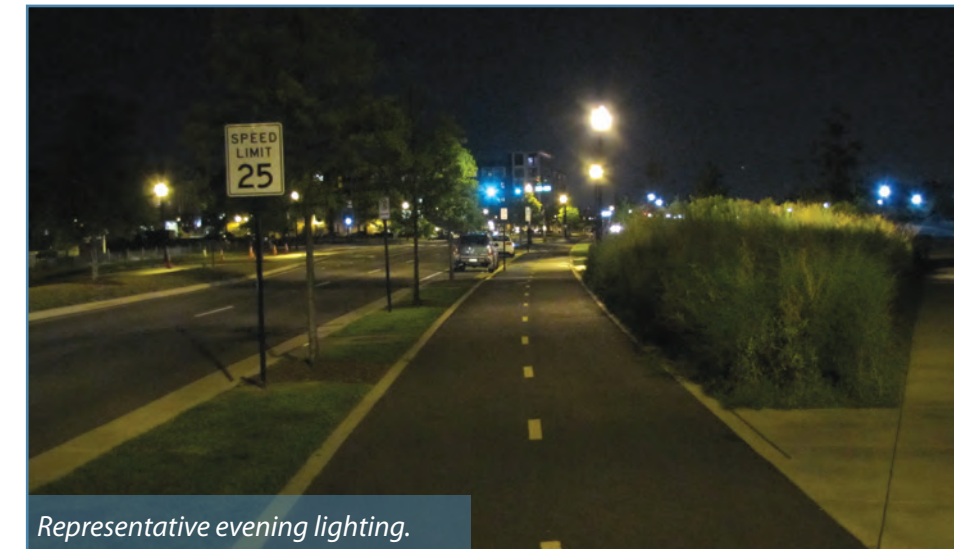
Example of a retaining wall.

Lighting

Pedestrian-level lighting is an element of the design. To ease the lighting maintenance burden, it is recommended that the County enroll in the Potomac Electric Power Company (Pepco) Street Lighting Program. The County's contractor would still be responsible for installing the light poles, fixtures, foundations, conduit, and junction boxes. However, Pepco would be responsible for installing the lighting cables, as well as maintenance of the feeds and the lighting fixtures. To be eligible for the program, the proposed trail will consist of Pepco-approved LED "Shoe Box" luminaires, as shown below. The fixtures are 75W, with a Type III distribution, 4,000K correlated color temperature, and B1-U0-G1 (Dark Sky compliant). Mounted at 16 feet, the fixtures are spaced at 55-foot intervals to provide continuous lighting for the trail. The underground lighting circuits will be housed in PVC conduit. It is assumed that Pepco will require one below-grade junction box per pole for wire pulling and splicing purposes. The proposed layout is in compliance with the IES-RP-14 and AASHTO-recommended lighting levels (horizontal average, uniformity, and vertical illumination).



Shoe box-style lighting.



Representative evening lighting.



Representative daytime lighting.

Traffic Barrier

The design includes removal of a section of existing traffic barrier adjacent to the Cabin Branch culvert crossing under Central Avenue. The new trail section will be constructed to a point approximately 19 feet from the edge of the travelway, providing a recoverable slope for vehicles traveling along the highway. At the edge of the improvements a retaining wall is provided beyond the two-foot shoulder, with a railing installed on the wall to ensure safety for trail users. The clear zone requirements for a road less than or equal to 40 miles per hour design speed are 16 feet from the edge of the travelway to the nonrecoverable slope. Based on these criteria, the removed traffic barrier will not require replacement in this location.

A review of the potential to introduce a traffic barrier was completed to address potential safety or operational concerns. The minimum buffer width of two feet between the trail and Central Avenue curb falls below the recommended five-foot minimum setback outlined in the 2012 *AASHTO Guide for the Development of Bike Facilities*. This condition is necessary due to right-of-way and utility constraints in certain locations. Concern was raised by the community regarding the potential for vehicles to depart the roadway and strike trail users.

It may be feasible to install a traffic barrier or railing along the sections of trail where the reduced-width buffer is located, subject to approval by the owner. Typically, a traffic barrier would be installed to address demonstrated off-road crash history or to reduce the potential for collisions with fixed objects within the clear zone. Because the grass buffer is located within the clear zone for both the trail and roadway, it would be required that any traffic barrier be made of crash-worthy material, like W-Beam Guardrail. Examples of barriers used to separate a road from a trail or bike facility are shown in the images to the right. The traffic barrier would require stiffening to limit potential deflection into the trail, and a rub-rail would be recommended on the trail side to reduce potential conflict for trail users. In addition, bike railing would be recommended on the back side of the guardrail to prevent trail users from falling over the barrier into the roadway. Maintenance would be potentially challenging because vegetation would be unlikely to grow in the buffer, and any that did grow would be difficult to maintain. Additionally, any damage to the barrier would require costly repair. If an off-road crash pattern is identified through crash records, SHA would evaluate and identify the best possible solutions to safely address the problem with respect to all roadway users.

In lieu of a traffic barrier, railing located in the grass strip could be provided; however, railing would not address community concerns related to vehicles departing the roadway. The railing would define the edge of each facility and would discourage path users from accidentally entering the roadway. AASHTO recommends that railing only separating vehicular and trail space be of similar height to the guardrail. Maintenance challenges would be similar to those noted above.

Further evaluation should be given to potential installation of a traffic barrier or railing during future stages of design. The two-foot grass buffer is a significant improvement from the existing roadside conditions along Central Avenue, which primarily includes sidewalks located immediately behind the curb. Opportunities to address speeding on Central Avenue should also be pursued to reduce the potential for vehicles to depart the road and the severity of injuries should a collision occur.



Traffic barrier in grass strip.
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Raised median with flex-post delineators.



Central Avenue at Pepper Mill Drive.

Central Avenue Crosswalk at Pepper Mill Drive

The CACT design includes a proposed trail crossing of Central Avenue at Pepper Mill Drive. A crossing of Central Avenue is necessary to join the proposed alignment for the future Phase 2 of the CACT, which will be located on the north side of Central Avenue parallel to the alignment of the Metro Blue Line. To accommodate a two-stage crossing, a pedestrian refuge would be installed by removing the existing westbound left turn lane, providing a two-stage crossing for trail users. A u-turn lane would be constructed at Cindy Lane to serve the diverted westbound u-turn movement. The crossing is complicated due to the street section along Central Avenue, which includes three through-travel lanes in each direction. SHA has indicated that traffic exceeds the 30 miles per hour posted speed limit and installation of a crosswalk at this location would not be supported based on high travel speeds and limited sight distance to vehicles approaching in the westbound direction.

For the 30% Design, it is recommended that a full toolbox of high-visibility passive and active warnings be provided to facilitate the crosswalk at this location. Due to high vehicle speeds and demonstrated safety challenges at the uncontrolled crosswalk at the Addison Road-Seat Pleasant Metro Station, where two pedestrians have been fatally struck crossing Central Avenue, installation of a full-color traffic signal is the recommended traffic control at this intersection. High-visibility pavement markings including crosswalks, advance “PED-XING” messages, and yield lines are recommended to supplement the presence of vulnerable road users that will utilize the crosswalk at this intersection.

Central Avenue is a six-lane divided highway, with three travel lanes in each direction and vehicle operating speeds greater than 45 miles per hour, as such, provision of any traffic control that does not require drivers to stop would not be recommended. Potential for multiple-threat crash scenarios, where vehicles stopped for pedestrians in the crosswalk block visibility to approaching motorists in the adjacent travel lanes, presents a significant safety concern. Should a traffic signal not be included in the final design, either pedestrian/bicycle crossing warning sign assemblies supplemented with Rectangular Rapid Flashing Beacons (RRFB’s) or a High Intensity Activated Crosswalk Beacon (HAWK) signal should be provided to ensure an active warning device is installed to alert drivers that pedestrians are attempting to cross the road. RRFB’s would be recommended in advance of the intersection and at the crosswalk, with left and right assemblies provided roadside and in the median. Examples of the RRFB and HAWK displays are shown in the images on the lower left of this page.

The desire to provide a grade-separated crossing of Central Avenue at Pepper Mill Drive has been expressed as a desire of the local community and should be evaluated to maximize safety for trail users crossing Central Avenue.



Crosswalk with warning signs and RRFB flashing beacons (Duke Street, Alexandria, VA).



RRFB flashing beacon assembly.



HAWK display and educational signs.



Sample signage.



Example of trail crossing with center split.

Required Permits

Table 4 presents the various agencies and associated permits or review coordination that would be expected during the final engineering of the CACT prior to commencing construction.

Table 4. Required Permits

Agency	Permit
Maryland Department of Environment U.S. Army Corps of Engineers	Wetlands/Waterways/Floodplain Permit
Maryland Department of Environment	General Construction Permit/Notice of Intent
The Maryland-National Capital Park and Planning Department	Natural Resources Inventory/Forest Stand Delineation and Tree Conservation Plan Approval
The Maryland-National Capital Park and Planning Department	Historic Area Work Permits
The Maryland-National Capital Park and Planning Department, Department of Parks and Recreation	Right of Entry Permit Construction Permit
Maryland Department of Natural Resources	Rare, Threatened and Endangered Species, Fisheries and Forest Interior Dwelling Species Habitat Coordination
U.S. Fish and Wildlife Service	Rare, Threatened and Endangered Species Coordination
Maryland Historical Trust	Cultural Resources/Section 106 Coordination
Prince George's County Department of Permitting, Inspections and Enforcement	Soil Conservation District—Stormwater Management Permit Erosion and Sediment Control Permit Floodplain Permit Grading Permit
National Environmental Policy Act	Permits required if federally funded
Washington Metropolitan Area Transit Administration	Real Estate Permit

Trail Enhancement

Trails often serve more than a utilitarian transportation function with the addition of features that enhance the environment. These amenities may serve the basic needs of all users—for example, wayside areas to rest, directional signage and mile markers that help users identify their location along the trail, benches for seating, and trash or recycling receptacles to keep the trail clean. Other features may help activate the space and attract users, such as public art, exercise stations or historic markers. These features help establish a sense of place and community along the trail. The Marvin Gaye Trail located to the west in Washington, D.C. includes similar features at various locations between Minnesota Avenue, where the trailhead is located, and Eastern Avenue, the Washington, D.C. line where the CACT and Marvin Gaye Trail will ultimately meet.

Provision of similar features at various locations along the CACT will ensure that the trail is attractive and incorporated into the surrounding community. Two potential locations for significant trail enhancement amenity areas identified during preparation of the 30% Design Plan are located near the western project limit at Addison Plaza and at the intersection of Cabin Branch Drive. In both areas, sufficient public right-of-way is available to incorporate amenity areas of adequate size to attract local residents and trail users. Design and programming of these areas should be developed during preparation of final design with further outreach to stakeholders and the community to develop a unified vision and theme for the trail. Additional trailside enhancement features such as benches and refuse/recycling stations should also be incorporated into final design for the eastern portion of the trail where less public space is available to locate trail amenities.

A summary of trail enhancement features and costs is presented in the Existing Conditions section. Examples of potential trail design features are shown below.



Fitness station



Water fountain.

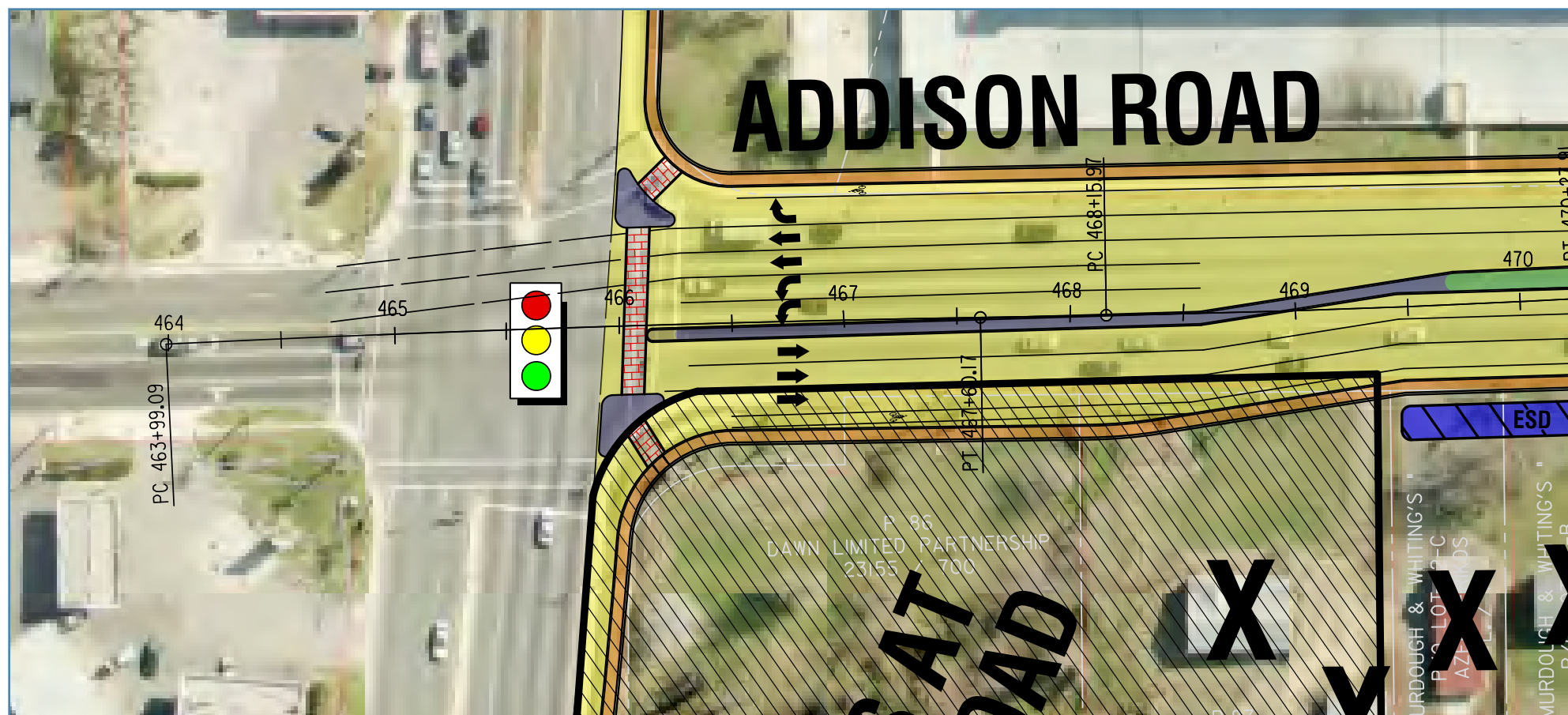


Trailhead with art feature (Marvin Gaye Trail, Washington, D.C.).



Trail wayside with bench, shelter and trash container.

Figure 5. Addison Road Green Street Exhibit



Addison Road Complete and Green Street

Prince George's County DPW&T has proposed a Complete Green Streets project to improve multimodal access along Addison Road. According to DPW&T, the project will transform the roadway into a multimodal corridor while providing environment site design techniques such as bioswales to treat stormwater runoff. Additionally, the roadways will include bicycle lanes, improved sidewalks, pedestrian-scale lighting, and street trees. A detail of the intersection is shown in Figure 5.

Concept-level design plans were reviewed during preparation of the CACT 30% Design. Because the current Addison Road plans were developed to the concept level, it is recommended that opportunities to refine the design to enhance pedestrian and bike access through the intersection of Addison Road with Central Avenue be evaluated in greater detail when the Green Streets project is advanced.

It is recommended that the Green Streets design not include channelization islands separating through and right-turn traffic to improve accessibility for the CACT. Further evaluation of intersection operations should be completed to determine if signal phasing can be adjusted to remove the split-phase operation on Addison Road. If not, then the project should evaluate the potential to combine turn-lane traffic with through traffic to narrow the south leg of Addison Road, which would provide a shorter pedestrian crosswalk. This opportunity may be feasible if queuing can be accommodated, with the added benefit that intersection geometry could be introduced to lower vehicle turning speeds where pedestrian facilities are located. It was also noted that additional right-of-way acquisition would be required to locate the CACT and include all of the improvements currently anticipated with the Green Streets concept plan, specifically the right-turn lanes that would conflict with the location of the CACT.



Crosswalk at Addison Road and MD 214 (Central Avenue), northeast corner facing south.

Crosswalk at Addison Road and MD 214 (Central Avenue), southeast corner facing west.





IMPACTS



Bus stop and utility poles along WMATA right-of-way.

Property

Property impacts outside of existing SHA right-of-way will be required for construction of the trail. Right-of-way takings will be required for all sections of the trail outside of the existing right-of-way and negotiated with private property owners. It is expected that portions of the trail within existing WMATA property will be constructed in a dedicated Access Easement. Temporary Construction Easements will also be required for final grading and driveway reconstruction. Table 5 outlines approximate needs for each parcel.

Table 5. Property Impacts

PARCEL	Drawing No.	Owner	Required ROW (SF)	Easement (SF)	Required Temporary Easement (SF)
101	9	WMATA	0	8,150	5,526
A	9-10	WMATA	0	14,660	2,750
102	10-11	WMATA	0	14,910	6,357
110	11	Albert L. Ballard Living Trust	190	0	620
426	12	WMATA	0	0	113
414	12	Antoinette Wilson	0	0	400
1	12	Marsena Harris and Sylvia Williams and Susan J. Miller	0	0	500
112	12-13	Wahla, LLC	0	0	80
384	13	Wahla, LLC	0	0	30
A	13	Wahla, LLC	0	0	275
113	13	David G. Palmer and Gabrielle R. Palmer	652	0	450
419	13-14	WMATA	0	2,211	527
114	14	WMATA	0	2,420	515
115	14	WMATA	0	1,868s	365
116	14	WMATA	0	6,515	2,036
445	14-15	WMATA	0	8,216	2,091
C	15	Glenwood Hills Venture, LLLP	6,438	0	1,471
1	15	Glenwood Hills Venture, LLLP	195	0	0

Environmental

The CACT alignment is located within an existing urban roadway corridor. No significant impacts to sensitive environmental areas or wildlife habitat are anticipated based on preliminary review. Detailed exploration will need to be performed during final design.

Utility

Outlined in Table 6 are several identified utility impacts that will result from construction of the trail. Test holes will need to be performed prior to final design to verify that there are no further underground utility impacts.

Table 6. Utility Impacts

Station	Drawing No.	Utility Type
15+50, LT	8	Utility Pole—Pepco 8283834057
24+55, LT	8	Utility Pole—PP 8283838860
30+20, LT to 34+20 LT	9	Gas Main—8" WGL
30+50, LT	9	Utility Pole Guy Wire
31+50, LT	9	Electric Junction Box—Potomac Electric Power Company (Pepco)
32+40, LT to 34+00, RT	9	Electric Conduit—Pepco
32+75, LT	9	Electric Junction Box—Pepco
57+25, RT	12	Electric Junction Box—Pepco
58+90, RT	12	Electric Junction Box—Pepco
62+80, RT	13	Electric Junction Box—Pepco



Privately-owned driveways impacted by trail.



Existing culvert in project area.





PROJECT COST

Trail Construction Costs

The trail construction cost is estimated at \$4,650,000, including a 20 percent contingency. In addition, final engineering and construction phase services would be estimated at \$697,500 and \$465,400, respectively.

The total project cost is estimated at \$5,813,000. An itemized estimate is included in Table 8.

Trail Enhancement Costs

Table 7 presents various trail enhancement features that may be considered during final design. Costs are based on *Costs for Pedestrian and Bicyclist Infrastructure Improvements*, published by the Pedestrian and Bicycle Information Center (PBIC). An additional lump sum amount of \$100,000 was allocated for the two amenity areas identified in Section IV for budgetary purposes. A line item for trail enhancement costs has been included in the project cost estimate in Table 8 and is reflected in the total project cost listed above.

Table 7. Trail Enhancement Costs

Feature/ Description	Units	Cost	Estimated
Gateway Feature	EA	\$22,750	1
Bicycle Rack	EA	\$660	10
Wayfinding Signs	EA	\$500	6
Benches	EA	\$1,550	12
Trash Receptacles	EA	\$1,420	6



Maintenance Costs

Maintenance costs published by the Rails-To-Trails Conservancy in 2014 averaged \$1,971 per mile for basic maintenance of hard surface trails (Maintenance Practices and Costs of Rail-Trails). A total of 95 survey respondents contributed to their analysis. Because this figure includes basic trail maintenance activities such as vegetation management, and may not include additional maintenance and operation costs typical of most urban trails (i.e., trash removal, lighting energy costs, etc.), it would be expected that more funding will be required on an annual basis. Assessment of maintenance responsibilities will be critical to determining an appropriate budget amount for the CACT. In addition, opportunities to secure volunteer assistance within the community may help reduce the cost of maintenance on an annual basis. The National Trails Training Partnership identified a range of \$2,500–\$10,000 annually for maintenance of urban trails (Trail Maintenance and Management, 2005¹). It is recommended that M-NCPPC review historic maintenance and operations costs for urban trails currently being maintained (i.e., Bethesda Trolley Trail) to determine an appropriate budgetary estimate for maintenance and operation of the CACT. For budgetary purposes, it is recommended that a figure of \$15,000–\$25,000 be estimated for maintenance and operation during the first year after installation of the CACT.

¹ <http://www.americantrails.org/resources/ManageMaintain/searnsmaint101.html>



Table 8. CACT Phase 1 30% Estimate (August 2016)

SHA CCS No.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	TOTAL ESTIMATE
110100	Clearing and Grubbing	1	LS	\$12,000.00	\$12,000.00
114005	5-inch Yellow Nontoxic Lead-Free Waterborne Pavement Marking Paint	1,200	LF	\$0.50	\$600.00
114010	5-inch White Nontoxic Lead-Free Waterborne Pavement Making Paint	300	LF	\$0.50	\$150.00
114035	12-inch White Nontoxic Lead-Free Waterborne Pavement Marking Paint	300	LF	\$2.25	\$675.00
114045	24-inch White Nontoxic Lead-Free Waterborne Pavement Marking Paint	300	LF	\$2.25	\$675.00
120500	Maintenance of Traffic	1	LS	\$110,000.00	\$110,000.00
120610	Arrow Panel	120	UD	\$26.00	\$3,120.00
120625	Temporary Traffic Signs High Performance Wide-Angle Retroreflective Sheeting	1,000	SF	\$11.00	\$11,000.00
120719	Wooden Barricade For Pedestrian Control	20	LF	\$40.00	\$800.00
120784	Temporary Orange Construction Fence	1,000	LF	\$4.00	\$4,000.00
120820	Drums for Maintenance of Traffic	300	EA	\$70.00	\$21,000.00
120860	Portable Variable Message Sign	180	UD	\$95.00	\$17,100.00
130840	Construction Stakeout	1	LS	\$30,000.00	\$30,000.00
130850	Mobilization	1	LS	\$215,000.00	\$215,000.00
131000	CPM Project Schedule	1	LS	\$5,000.00	\$5,000.00
199000	Cones For Maintenance of Traffic	50	EA	\$10.00	\$500.00
201030	Class 1 Excavation	6,500	CY	\$39.00	\$253,500.00
202065	Common Borrow	3,750	CY	\$26.00	\$97,500.00
203030	Test Pit Excavation	50	CY	\$105.00	\$5,250.00
302415	15-inch Reinforced Concrete Pipe, Class IV	83	LF	\$130.00	\$10,790.00
302424	24-inch Reinforced Concrete Pipe, Class IV	202	LF	\$145.00	\$29,290.00
354424	Standard Type C Endwall for 24-inch Pipe	3	EA	\$2,600.00	\$7,800.00
368815	15-inch Standard Concrete End Section	2	EA	\$800.00	\$1,600.00
374005	Standard 5-Foot Cog Inlet—Minimum Depth	1	EA	\$4,100.00	\$4,100.00
374100	5-Foot Cog/Cos Opening	2	EA	\$4,500.00	\$9,000.00
378164	Standard Single Opening Type K Inlet Open End Grate Nontraffic	1	EA	\$3,000.00	\$3,000.00
380120	Standard Yard Inlet—Minimum Depth	2	EA	\$3,000.00	\$6,000.00
380600	48-inch Diameter Manhole For 12-inch to 24-inch Pipes—Minimum Depth	4	EA	\$3,500.00	\$14,000.00
300000	Geotextile Class PE	480	SY	\$2.00	\$960.00
390660	Bioretention Soil Mix	370	CY	\$100.00	\$37,000.00
390680	Topsoil Check Dam	7	EA	\$200.00	\$1,400.00
400000	Retaining Wall 1	1	LS	\$124,800.00	\$124,800.00
400000	Retaining Wall 2	1	LS	\$102,000.00	\$102,000.00
400000	Retaining Wall 3	1	LS	\$89,600.00	\$89,600.00
400000	Retaining Wall 4	1	LS	\$182,400.00	\$182,400.00
500000	2-inch Pervious Asphalt Mix 12.5 mm for Surface	335	TON	\$140.00	\$46,900.00
500000	2-inch Pervious Asphalt Mix 19.00 mm for Base	335	TON	\$150.00	\$50,250.00
504530	Superpave Asphalt Mix 12.5 mm for Surface, Pg 64S-22, Level 2	510	TON	\$100.00	\$51,000.00
504560	Superpave Asphalt Mix 19.0 mm for Base, Pg 64S-22, Level 2	610	TON	\$130.00	\$79,300.00
520113	6-inch Graded Aggregate Base Course	10,275	SY	\$12.00	\$123,300.00
561118	8-inch Portland Cement Concrete Pavement for Driveway Mix 9	675	SY	\$75.00	\$50,625.00
585600	5-inch White Permanent Preformed Pattern Reflective Pavement Markings	152	LF	\$3.50	\$532.00
585604	5-inch Yellow Permanent Preformed Pattern Reflective Pavement Markings	620	LF	\$3.35	\$2,077.00
585621	12-inch White Preformed Thermoplastic Pavement Marking Lines	1,204	LF	\$7.00	\$8,428.00
585625	24-inch White Preformed Thermoplastic Pavement Marking Lines	110	LF	\$12.75	\$1,402.50
585700	Removal of Existing Pavement Marking Lines, Any Width	550	LF	\$2.00	\$1,100.00

SHA CCS No.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	TOTAL ESTIMATE
600000	Remove and Reset Existing Handrail	25	LF	\$20.00	\$500.00
600000	Remove and Relocate Existing Fence	300	LF	\$20.00	\$6,000.00
600000	Proposed Decorative Fence	180	LF	\$50.00	\$9,000.00
634204	Type A Curb Any Height or Depth	37	LF	\$24.00	\$888.00
634312	Type A Combination Curb and Gutter Any Height or Depth	1,250	LF	\$28.00	\$35,000.00
648140	Monolithic Concrete Median 4 Feet Wide Type A-1	210	LF	\$150.00	\$31,500.00
655102	5-inch Concrete Sidewalk	4,480	SF	\$6.00	\$26,880.00
655120	Detectable Warning Surface for Curb Ramps	465	SF	\$28.00	\$13,020.00
660482	Traffic Barrier W Beam Using 6-Foot Post	50	LF	\$25.00	\$1,250.00
661540	Type K Traffic Barrier End Treatment, Any Option	1	EA	\$1,000.00	\$1,000.00
715015	Shredded Hardwood Bark Mulching 3-inch Depth	30	SY	\$5.00	\$150.00
704345	Placing Furnished Topsoil 4-inch Depth	7,350	SY	\$5.00	\$36,750.00
705565	Refertilizing	7,350	SY	\$0.10	\$735.00
705412	Temporary Mulch	14,700	SY	\$1.25	\$18,375.00
708220	Turfgrass Sod Establishment	7,350	SY	\$4.50	\$33,075.00
800000	Signal Modifications	1	LS	\$125,000.00	\$125,000.00
800000	Lighting—16-Foot Pole, Arm, Foundation and Ground Rod	95	EA	\$3,000.00	\$285,000.00
800000	Lighting—75W LED Luminaire (Type III, 4000K CCT)	95	EA	\$2,200.00	\$209,000.00
800000	Lighting—Junction Box and Ground Rod	95	EA	\$1,100.00	\$104,500.00
800000	Lighting—Conduit (Trenched)	5,300	LF	\$15.00	\$79,500.00
800000	Lighting—Conduit (Bored)	400	LF	\$40.00	\$16,000.00
800000	Lighting—Cable (Pole Base to Luminaire)	6,300	LF	\$2.00	\$12,600.00
800000	Lighting—PEPCO Service and Connection Fee (Service Drop and Wiring Pole to Pole)	1	LS	\$225,000.00	\$225,000.00
800000	RECTANGULAR RAPID FLASHING BEACON (RRFB) SYSTEM—PEPCO Service and Connection Fee (Service Drop and Wiring Pole to Pole)	1	LS	\$80,000.00	\$80,000.00
800000	Emergency Call Station (Pedestal Mount, Cellular Connection, Software, Power Feed)	5	EA	\$20,000.00	\$100,000.00
800000	CCTV Camera Mounted to Light Pole (Pole Mount Cabinet, Cellular Connection, Software, Power Feed)	5	EA	\$20,000.00	\$100,000.00
	UTILITIES (See Assumptions/Exclusions No. 3)				\$337,724.75
	TRAIL AMENITIES				\$159,470.00
	SUB-TOTAL				\$3,874,442.25
	CONTINGENCY (20%)				\$774,888.45
	NET CONSTRUCTION COST				\$4,650,000.00
	ENGINEERING (15%)				\$697,500.00
	CONSTRUCTION PHASE SERVICES (10%)				\$465,000.00
	TOTAL				\$5,813,000.00

SUBTOTALS

Category 1	\$431,620.00
Category 2	\$356,250.00
Category 3	\$124,940.00
Category 4	\$498,800.00
Category 5	\$414,914.50
Category 6	\$125,038.00
Category 7	\$89,085.00
Category 8	\$1,336,600.00

ASSUMPTIONS/EXCLUSIONS:

1. Retaining wall costs provided are for CIP Wall.
2. Under-drain for pervious asphalt path is excluded. Assumes infiltration is viable, subject to testing.
3. Assumed utility relocation costs=10% of (Cat 1 through 8). Impacts will need to be verified and costs are dependent on prior rights determination.





MAINTENANCE AND OPERATION

Best Practices

The essential first step to establishing maintenance of the CACT will be for Prince George's County to determine which agency or department is responsible for maintenance and incorporate funding into the annual operating budget. The responsible party will be charged with daily operation, maintenance, and inspection of the trail. Some costs must be accounted for on a continual basis, such as trash removal or energy costs. Others, such as managing vegetation or sweeping, will occur on a routine basis. Significant maintenance or repairs will need to be accounted for on an infrequent basis. A list of maintenance activities recommended by American Trails is summarized below, and detailed explanations of each activity are included in Appendix D. The subsequent sections discuss key considerations for maintenance and operation of the CACT.

Continual Maintenance Activities:

- Trail User Safety
- Trail Inspection
- Trail Sweeping
- Trash Removal
- Tree and Shrub Pruning
- Mowing of Vegetation
- Scheduling Maintenance Tasks
- Law Enforcement

Infrequent Maintenance Activities:

- Trail Repair
- Trail Replacement
- Snow and Ice Removal
- Weed Control
- Trail Edging
- Trail Drainage Control
- Trail Signage
- Revegetation
- Habitat Enhancement and Control
- Public Awareness
- Trail Program Budget Development
- Volunteer Coordination
- Records
- Graffiti Control
- Mapping
- Coordination with Other Agencies
- Education and Interpretation
- Proper Training of Employees

Initially, a steady stream of funding should be set aside from internal County resources to ensure adequate funding for basic operating costs like mowing and energy costs, which may be supplemented by volunteer efforts. As noted in the *CACT Feasibility Study and Implementation Plan*, securing grants through programs such as Safe Routes to School, Recreational Trails Program, or Transportation Alternatives Program may provide the necessary funding to deliver more robust operations on the trail and enhance the safety, security, and placemaking desires identified by the community.



Monitoring and Trail Safety

Trail inspection and monitoring should be part of an ongoing operational plan for the maintaining agency or department. Recognizing that resources are limited, utilizing technology to allow trail users to report problems through means such as Prince George’s County’s CountyClick311 hotline may be leveraged, promoted, and, where possible, streamlined to ensure the information received is promptly directed to the appropriate party. Developing a communication system that allows police or community patrols to report trail conditions will also reduce demand on staff by leveraging the existing resources that are more frequently patrolling the trail. Regular inspections would still be required to review conditions along the trail and to determine any damage or maintenance items that may not have been reported through other means of communication.

Provision for remote electronic monitoring of the CACT through closed-circuit television (CCTV) cameras and emergency call boxes are recommended. Locations of these features, specifications, and manufacturers will be determined during final design and construction phases of the project. Three cellular-enabled CCTV cameras and call boxes have been included in the project estimate.



Sample trail safety feature—CCTV camera.

Routine Maintenance

Routine maintenance covers day-to-day operation of the trail. This typically includes items like trash removal, mowing, leaf or snow removal in fall and winter, and maintenance of vegetation, including mulching. Routine maintenance may also include repairs to damaged fencing, handrails, surface patching and striping, or sign replacements. These activities are essential to creating an environment that is welcoming to trail users and provides the appearance of investment that is necessary to create a sense of ownership within the community. A detailed maintenance program identifying maintenance activities and responsible parties should be developed prior to construction of the CACT.

Where pervious pavement is installed along the trail to provide stormwater management, several special maintenance considerations must be provided. Sections of pervious pavement should be identified with signage. If sediment buildup is identified during routine inspections, the buildup should be removed via pressure washing. Leaf removal should be provided in the fall. Sediment and debris removal is advisable twice a year using a sweeper vacuum. To prevent damage in the winter when removing snow, a rubber tipped shovel or snow blade should be utilized. If using a conventional snow blade, the blade should be kept at least one inch above the pavement surface and the remaining snow allowed to melt by sun exposure.

Stormwater management facilities including bioretentions and bioswales should be maintained in accordance with the *Prince George’s County Department of Environmental Resources Stormwater Best Management Practices Inspection Manual*. Inspections are required on a quarterly basis and after each rain event greater than one inch during the first two years following installation. Following this period inspections should be completed on a bi-annual basis.



Repairs and Life Cycle

Significant repair and replacement of trail facilities are capital costs that should be accounted for to ensure replacement is funded when the life cycle of major items is reached. If routine maintenance activities seal coating asphalt, or if erosion control is provided, the length of time between significant repairs may be extended. If not properly maintained, full pavement replacement may be required at the average expected lifespan of the trail surface. Typical life cycle for asphalt trails is 10 to 15 years based on the City of Raleigh’s 2015 *Capital Area Greenway Planning and Design Guide*.



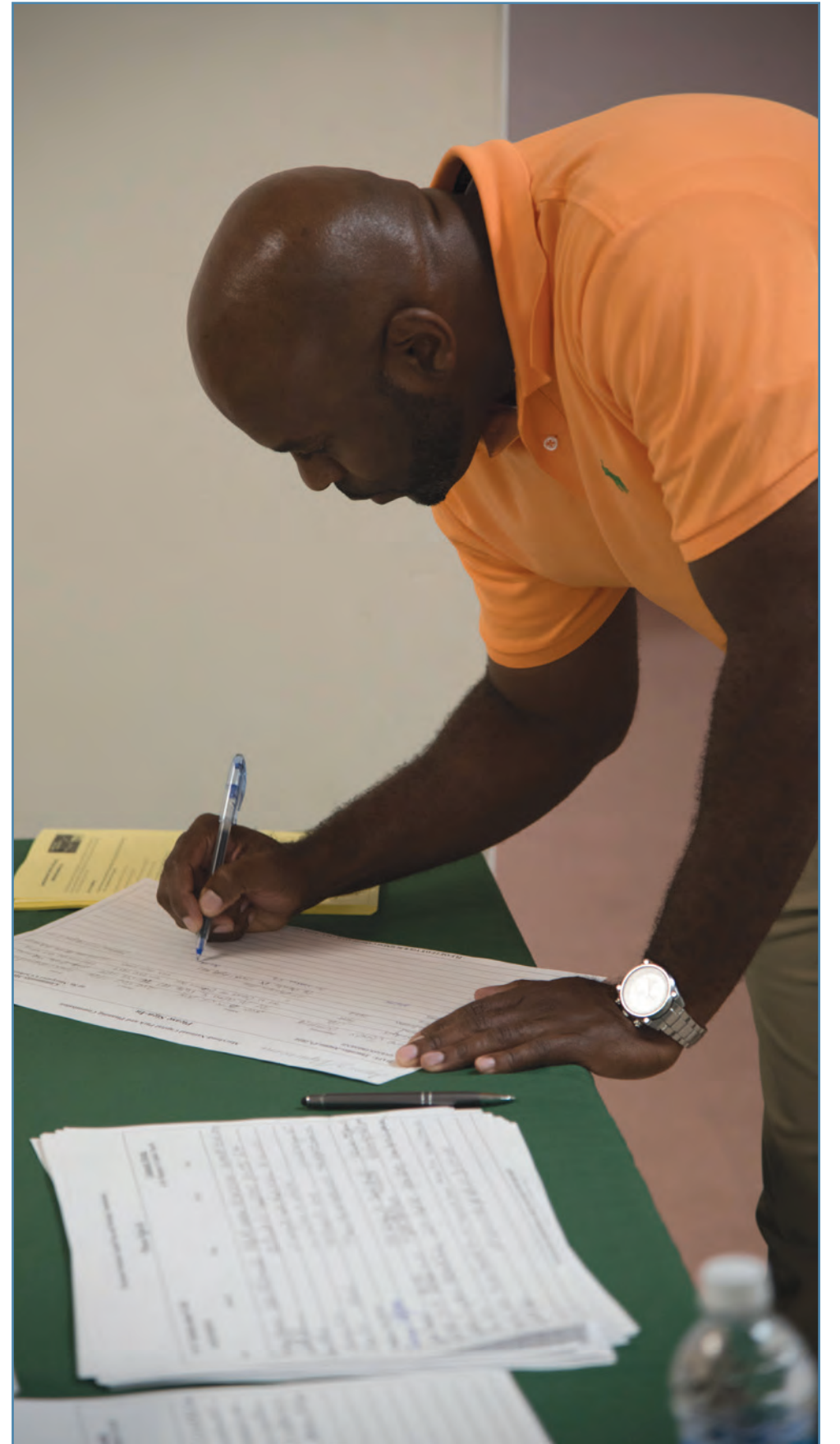


STAKEHOLDER AND COMMUNITY ENGAGEMENT

Development of the CACT 30% Design Plan included substantial stakeholder and community engagement. The project team conducted meetings with stakeholders, adjacent property owners, and the community where draft design plans were presented, input was solicited, and feedback was obtained, which was reviewed during preparation of the design. The following sections present a summary of stakeholder and community engagement activities completed during preparation of the 30% Design Plan. Complete meeting presentations are attached with this design report in Appendix A.

STAKEHOLDER AND COMMUNITY ENGAGEMENT





Stakeholder Engagement

The stakeholders listed below were consulted during development of the 30% Design Plan. Many engaged in coordination throughout development of the plan, from inception of the project in January, through completion in July. Stakeholder meetings were conducted on:

- February 2 Kickoff Meeting
- March 28 Field Walk
- April 20 First Stakeholder Meeting
- July 14 Second Stakeholder Meeting

Agency Stakeholders:

- M-NCPPC
 - Prince George's County Planning Department
 - Prince George's County Department of Parks and Recreation
- DPW&T
- DPIE
- DoE
- SHA
- WMATA
- Prince George's County Police

Local Stakeholders:

- Property Owners
- Businesses
- Local Residents
- City of Seat Pleasant, Maryland
- Town of Capitol Heights, Maryland
- County Council
 - Ms. Andrea C. Harrison, District 5
 - Mr. Derrick L. Davis, District 6
 - Ms. Karen R. Toles, District 7
- Bike Advocacy Groups
- Local Police



Community Engagement

The project team and key stakeholders met with the community twice during development of the 30% Design Plan. The first community meeting was held to present the plan, answer questions, and obtain feedback, which was evaluated and incorporated, where appropriate, into the plan. A separate meeting was held with adjacent property owners who would be the most directly affected by the project. The second community meeting was held to present the completed 30% Design Plan and Design Report to the community. Community meetings were conducted on:

- May 18 Property Owners Meeting
- June 14 First Community Meeting
- August 4 Second Community Meeting



Summary of Key Issues

Input from the Stakeholder and Community Engagement Process identified several challenges and opportunities to address community concerns, which included:

Alignment: Proximity to Central Avenue and reducing potential conflicts were central topics that, through conversation and refinement, helped define the typical section, promote a safe and sustainable trail design, and minimize impacts on adjacent properties and utilities.

Trail Crossing at Old Central Avenue: Potential to close the outbound movement of Old Central Avenue was reviewed and determined to be problematic due to heavy traffic volumes that would be diverted to the intersection at Addison Plaza, where significant conflicts between vehicles and trail users would be less favorable. Alternatively, the design includes narrowing of the eastbound Old Central Avenue lane at the merge point onto Central Avenue. This approach introduces a traffic calming effect to discourage speeding and also provides a shorter crosswalk. In addition, it was noted that significant queues on Old Central Avenue are common at the Zelma Avenue intersection with Old Central Avenue, so marking and signage indicating “Don’t Block the Box” is recommended within the intersection.

Improvements to the Addison Road-Seat Pleasant Metro Station Entrance: Safety concerns related to pedestrians crossing Central Avenue were noted at the Addison Road-Seat Pleasant Metro Station entrance. Potential to signalize the crosswalk or close the median, install pedestrian fencing, and reroute westbound traffic to the Addison Road signal were discussed. Due to intersection spacing, signalization would be challenging. SHA indicated that warrants are being reviewed for this location. Potential to close the median may be reviewed during final design, including review of impacts and operations with Metro and potential impacts or operational considerations at the Addison Road signal.

Safety and Security Approach: Potential strategies to address safety and security include pedestrian level lighting, CCTV security cameras, and call box systems. The potential to establish a community watch for the trail may be appropriate to discuss during community engagement at future stages of design or construction.

Policing: Engaging local police to patrol the trail was a repeated theme in community feedback on the project. Concerns about all-terrain vehicles (ATV) and dirt bike use along Central Avenue were also raised. Further coordination of the role of local police involvement on the trail and enforcement of ATV restrictions would be recommended as the trail moves forward to construction. Rules and regulations should be posted in prominent locations to notify trail users of expectations and to facilitate enforcement.

Road Crossing Treatments: Trail crossings of Old Central Avenue, Addison Road, Cabin Branch Avenue, and Central Avenue at Pepper Mill Drive were discussed extensively. At each location, enhanced features, such as high visibility crosswalks, are recommended. Where the trail crosses Old Central Avenue and Central Avenue, installation of pedestrian activated lights or traffic signals should be provided to alert drivers to the presence of trail users intending to cross the road.

Signalized Crossing Treatments: At signalized locations, warning signs that alert turning vehicles to yield to pedestrians or bikes would be recommended. During final design, the potential to implement right turn on red restrictions and leading pedestrian intervals (LPI’s) should be evaluated to further enhance pedestrian safety.

Amenities: Creating a sense of place was a theme in the community feedback on the project. Residue right-of-way at the Addison Plaza termination and adjacent to Cabin Branch Avenue may provide ideal opportunities to incorporate enhanced trailheads or parklets with signage, seating, fitness stations, and bike repair stations.





IMPLEMENTATION PLAN



Pepper Mill Drive at MD 214 (Central Avenue).



Future redevelopment site along MD 214 (Central Avenue).

The CACT 30% Design Plan provides the necessary detail to estimate cost for construction of Phase I. M-NCPPC should continue to pursue funding that will allow final design and construction of the trail. Table 9 provides an Implementation Plan Matrix that identifies potential projects, responsible parties, and potential funding sources. Additional guidance related to potential funding sources may also be reviewed at the U.S. DOT's Pedestrian and Bicycle Funding Opportunities page¹; a copy of the funding matrix is attached in Appendix E.

¹http://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/funding_opportunities.pdf.

Table 9. Implementation Plan Matrix

Number	Action	Lead	Support	Comments	Term
1	Identify Maintenance and Operations Responsibilities	County Council	M-NCPPC DPW&T	Determination of maintenance responsibility is necessary to secure project funding and ensure success of the project upon implementation.	Mid-Term (2017)
Potential Funding Sources: N/A					
2	Identify and secure funding for final engineering of Phase I of the CACT.	M-NCPPC	Prince George's County Council DPW&T DPIE	Phase I of the CACT is a shovel-ready project with complete 30% design plan and cost estimate.	Short-Term (2017)
Potential Funding Sources: 1) SHA, Recreational Trails Program. Deadline: July 1. http://www.sha.state.md.us/Index.aspx?PagelD=98 . 2) FTA, Urbanized Area Formula Grants—5307. https://www.transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307 . 3) U.S. DOT, Transportation Investment Generating Economic Recovery (TIGER). Deadline: April 29. https://www.transportation.gov/tiger . 4) U.S. DOT, Transportation Alternatives Program (TAP). http://www.fhwa.dot.gov/map21/guidance/guidetap.cfm .					
3	Collect pedestrian and bike count data within the corridor.	M-NCPPC	DPW&T	Trail user data helps strengthen grant requests. Before and after data sources provide benchmarks and help identify user desires and demand for amenities.	Short-Term (2016)
Potential Funding Sources: N/A					
4	Provide spot pedestrian safety improvements along Central Avenue.	SHA Metrobus	M-NCPPC DPW&T DPIE	County departments may support ongoing efforts by stakeholder agencies to improve safety and accessibility within the Central Avenue corridor. These improvements may include: • Crosswalk Enhancement (i.e. RRFB's, markings) • Bus Stop Consolidation • New Traffic Signals	Short-Term (Ongoing)
Potential Funding Sources: N/A					
5	Review potential road diet on Central Avenue.	SHA	M-NCPPC DPW&T	A feasibility study for a road diet on Central Avenue should be revisited. The 2013 <i>Central Avenue TOD Implementation Project Mobility Study</i> identified this as a potential strategy to improve multimodal accessibility.	Mid-Term (2017)
Potential Funding Sources: MWCOG Transportation/Land-Use Connections Program, April 1, http://old.mwcog.org/transportation/activities/tlc/ .					





APPENDIX A:
Stakeholder and Community Meeting Presentation



CENTRAL AVENUE CONNECTOR TRAIL
30% Design Project - Phase I (Addison Road)

COMMUNITY MEETING
August 4, 2016



Prince George's County Planning Department
The Maryland-National Capital Park and Planning Commission
www.pgpc.com

The slide features a background image of a paved trail with yellow dashed lines, a person on a bicycle, and a person walking. The text is overlaid in white and yellow. The M-NCPPC logo is in the bottom left, and the organization's name and website are in the bottom right.



 Agenda

- Welcome & Opening Remarks
- Present 30% Design Plans & Report
- Discuss Key Design Considerations
- Next Steps
- Questions & Discussion
- Contact Info



Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

2

The slide has a green header with a white bicyclist icon and the word 'Agenda'. Below is a list of six agenda items, each with a red circular bullet point. The background is a light blue map showing the trail route in orange and red. The map includes labels for 'Lapetra Heights', 'Addison Road', 'CENTRAL AV', and 'M'. The M-NCPPC logo is in the bottom left, and the project name and page number are in the bottom right.



30% Design

Revised Design

- Incorporated Stakeholder & Community Input
- Reviewed Access & Safety (Lighting, Driveways, Curb Ramps, Etc...)
- Identified Stormwater Management opportunities
- Refined Grading & Alignment



Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

3



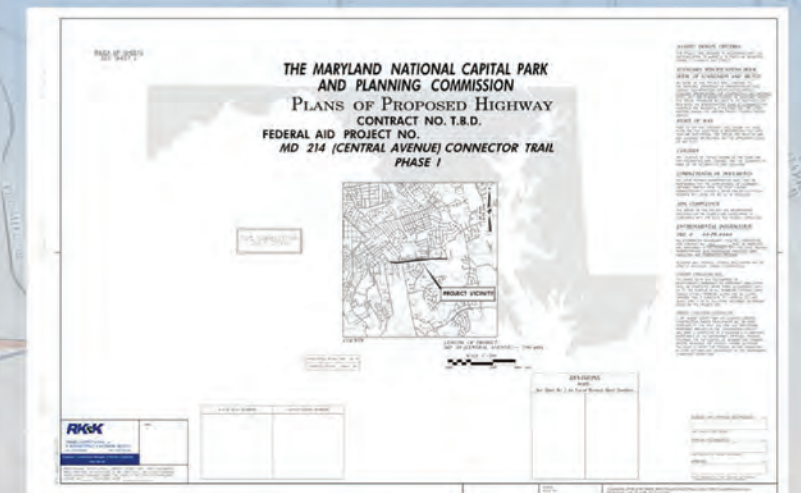
30% Design Plan Package

Completed Design Plan Cut Sheets

- Engineering Plans
- Used to Estimate Quantities & Develop Cost Estimate

INDEX OF SHEETS

1	TITLE SHEET
2	ABBREVIATIONS, GENERAL NOTES AND INDEX
3	TYPICAL SECTION SHEETS
4	PAVEMENT DETAILS
5-6	GEOMETRY SHEET
7-16	ROADWAY PLAN SHEETS
17-26	ROADWAY PROFILE SHEETS



Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

4

30% Design Report



Design Report

- Presents:
 - Design Considerations
 - Impacts (Utilities, Property, Environmental)
 - Cost
 - Maintenance Considerations
 - Outreach & Community Engagement
 - Implementation – Next Steps

FIGURE 4: ILLUSTRATIVE TRAIL ALIGNMENT
[EXISTING CONDITIONS ABOVE – FUTURE TRAIL CONDITIONS BELOW]




Prince George's County Planning Department
The Maryland-National Capital Park and Planning Commission
www.pgparks.com

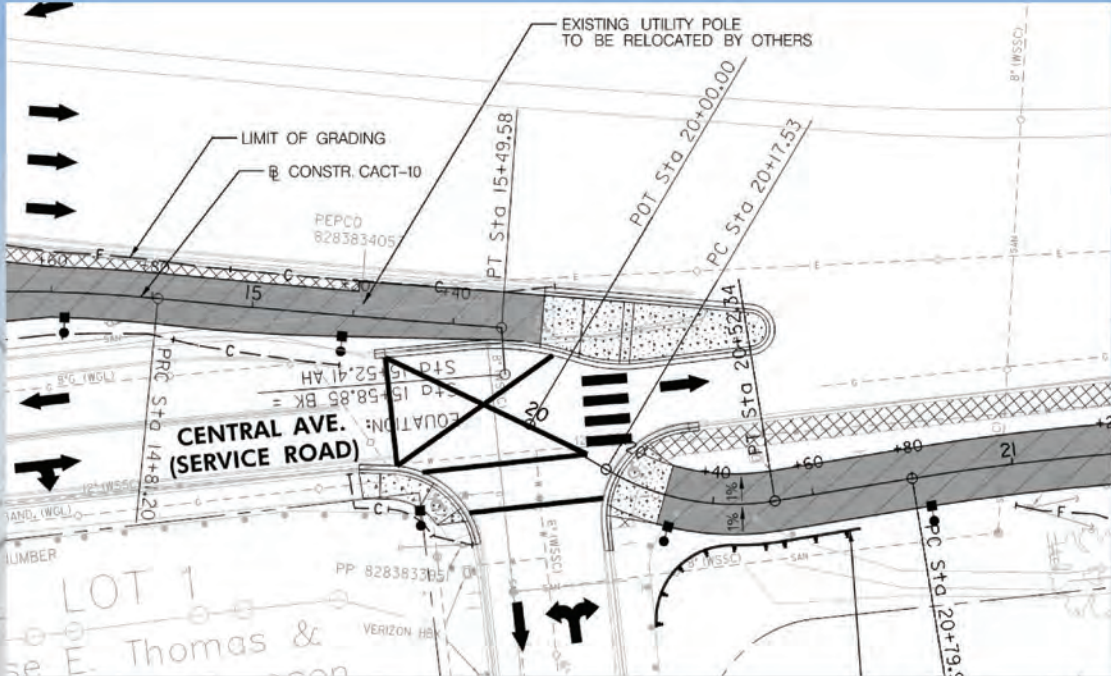
Page 9

Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

30% Design Plan Package



Old Central Avenue Intersection



Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

30% Design Plan Package

Driveway Reconstruction

CENTRAL AVE. (MD 214)

PROPOSED ENTRANCE
MDSA 630.01

REMOVE EXISTING
ENTRANCE

6° G ABAND (WGL)

CONSTR. CACT-50

EXISTING WOOD FENCE
TO BE REMOVED

EXISTING RIGHT OF WAY

PP 83/383-6288

7

Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

30% Design Plan Package

Sidewalk Ramp Improvements

TIE INTO EXISTING
SIDEWALK

POT Sta 50+00.00

PC Sta 50+66.15

6° G (WGL)

12° 21.91' E

TIE INTO EXISTING
SIDEWALK

8

Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

30% Design Plan Package

Stormwater Management & Drainage

Engineering plan view showing stormwater management features. Key elements include: 15" RCP pipe, 24" RCP pipe, manholes (MH), and a proposed micro-bioretention area. Stationing includes PT Sta 10+93.37, PC Sta 11+7.87, PT Sta 11+61.80, and PC Sta 12+21.28. Other labels include CONSTR. CACT-10, 8" (MS) pipe, and various utility lines.

Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

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Stormwater Management

Address Water Quality & Quantity Requirements

Pervious Pavement

Bioretention

Design Identifies Options For Final Engineering

Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

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Roadside Buffer

Wide Grass Buffers in significant segments



Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

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Roadside Buffer

Narrow Buffer Delineation

- Guardrail may be Feasible, Must Balance Safety (Driveways, Crash Severity)
- Roadside Delineation Possible – Similar to On-Street Cycle Tracks



Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

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Street Crossings



Capital Crescent Trail approaching Little Falls Parkway



Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

13



Street Crossings



Capital Crescent Trail crossing Little Falls Parkway



Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

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Street Crossings

- High Visibility
- Advance Warning



Bicycle/Pedestrian Warning
MUTCD Sign W11-15

15



Street Crossings


Rapid Flashing Beacons



16

Street Crossings

Rapid Flashing Beacons



Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

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Street Crossings

Traffic Signal



Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

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Lighting



M-NCPPC

Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

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Maintenance



M-NCPPC

Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

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Maintenance



A collage of three images illustrating maintenance work. The top-left image shows two workers painting white bicycle lane markings on a street. The top-right image is a close-up of a bicycle wheel with a flat tire and a hole in the tread. The bottom image shows a group of people participating in a leaf cleanup activity on a paved path.

Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

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Public Safety



Two images illustrating public safety features. The left image shows a white dome security camera mounted on a grey pole. The right image shows a blue vertical emergency call button with the word "Emergency" printed on it.

Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

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Public Safety



BIKE PATROL

Patrolling the District's communities via bicycle gives officers mobility through alleys and other difficult terrain that can give them an advantage over other vehicles.

Each police district and the Special Operations Division has a Mountain Bike Unit that helps patrol these areas and enables officers to travel to a call quickly and safely. Bike officers also offer a tactical advantage in situations requiring a more stealthy response — they make almost no noise, so perpetrators of crime have less time to react to their presence. They also give officers a chance to develop closer ties to the communities they serve.

Officer Tere Williams
FBI Officer



Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment



Trail Amenities



Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

Trail Amenities



A collage of five images illustrating trail amenities: a pet waste station, outdoor exercise equipment, a bicycle repair station with people using it, a bicycle rack with blue bikes, and a water fountain.

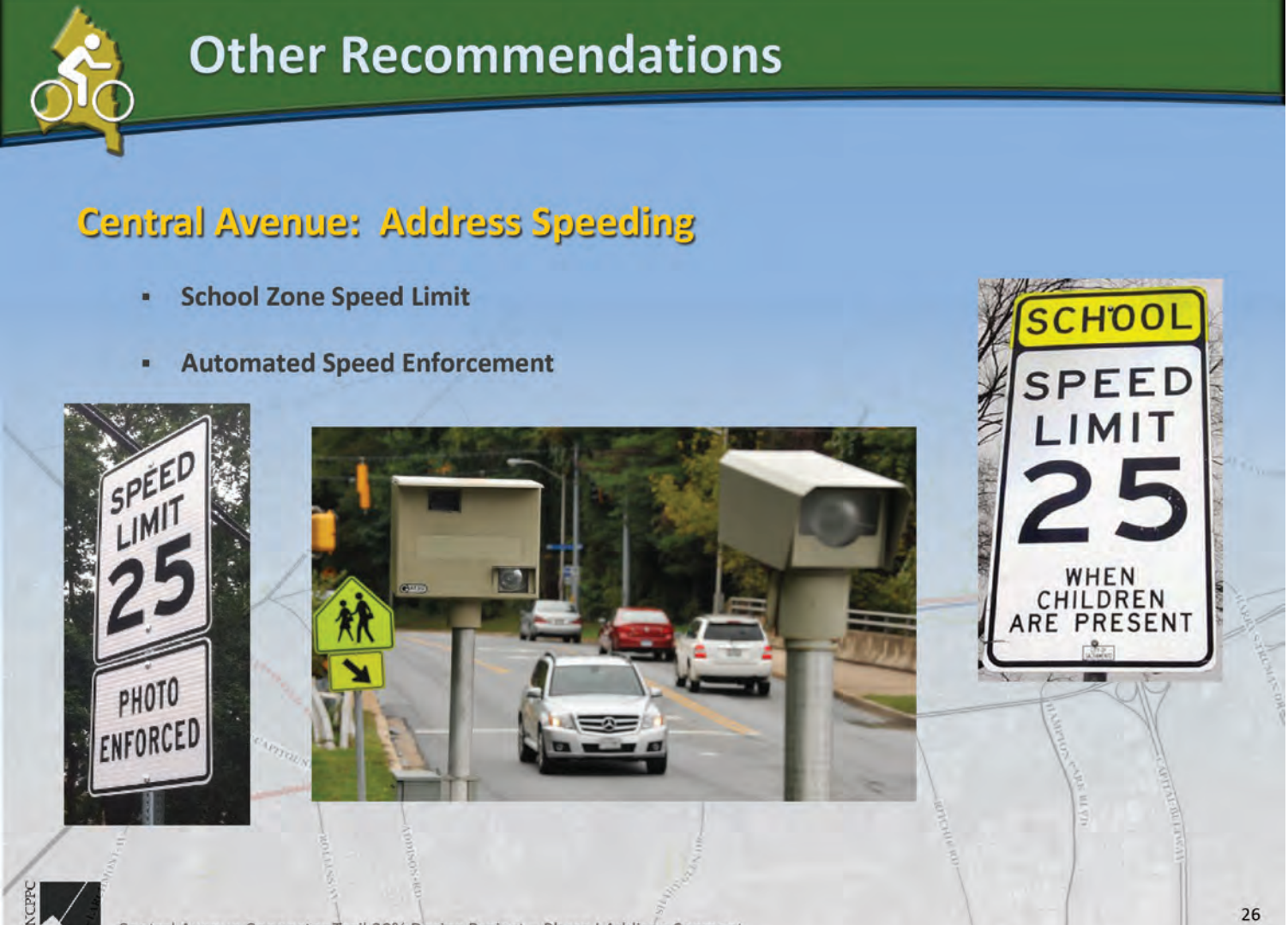
Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

25

Other Recommendations

Central Avenue: Address Speeding

- School Zone Speed Limit
- Automated Speed Enforcement



A collage of three images related to speed enforcement: a 'SPEED LIMIT 25 PHOTO ENFORCED' sign, a camera-mounted speed enforcement device on a street, and a 'SCHOOL SPEED LIMIT 25 WHEN CHILDREN ARE PRESENT' sign.

Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

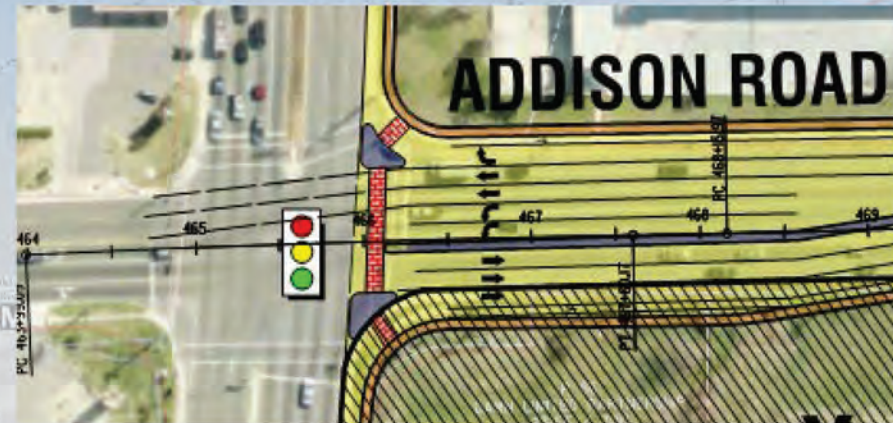
26



Other Recommendations

Addison Road: Evaluate Operations and Safety

- Potential for Turn Restrictions
- Add Pedestrian Warning Signs
- Review Intersection Operations, Reduce Conflicts



Stakeholders

Agencies

- The Maryland-National Capital Park & Planning Commission (M-NCPPC)
- Prince George's County Planning Department
- Prince George's County Department of Parks and Recreation
- Prince George's County Department of Public Works & Transportation (DPW&T)
- Prince Georges County Department of Permitting, Inspections and Enforcement (DPIE)
- Prince George's County Department of Environment (DOE)
- Maryland State Highway Administration (MD SHA)
- Washington Metropolitan Area Transit Administration (WMATA)

Stakeholders

- Property Owners
- Businesses
- Local Residents
- City of Seat Pleasant, MD
- Town of Capital Heights, MD
- County Council
- the Honorable Andrea C. Harrison, District 5
- the Honorable Derrick L. Davis, District 6
- the Honorable Karen R. Toles, District 7





Phase 1 Next Steps

Estimated Project Cost


Final Design:	\$ 697,500
Construction:	\$ 4,650,000
Construction Administration:	\$ 465,400
TOTAL	\$5,813,000

**Schedule: Final Design & Construction
(subject to funding availability)**

- Secure Funding: 2017
- Final Design: 2017 - 2018
- Construction: 2018 - 2020

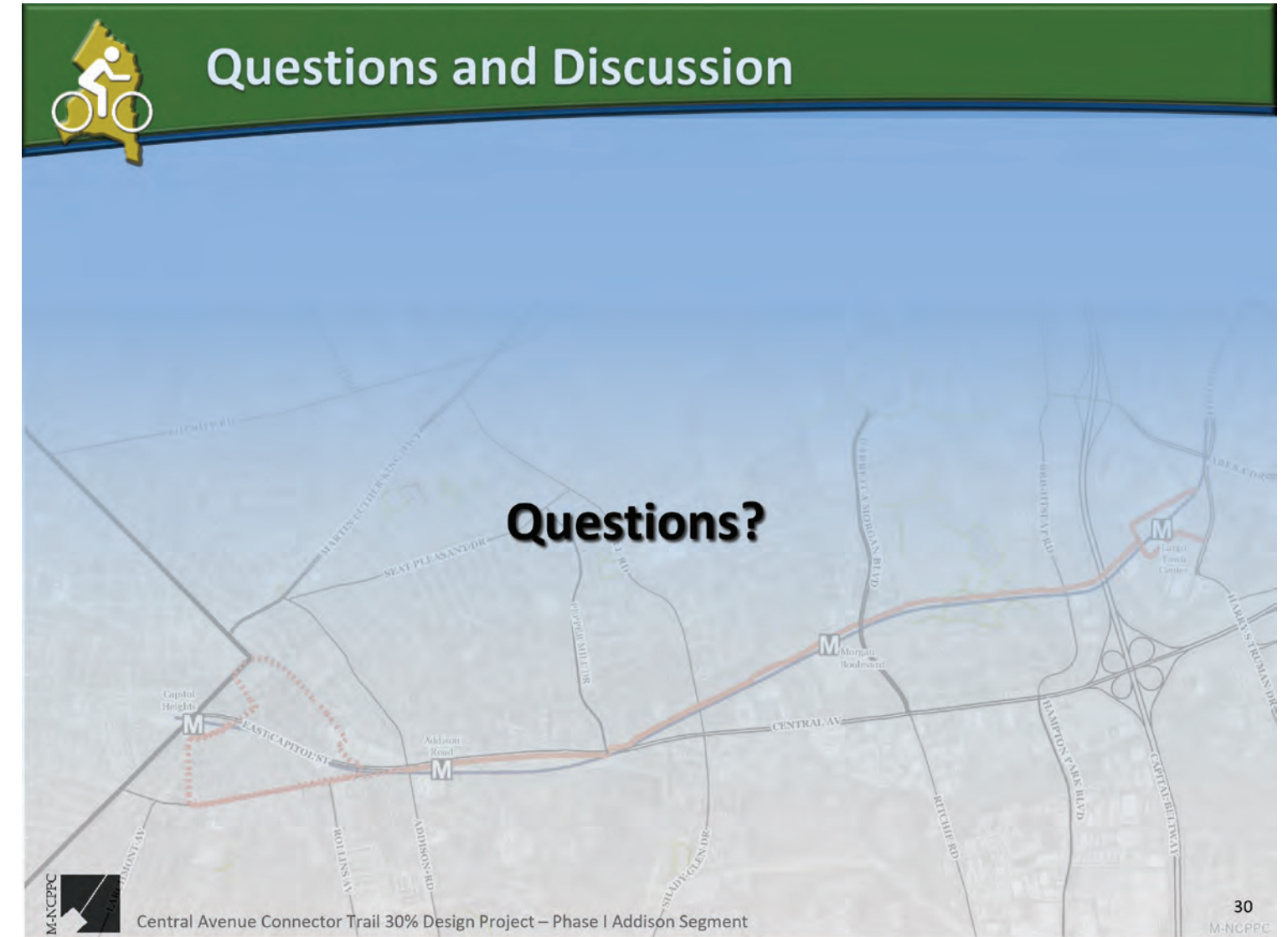


M-NCPPC Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment 29



Questions and Discussion

Questions?



M-NCPPC Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment 30



Project Contacts

Prince George's County Planning Department
Strategy and Implementation Division



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jordan.exantus@ppd.mncppc.org



Central Avenue Connector Trail 30% Design Project – Phase I Addison Segment

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APPENDIX B:

30% Design Documents

THE MARYLAND NATIONAL CAPITAL PARK AND PLANNING COMMISSION (M-NCPPC) AND THE METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS (MWCOC) PLANS OF PROPOSED TRAIL CONTRACT NO. FEDERAL AID PROJECT NO. CENTRAL AVENUE CONNECTOR TRAIL (MD 214) PHASE I

INDEX OF SHEETS

1	TITLE SHEET
2	ABBREVIATIONS, GENERAL NOTES AND INDEX
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4	PAVEMENT DETAILS
5-6	GEOMETRY SHEET
7-16	ROADWAY PLAN SHEETS
17-26	ROADWAY PROFILE SHEETS

AASHTO DESIGN CRITERIA

THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH THE 2011 PUBLICATION OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."

STANDARD SPECIFICATIONS BOOK, BOOK OF STANDARDS AND MUTCD

ALL WORK ON THIS PROJECT SHALL CONFORM TO: THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATIONS SPECIFICATIONS ENTITLED STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED JULY 2008 REVISIONS THEREOF OR ADDITIONS THERETO; THE SPECIAL PROVISIONS INCLUDED IN THE INVITATION FOR BIDS BOOK; THE ADMINISTRATIONS BOOK OF STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES AND THE LATEST ADOPTED MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

RIGHT OF WAY

RIGHT OF WAY AND EASEMENT LINES SHOWN ON THESE PLANS ARE FOR ASSISTANCE IN INTERPRETING THE PLANS. THEY ARE NOT OFFICIAL. FOR OFFICIAL RIGHT OF WAY AND EASEMENT INFORMATION, SEE THE APPROPRIATE RIGHT OF WAY PLATS.

UTILITIES

THE LOCATION OF UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO GUARANTEE IS MADE OF THE ACCURACY OF SAID LOCATIONS.

COMPLETENESS OF DOCUMENTS

THE STATE HIGHWAY ADMINISTRATION SHALL ONLY BE RESPONSIBLE FOR THE COMPLETENESS OF DOCUMENTS OBTAINED DIRECTLY FROM THE STATE HIGHWAY ADMINISTRATION'S CASHIER'S OFFICE. FAILURE TO ATTACH ADDENDA MAY CAUSE THE BID TO BE IRREGULAR.

ADA COMPLIANCE

THE DESIGN OF THIS PROJECT HAS INCORPORATED FACILITIES FOR THE ELDERLY AND HANDICAPPED IN COMPLIANCE WITH THE STATE AND FEDERAL LEGISLATION

ENVIRONMENTAL INFORMATION

PRD # ##-PR-####

ALL STORMWATER MANAGEMENT FACILITIES CONSTRUCTED FOR CONTRACT NO. T.B.D. SHALL BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE STATE HIGHWAY ADMINISTRATIONS BEST MANAGEMENT PRACTICES (BMP) INSPECTION AND REMEDIATION PROGRAM.

SEDIMENT AND EROSION CONTROL REGULATIONS WILL BE STRICTLY ENFORCED DURING CONSTRUCTION.

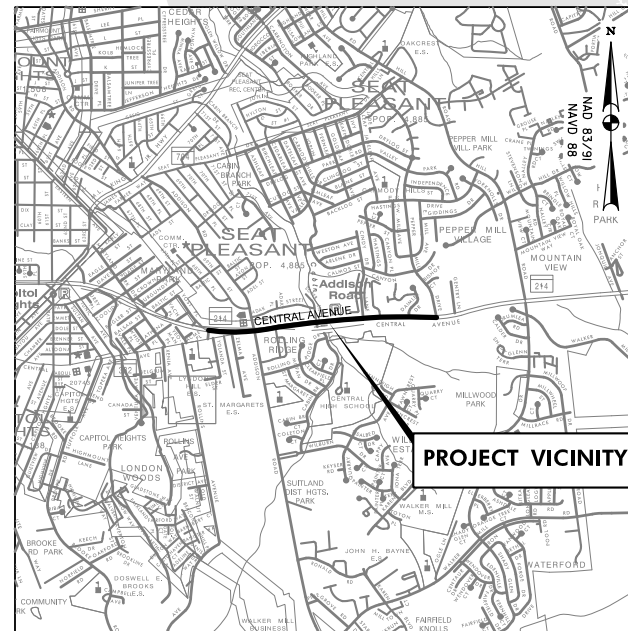
STANDARD STABILIZATION NOTE :

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN THREE (3) CALENDER DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1), AND SEVEN DAYS (7) AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

OWNERS / DEVELOPERS CERTIFICATION :

I / WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I HEREBY AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY STATE OF MARYLAND, DEPARTMENT OF THE ENVIRONMENT, COMPLIANCE INSPECTORS.

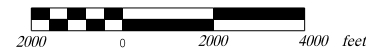
30% SUBMISSION
AUGUST 2016



PRINCE GEORGE'S COUNTY

LENGTH OF PROJECT:
CENTRAL AVENUE (MD 214) = 0.96 miles

SCALE: 1" = 2000'



HORIZONTAL DATUM	NAD 83 /91
VERTICAL DATUM	NAVD 88

REVISIONS	
NOTE:	
See Sheet No. 2 for List of Revised Sheet Numbers	

R-O-W PLAT NUMBERS	SURVEY BOOK NUMBERS

RUMMEL, KLEPPER & KAHL, LLP
81 MOSHER STREET | BALTIMORE, MD 21217
PH: (410) 728-2900 FAX: (410) 728-3180

Engineers | Construction Managers | Planners | Scientists
www.rkk.com

SEAL

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. _____, EXPIRATION DATE: _____

REVIEWED AND APPROVAL RECOMMENDED	DATE
CHIEF, HIGHWAY DESIGN DIVISION	
APPROVAL RECOMMENDED	DATE
DIRECTOR, OFFICE OF HIGHWAY DEVELOPMENT	
APPROVED	DATE
DEPUTY ADMINISTRATOR / CHIEF ENGINEER FOR PLANNING, ENGINEERING, REAL ESTATE AND ENVIRONMENT	

SURVEY BOOK NO.

\\balsrv06\v2016\2016\16009_MWCOGtrail\CADD\Plans\pGN-T000_CentralAveConn.dgn
Thursday, August 25, 2016 AT 08:46 AM

ABBREVIATIONS

AASHTO American Association of State Highway Transportation Officials	HDWL Headwall	RW or RW... Right of Way
ADT.....Average Daily Traffic	HERCP.....Horizontal Elliptical Reinforced Concrete Pipe	RCP Reinforced Concrete Pipe
AHD.....Ahead	HP.....High Point	RCCP Reinforced Concrete Pressure Pipe
APPROX.....Approximate	IN.....Inch	R.Q.D. Rock Quality Designation
BL or BL.....Baseline	I.S.T.....Inlet Sediment Trap	R.M. Rootmat
BK Back /Book	INV.....Invert	S South
BIT.....Bituminous	J.B.....Junction Box	SAN.....Sanitary Sewer
B.C.....Bituminous Concrete	K K Inlet	SB or SB Southbound
B.M.....Bench Mark	L.....Length	S.D. Storm Drain
BOT.....Bottom	LF Linear Feet	S.D.D. Surface Drain Ditch
C.C.....Center of Curve	LL Liquid Limit	SE Super Elevation
CAP.....Corrugated Aluminum Pipe	LP Low Point	SF Silt Fence
CAPA.....Corrugated Aluminum Pipe Arch	L.P. Light Pole	SHT. Sheet
CATV.....Cable Television	LT.....Left	SPP Structural Steel Plate Pipe
C.B.R.....California Bearing Ratio	MAC.....Macadam	SPPA Structural Steel Plate Pipe Arch
CL or CL.....Centerline	M.C. Moisture Content	S.P.T. Standard Penetration Testing
CL Class	MAX.....Maximum	SRP.....Steel Spiral Rib Pipe –
CLF.....Chainlink Fence	M.D.D.....Maximum Dry Content	Aluminized Type 2
CMP.....Corrugated Metal Pipe	MOD.....Modified	SRPA Steel Spiral Rib Pipe Arch –
C.O.....Cleanout	MIN.....Minimum	Aluminized Type 2
COMB.....Combination	N.....North	SSD Stopping Sight Distance
CONC.....Concrete	NB Northbound	SSF Super Silt Fence
CONSTR.....Construction	NE Northeast	STD. Standard
COR.....Corner	N.P. Non-Plastic	STA. Station
CORR.....Correction	O.C. On Center	SO. Single Opening
CPP-S Corrugated Polyethylene Pipe – Type 'S'	OHE.....Overhead Electric	SY Square Yards
CSP Corrugated Steel Pipe – Aluminized Type 2	Q.M. Optimum Moisture	SWM.....Stormwater Management
CSPA Corrugated Steel Pipe Arch –	PAV'T.....Pavement	T Tangent
Aluminized Type 2	PC Point of Curvature	T Telephone
DC.....Degree of Curve	PCC Point of Compound Curvature	T.C. Top of Cover
D.H.V.....Design Hourly Volume	P/C Point of Crown	T.G. Top of Grate
D.I.....Drop Inlet	P/G Profile Grade Elevation	T or TL Traverse Line
DIA.....Diameter	P.G.E.....Profile Ground Elevation	T.M. Top of Manhole
D.O.....Double Opening	P.G.L.....Profile Grade Line	TRAV.....Traverse
E East	P.G.L.....Profile Ground Line	TS Temporary Swale
E Electric	PR Point of Rotation	T.S. Top of Slab
E External Distance	P.I.....Plasticity Index	T.S. Topsoil
EA Each	PI Point of Intersection	TYP.....Typical
EB Eastbound	POC Point On Curve	U.D. Under Drain
ELEV.....Elevation	POT Point On Tangent	U.G. Underground
ES.....End Section	PPWP Polyvinyl Chloride Profile Wall Pipe	U.P. Utility Pole
EX or EXIST.....Existing	PROP Proposed	USDA United States Department
FT Feet	PRC Point of Reverse Curve	of Agriculture
F or FL Flowline	PT Point	VCL Vertical Clearance
F.B.D.....Flat Bottom Ditch	PT Point of Tangency	V.C.L.....Vertical Curve Length
F.H.....Fire Hydrant	PVC Point of Vertical Curve	W Water
FWD.....Forward	PVC Polyvinyl Chloride	W West
G Gas	PVI Point of Vertical Intersection	WB Westbound
G.V.....Gas Valve	PVRC Point of Vertical Reverse Curve	WB Wetland Buffer
H.B.....Handbox	PVT Point of Vertical Tangency	W.M. Water Meter
HDPE.....High Density Polyethylene	R Radius	W.S. Wrapped Steel
	R.F.....Rock Fragments	WUS Waters of the United States
	RT Right	W.V. Water Valve

GENERAL NOTES

- THE EXISTING UTILITIES AND OBSTRUCTIONS SHOWN ON THESE PLANS ARE FROM THE BEST AVAILABLE RECORDS AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS CONCERNED AND MISS UTILITY PRIOR TO CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL CALL "MISS UTILITY" AT LEAST 48 HOURS IN ADVANCE OF ANY EXCAVATION WORK AT 1-800-257-7777.
- THE CONTRACTOR SHALL PROTECT AND NOT INTERRUPT EXISTING UTILITY SERVICES UNLESS OTHERWISE NOTED ON THE PLANS OR AUTHORIZED BY THE ENGINEER. SEE UTILITY STATEMENT.
- THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE SAFETY OF THE PUBLIC AND ALL WORKERS IS MAINTAINED AT ALL TIMES THROUGHOUT THE TERM OF THE CONTRACT. MOTORISTS SHALL BE GUIDED IN A CLEAR AND POSITIVE MANNER WHILE APPROACHING AND PASSING THROUGH CONSTRUCTION WORK AND EQUIPMENT AREAS.
- HORIZONTAL CONTROL: THE LOCATION AND ELEVATION OF BENCH MARKS ARE SHOWN ON THE PLANS. ALL ELEVATIONS ARE IN FEET AND ARE BASED ON THE NAVD 88.
- WHERE REFERENCE IS MADE TO MDSHA STANDARD PLATES IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE IN HIS POSSESSION THE LATEST UP-TO-DATE STANDARD PLATES AS OF THE DATE OF ADVERTISEMENT OF THESE PLANS. STANDARD PLATES ARE AVAILABLE AT WWW.MARYLANDROADS.COM.
- THE CONTRACTOR SHALL GRADE FOR POSITIVE DRAINAGE AT ALL ROADWAY INTERSECTIONS, ENTRANCES AND YARDS.
- REPAIRS TO UTILITIES OR PROPERTY DAMAGE AS A RESULT OF CONTRACTOR'S NEGLIGENCE OR METHOD OF OPERATION SHALL BE MADE AT NO ADDITIONAL COST TO THE ADMINISTRATION OR THE OWNER.
- PROVIDE 4-INCH FURNISHED TOPSOIL AND TURFGRASS SOD ESTABLISHMENT ON SLOPES UNLESS OTHERWISE NOTED ON THE PLANS.
- MATERIAL REMOVED DURING CONSTRUCTION SHALL BECOME THE CONTRACTOR'S PROPERTY UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL RESET ANY SIGN POSTS OR MAIL BOXES TO FACILITATE THE WORK, EXCEPT WHERE SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- FINAL DETERMINATION AS TO THE LOCATION OF EROSION AND SEDIMENT CONTROLS WILL BE AT THE DIRECTION OF THE ENGINEER AND WITH THE APPROVAL OF THE REGIONAL ENVIRONMENTAL COORDINATOR.
- CONSTRUCTION EQUIPMENT SHALL HAVE TREADS/TIRES CLEANED PRIOR TO LEAVING THE LOD. ALL MATERIAL REMOVAL/LOAD OUT SHALL BE LIFTED FROM THE LOD. ALL SEDIMENT SPILLED, DROPPED OR TRACKED ONTO THE ROAD MUST BE REMOVED IMMEDIATELY BY VACUUMING, SCRAPING OR SWEEPING.
- SEVERAL PROPOSED DRAINAGE STRUCTURES AND PIPES WILL CONNECT TO EXISTING STORM DRAIN STRUCTURES AND PIPES. THE CONTRACTOR SHALL FIELD VERIFY INVERTS PRIOR TO ORDERING, FABRICATING OR CONSTRUCTING PROPOSED STORM DRAIN STRUCTURES.

CONVENTIONAL SIGNS (SAMPLES)

PROPOSED MEDIAN BARRIER		PROPOSED PIPE / CULVERT	
ELECTRICAL HAND BOX - SIGNALS		EXISTING PIPE / CULVERT	
FLOW LINE		EXISTING DROP INLET	
STATE, COUNTY OR CITY LINES		UTILITY POLE	
PROPOSED TRAFFIC BARRIER		WETLAND	
EXISTING TRAFFIC BARRIER		WETLAND BUFFER	
PROPOSED FENCE LINE		WATERS OF THE U.S.	
EXISTING FENCE LINE		HEDGE / TREE LINE	
RIGHT OF WAY LINE		BUSH / TREE	
EXISTING ROADWAY		CONIFEROUS TREE	
RAILROAD		GROUND ELEVATION	
BASE LINE OR SURVEY LINE		GRADE ELEVATION	
FIRE HYDRANT			
HISTORIC BOUNDARY		PROPOSED LIGHT POLE AND LUMINAIRE	
WATERS OF THE U.S.			
WETLAND BOUNDARY			

BY: wweisman -



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MD 214 (CENTRAL AVENUE)
CONNECTOR TRAIL PHASE 1



ABBREVIATIONS, GENERAL NOTES & INDEX

SCALE N.T.S. DATE AUGUST 2016 CONTRACT NO. T.B.D.

30% PLANS

AUGUST 2016

DESIGNED BY JCW/WRW COUNTY PRINCE GEORGE'S

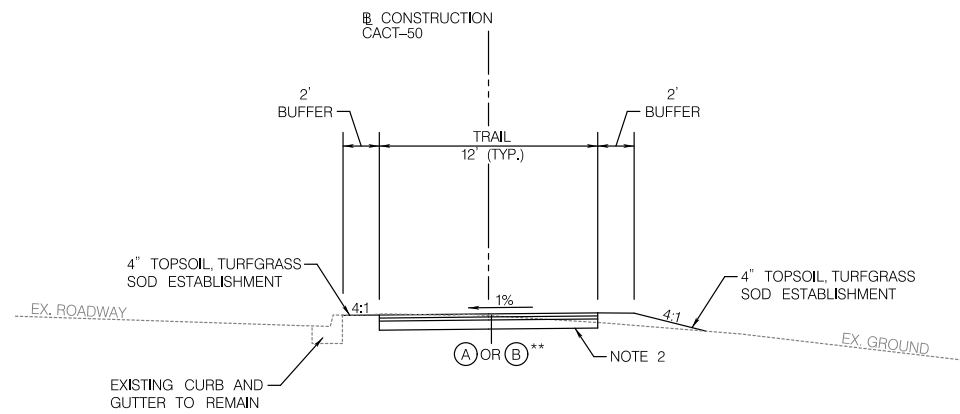
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F.A.P. NO. T.B.D.

DRAWING NO. PS01 1 OF 1 SHEET NO. 02 OF 26

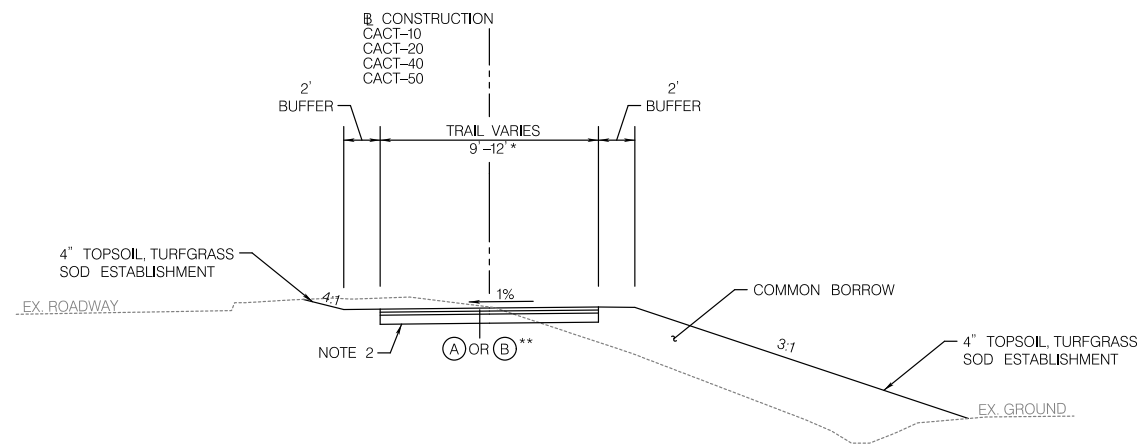
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**CENTRAL AVENUE CONNECTOR TRAIL
TYPICAL SECTION - ABUTTING ROADWAY**

**CACT-50 - STA. 51+40 TO STA. 58+60
STA. 61+60 TO STA. 64+50**

**SEE PLANS FOR STATION LIMITS.

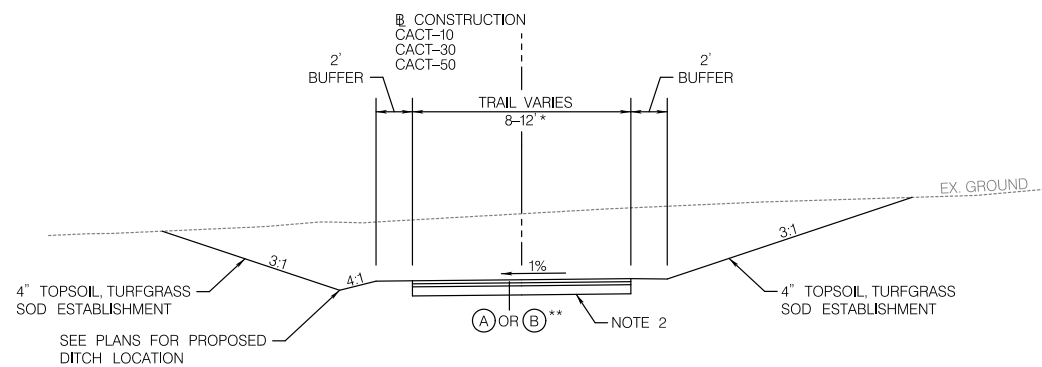


**CENTRAL AVENUE CONNECTOR TRAIL
TYPICAL SECTION**

**CACT-10 - STA. 10+20 TO STA. 15+00
CACT-20 - STA. 20+20 TO STA. 24+70
CACT-40 - STA. 40+20 TO STA. 42+10
CACT-50 - STA. 61+00 TO STA. 61+60
CACT-50 - STA. 64+50 TO STA. 71+30**

*10' FOR STA. 14+60 TO 15+00.
VARIES 9'-11.5' STA. 23+40 TO 24+70.
OTHERWISE 12'

**SEE PLANS FOR STATION LIMITS.

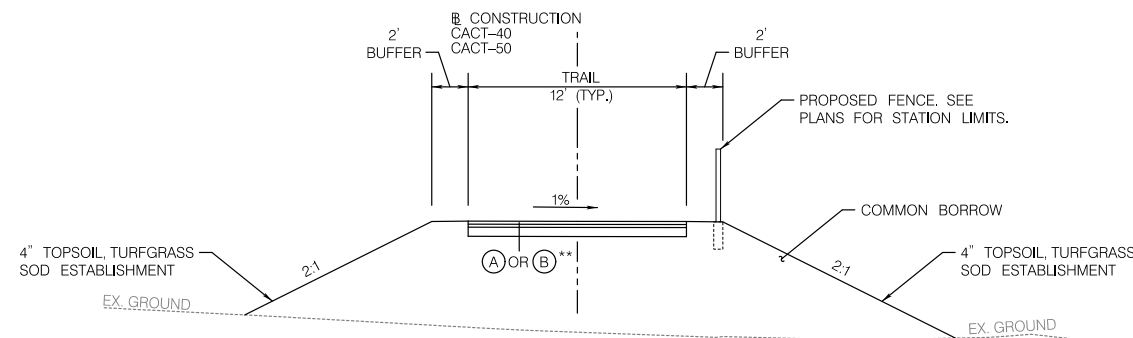


**CENTRAL AVENUE CONNECTOR TRAIL
TYPICAL SECTION**

**CACT-10 - STA. 15+00 TO STA. 15+40
CACT-30 - STA. 30+20 TO STA. 34+00
CACT-50 - STA. 50+20 TO STA. 51+40
CACT-50 - STA. 58+60 TO STA. 61+00**

*VARIES 8'-10' FOR STA. 15+00 TO 15+40.
OTHERWISE 12'

**SEE PLANS FOR STATION LIMITS.



**CENTRAL AVENUE CONNECTOR TRAIL
TYPICAL SECTION**

**CACT-40 - STA. 42+10 TO STA. 44+90
CACT-40 - STA. 48+40 TO STA. 48+60
CACT-50 - STA. 71+30 TO STA. 76+70**

**SEE PLANS FOR STATION LIMITS.

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TYPICAL SECTIONS

SCALE 1"=5' DATE AUGUST 2016 CONTRACT NO. T.B.D.

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F.A.P. NO. T.B.D.

DRAWING NO. TS01 1 OF 1 SHEET NO. 3 OF 26

30% PLANS
AUGUST 2016

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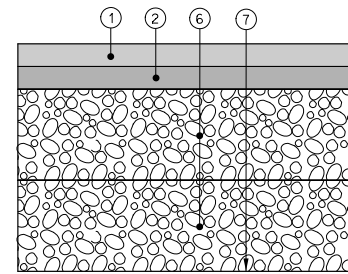
TYPICAL SECTION LEGEND

- (A) IMPERVIOUS ASPHALT TRAIL (SEE D1-01)
- (B) IMPERVIOUS ASPHALT TRAIL (SEE D1-01)

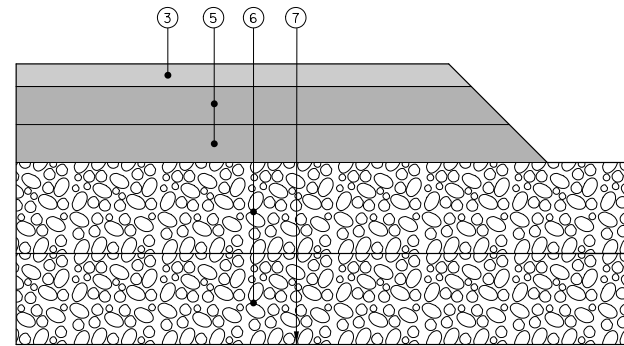
NOTES

1. SEE PLANS FOR GRADING LIMITS.
2. LIMIT OF CLASS 1 EXCAVATION AND TOP OF SUBGRADE.

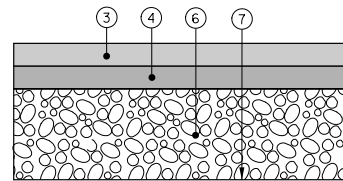
BY: wweisman@rkk.com



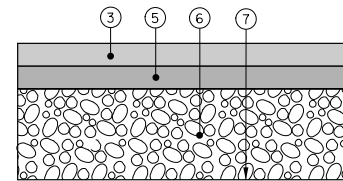
PAVEMENT DETAIL A (N.T.S.)
PERVIOUS ASPHALT TRAIL



PAVEMENT DETAIL C (N.T.S.)
FULL DEPTH SUPERPAVE ASPHALT MIX PAVEMENT



PAVEMENT DETAIL B (N.T.S.)
IMPERVIOUS ASPHALT TRAIL



PAVEMENT DETAIL D (N.T.S.)
DRIVEWAY ENTRANCE

PRELIMINARY PAVEMENT LEGEND

- ① 2" PERVIOUS ASPHALT MIX 12.5 MM FOR SURFACE
- ② 2" PERVIOUS ASPHALT MIX 19.0 MM FOR BASE
- ③ 2" SUPERPAVE ASPHALT MIX 12.5 MM FOR SURFACE, PG 64S-22, LEVEL-2
- ④ 2" SUPERPAVE ASPHALT MIX 19.0 MM FOR BASE, PG 64S-22, LEVEL-2
- ⑤ 3" SUPERPAVE ASPHALT MIX 19.0 MM FOR BASE, PG 64S-22, LEVEL-2
- ⑥ 6" GRADED AGGREGATE BASE
- ⑦ TOP OF SUBGRADE AND LIMIT OF CLASS 1 EXCAVATION

BY: wweismantel -



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PAVEMENT DETAILS

30% PLANS
AUGUST 2016

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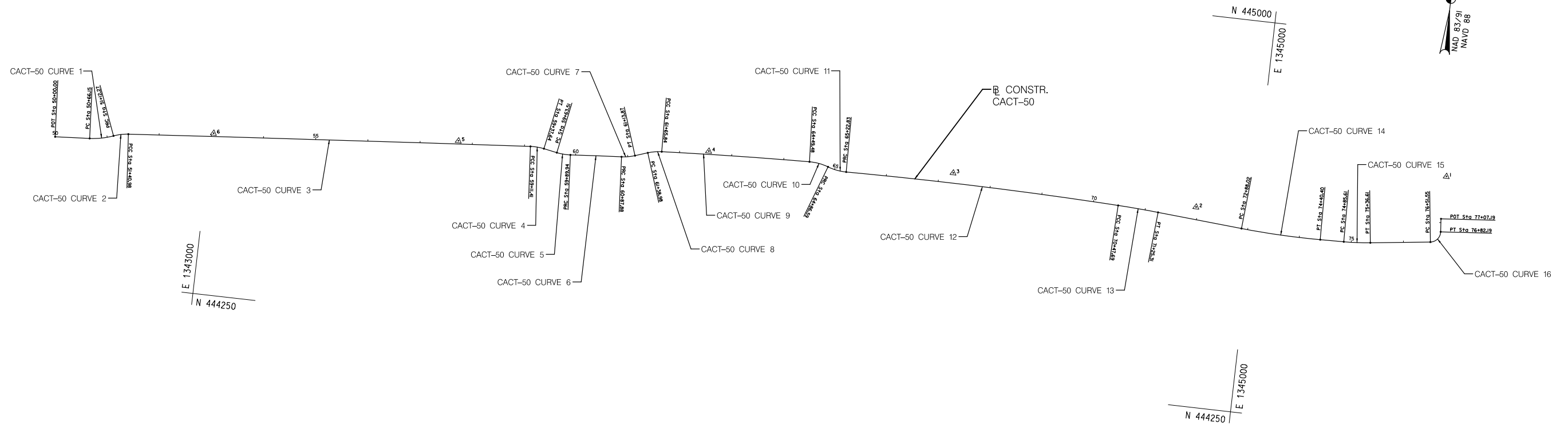
F.A.P. NO. T.B.D.

DRAWING NO. DT01 1 OF 1 SHEET NO. 4 OF 26

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CACT-50					
CURVE	POINT NO.	STATION	NORTH	EAST	BEARING
CACT-50 CURVE 1	POT	50+00.00	444,518.2969	1,342,703.8077	N 86°12' 21.91" E
	PC	50+66.15	444,522.6740	1,342,769.8133	N 86°12' 21.91" E
	PI	50+89.39	444,524.2118	1,342,793.0031	N/A
	PRC	51+12.27	444,532.6949	1,342,814.6402	N 68°35' 29.71" E
CACT-50 CURVE 2	PRC	51+12.27	444,532.6949	1,342,814.6402	N 68°35' 29.71" E
	PI	51+26.72	444,537.9712	1,342,828.0980	N/A
CACT-50 CURVE 3	PCC	51+40.98	444,539.2205	1,342,842.4990	N 85°02' 31.27" E
	PI	51+40.98	444,539.2205	1,342,842.4990	N 85°02' 31.27" E
CACT-50 CURVE 4	PCC	51+40.98	444,539.2205	1,342,842.4990	N 85°02' 31.27" E
	PI	51+40.98	444,539.2205	1,342,842.4990	N 85°02' 31.27" E
CACT-50 CURVE 5	PCC	51+40.98	444,539.2205	1,342,842.4990	N 85°02' 31.27" E
	PI	51+40.98	444,539.2205	1,342,842.4990	N 85°02' 31.27" E
CACT-50 CURVE 6	PCC	51+40.98	444,539.2205	1,342,842.4990	N 85°02' 31.27" E
	PI	51+40.98	444,539.2205	1,342,842.4990	N 85°02' 31.27" E
CACT-50 CURVE 7	PCC	51+40.98	444,539.2205	1,342,842.4990	N 85°02' 31.27" E
	PI	51+40.98	444,539.2205	1,342,842.4990	N 85°02' 31.27" E
CACT-50 CURVE 8	PCC	51+40.98	444,539.2205	1,342,842.4990	N 85°02' 31.27" E
	PI	51+40.98	444,539.2205	1,342,842.4990	N 85°02' 31.27" E

CACT-50					
CURVE	POINT NO.	STATION	NORTH	EAST	BEARING
CACT-50 CURVE 9	PCC	61+65.84	444,621.6483	1,343,861.2329	N 86°28' 12.76" E
	PI	63+07.67	444,630.3805	1,344,002.7940	N/A
	PRC	64+49.48	444,634.5563	1,344,144.5627	N 88°18' 46.12" E
CACT-50 CURVE 10	PCC	64+49.48	444,634.5563	1,344,144.5627	N 88°18' 46.12" E
	PI	64+68.2	444,635.1091	1,344,163.3281	N/A
	PRC	64+86.59	444,628.8208	1,344,181.0172	S 70°25' 49.19" E
CACT-50 CURVE 11	PCC	64+86.59	444,628.8208	1,344,181.0172	S 70°25' 49.19" E
	PI	65+04.91	444,622.6843	1,344,198.2795	N/A
	PRC	65+22.83	444,623.0687	1,344,216.5959	N 88°47' 51.52" E
CACT-50 CURVE 12	PCC	65+22.83	444,623.0687	1,344,216.5959	N 88°47' 51.52" E
	PI	67+85.34	444,628.5771	1,344,479.0449	N/A
	PRC	70+47.69	444,618.4145	1,344,741.3548	S 87°46' 52.74" E
CACT-50 CURVE 13	PCC	70+47.69	444,618.4145	1,344,741.3548	S 87°46' 52.74" E
	PI	70+86.51	444,616.9117	1,344,780.1431	N/A
	PT	71+25.31	444,613.9047	1,344,818.8439	S 85°33' 25.50" E
CACT-50 CURVE 14	PC	72+88.02	444,601.3007	1,344,981.0589	S 85°33' 25.50" E
	PI	73+64.27	444,595.3935	1,345,057.0857	N/A
	PT	74+40.40	444,597.2267	1,345,133.3195	N 88°37' 20.66" E
CACT-50 CURVE 15	PC	74+85.61	444,598.3136	1,345,178.5149	N 88°37' 20.66" E
	PI	75+11.13	444,598.9273	1,345,204.0323	N/A
	PT	75+36.61	444,602.1363	1,345,229.3546	N 82°46' 39.46" E
CACT-50 CURVE 16	PC	76+51.55	444,616.5858	1,345,343.3763	N 82°46' 39.46" E
	PI	76+70.79	444,619.0052	1,345,362.4678	N/A
	POT	77+07.19	444,663.0799	1,345,358.5996	N 5°00' 56.62" W



CURVE DATA						
CURVE	DELTA	Dc	RADIUS	TANGENT	LENGTH	EXTERNAL
CACT-50 CURVE 1	17°36' 52.20"	38°11' 49.87"	150.0000'	23.2407'	46.1147'	1.7898'
CACT-50 CURVE 2	16°27' 01.56"	57°17' 44.81"	100.0000'	14.4551'	28.7114'	1.0394'
CACT-50 CURVE 3	0°24' 06.61"	0°03' 07.77"	109,852.1069'	385.2173'	770.4315'	0.6754'
CACT-50 CURVE 4	15°02' 19.45"	57°19' 40.34"	99.9440'	13.1923'	26.2329'	0.8669'
CACT-50 CURVE 5	15°08' 48.26"	57°17' 44.81"	100.0000'	13.2955'	26.4360'	0.8800'
CACT-50 CURVE 6	0°38' 13.86"	0°39' 02.19"	8,806.5000'	48.9688'	97.9365'	0.1361'
CACT-50 CURVE 7	14°53' 34.56"	57°17' 44.80"	100.0000'	13.0702'	25.9931'	0.8505'
CACT-50 CURVE 8	15°23' 24.40"	57°17' 44.81"	100.0000'	13.5117'	26.8608'	0.9087'
CACT-50 CURVE 9	1°50' 33.36"	0°38' 58.69"	8,819.6810'	141.8302'	283.6360'	1.1403'
CACT-50 CURVE 10	21°15' 24.70"	57°16' 20.38"	100.0409'	18.7735'	37.1154'	1.7463'
CACT-50 CURVE 11	20°46' 19.29"	57°19' 11.32"	99.9581'	18.3205'	36.2388'	1.6650'
CACT-50 CURVE 12	3°25' 15.73"	0°39' 06.49"	8,790.3513'	262.5067'	524.8575'	3.9188'
CACT-50 CURVE 13	2°13' 27.24"	2°51' 55.28"	1,999.6042'	38.8174'	77.6250'	0.3767'
CACT-50 CURVE 14	5°49' 13.84"	3°49' 10.99"	1,500.0000'	76.2559'	152.3806'	1.9371'
CACT-50 CURVE 15	5°50' 41.20"	11°27' 32.96"	500.0000'	25.5248'	51.0053'	0.6511'
CACT-50 CURVE 16	87°47' 36.09"	286°28' 44.03"	20.0000'	19.2442'	30.6457'	7.7550'

TRAVERSE POINTS				
POINT NO.	NORTH	EAST	ELEVATION	DESCRIPTION
1	444,745.0590	1,345,359.7236	184.9397'	P&C RTK
2	444,632.4932	1,344,889.9599	174.4568'	P&C RTK
3	444,644.6481	1,344,420.4798	162.9897'	P&C
4	444,633.0549	1,343,950.6674	156.2762'	P&C
5	444,598.2536	1,343,472.0326	143.6487'	P&C
6	444,559.5459	1,343,004.5124	119.4690'	P&C

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GEOMETRY SHEET

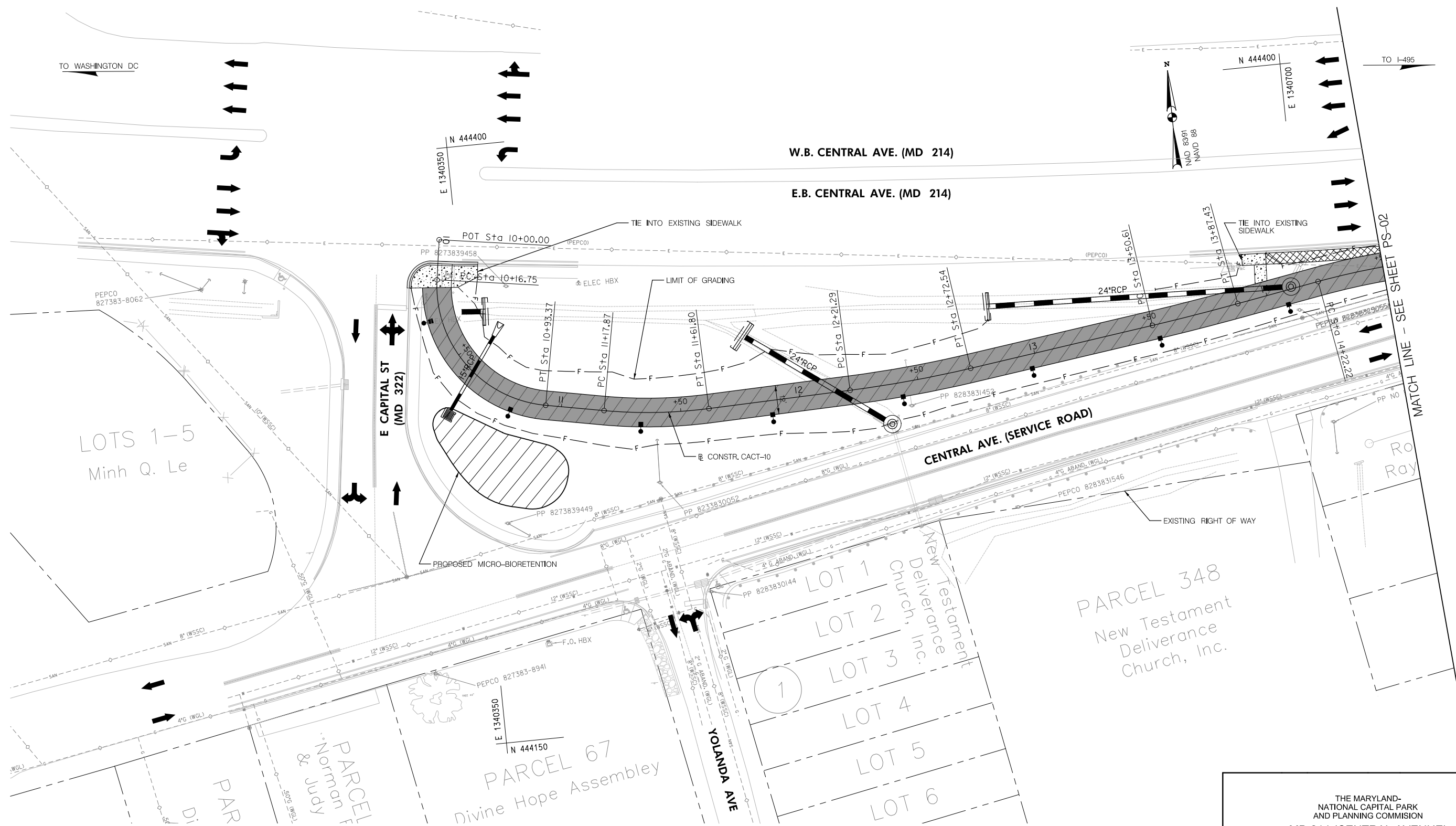
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DRAWING NO. GS02 OF 2 SHEET NO. 6 OF 26

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LOTS 1-5
Minh Q. Le

E CAPITAL ST
(MD 322)

CENTRAL AVE. (SERVICE ROAD)

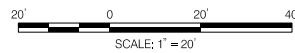
LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6

PARCEL 67
Divine Hope Assembly

PARCEL 348
New Testament
Deliverance
Church, Inc.

LEGEND

- 5 INCH CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- PERVIOUS ASPHALT TRAIL
- IMPERVIOUS ASPHALT TRAIL
- FULL DEPTH ASPHALT PAVING
- SIDEWALK AND PAVEMENT REMOVAL (PAID FOR AS CLASS 1 EXCAVATION)
- PROPOSED LIGHT POLE AND LUMINAIRE



CROSS REFERENCE	R / W PLAT NUMBER
ITEM	SHEET NOs.
TYPICAL SECTION SHEETS	3
PAVEMENT DETAILS	4
GEOMETRY SHEET	5-6
ROADWAY PLAN SHEETS	7-16
ROADWAY PROFILE SHEETS	17-26

30% PLANS
AUGUST 2016

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1



ROADWAY PLAN

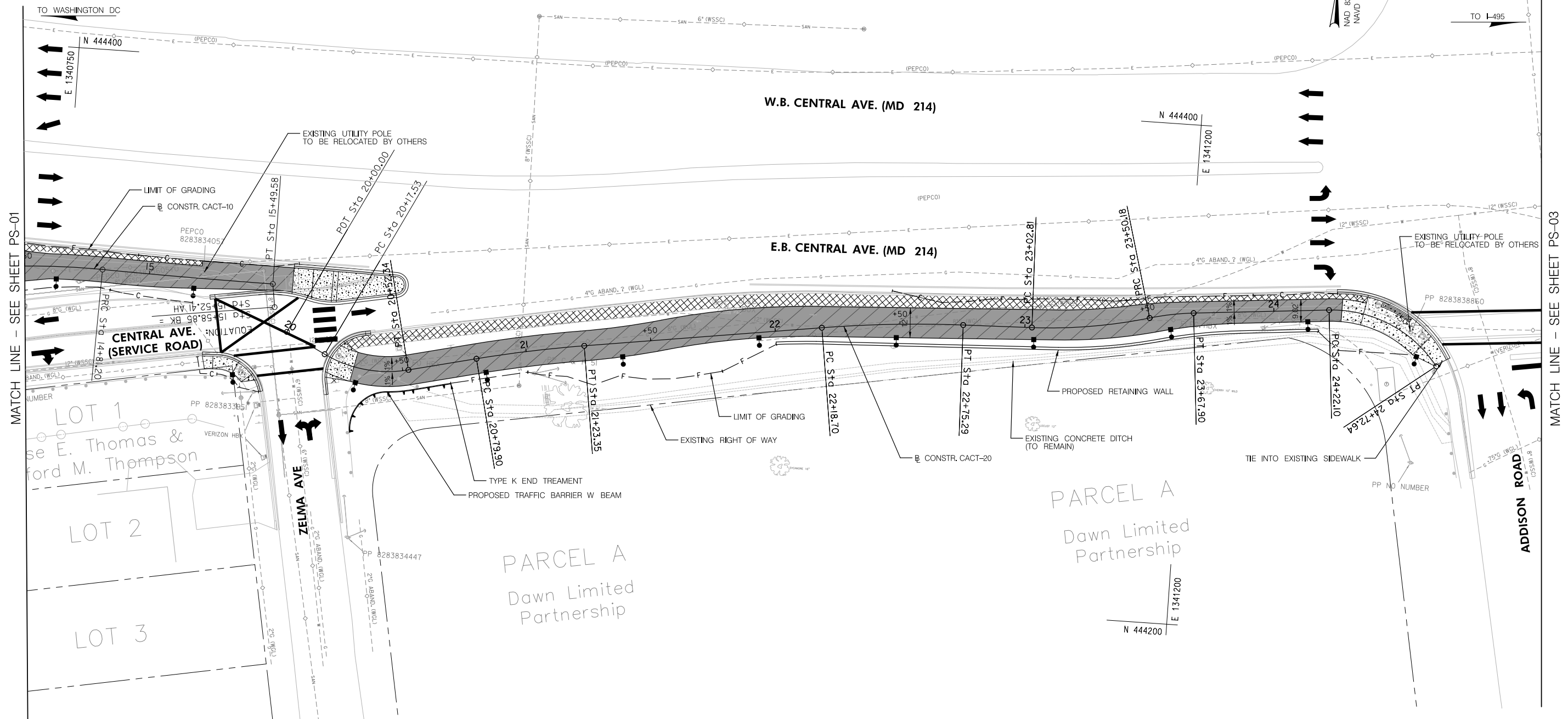
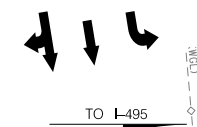
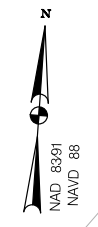
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DRAWN BY	WRW	LOGMILE	MD 214 0.680-1.640		
CHECKED BY	RJA/RJG				
F.A.P. NO.	T.B.D.				
DRAWING NO.	PS01 OF 10	SHEET NO.	7 OF 26		

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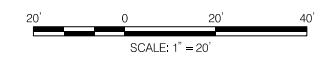


MATCH LINE - SEE SHEET PS-01

MATCH LINE - SEE SHEET PS-03

LEGEND

- 5 INCH CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- PERVIOUS ASPHALT TRAIL
- IMPERVIOUS ASPHALT TRAIL
- FULL DEPTH ASPHALT PAVING
- SIDEWALK AND PAVEMENT REMOVAL (PAID FOR AS CLASS 1 EXCAVATION)
- PROPOSED LIGHT POLE AND LUMINAIRE



THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1

ROADWAY PLAN	
SCALE <u>1"=20'</u>	DATE <u>AUGUST 2016</u> CONTRACT NO. <u>T.B.D.</u>
DESIGNED BY <u>JCW/WRW</u>	COUNTY <u>PRINCE GEORGE'S</u>
DRAWN BY <u>WRW</u>	LOGMILE <u>MD 214 0.680-1.640</u>
CHECKED BY <u>RJA/RJG</u>	
F.A.P. NO. <u>T.B.D.</u>	
DRAWING NO. <u>PS02 OF 10</u>	SHEET NO. <u>8 OF 26</u>

CROSS REFERENCE	R / W PLAT NUMBER
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TYPICAL SECTION SHEETS	3
PAVEMENT DETAILS	4
GEOMETRY SHEET	5-6
ROADWAY PLAN SHEETS	7-16
ROADWAY PROFILE SHEETS	17-26

30% PLANS
AUGUST 2016

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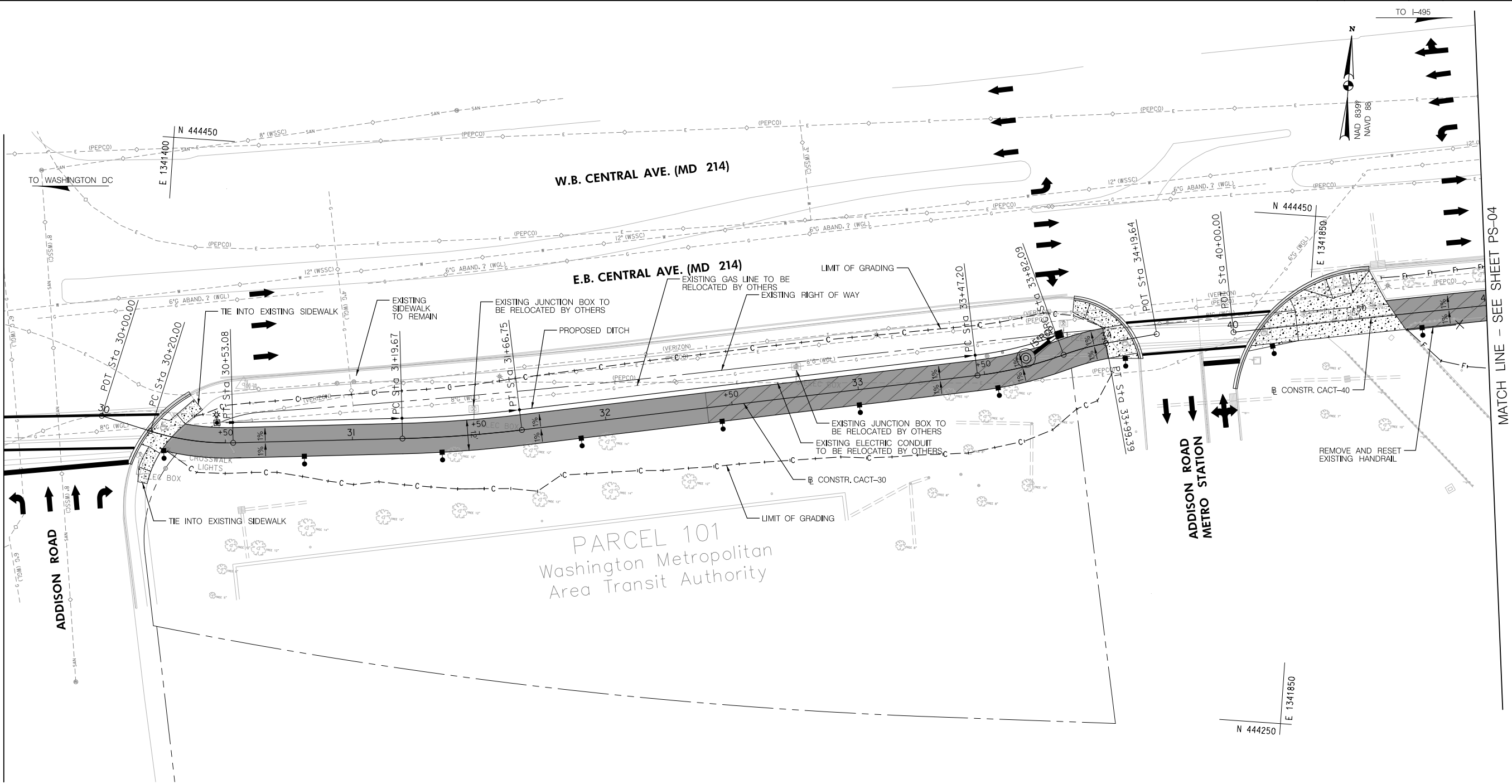
BY: wweisantel -

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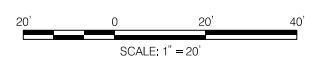
MATCH LINE - SEE SHEET PS-02

MATCH LINE - SEE SHEET PS-04



LEGEND

- 5 INCH CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- PERVIOUS ASPHALT TRAIL
- IMPERIOUS ASPHALT TRAIL
- FULL DEPTH ASPHALT PAVING
- SIDEWALK AND PAVEMENT REMOVAL (PAID FOR AS CLASS 1 EXCAVATION)
- PROPOSED LIGHT POLE AND LUMINAIRE



THE MARYLAND-
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AND PLANNING COMMISSION

**MD 214 (CENTRAL AVENUE)
CONNECTOR TRAIL PHASE 1**

CROSS REFERENCE	R / W PLAT NUMBER
ITEM	SHEET NOs.
TYPICAL SECTION SHEETS	3
PAVEMENT DETAILS	4
GEOMETRY SHEET	5-6
ROADWAY PLAN SHEETS	7-16
ROADWAY PROFILE SHEETS	17-26

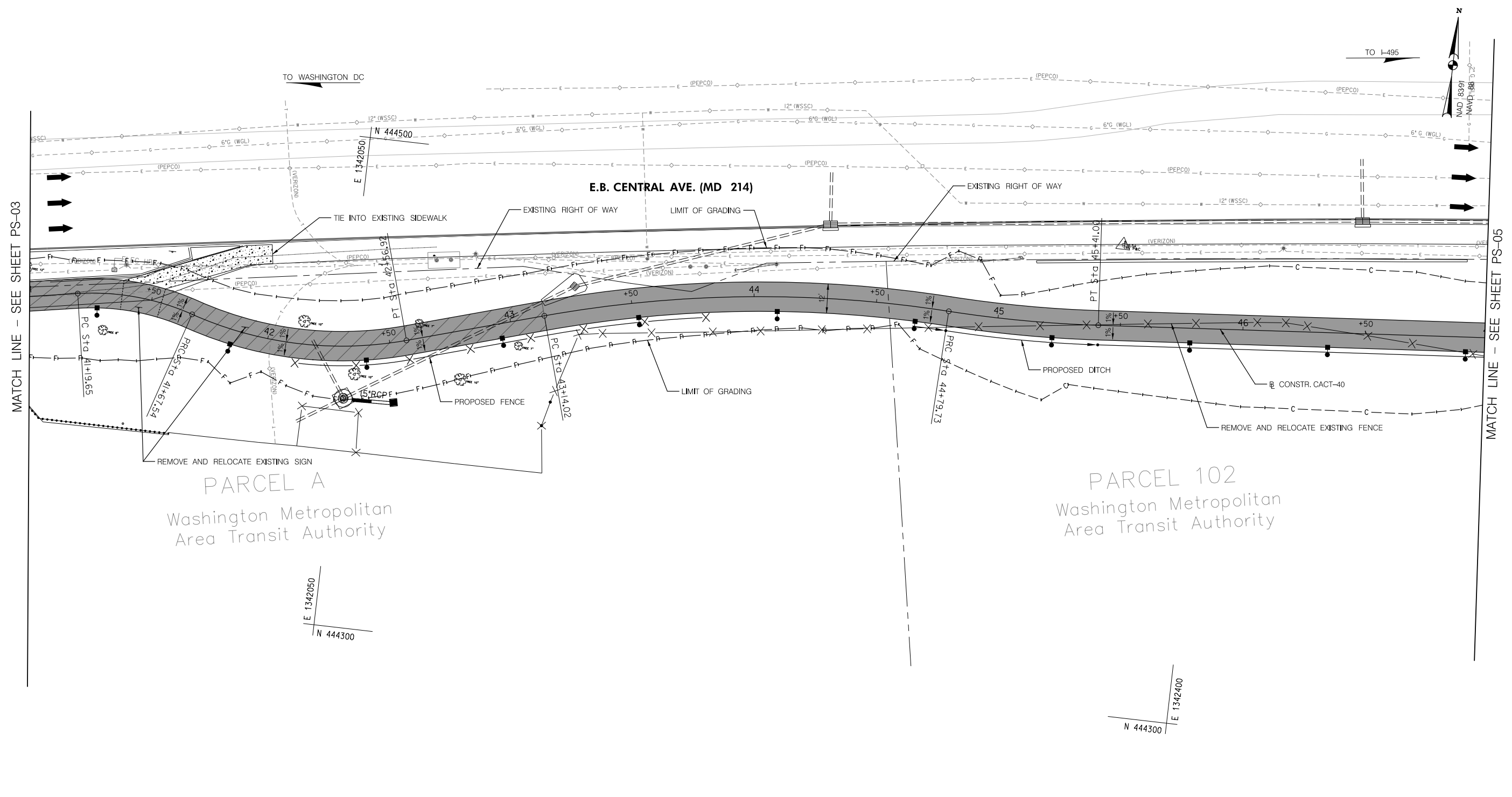
30% PLANS
AUGUST 2016

ROADWAY PLAN					
SCALE	1"=20'	DATE	AUGUST 2016	CONTRACT NO.	T.B.D.
DESIGNED BY	JCW/WRW	COUNTY	PRINCE GEORGE'S		
DRAWN BY	WRW	LOGMILE	MD 214 0.680-1.640		
CHECKED BY	RJA/RJG				
F.A.P. NO.	T.B.D.				
DRAWING NO.	PS03 OF 10	SHEET NO.	9 OF 26		

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MATCH LINE - SEE SHEET PS-03

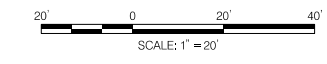
MATCH LINE - SEE SHEET PS-05

PARCEL A
Washington Metropolitan
Area Transit Authority

PARCEL 102
Washington Metropolitan
Area Transit Authority

E 1342050
N 444300

E 1342400
N 444300



LEGEND

- 5 INCH CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- PERVIOUS ASPHALT TRAIL
- IMPERVIOUS ASPHALT TRAIL
- FULL DEPTH ASPHALT PAVING
- SIDEWALK AND PAVEMENT REMOVAL (PAID FOR AS CLASS 1 EXCAVATION)
- PROPOSED LIGHT POLE AND LUMINAIRE

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CROSS REFERENCE	R / W PLAT NUMBER
ITEM	SHEET NOS.
TYPICAL SECTION SHEETS	3
PAVEMENT DETAILS	4
GEOMETRY SHEET	5-6
ROADWAY PLAN SHEETS	7-16
ROADWAY PROFILE SHEETS	17-26

30% PLANS
AUGUST 2016

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1

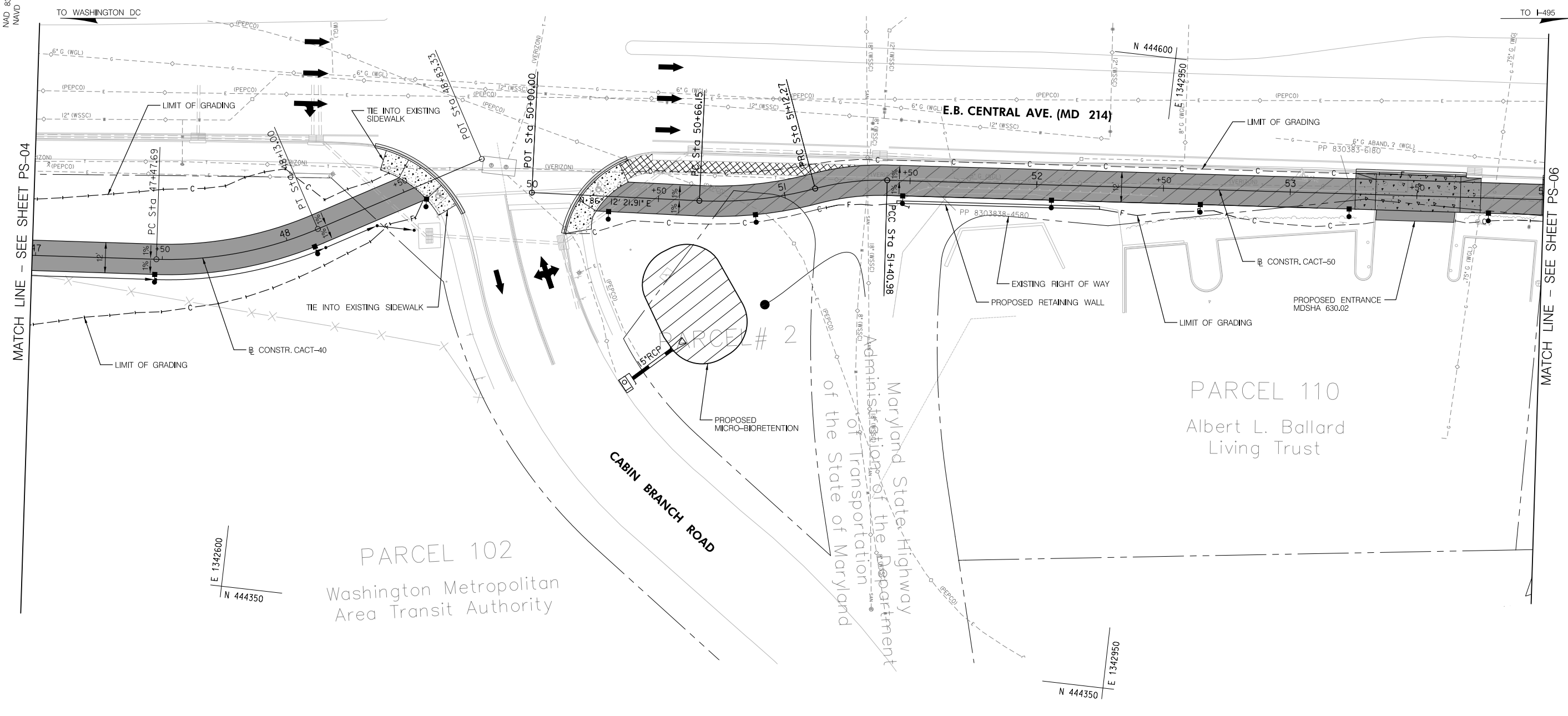
ROADWAY PLAN

SCALE 1"=20' DATE AUGUST 2016 CONTRACT NO. T.B.D.

DESIGNED BY JCW/WRW COUNTY PRINCE GEORGE'S
DRAWN BY WRW LOGMILE MD 214 .0680-1.640
CHECKED BY RJA/RJG
F.A.P. NO. T.B.D.

DRAWING NO. PS04 OF 10 SHEET NO. 10 OF 26

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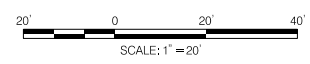


E 1342600
N 444350

E 1342950
N 444350

LEGEND

- 5 INCH CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- PERVIOUS ASPHALT TRAIL
- IMPERVIOUS ASPHALT TRAIL
- FULL DEPTH ASPHALT PAVING
- SIDEWALK AND PAVEMENT REMOVAL (PAID FOR AS CLASS 1 EXCAVATION)
- PROPOSED LIGHT POLE AND LUMINAIRE



THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1



ROADWAY PLAN

SCALE 1"=20' DATE AUGUST 2016 CONTRACT NO. T.B.D.	
DESIGNED BY JCW/WRW COUNTY PRINCE GEORGE'S	LOGMILE MD 214 0.680-1.640
DRAWN BY WRW	
CHECKED BY RJA/RJG	
F.A.P. NO. T.B.D.	
DRAWING NO. PS05 OF 10	SHEET NO. 11 OF 26

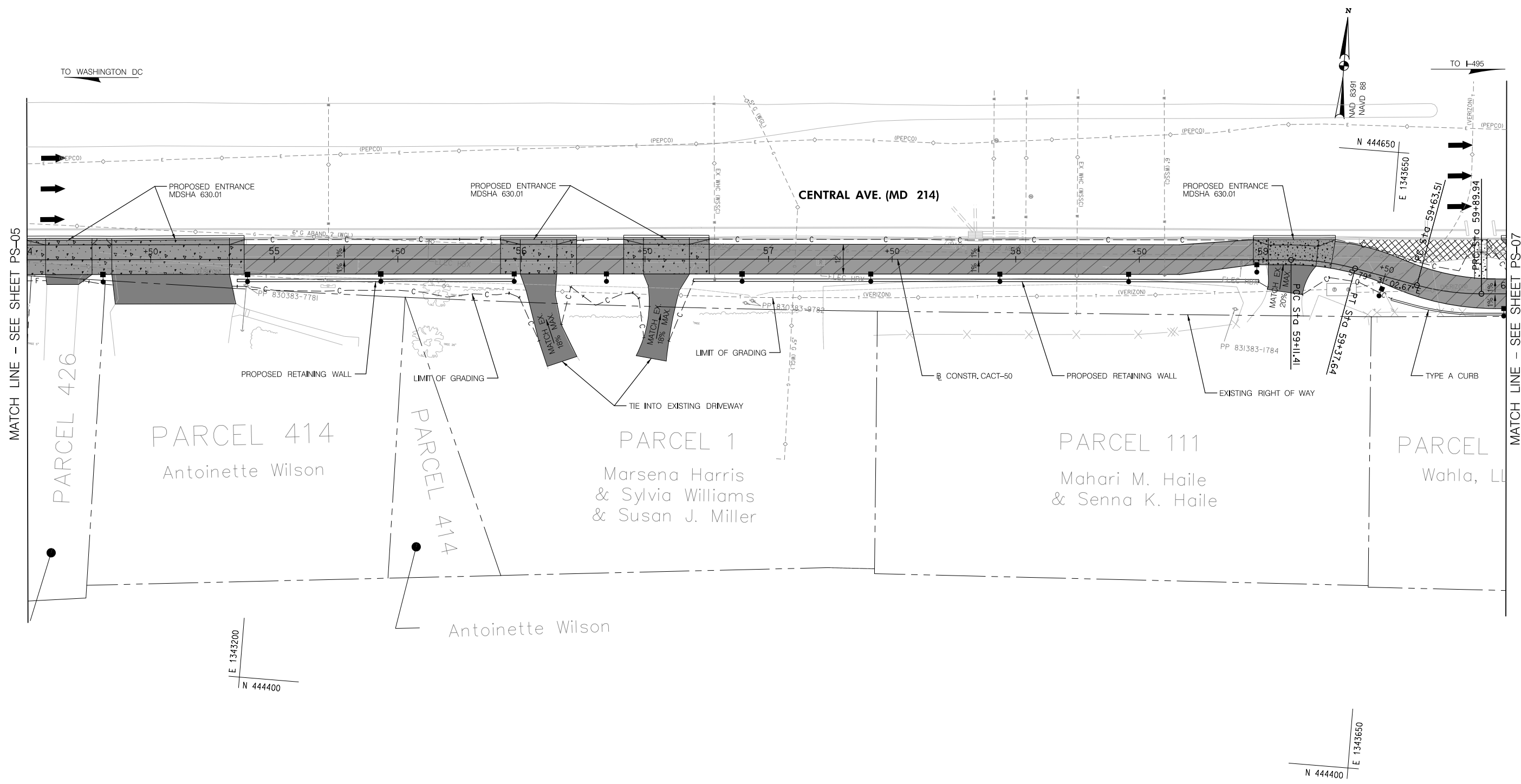
CROSS REFERENCE	R / W PLAT NUMBER
ITEM	SHEET NOs.
TYPICAL SECTION SHEETS	3
PAVEMENT DETAILS	4
GEOMETRY SHEET	5-6
ROADWAY PLAN SHEETS	7-16
ROADWAY PROFILE SHEETS	17-26

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AUGUST 2016

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MATCH LINE - SEE SHEET PS-05

MATCH LINE - SEE SHEET PS-07

PARCEL 426

PARCEL 414
Antoinette Wilson

PARCEL 414

PARCEL 1
Marsena Harris
& Sylvia Williams
& Susan J. Miller

PARCEL 111
Mahari M. Haile
& Senna K. Haile

PARCEL
Wahla, LL

E 1343200
N 444400

E 1343650
N 444400

TO WASHINGTON DC

TO I-495



CENTRAL AVE. (MD 214)

PROPOSED ENTRANCE
MDSHA 630.01

PROPOSED ENTRANCE
MDSHA 630.01

PROPOSED ENTRANCE
MDSHA 630.01

PROPOSED RETAINING WALL

LIMIT OF GRADING

LIMIT OF GRADING

TIE INTO EXISTING DRIVEWAY

CONSTR. CACT-50

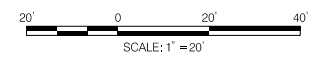
PROPOSED RETAINING WALL

EXISTING RIGHT OF WAY

TYPE A CURB

LEGEND

- 5 INCH CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- PERVIOUS ASPHALT TRAIL
- IMPERVIOUS ASPHALT TRAIL
- FULL DEPTH ASPHALT PAVING
- SIDEWALK AND PAVEMENT REMOVAL
(PAID FOR AS CLASS 1 EXCAVATION)
- PROPOSED LIGHT POLE AND LUMINAIRE



THE MARYLAND-
NATIONAL CAPITAL PARK
AND PLANNING COMMISSION
**MD 214 (CENTRAL AVENUE)
CONNECTOR TRAIL PHASE 1**



ROADWAY PLAN

SCALE <u>1"=20'</u> DATE <u>AUGUST 2016</u> CONTRACT NO. <u>T.B.D.</u>	
DESIGNED BY <u>JCW/WRW</u> COUNTY <u>PRINCE GEORGE'S</u>	
DRAWN BY <u>WRW</u> LOGMILE <u>MD 214 0.680-1.640</u>	
CHECKED BY <u>RJA/RJG</u>	
F.A.P. NO. <u>T.B.D.</u>	
DRAWING NO. <u>PS06 OF 10</u>	SHEET NO. <u>12 OF 26</u>

CROSS REFERENCE	R / W PLAT NUMBER
ITEM	SHEET NOS.
TYPICAL SECTION SHEETS	3
PAVEMENT DETAILS	4
GEOMETRY SHEET	5-6
ROADWAY PLAN SHEETS	7-16
ROADWAY PROFILE SHEETS	17-26

30% PLANS
AUGUST 2016

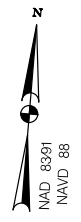
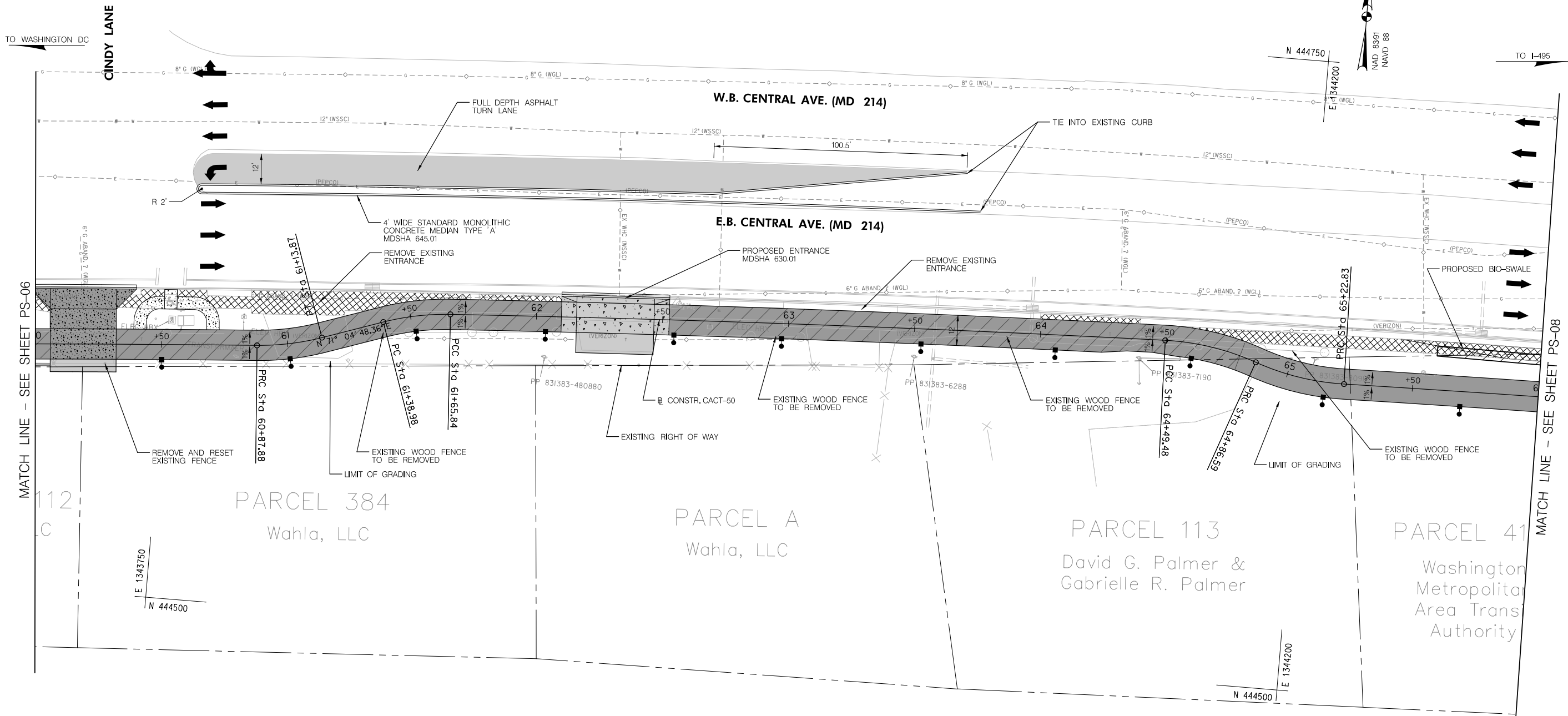
BY: wwaismantel-



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N 444750
E 1344200

MATCH LINE - SEE SHEET PS-06

MATCH LINE - SEE SHEET PS-08

TO WASHINGTON DC
CINDY LANE
W.B. CENTRAL AVE. (MD 214)
E.B. CENTRAL AVE. (MD 214)
TO I-495

REMOVE AND RESET EXISTING FENCE
LIMIT OF GRADING
EXISTING WOOD FENCE TO BE REMOVED
EXISTING RIGHT OF WAY
EXISTING WOOD FENCE TO BE REMOVED
EXISTING WOOD FENCE TO BE REMOVED
EXISTING WOOD FENCE TO BE REMOVED

PARCEL 384
Wahla, LLC

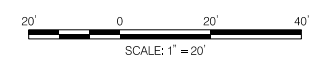
PARCEL A
Wahla, LLC

PARCEL 113
David G. Palmer &
Gabrielle R. Palmer

PARCEL 41
Washington
Metropolitan
Area Trans
Authority

LEGEND

- 5 INCH CONCRETE SIDEWALK
- CONCRETE DRIVEWAY
- PERVIOUS ASPHALT TRAIL
- IMPERVIOUS ASPHALT TRAIL
- FULL DEPTH ASPHALT PAVING
- SIDEWALK AND PAVEMENT REMOVAL (PAID FOR AS CLASS 1 EXCAVATION)
- PROPOSED LIGHT POLE AND LUMINAIRE



THE MARYLAND-
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**MD 214 (CENTRAL AVENUE)
CONNECTOR TRAIL PHASE 1**



CROSS REFERENCE	R / W PLAT NUMBER
ITEM	SHEET NOS.
TYPICAL SECTION SHEETS	3
PAVEMENT DETAILS	4
GEOMETRY SHEET	5-6
ROADWAY PLAN SHEETS	7-16
ROADWAY PROFILE SHEETS	17-26

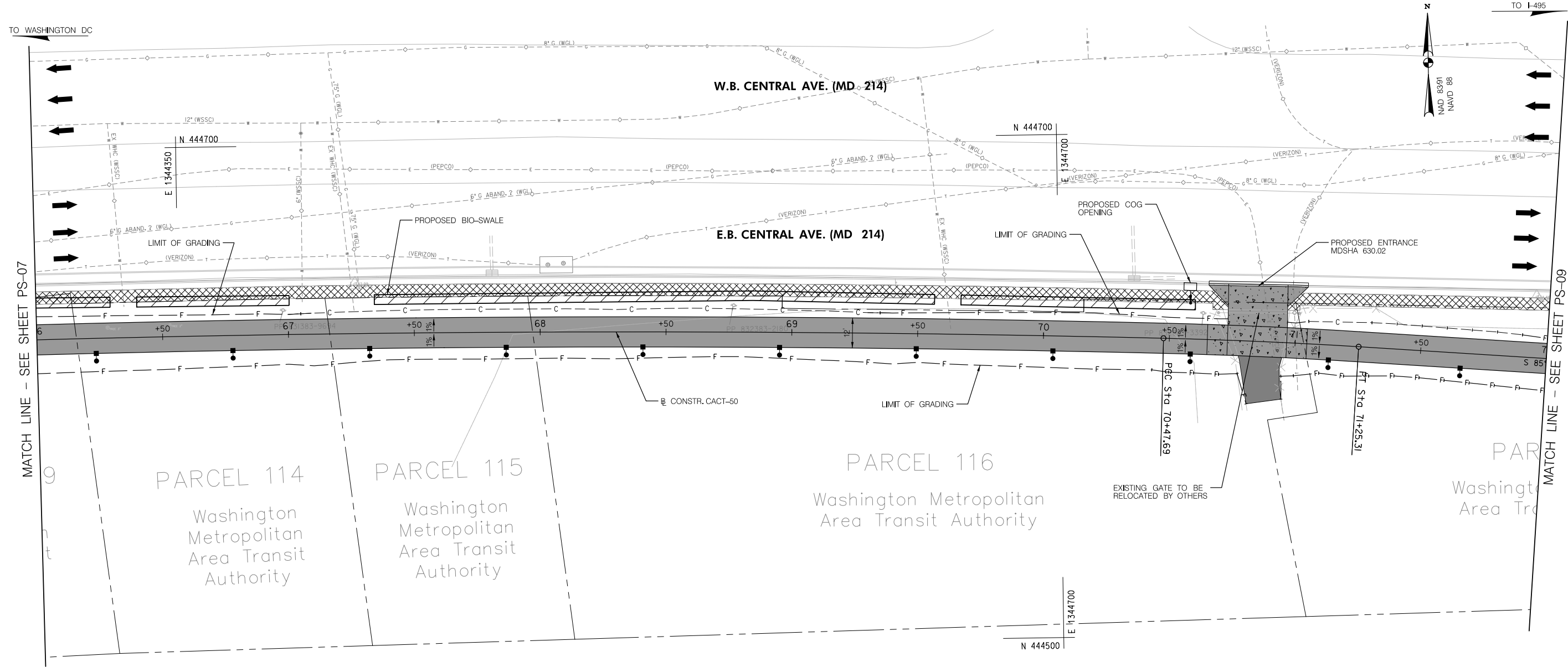
30% PLANS
AUGUST 2016

ROADWAY PLAN		
SCALE	1"=20'	DATE
DESIGNED BY	JCW/WRW	DATE
DRAWN BY	WRW	CONTRACT NO.
CHECKED BY	RJA/RJG	T.B.D.
F.A.P. NO.	T.B.D.	COUNTY
DRAWING NO.	PS07 OF 10	PRINCE GEORGE'S
SHEET NO.	13 OF 26	LOGMILE
		MD 214 0.680-1.640

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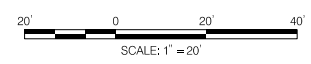
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LEGEND

	5 INCH CONCRETE SIDEWALK		PROPOSED LIGHT POLE AND LUMINAIRE
	CONCRETE DRIVEWAY		
	PERVIOUS ASPHALT TRAIL		
	IMPERVIOUS ASPHALT TRAIL		
	FULL DEPTH ASPHALT PAVING		
	SIDEWALK AND PAVEMENT REMOVAL (PAID FOR AS CLASS 1 EXCAVATION)		

CROSS REFERENCE	R / W PLAT NUMBER
ITEM	SHEET NOS.
TYPICAL SECTION SHEETS	3
PAVEMENT DETAILS	4
GEOMETRY SHEET	5-6
ROADWAY PLAN SHEETS	7-16
ROADWAY PROFILE SHEETS	17-26

30% PLANS
AUGUST 2016



THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1

ROADWAY PLAN

SCALE: 1"=20' DATE: AUGUST 2016 CONTRACT NO.: T.B.D.

DESIGNED BY: JCW/WRW COUNTY: PRINCE GEORGE'S
 DRAWN BY: WRW LOGMILE: MD 214 0.680-1.640
 CHECKED BY: RJA/RJG
 F.A.P. NO.: T.B.D.

DRAWING NO. PS08 OF 10 SHEET NO. 14 OF 26

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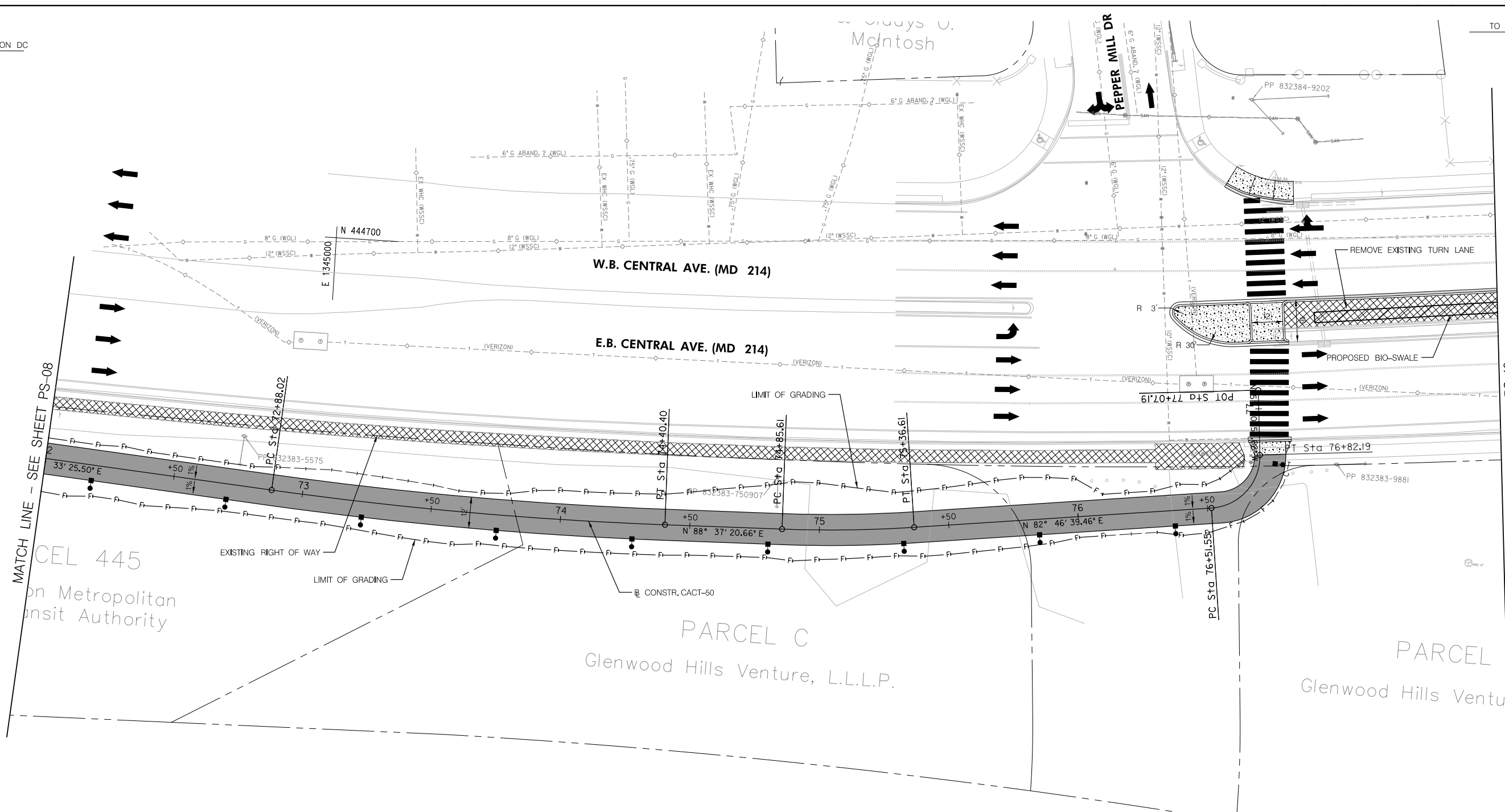
TO WASHINGTON DC

TO I-495



MATCH LINE - SEE SHEET PS-08

MATCH LINE - SEE SHEET PS-10



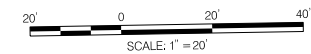
CEL 445
on Metropolitan
ansit Authority

PARCEL C
Glenwood Hills Venture, L.L.P.








PARCEL
Glenwood Hills Ventu

E 1345000
N 444450

E 1345250
N 444450



LEGEND

-  5 INCH CONCRETE SIDEWALK
-  CONCRETE DRIVEWAY
-  PERVIOUS ASPHALT TRAIL
-  IMPERVIOUS ASPHALT TRAIL
-  FULL DEPTH ASPHALT PAVING
-  SIDEWALK AND PAVEMENT REMOVAL (PAID FOR AS CLASS 1 EXCAVATION)
-  PROPOSED LIGHT POLE AND LUMINAIRE



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CROSS REFERENCE	R / W PLAT NUMBER
ITEM	SHEET NOs.
TYPICAL SECTION SHEETS	3
PAVEMENT DETAILS	4
GEOMETRY SHEET	5-6
ROADWAY PLAN SHEETS	7-16
ROADWAY PROFILE SHEETS	17-26

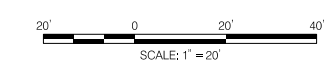
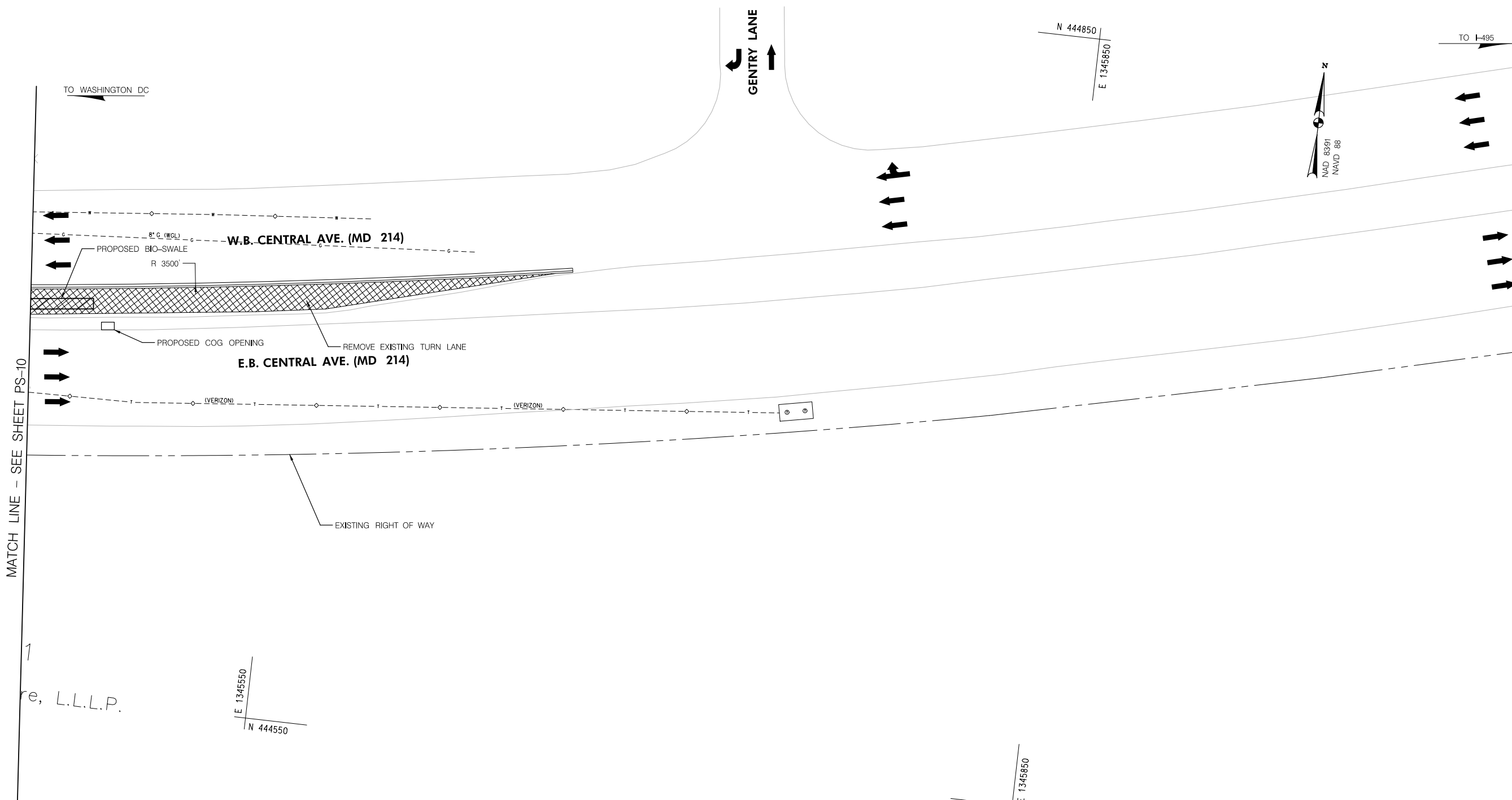
30% PLANS
AUGUST 2016

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MD 214 (CENTRAL AVENUE)
CONNECTOR TRAIL PHASE 1



ROADWAY PLAN		
SCALE 1"=20'	DATE AUGUST 2016	CONTRACT NO. T.B.D.
DESIGNED BY JCW/WRW	COUNTY PRINCE GEORGES	
DRAWN BY WRW	LOGMILE MD 214 0.680-1.640	
CHECKED BY RJA/RJG		
F.A.P. NO. T.B.D.		
DRAWING NO. PS09 OF 10	SHEET NO. 15 OF 26	

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- LEGEND**
- 5 INCH CONCRETE SIDEWALK
 - CONCRETE DRIVEWAY
 - PERVIOUS ASPHALT TRAIL
 - IMPERVIOUS ASPHALT TRAIL
 - FULL DEPTH ASPHALT PAVING
 - SIDEWALK AND PAVEMENT REMOVAL (PAID FOR AS CLASS 1 EXCAVATION)
 - PROPOSED LIGHT POLE AND LUMINAIRE

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1

ROADWAY PLAN					
SCALE	1"=20'	DATE	AUGUST 2016	CONTRACT NO.	T.B.D.
DESIGNED BY	JCW/WRW	COUNTY	PRINCE GEORGE'S		
DRAWN BY	WRW	LOGMILE	MD 214 0.680-1.640		
CHECKED BY	RJA/RJG				
F.A.P. NO.	T.B.D.				
DRAWING NO.	PS10 OF 10	SHEET NO.	16 OF 26		

CROSS REFERENCE	R / W PLAT NUMBER
ITEM	SHEET NOS.
TYPICAL SECTION SHEETS	3
PAVEMENT DETAILS	4
GEOMETRY SHEET	5-6
ROADWAY PLAN SHEETS	7-16
ROADWAY PROFILE SHEETS	17-26

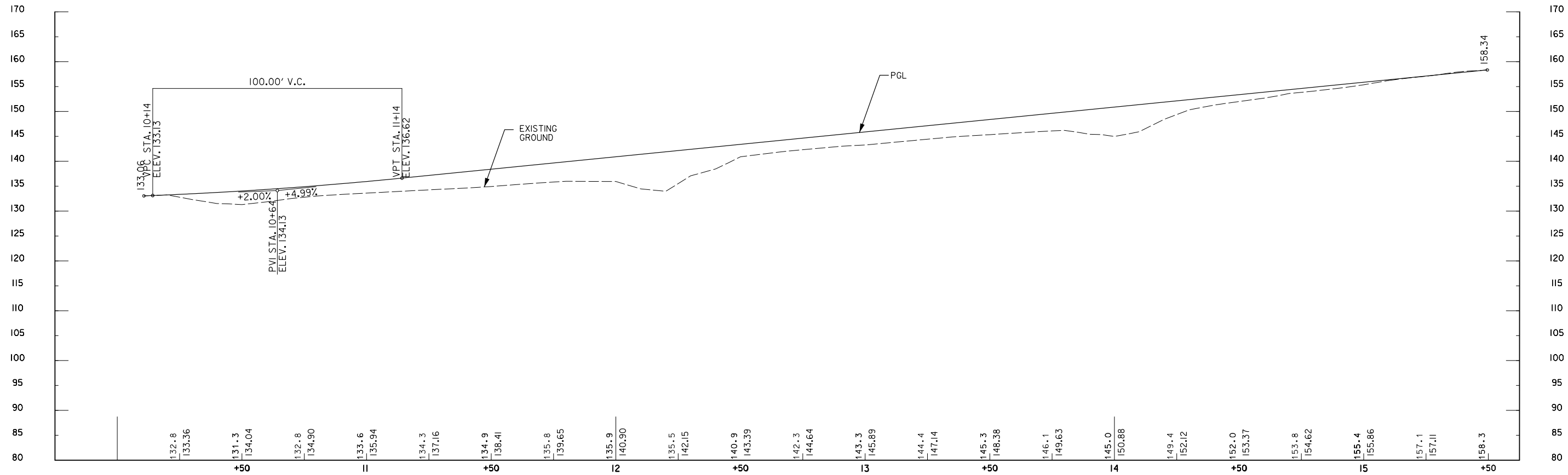
30% PLANS
AUGUST 2016

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CENTRAL AVE CONNECTOR TRAIL – STA. 10+10.67 TO 15+52.06
MD 332 TO CENTRAL AVE
 TRAIL PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 10'

THE MARYLAND-
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 AND PLANNING COMMISSION
**MD 214 (CENTRAL AVENUE)
 CONNECTOR TRAIL PHASE 1**



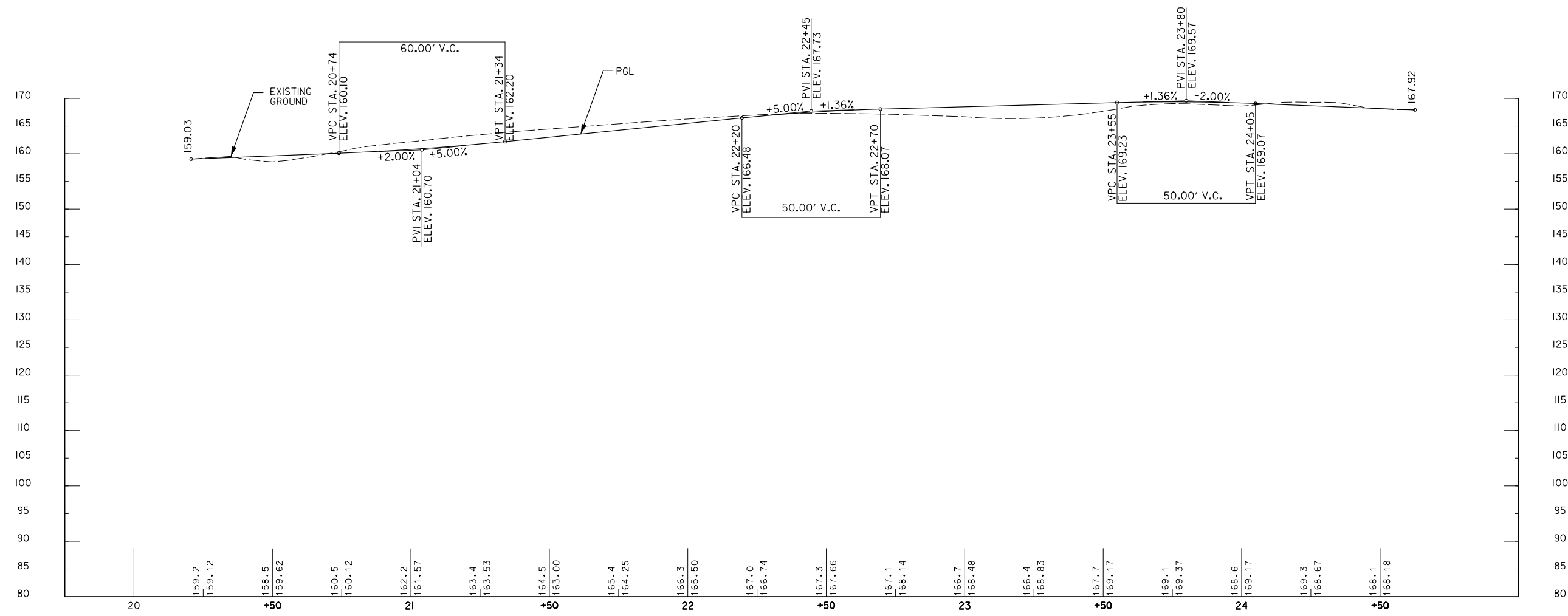
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CROSS REFERENCE		R /W PLAT NUMBER	TRAIL PROFILE	
ITEM	SHEET NOS.		SCALE AS SHOWN	DATE AUGUST 2016
TYPICAL SECTION SHEETS	3		DESIGNED BY	JCW/WRW
PAVEMENT DETAILS	4		COUNTY	PRINCE GEORGE'S
GEOMETRY SHEET	5-6		DRAWN BY	WRW
ROADWAY PLAN SHEETS	7-16		CHECKED BY	RJA/RJG
ROADWAY PROFILE SHEETS	17-26		F.A.P. NO.	T.B.D.
			LOGMILE MD 214 0.680-1.640 HORIZONTAL SCALE 1" = 20' VERTICAL SCALE 1" = 10' DRAWING NO. PR01 1 OF 10 SHEET NO. 17 OF 26	


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BY: wweismantel -



CENTRAL AVE CONNECTOR TRAIL – STA. 20+20.67 TO 24+62.64
CENTRAL AVE TO ADDISON ROAD
 TRAIL PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 10'

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1



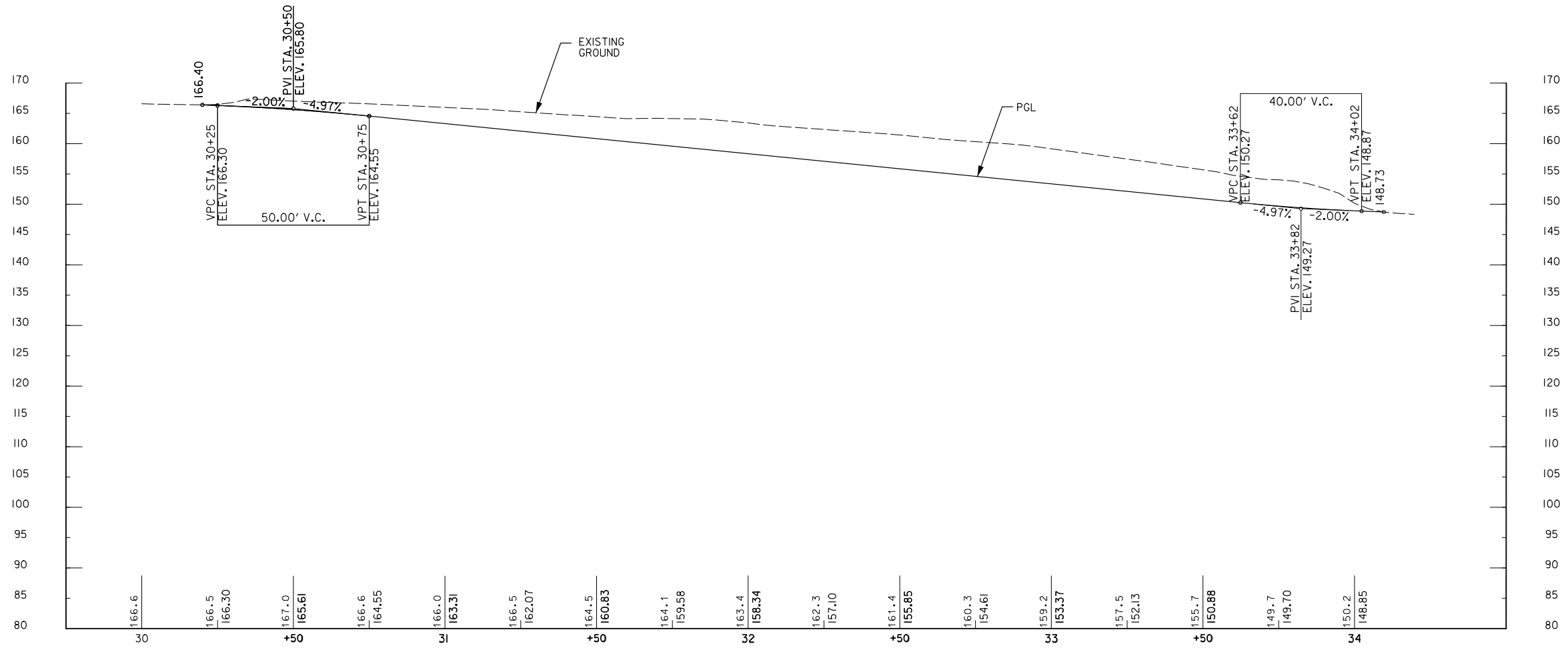
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- CONCRETE DRIVEWAY
 - PERVIOUS ASPHALT TRAIL
 - IMPERVIOUS ASPHALT TRAIL
 - FULL DEPTH ASPHALT PAVING
 - SIDEWALK AND PAVEMENT REMOVAL (PAID FOR AS CLASS 1 EXCAVATION)
- PROPOSED LIGHT POLE AND LUMINAIRE

CROSS REFERENCE	R / W PLAT NUMBER
ITEM SHEET NOS.	
TYPICAL SECTION SHEETS 3	
PAVEMENT DETAILS 4	
GEOMETRY SHEET 5-6	
ROADWAY PLAN SHEETS 7-16	
ROADWAY PROFILE SHEETS 17-26	

TRAIL PROFILE		
SCALE AS SHOWN	DATE AUGUST 2016	CONTRACT NO. T.B.D.
DESIGNED BY JCW/WRW	COUNTY PRINCE GEORGE'S	
DRAWN BY WRW	LOGMILE MD 214 0.680-1.640	
CHECKED BY RJA/RJG	HORIZONTAL SCALE 1" = 20'	
F.A.P. NO. T.B.D.	VERTICAL SCALE 1" = 10'	
DRAWING NO. PR02	2 OF 10	SHEET NO. 18 OF 26

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CENTRAL AVE CONNECTOR TRAIL – STA. 30+00 TO 34+09.64
ADDISON ROAD TO ADDISON ROAD METRO STATION

TRAIL PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 10'

THE MARYLAND-
 NATIONAL CAPITAL PARK
 AND PLANNING COMMISSION
MD 214 (CENTRAL AVENUE)
 CONNECTOR TRAIL PHASE 1



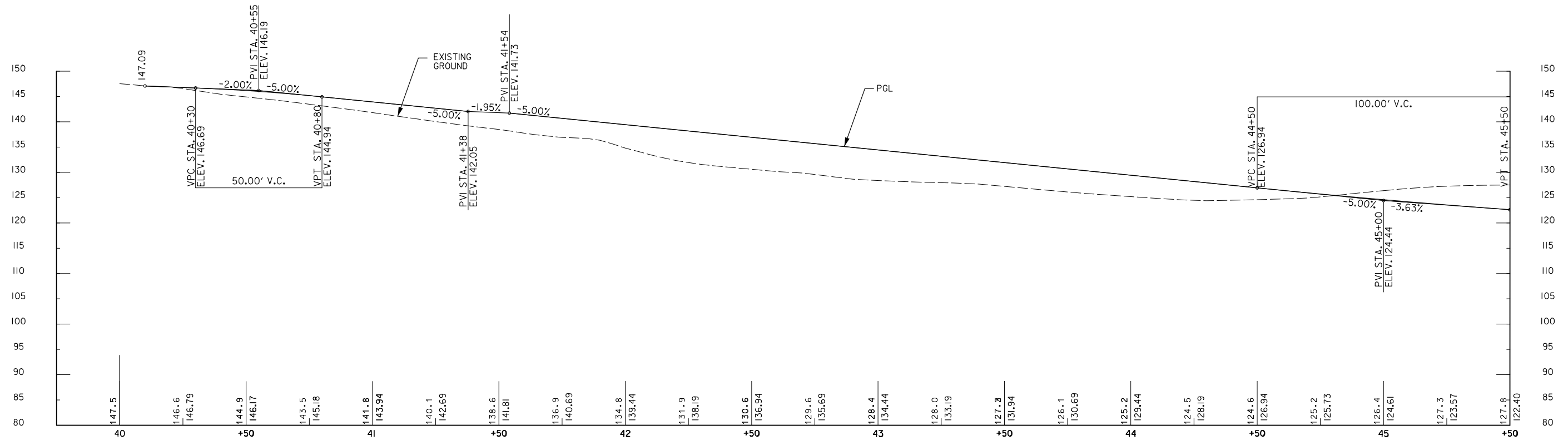

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CROSS REFERENCE	R / W PLAT NUMBER
ITEM SHEET NOs.	
TYPICAL SECTION SHEETS 3	
PAVEMENT DETAILS 4	
GEOMETRY SHEET 5-6	
ROADWAY PLAN SHEETS 7-16	
ROADWAY PROFILE SHEETS 17-26	

30% PLANS
AUGUST 2016


TRAIL PROFILE	
SCALE AS SHOWN	DATE AUGUST 2016 CONTRACT NO. T.B.D.
DESIGNED BY JCW/WRW	COUNTY PRINCE GEORGE'S
DRAWN BY WRW	LOGMILE MD 214 0.680- 1.640
CHECKED BY RJA/RJG	HORIZONTAL SCALE 1" = 20'
F.A.P. NO. T.B.D.	VERTICAL SCALE 1" = 10'
DRAWING NO. PR03	3 OF 10 SHEET NO. 19 OF 26

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CENTRAL AVE CONNECTOR TRAIL – STA. 40+10.88 TO 45+50
ADDISON ROAD METRO STATION TO CABIN BRANCH ROAD
 TRAIL PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 10'

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 AND PLANNING COMMISSION
**MD 214 (CENTRAL AVENUE)
 CONNECTOR TRAIL PHASE 1**

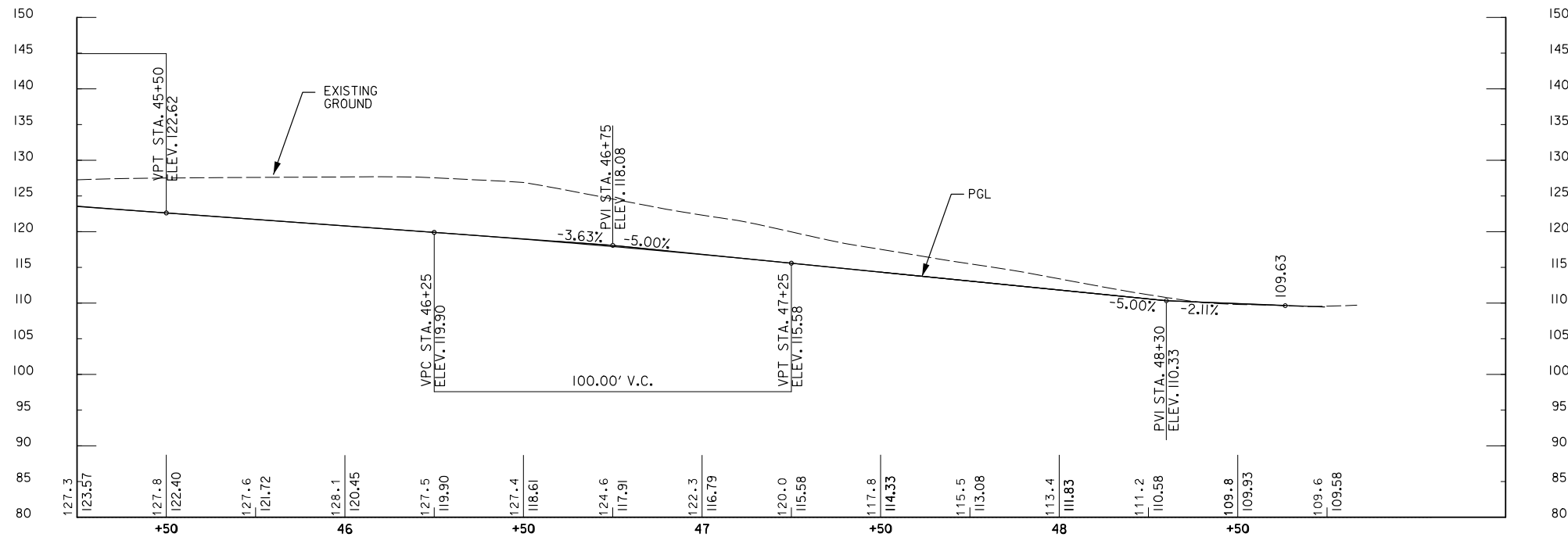


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CROSS REFERENCE	R / W PLAT NUMBER
ITEM SHEET NOS.	
TYPICAL SECTION SHEETS 3	
PAVEMENT DETAILS 4	
GEOMETRY SHEET 5-6	
ROADWAY PLAN SHEETS 7-16	
ROADWAY PROFILE SHEETS 17-26	

TRAIL PROFILE		
SCALE AS SHOWN	DATE AUGUST 2016	CONTRACT NO. T.B.D.
DESIGNED BY JCW/WRW	COUNTY PRINCE GEORGE'S	
DRAWN BY WRW	LOGMILE MD 214 0.680- 1.640	
CHECKED BY RJA/RJG	HORIZONTAL SCALE 1" = 20'	
F.A.P. NO. T.B.D.	VERTICAL SCALE 1" = 10'	
DRAWING NO. PR04	4 OF 10	SHEET NO. 20 OF 26

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CENTRAL AVE CONNECTOR TRAIL – STA. 45+50 TO 48+65.72
ADDISON ROAD METRO STATION TO CABIN BRANCH ROAD
 TRAIL PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 10'

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MD 214 (CENTRAL AVENUE)
 CONNECTOR TRAIL PHASE 1



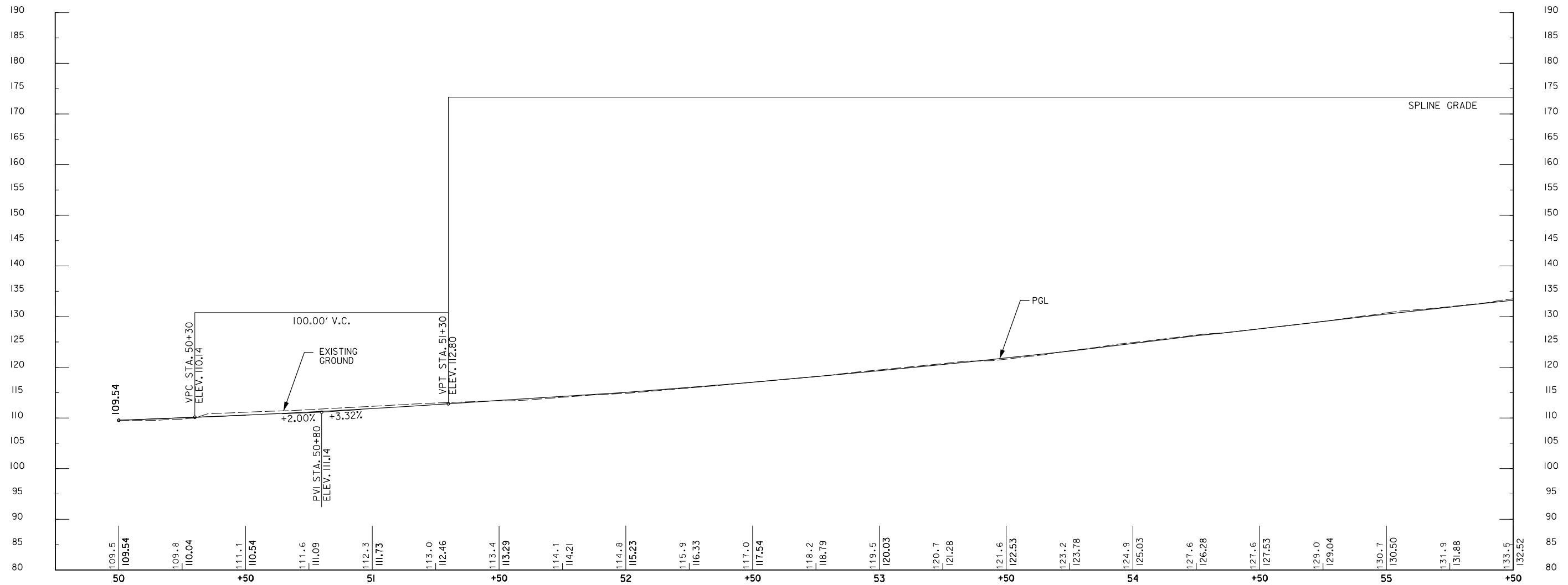
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CROSS REFERENCE		R / W PLAT NUMBER	TRAIL PROFILE	
ITEM	SHEET NOS.		SCALE AS SHOWN	DATE AUGUST 2016 CONTRACT NO. T.B.D.
TYPICAL SECTION SHEETS	3		DESIGNED BY JCW/WRW	COUNTY PRINCE GEORGE'S
PAVEMENT DETAILS	4		DRAWN BY WRW	LOGMILE MD 214 0.680-1.640
GEOMETRY SHEET	5-6		CHECKED BY RJA/RJG	HORIZONTAL SCALE 1" = 20'
ROADWAY PLAN SHEETS	7-16		F.A.P. NO. T.B.D.	VERTICAL SCALE 1" = 10'
ROADWAY PROFILE SHEETS	17-26			
			30% PLANS AUGUST 2016	
			DRAWING NO. PR05	5 OF 10 SHEET NO. 21 OF 26

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BY: wwaismantel -



CENTRAL AVE CONNECTOR TRAIL – STA. 50+20 TO 55+50
CABIN BRANCH ROAD TO PEPPER MILL DRIVE
 TRAIL PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 10'

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**MD 214 (CENTRAL AVENUE)
 CONNECTOR TRAIL PHASE 1**

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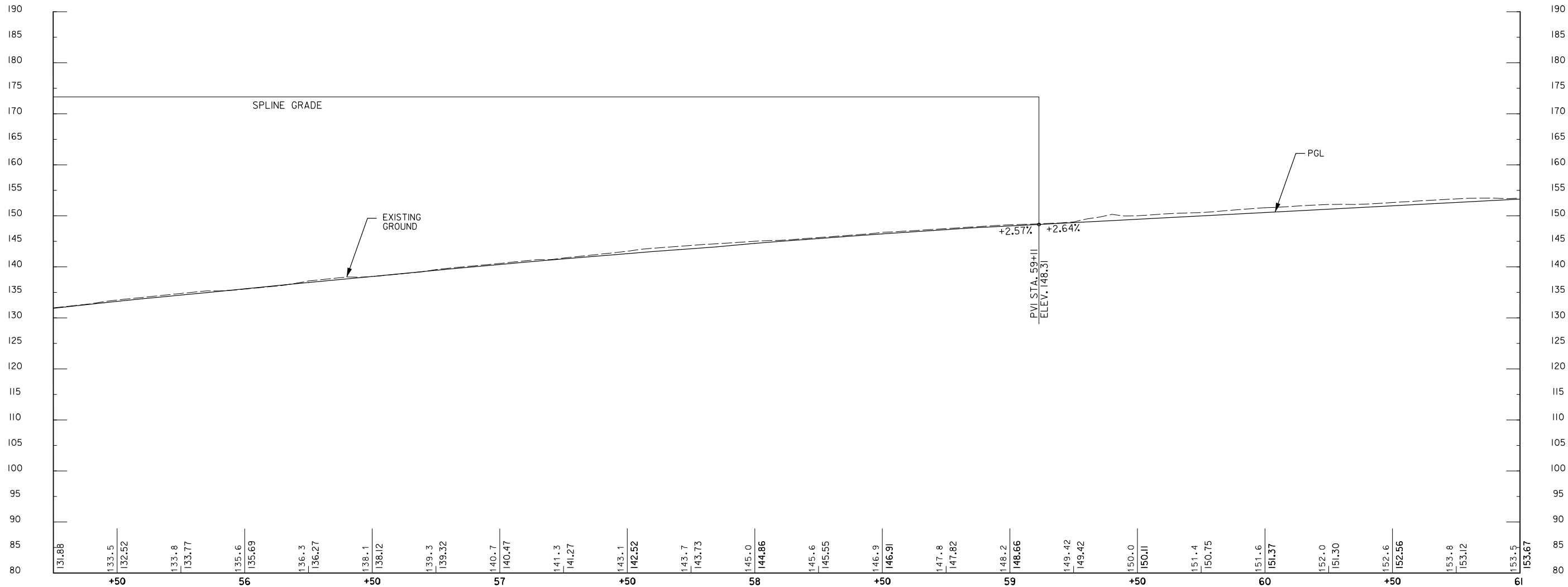
CROSS REFERENCE	R / W PLAT NUMBER
ITEM	SHEET NOs.
TYPICAL SECTION SHEETS	3
PAVEMENT DETAILS	4
GEOMETRY SHEET	5-6
ROADWAY PLAN SHEETS	7-16
ROADWAY PROFILE SHEETS	17-26

30% PLANS
AUGUST 2016

TRAIL PROFILE		
SCALE AS SHOWN	DATE AUGUST 2016	CONTRACT NO. T.B.D.
DESIGNED BY JCW/WRW	COUNTY PRINCE GEORGE'S	
DRAWN BY WRW	LOGMILE MD 214 0.680-1.640	
CHECKED BY RJA/RJG	HORIZONTAL SCALE 1" = 20'	
F.A.P. NO. T.B.D.	VERTICAL SCALE 1" = 10'	
DRAWING NO. PR06	6 OF 10	SHEET NO. 22 OF 26

BY: wwismantel -

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CENTRAL AVE CONNECTOR TRAIL – STA. 55+50 TO 61+00
CABIN BRANCH ROAD TO PEPPER MILL DRIVE
 TRAIL PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 10'

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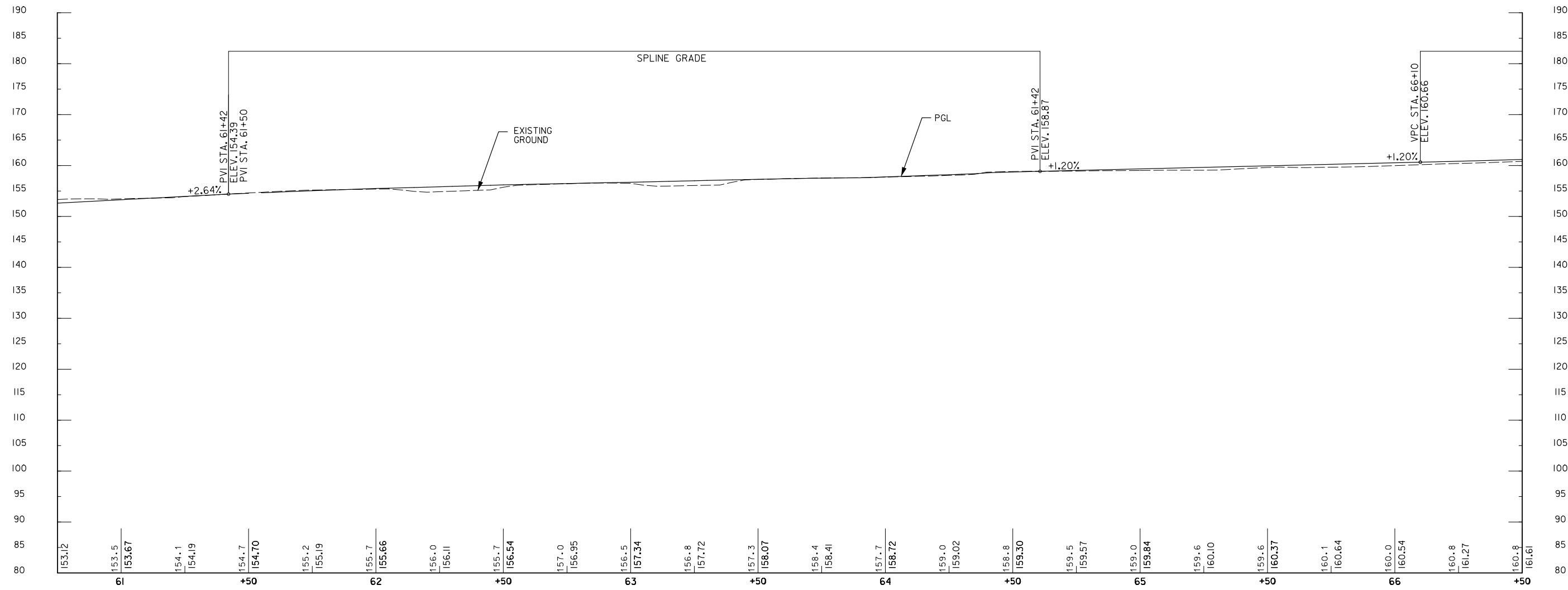
CROSS REFERENCE	R / W PLAT NUMBER
ITEM SHEET NOS.	
TYPICAL SECTION SHEETS 3	
PAVEMENT DETAILS 4	
GEOMETRY SHEET 5-6	
ROADWAY PLAN SHEETS 7-16	
ROADWAY PROFILE SHEETS 17-26	

30% PLANS
AUGUST 2016

TRAIL PROFILE		
SCALE AS SHOWN	DATE AUGUST 2016	CONTRACT NO. T.B.D.
DESIGNED BY JCW/WRW	COUNTY PRINCE GEORGE'S	
DRAWN BY WRW	LOGMILE MD 214 0.680-1.640	
CHECKED BY RJAR/JG	HORIZONTAL SCALE 1" = 20'	
F.A.P. NO. T.B.D.	VERTICAL SCALE 1" = 10'	
DRAWING NO. PR07	7 OF 10	SHEET NO. 23 OF 26

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BY: wwaismantel -



CENTRAL AVE CONNECTOR TRAIL – STA. 61+00 TO 66+50
CABIN BRANCH ROAD TO PEPPER MILL DRIVE
 TRAIL PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 10'

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1

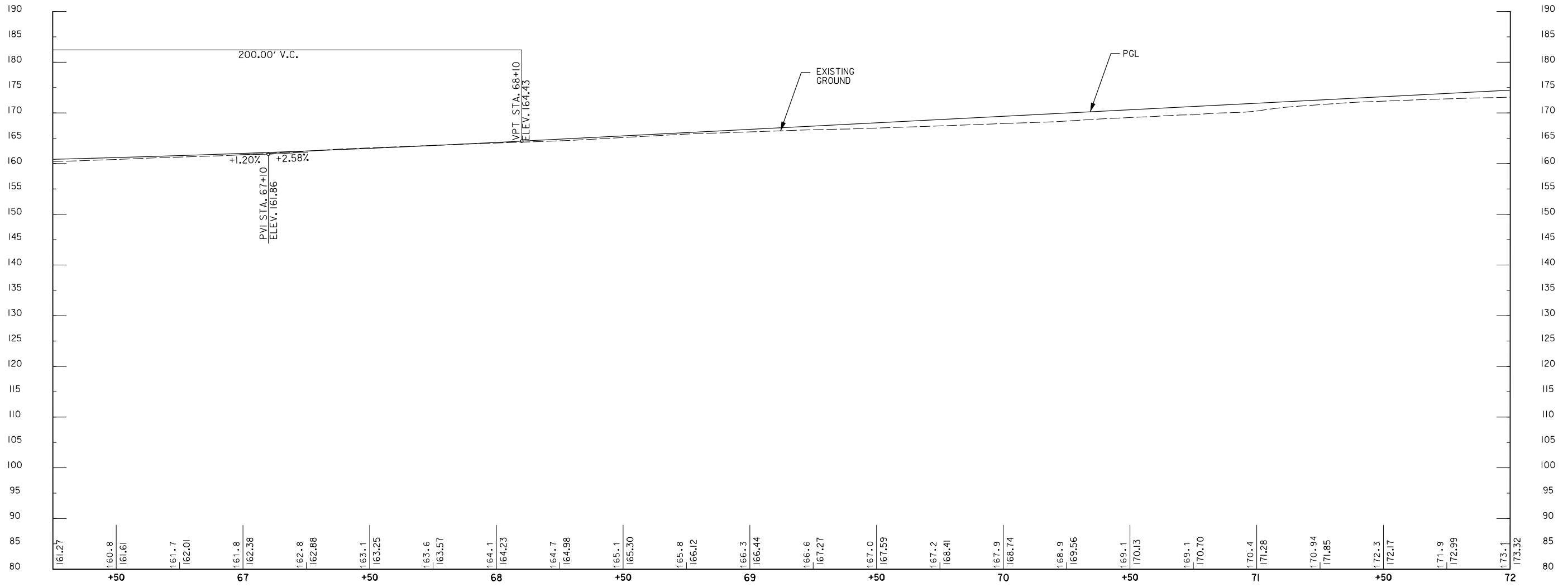
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CROSS REFERENCE	R / W PLAT NUMBER
ITEM SHEET NOS.	
TYPICAL SECTION SHEETS 3	
PAVEMENT DETAILS 4	
GEOMETRY SHEET 5-6	
ROADWAY PLAN SHEETS 7-16	
ROADWAY PROFILE SHEETS 17-26	

30% PLANS
AUGUST 2016


TRAIL PROFILE		
SCALE AS SHOWN	DATE AUGUST 2016	CONTRACT NO. T.B.D.
DESIGNED BY JCW/WRW	COUNTY PRINCE GEORGE'S	
DRAWN BY WRW	LOGMILE MD 214 0.680-1.640	
CHECKED BY RJA/RJG	HORIZONTAL SCALE 1" = 20'	
F.A.P. NO. T.B.D.	VERTICAL SCALE 1" = 10'	
DRAWING NO. PR08	8 OF 10	SHEET NO. 24 OF 26

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CENTRAL AVE CONNECTOR TRAIL – STA. 66+50 TO 72+00
CABIN BRANCH ROAD TO PEPPER MILL DRIVE
 TRAIL PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 10'

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MD 214 (CENTRAL AVENUE)
 CONNECTOR TRAIL PHASE 1



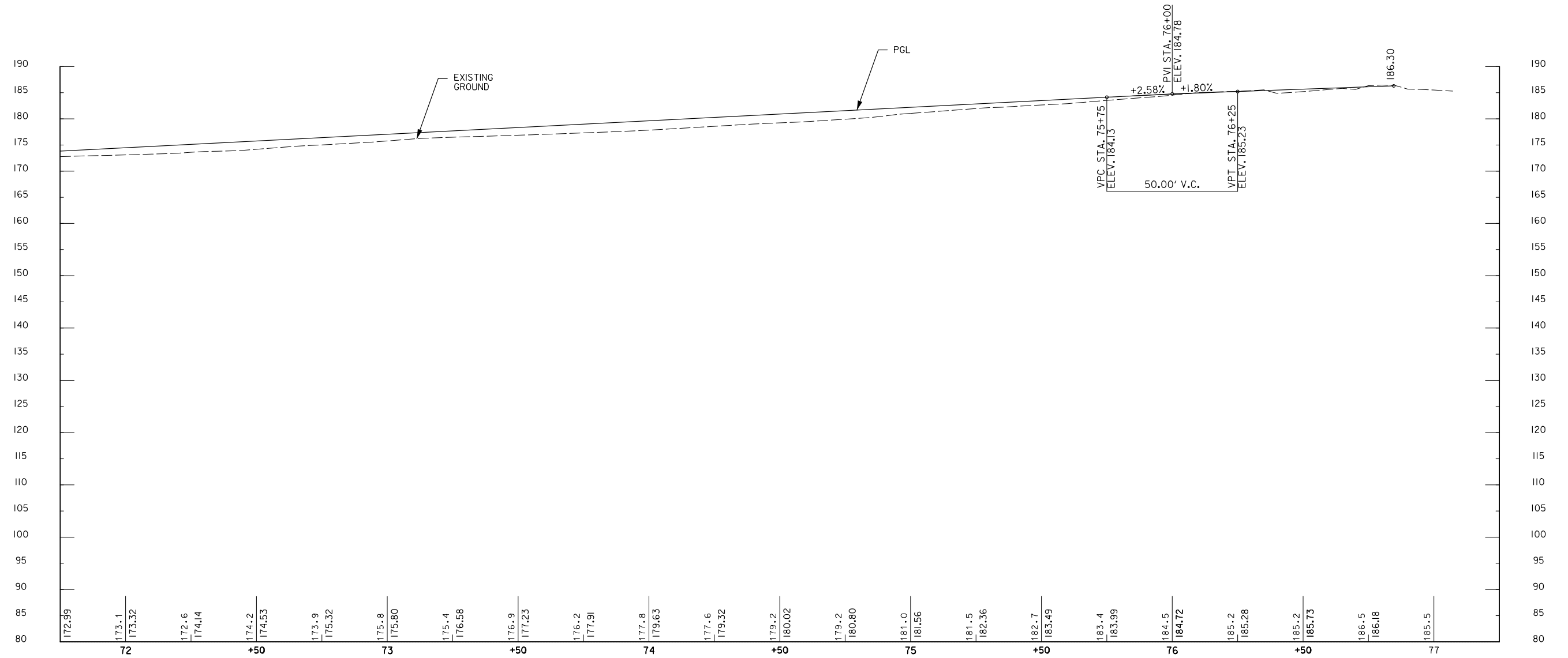
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CROSS REFERENCE	R / W PLAT NUMBER
ITEM SHEET NOS.	
TYPICAL SECTION SHEETS 3	
PAVEMENT DETAILS 4	
GEOMETRY SHEET 5-6	
ROADWAY PLAN SHEETS 7-16	
ROADWAY PROFILE SHEETS 17-26	

30% PLANS
AUGUST 2016

TRAIL PROFILE		
SCALE AS SHOWN	DATE AUGUST 2016	CONTRACT NO. T.B.D.
DESIGNED BY JCW/WRW	COUNTY PRINCE GEORGE'S	
DRAWN BY WRW	LOGMILE MD 214 0.680-1.640	
CHECKED BY RJA/RJG	HORIZONTAL SCALE 1" = 20'	
F.A.P. NO. T.B.D.	VERTICAL SCALE 1" = 10'	
DRAWING NO. PR09	9 OF 10	SHEET NO. 25 OF 26


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CENTRAL AVE CONNECTOR TRAIL – STA. 72+00 TO 76+84.65
CABIN BRANCH TRAIL TO PEPPER MILL DRIVE

TRAIL PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 10'

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CROSS REFERENCE	R / W PLAT NUMBER
ITEM SHEET NOS.	
TYPICAL SECTION SHEETS 3	
PAVEMENT DETAILS 4	
GEOMETRY SHEET 5-6	
ROADWAY PLAN SHEETS 7-16	
ROADWAY PROFILE SHEETS 17-26	

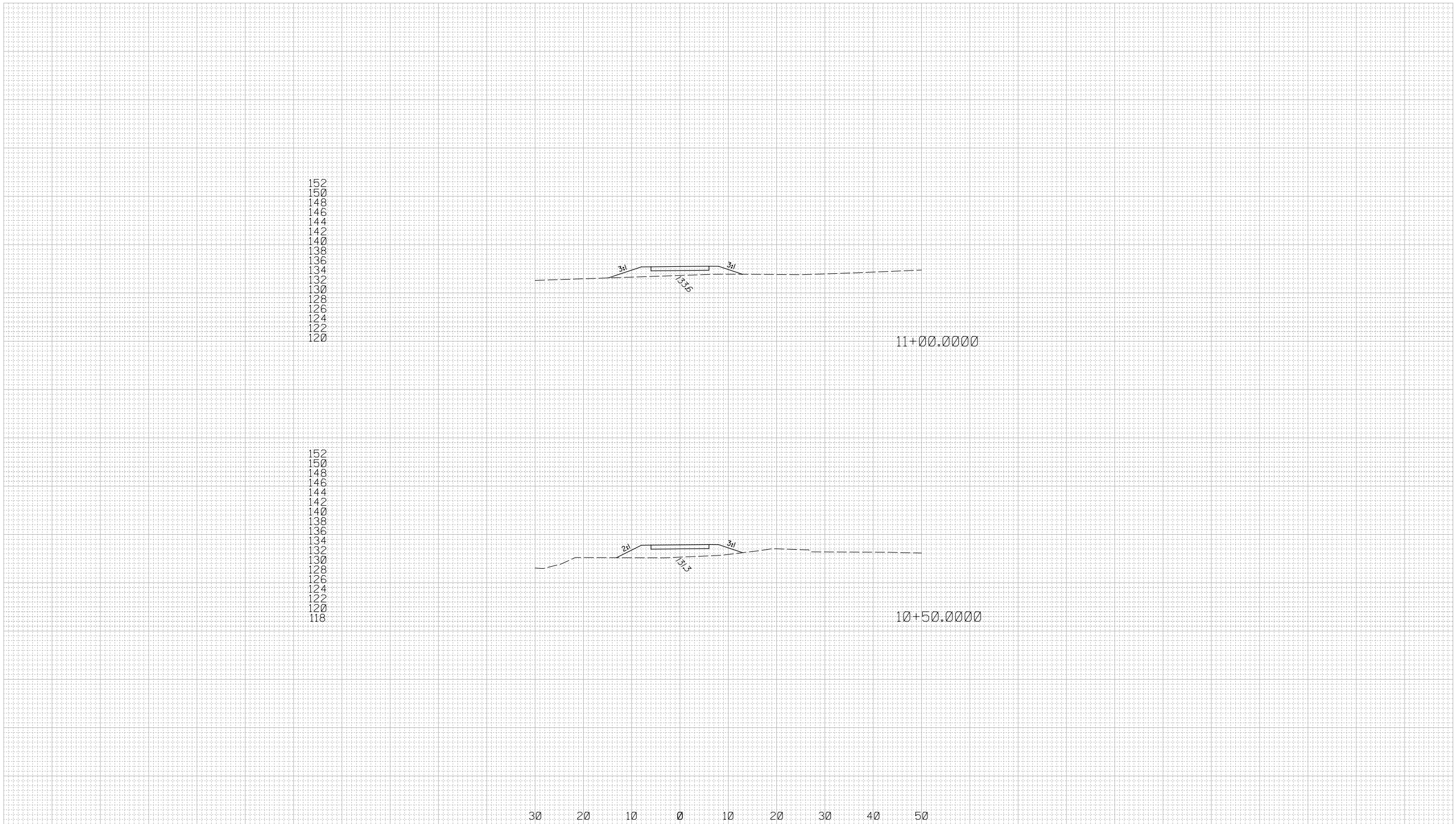
30% PLANS
AUGUST 2016

TRAIL PROFILE		
SCALE AS SHOWN	DATE AUGUST 2016	CONTRACT NO. T.B.D.
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DRAWN BY WRW	LOGMILE MD 214 0.680-1.640	
CHECKED BY RJA/RJG	HORIZONTAL SCALE 1" = 20'	
F.A.P. NO. T.B.D.	VERTICAL SCALE 1" = 10'	
DRAWING NO. PR10	10 OF 10	SHEET NO. 26 OF 26

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BY: wwelsmantel -


BY: wweismaniel



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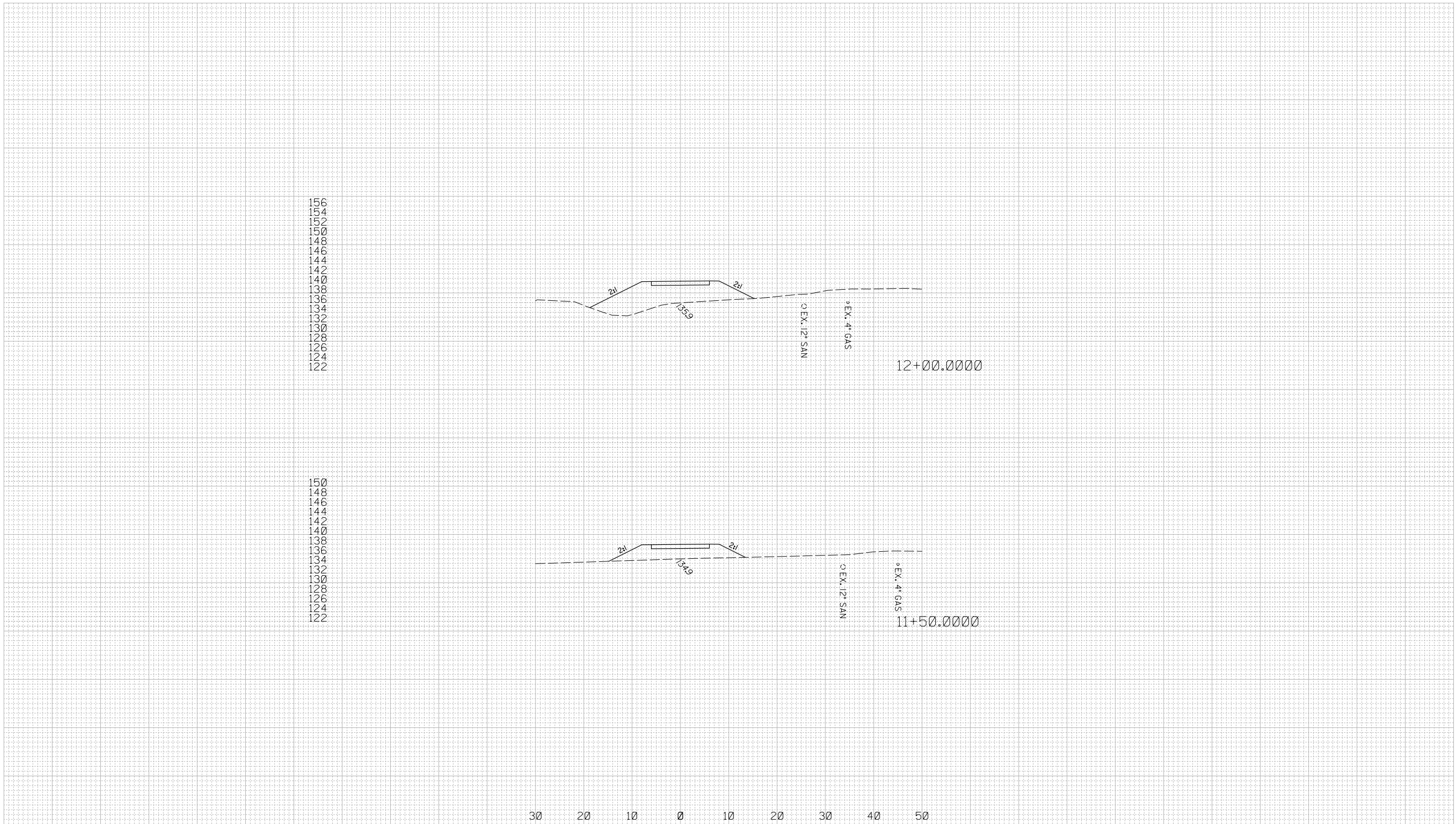
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ROADWAY CROSS SECTION SHEET		ROAD	CACT-10	STATION	10+50.00	TO STATION	15+00.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.	CS01	OF	40	SHEET NO.	1 OF 40		
<small> PLOTTED: Monday, July 18, 2016 AT 07:12 AM FILE: \\psd\work\0016016\016002_MWOC\Draw\CAADO\Geopak\pHC_0001_CentralAveConn.dgn </small>							



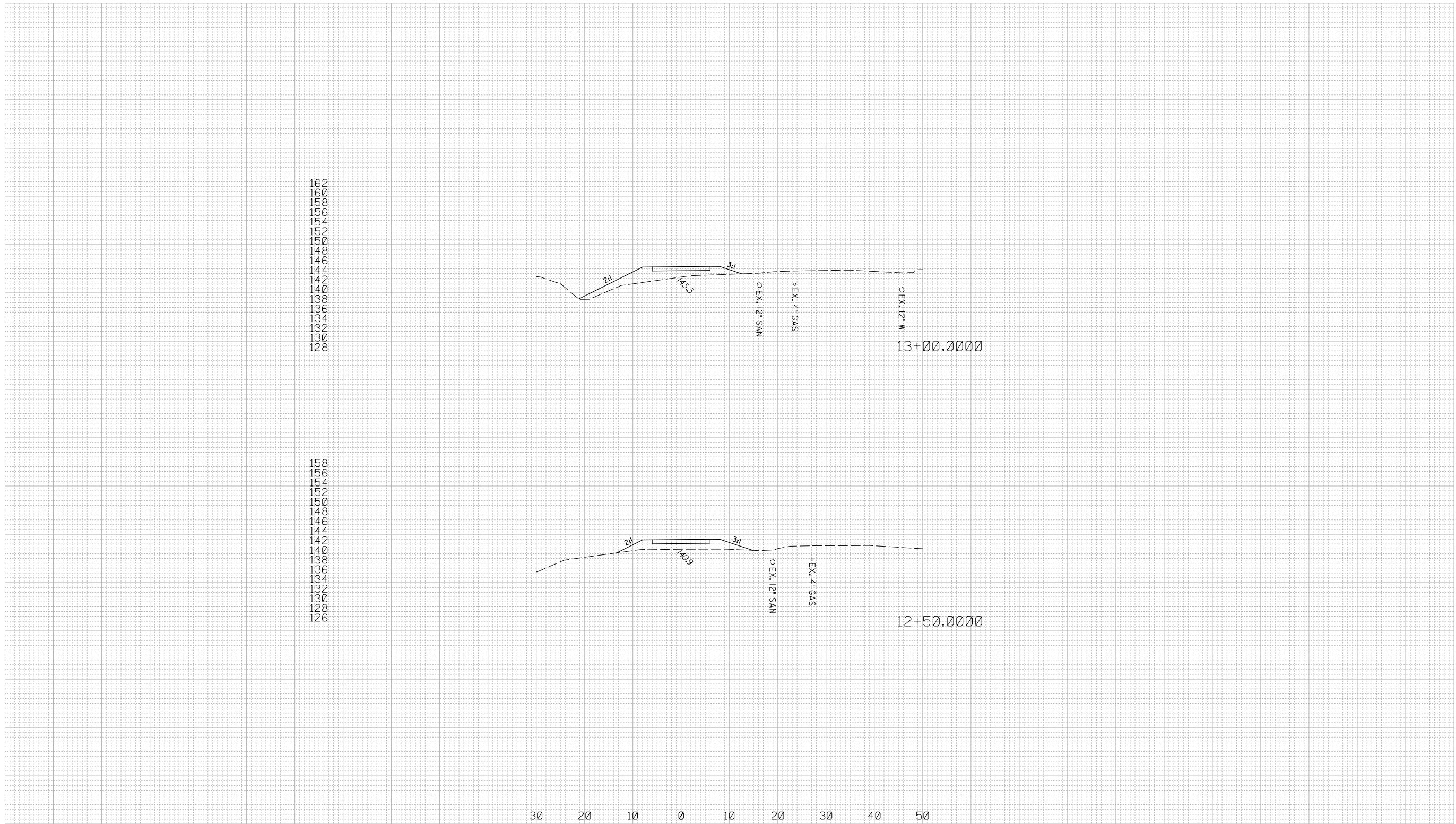
BY: wweisman1 -




ROADWAY CROSS SECTION SHEET		ROAD	STATION	TO STATION	
 <p>THE MARYLAND NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>		CACT-10	10+50.00	15+00.00	
		DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S
		DRAWN BY	WRW	CONTRACT NO.	T.B.D.
		CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'
		F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'
		DRAWING NO.	CS02	OF	40
				SHEET NO.	2 OF 40

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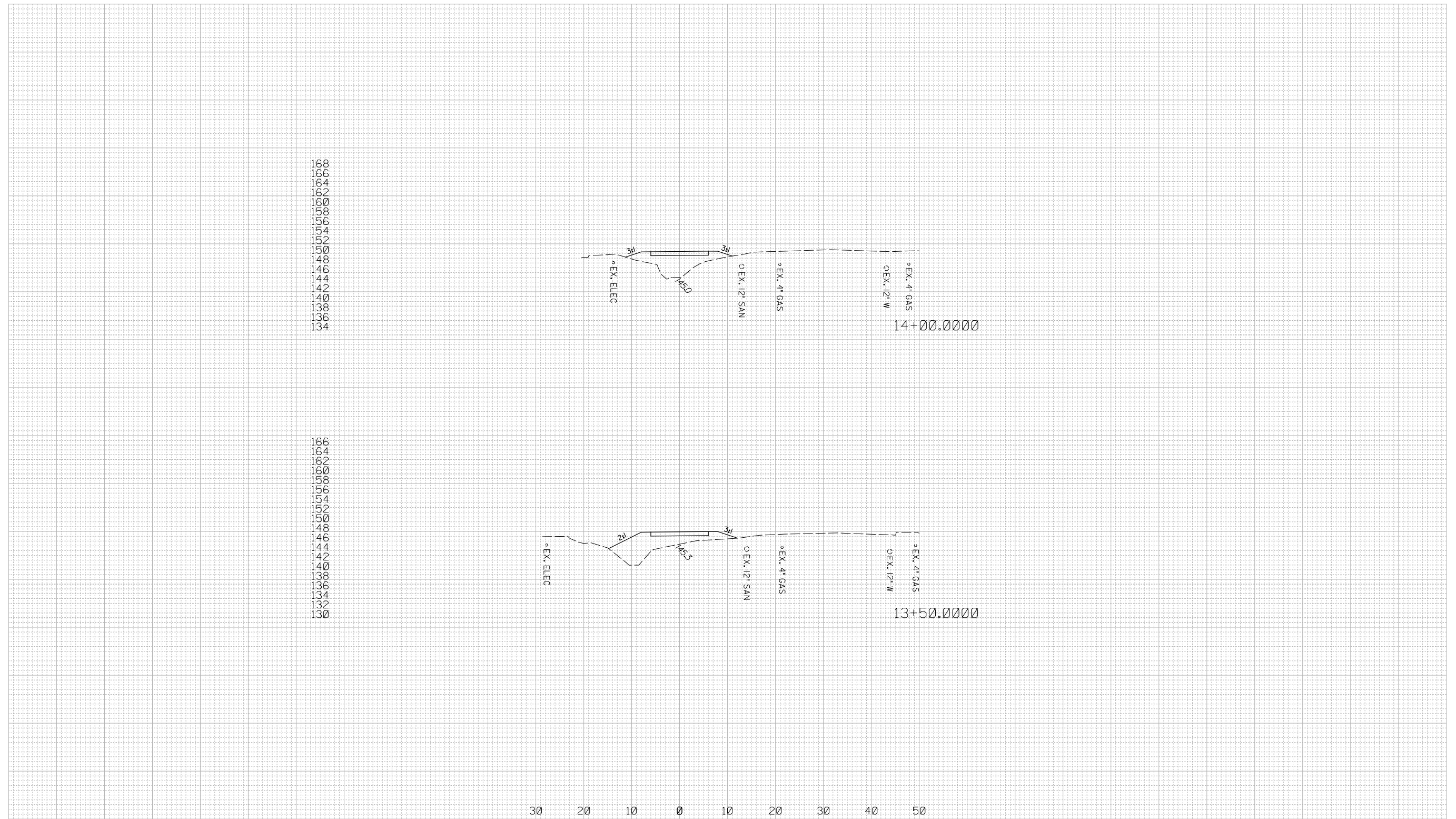
BY: wwaismaniel




ROADWAY CROSS SECTION SHEET		ROAD	CACT-10	STATION	10+50.00	TO STATION	15+00.00
 <p>THE MARYLAND-NATIONAL CAPITAL AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.	CS03	OF	40	SHEET NO.	3 OF 40		

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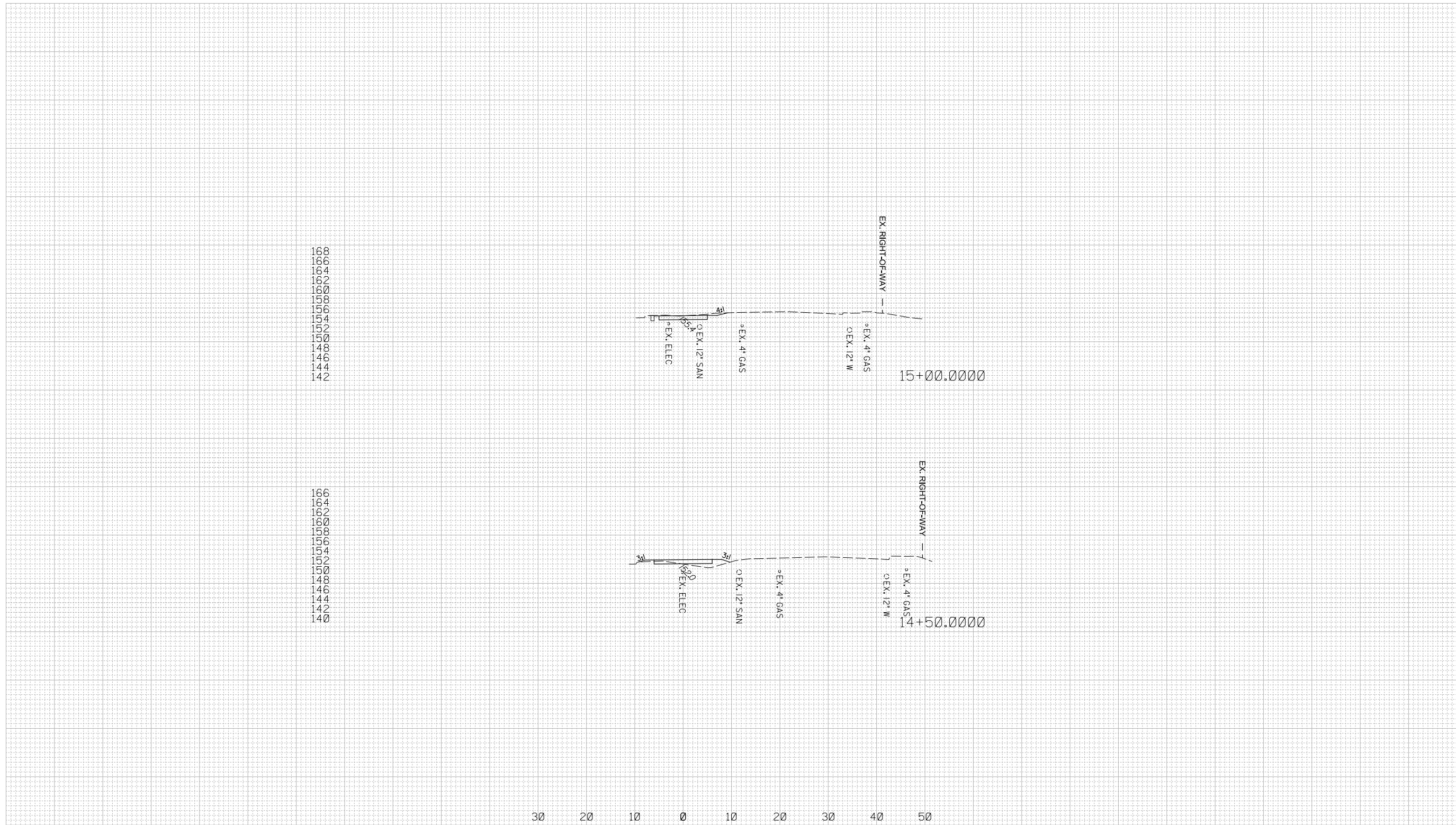
BY: wwaismantel-




ROADWAY CROSS SECTION SHEET		ROAD	CACT-10	STATION	10+50.00	TO STATION	15+00.00
 <p>THE MARYLAND- NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.	CS04	OF	40	SHEET NO.	4 OF 40		

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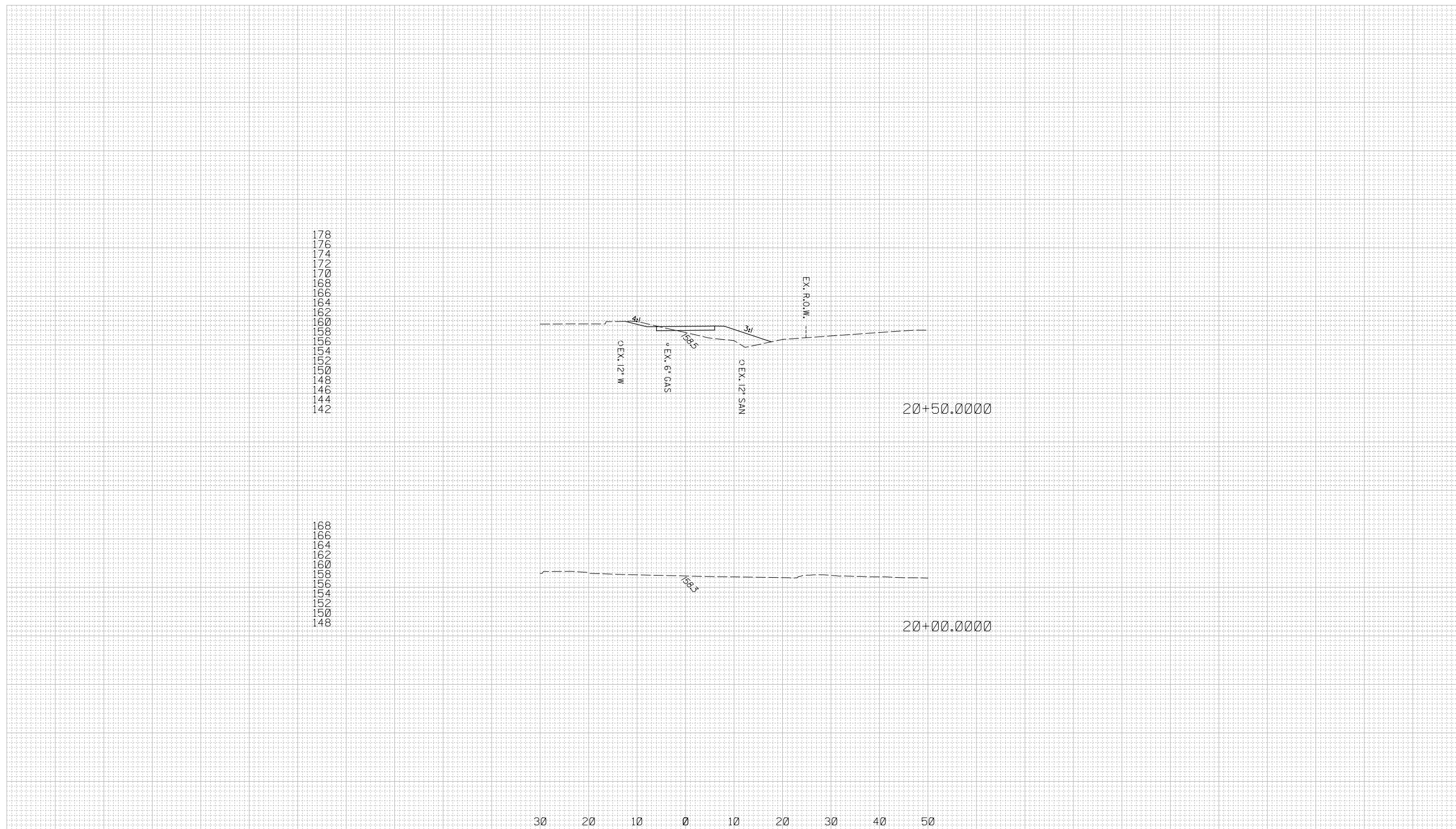
BY: wweisman1-el-




ROADWAY CROSS SECTION SHEET		ROAD	STATION	TO STATION	
		CACT-10	10+50.00	15+00.00	
 <p>THE MARYLAND- NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S	
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.	
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'	
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'	
DRAWING NO.	CS05	OF	40	SHEET NO.	5 OF 40

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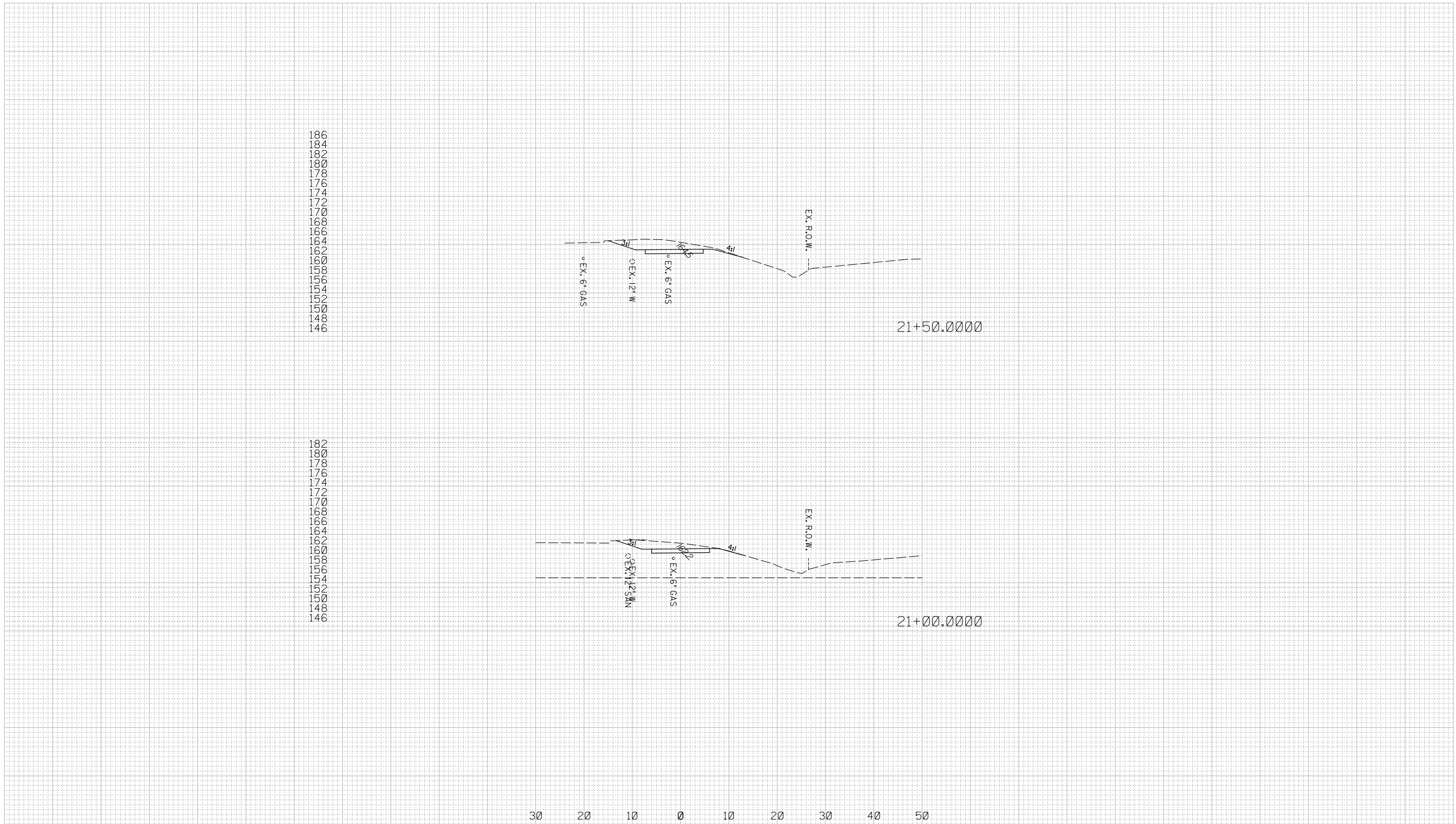
BY: wwismantel




ROADWAY CROSS SECTION SHEET		ROAD	CACT-20	STATION	20+00.00	TO STATION	24+50.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.	CS06	OF	40	SHEET NO.	6 OF 40		

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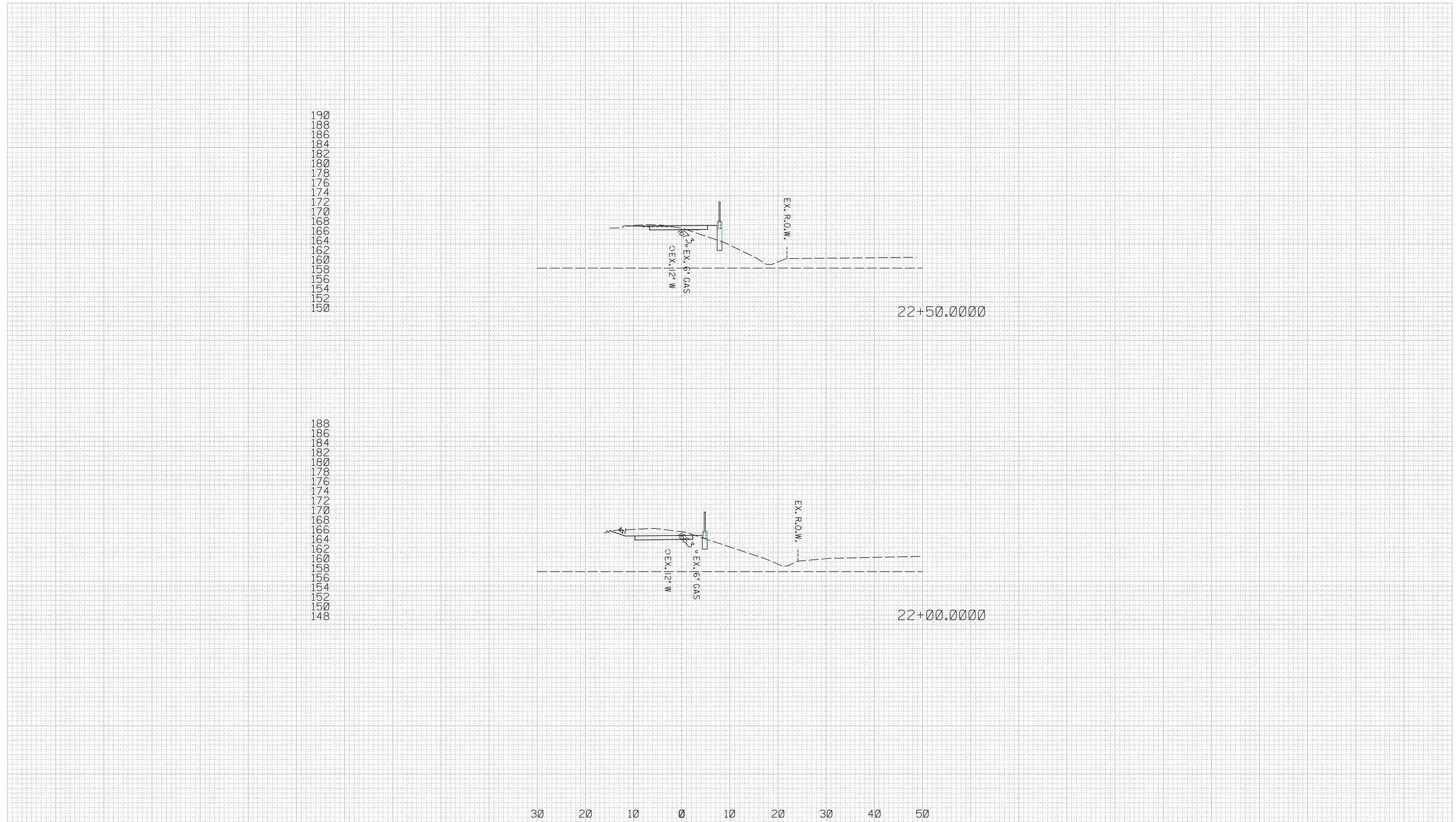
BY: wweismaniel-




ROADWAY CROSS SECTION SHEET		ROAD	CACT-20	STATION	20+00.00	TO STATION	24+50.00
 <p>THE MARYLAND- NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.		CS07		OF	40	SHEET NO. 7 OF 40	

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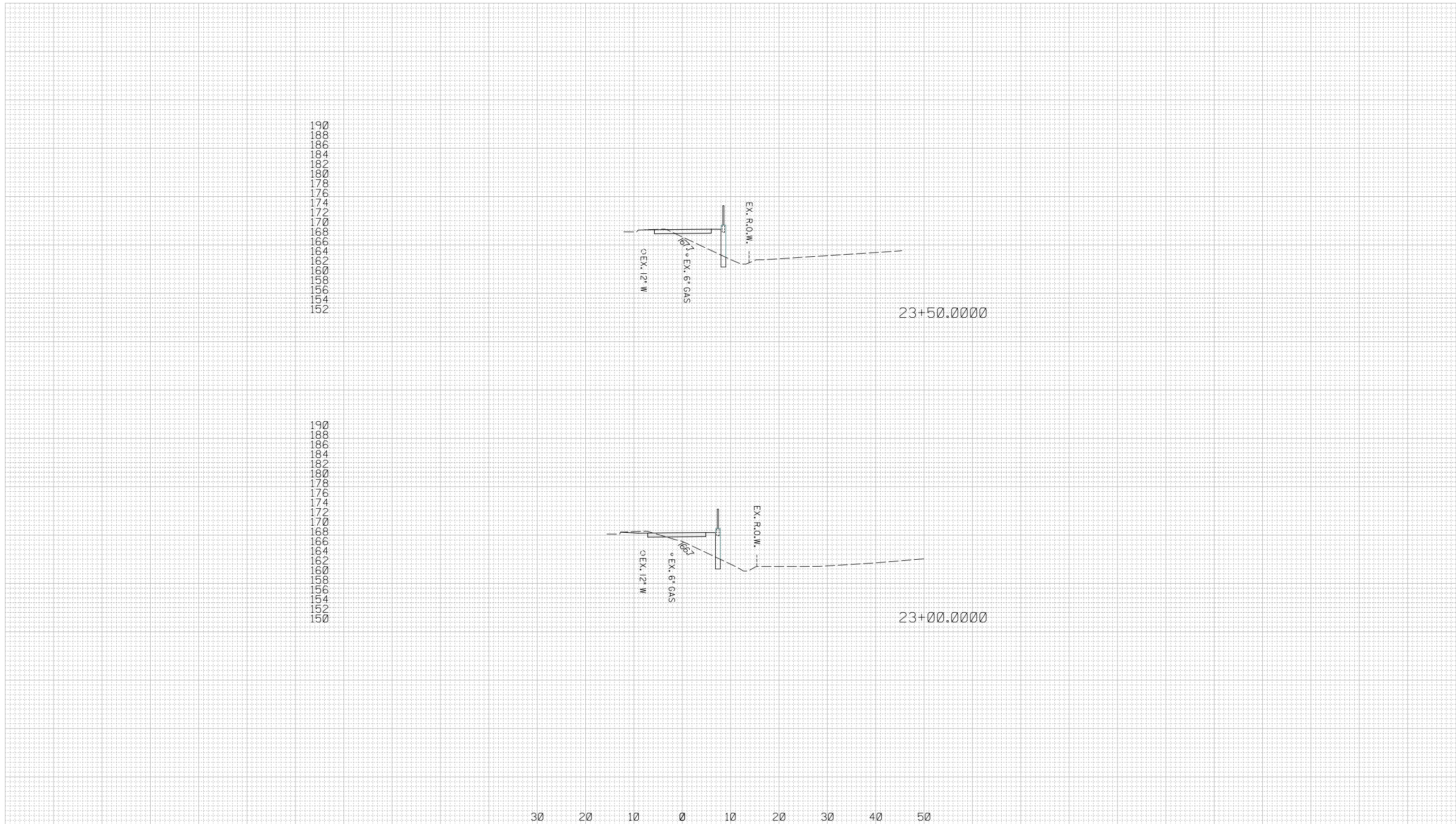
BY: wweisantel-




ROADWAY CROSS SECTION SHEET		ROAD	CACT-20	STATION	20+00.00	TO STATION	24+50.00
 <p>THE MARYLAND- NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.	CS08	OF	40	SHEET NO.	8 OF 40		

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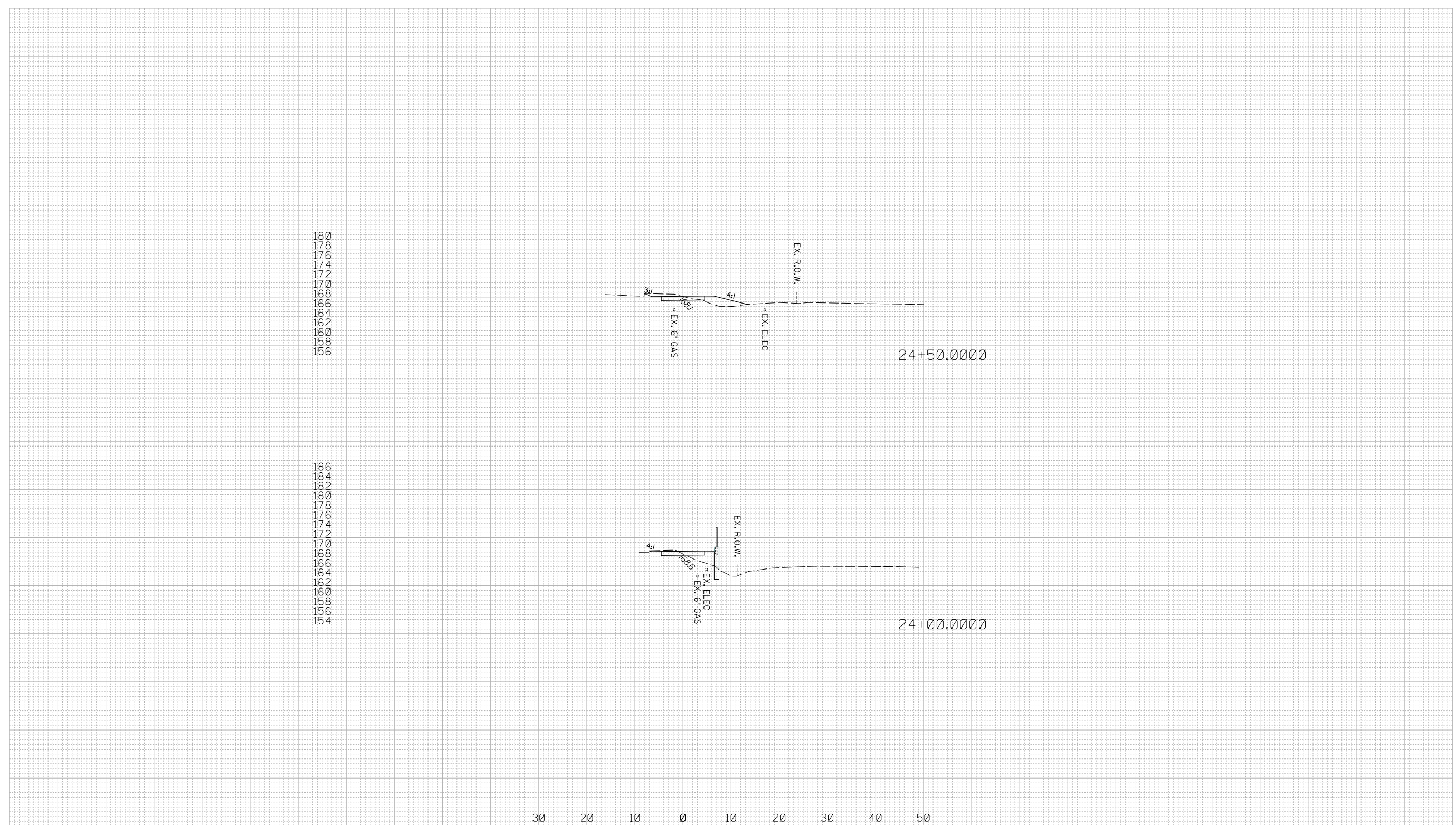
BY: wwismantel




ROADWAY CROSS SECTION SHEET		ROAD	STATION	TO STATION	
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>		CACT-20	20+00.00	24+50.00	
		DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S
		DRAWN BY	WRW	CONTRACT NO.	T.B.D.
		CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'
F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'		
DRAWING NO.	CS09	OF	40	SHEET NO. 9 OF 40	

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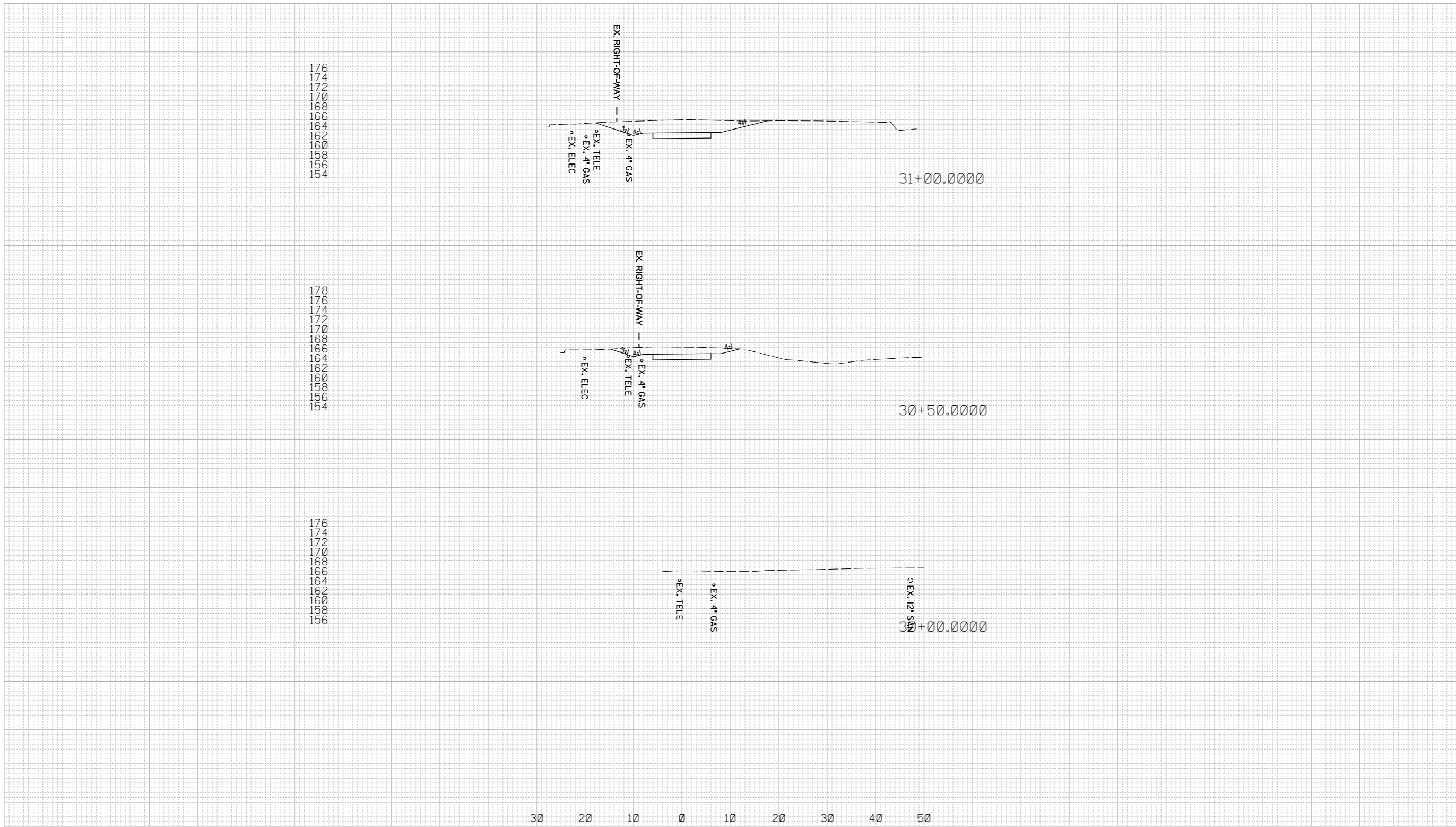
BY: wwismantel



ROADWAY CROSS SECTION SHEET		ROAD	CACT-20	STATION	20+00.00	TO STATION	24+50.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.	CS10	OF	40	SHEET NO.	10	OF	40

PLOTTED: Monday, July 18, 2016 AT 07:10 AM
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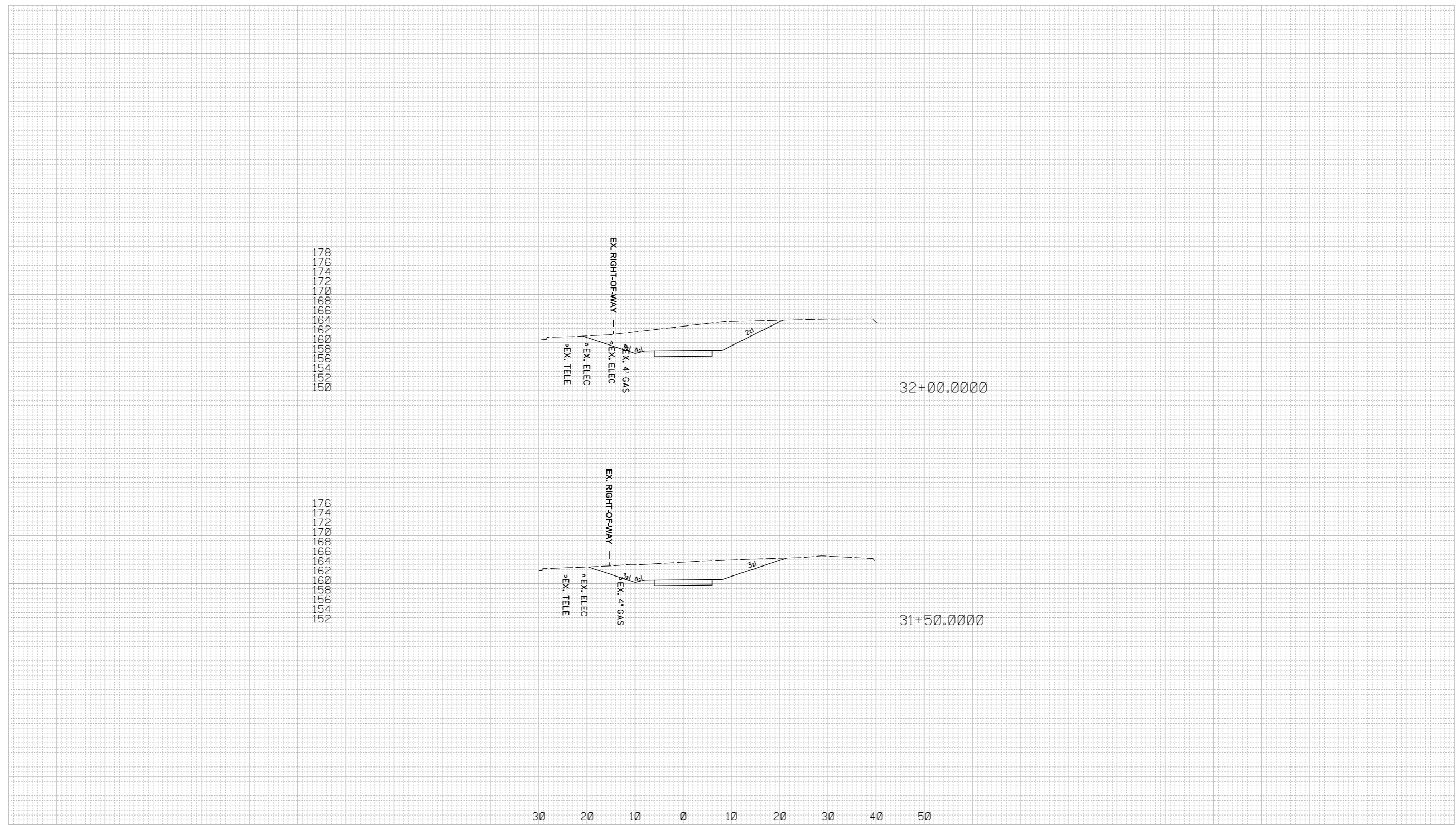
BY: wweisman1-




ROADWAY CROSS SECTION SHEET		ROAD	STATION	TO STATION
		CACT-30	30+00.00	34+00.00
DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S	
DRAWN BY	WRW	CONTRACT NO.	T.B.D.	
CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'	
F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'	
DRAWING NO.	CS 11	OF	40	SHEET NO. 11 OF 40

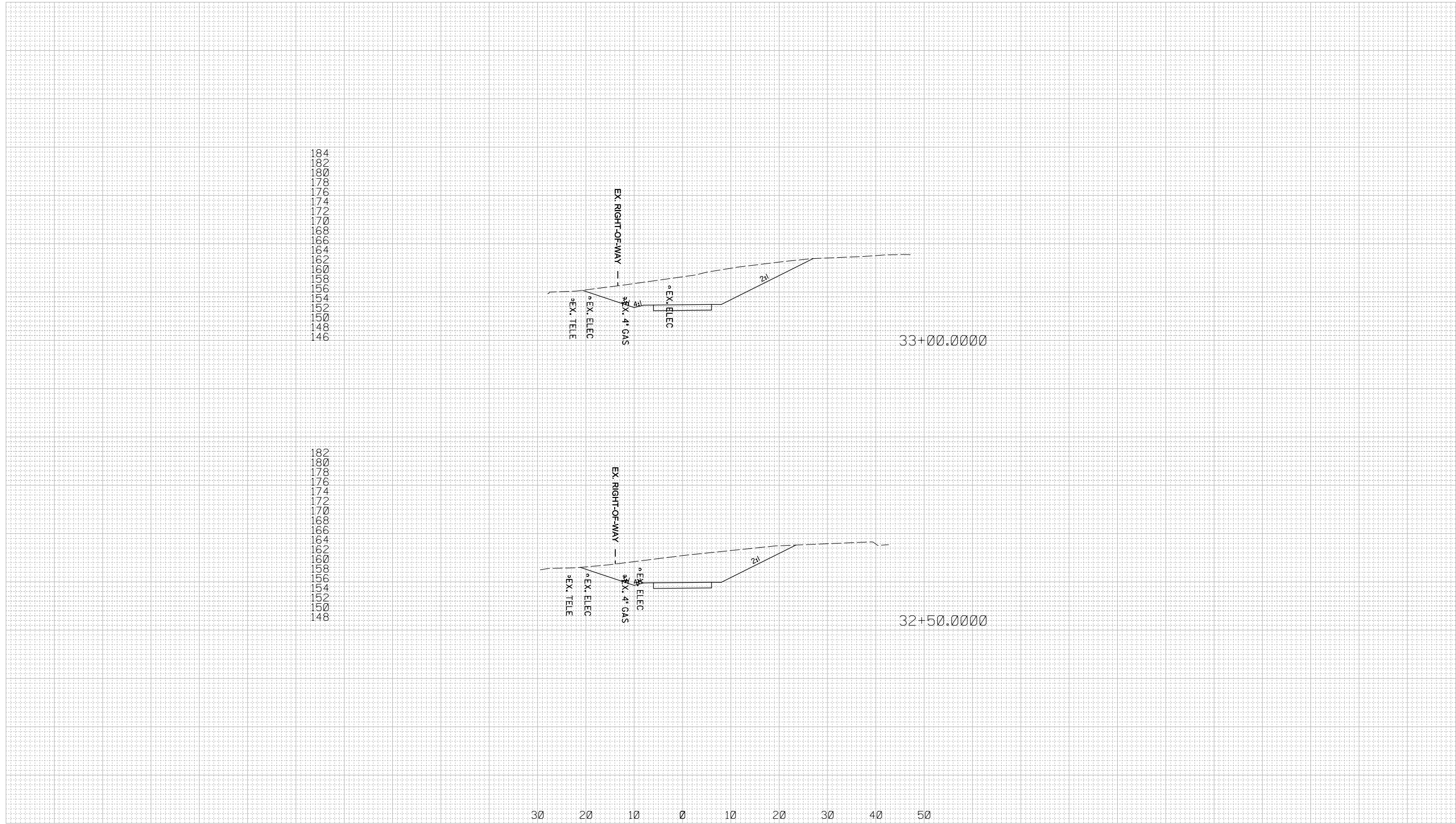
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BY: wweisman1-



ROADWAY CROSS SECTION SHEET		ROAD	CACT-30	STATION	30+00.00	TO STATION	34+00.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.		CS12		OF	40	SHEET NO.	12 OF 40


PLOTTED: Monday, July 18, 2016 AT 07:12 AM
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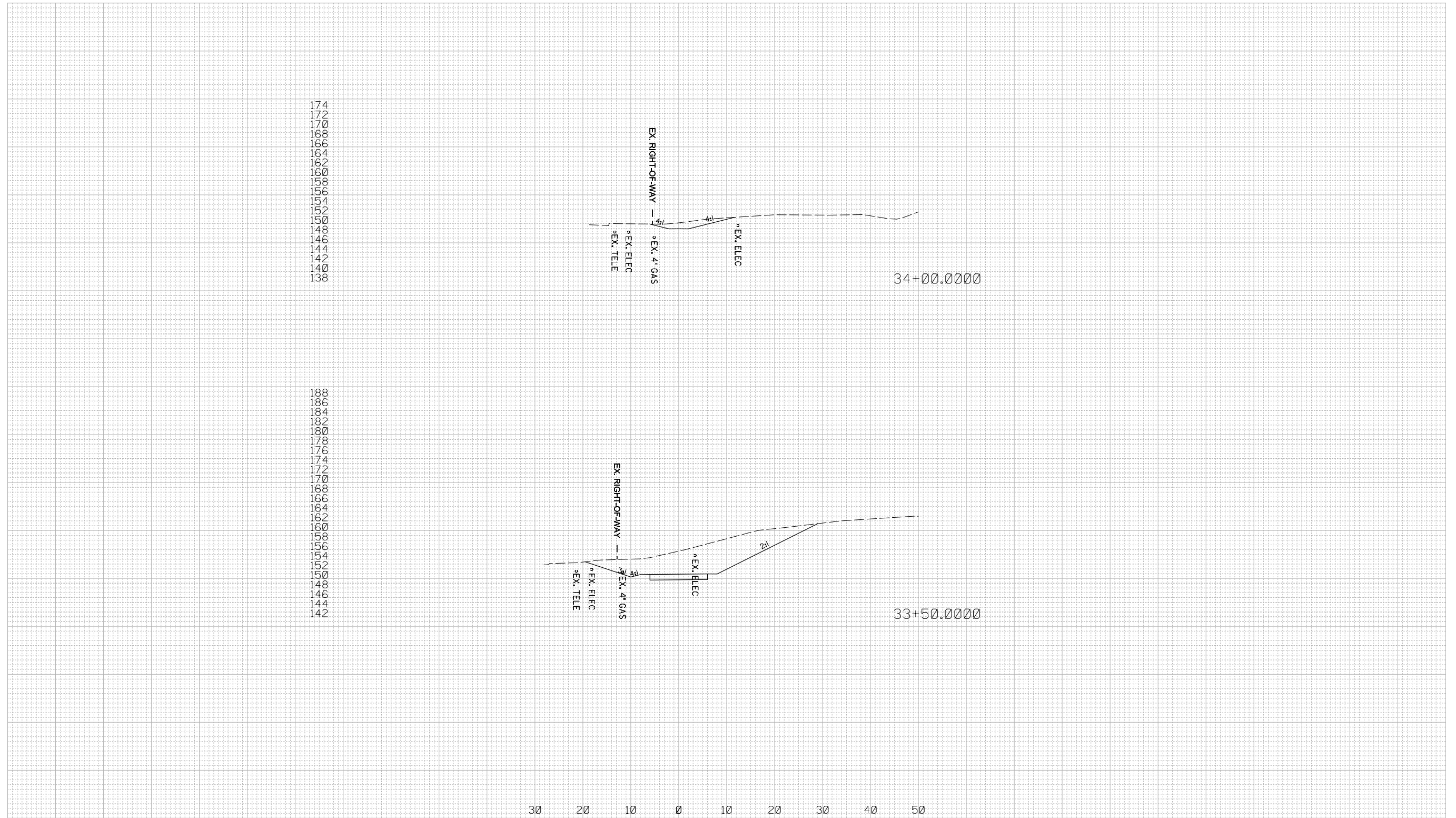
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ROADWAY CROSS SECTION SHEET		ROAD <u>CACT-30</u> STATION <u>30+00.00</u> TO STATION <u>34+00.00</u>
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY <u>WRW</u>	COUNTY <u>PRINCE GEORGE'S</u>
	DRAWN BY <u>WRW</u>	CONTRACT NO. <u>T.B.D.</u>
	CHECKED BY <u>RJG</u>	HORIZONTAL SCALE <u>1" = 10'</u>
	F.A.P. NO. <u>T.B.D.</u>	VERTICAL SCALE <u>1" = 10'</u>
DRAWING NO. CS 13 OF 40		SHEET NO. 13 OF 40

PLOTTED: Monday, July 18, 2016 AT 07:12 AM
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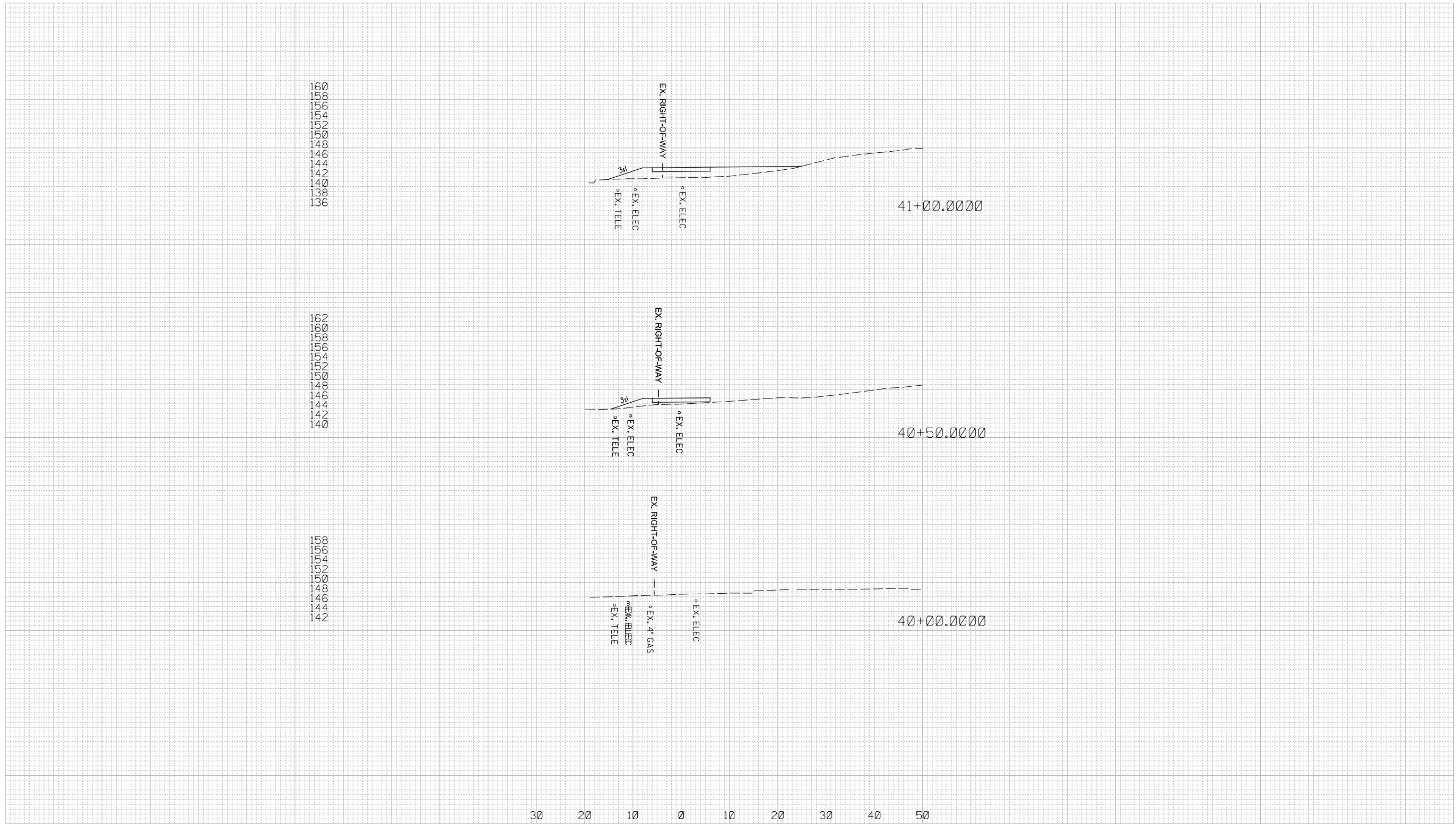
BY: wweisman@tel-

BY: wweisamantel-



ROADWAY CROSS SECTION SHEET		ROAD	STATION	TO STATION
		CACT-30	30+00.00	34+00.00
DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S	
DRAWN BY	WRW	CONTRACT NO.	T.B.D.	
CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'	
F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'	
DRAWING NO.	CS14	OF	40	SHEET NO. 14 OF 40

PLOTTED: Monday, July 18, 2016 AT 07:12 AM
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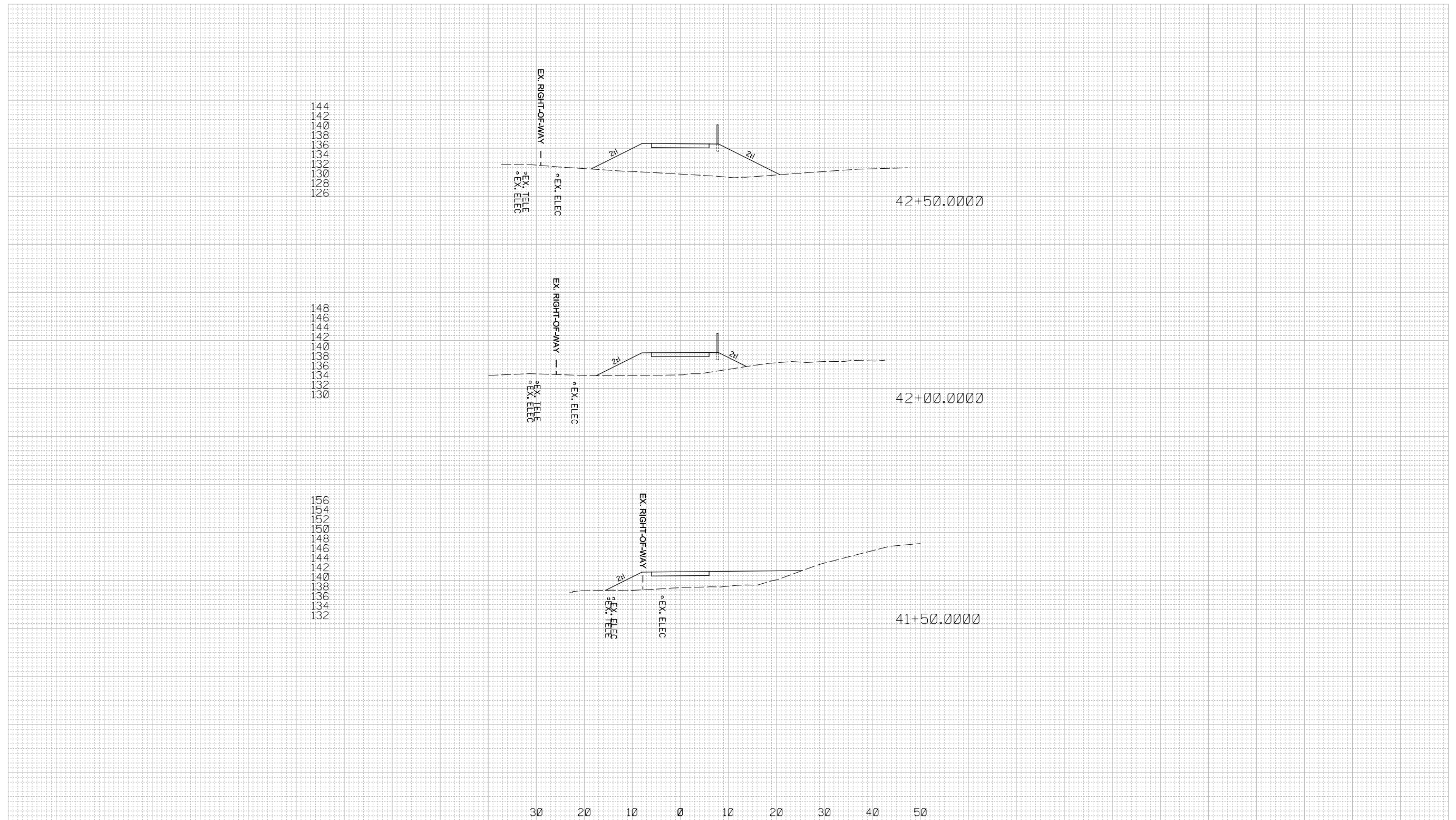



BY: wwaismantel

ROADWAY CROSS SECTION SHEET		ROAD	STATION	TO STATION
		CACT-40	40+00.00	48+50.00
DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S	
DRAWN BY	WRW	CONTRACT NO.	T.B.D.	
CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'	
F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'	
DRAWING NO.	CS 15	OF	40	SHEET NO. 15 OF 40

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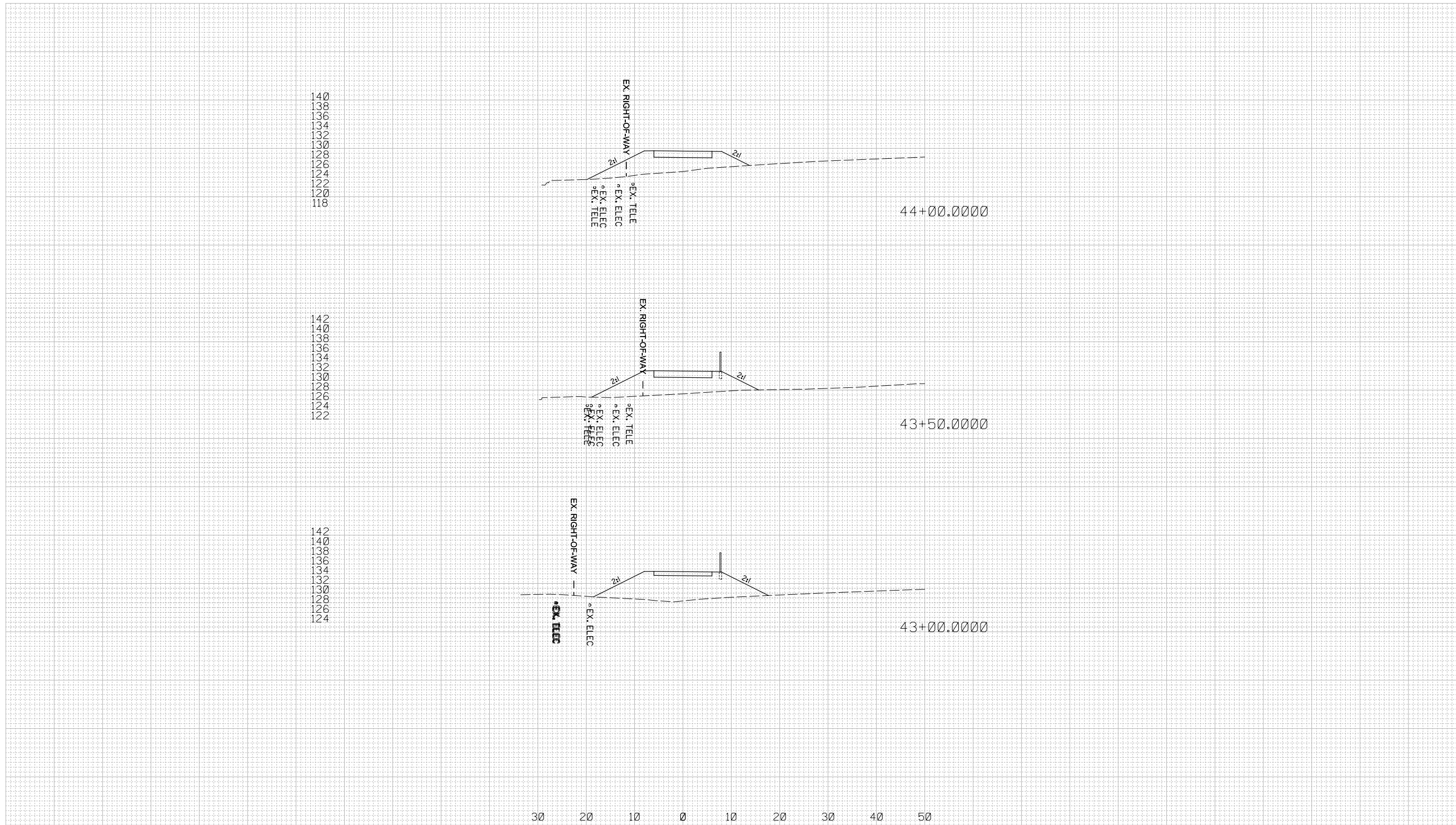
BY: wweisman@tel-




ROADWAY CROSS SECTION SHEET		ROAD	CACT-40	STATION	40+00.00	TO STATION	48+50.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO. CS16		OF	40	SHEET NO. 16 OF 40			

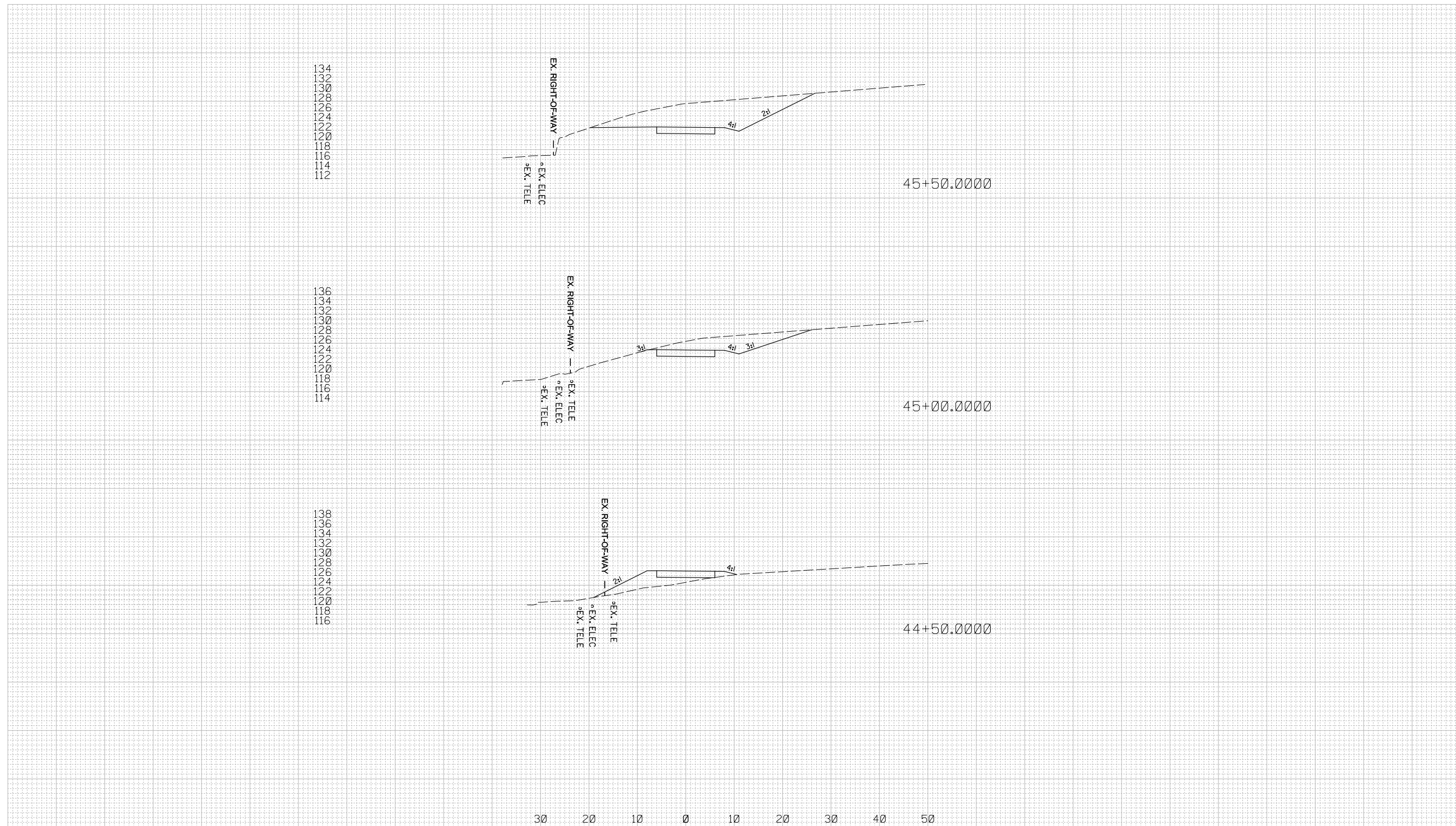
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BY: wweisman1 -




ROADWAY CROSS SECTION SHEET		ROAD	STATION	TO STATION	
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>		CACT-40	40+00.00	48+50.00	
		DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S
		DRAWN BY	WRW	CONTRACT NO.	T.B.D.
		CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'
F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'		
DRAWING NO.	CS17	OF	40	SHEET NO. 17 OF 40	

PLOTTED: Thursday, August 04, 2016 AT 09:13 AM
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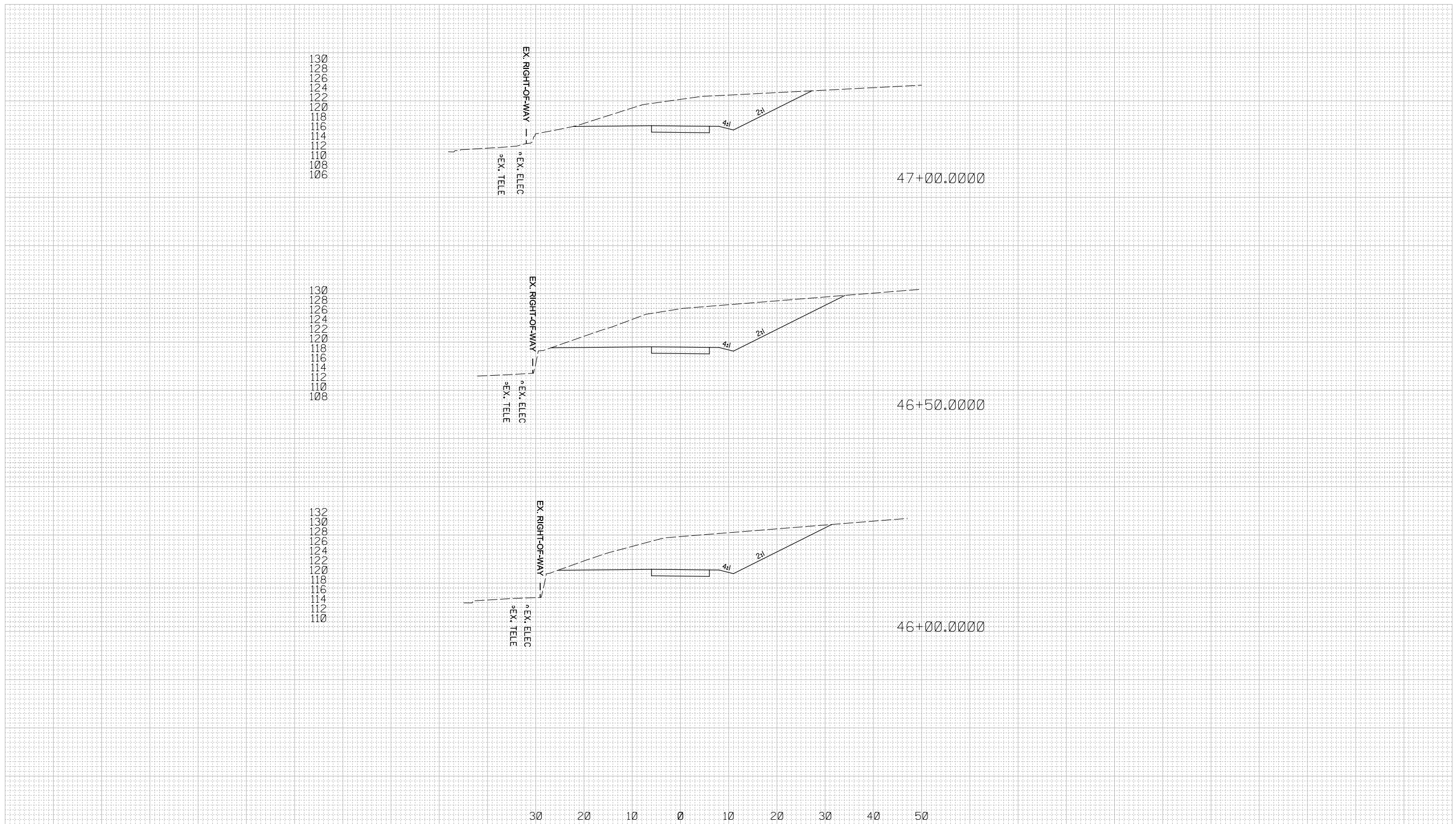



BY: wwelsmantel

ROADWAY CROSS SECTION SHEET		ROAD	CACT-40	STATION	40+00.00	TO STATION	48+50.00	
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S				
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.				
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'				
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'				
DRAWING NO.		CS 18		OF	40	SHEET NO.		18 OF 40

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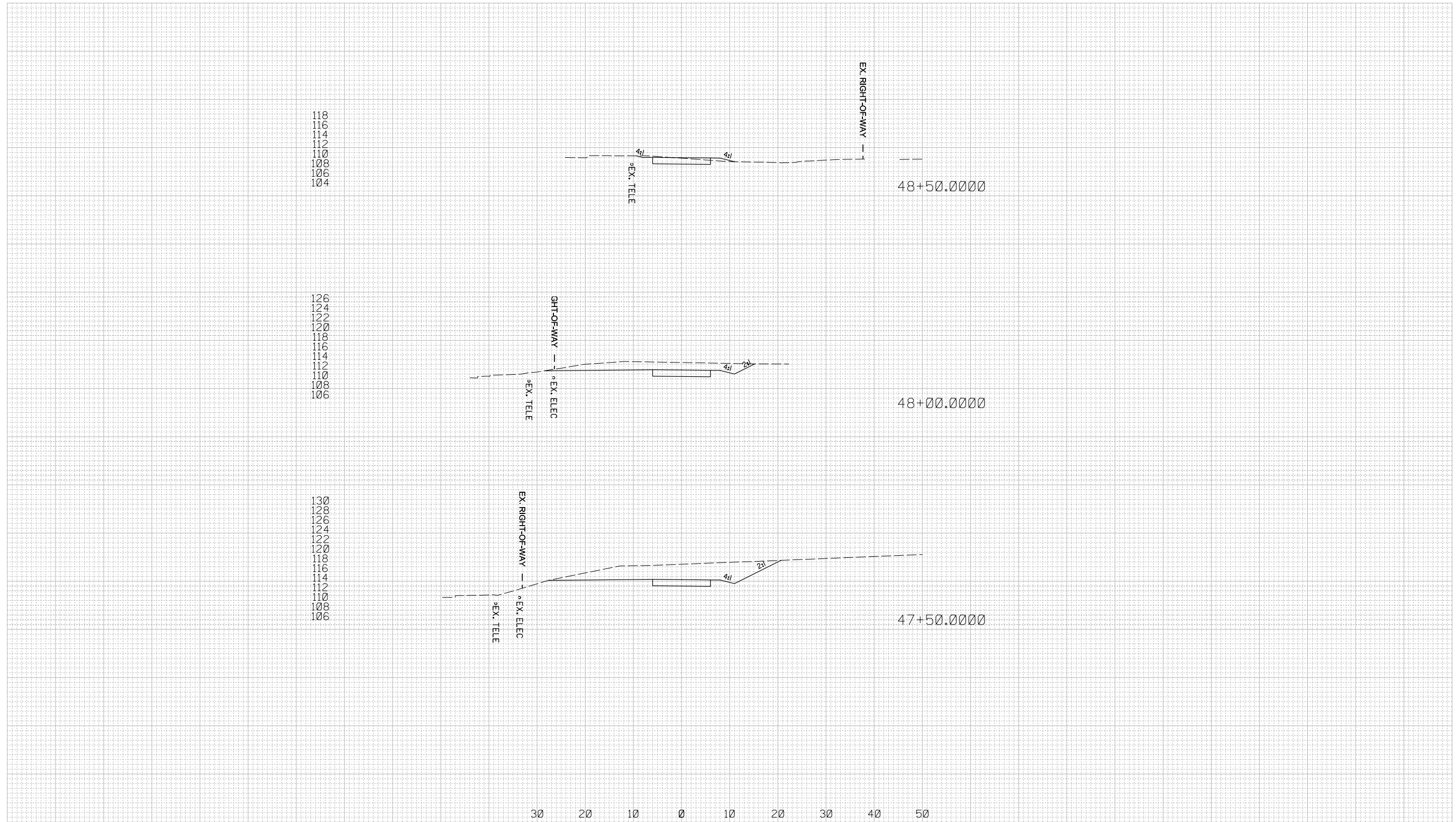
BY: wwismantel




ROADWAY CROSS SECTION SHEET		ROAD	CACT-40	STATION	40+00.00	TO STATION	48+50.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.		CS19		OF	40	SHEET NO.	19 OF 40

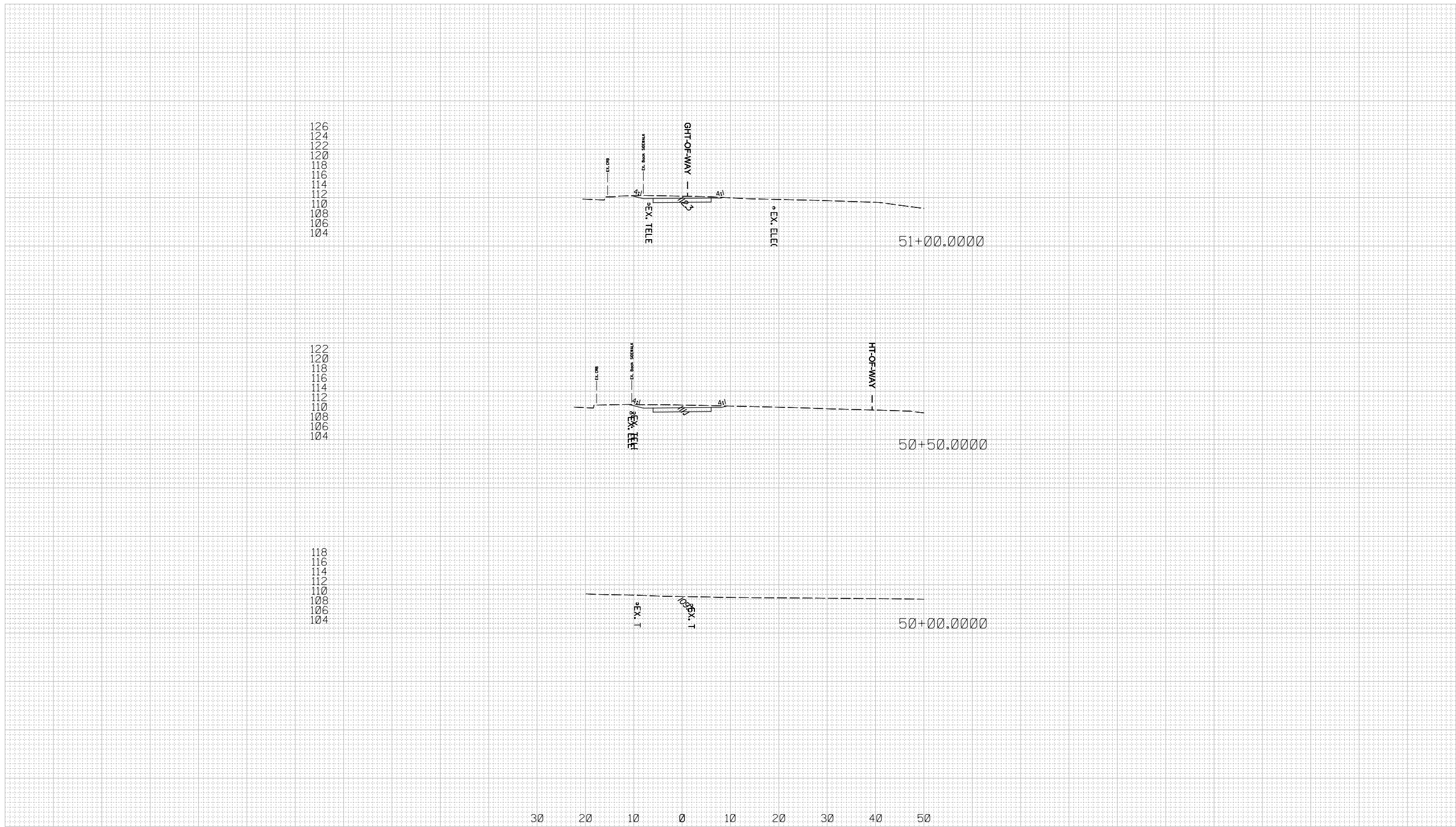
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BY: wweisantel-



ROADWAY CROSS SECTION SHEET		ROAD	CACT-40	STATION	40+00.00	TO STATION	48+50.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.		CS20		OF	40	SHEET NO. 20 OF 40	

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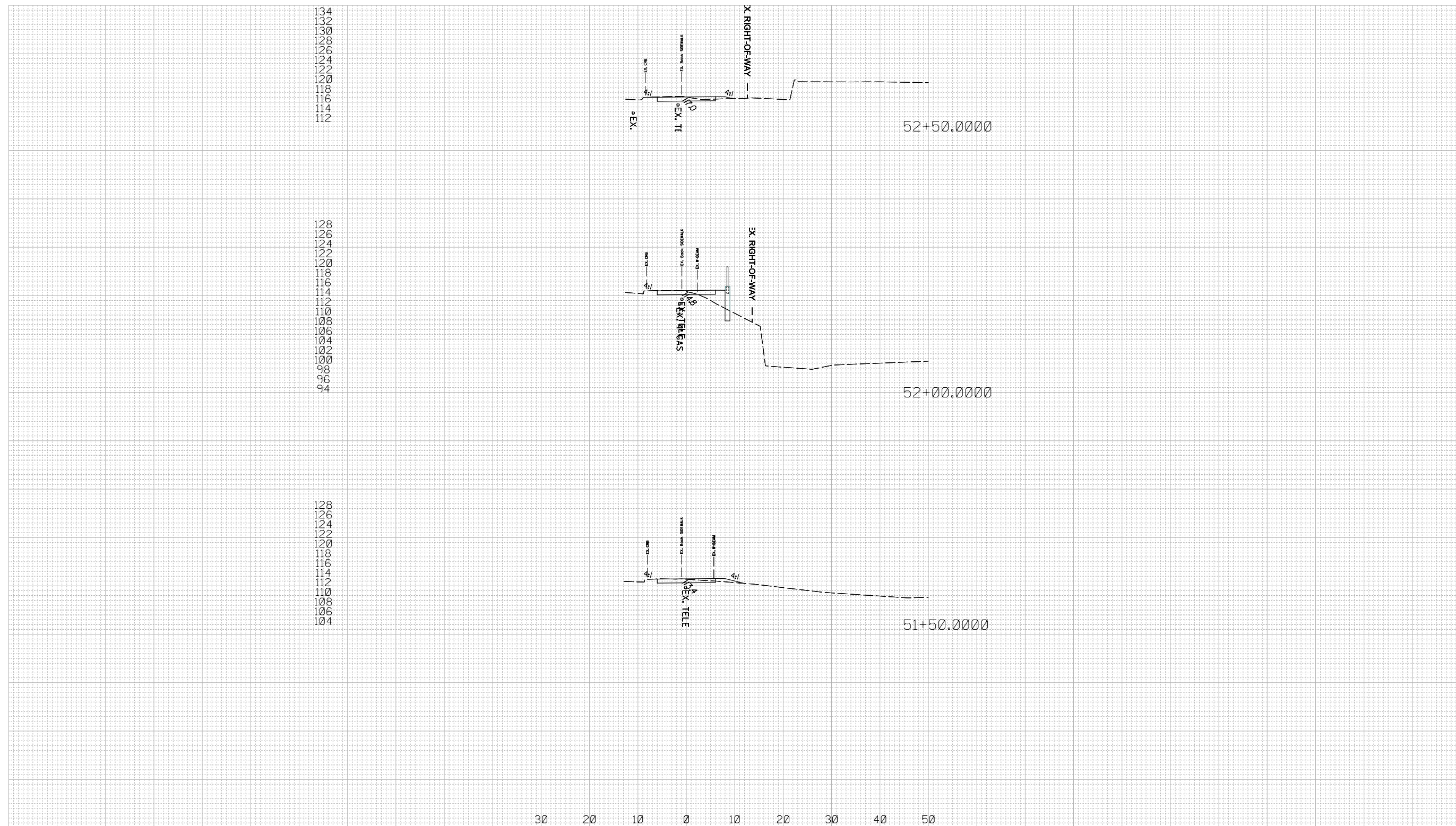



ROADWAY CROSS SECTION SHEET		ROAD	STATION	TO STATION	
		CACT-50	50+00.00	77+00.00	
		DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S
		DRAWN BY	WRW	CONTRACT NO.	T.B.D.
		CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'
		F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'
		DRAWING NO.	CS 21	OF	40
				SHEET NO.	21 OF 40

PLOTTED: Monday, July 18, 2016 AT 07:13 AM
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BY: wweismaniel-

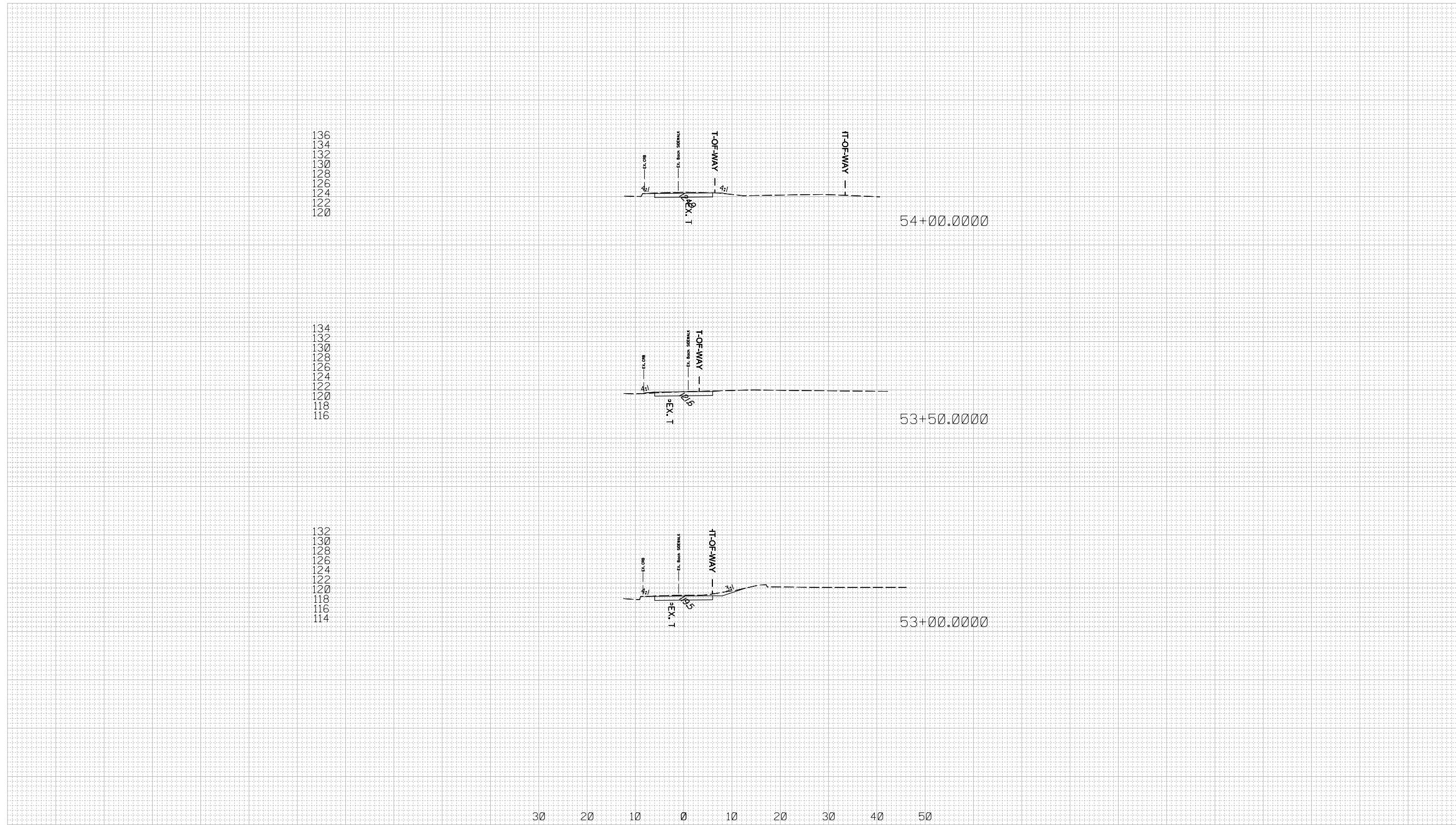
BY: wwaismantel-




ROADWAY CROSS SECTION SHEET		ROAD	CACT-50	STATION	50+00.00	TO STATION	77+00.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	R.J.G.	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.	CS22	OF	40	SHEET NO.	22 OF 40		

PLOTTED: Monday, July 18, 2016 AT 07:13 AM
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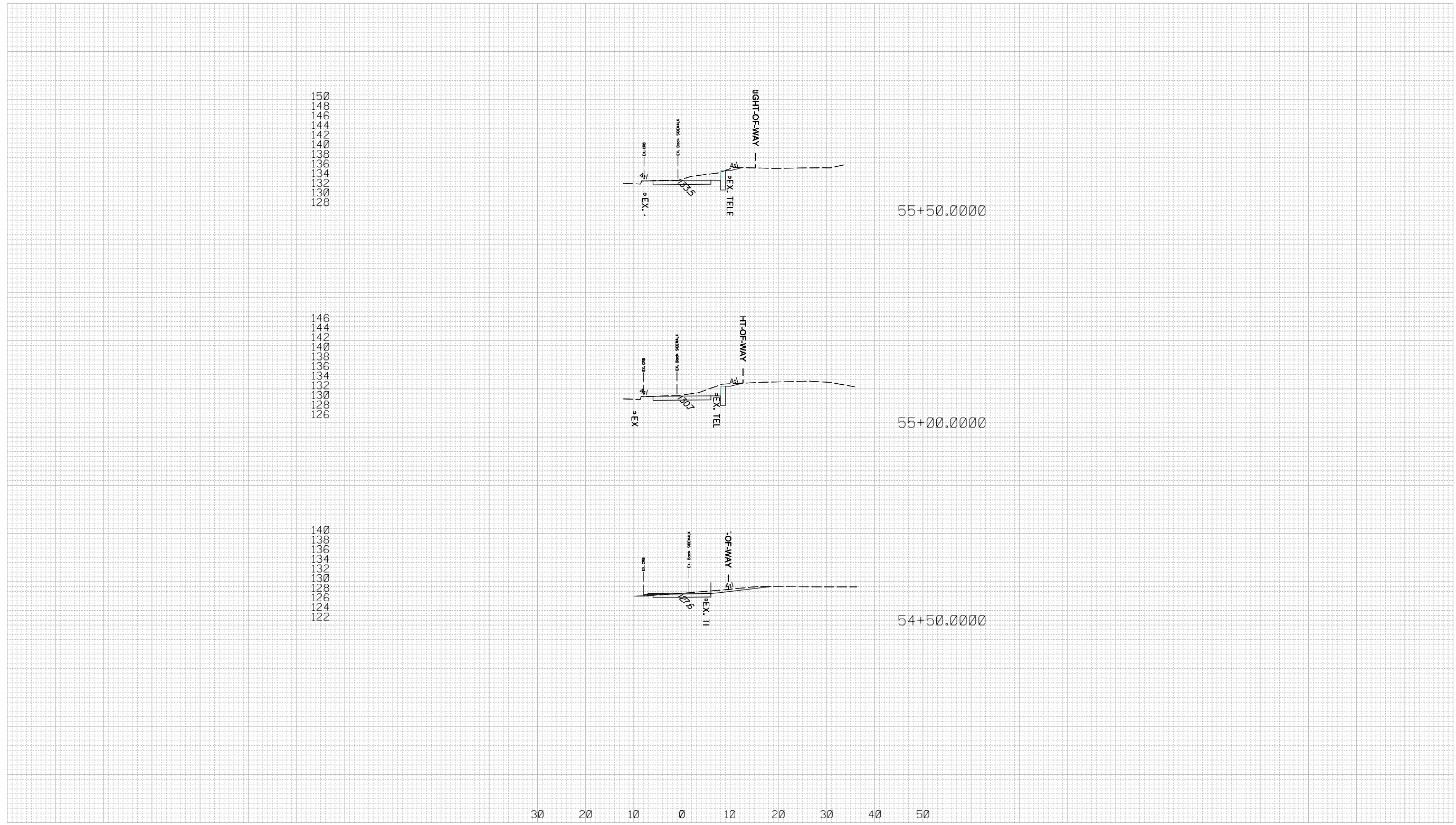
BY: wweisman1 -




ROADWAY CROSS SECTION SHEET		ROAD	STATION	TO STATION	
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>		CACT-50	50+00.00	77+00.00	
		DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S
		DRAWN BY	WRW	CONTRACT NO.	T.B.D.
		CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'
F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'		
DRAWING NO.	CS23	OF	40	SHEET NO. 23 OF 40	

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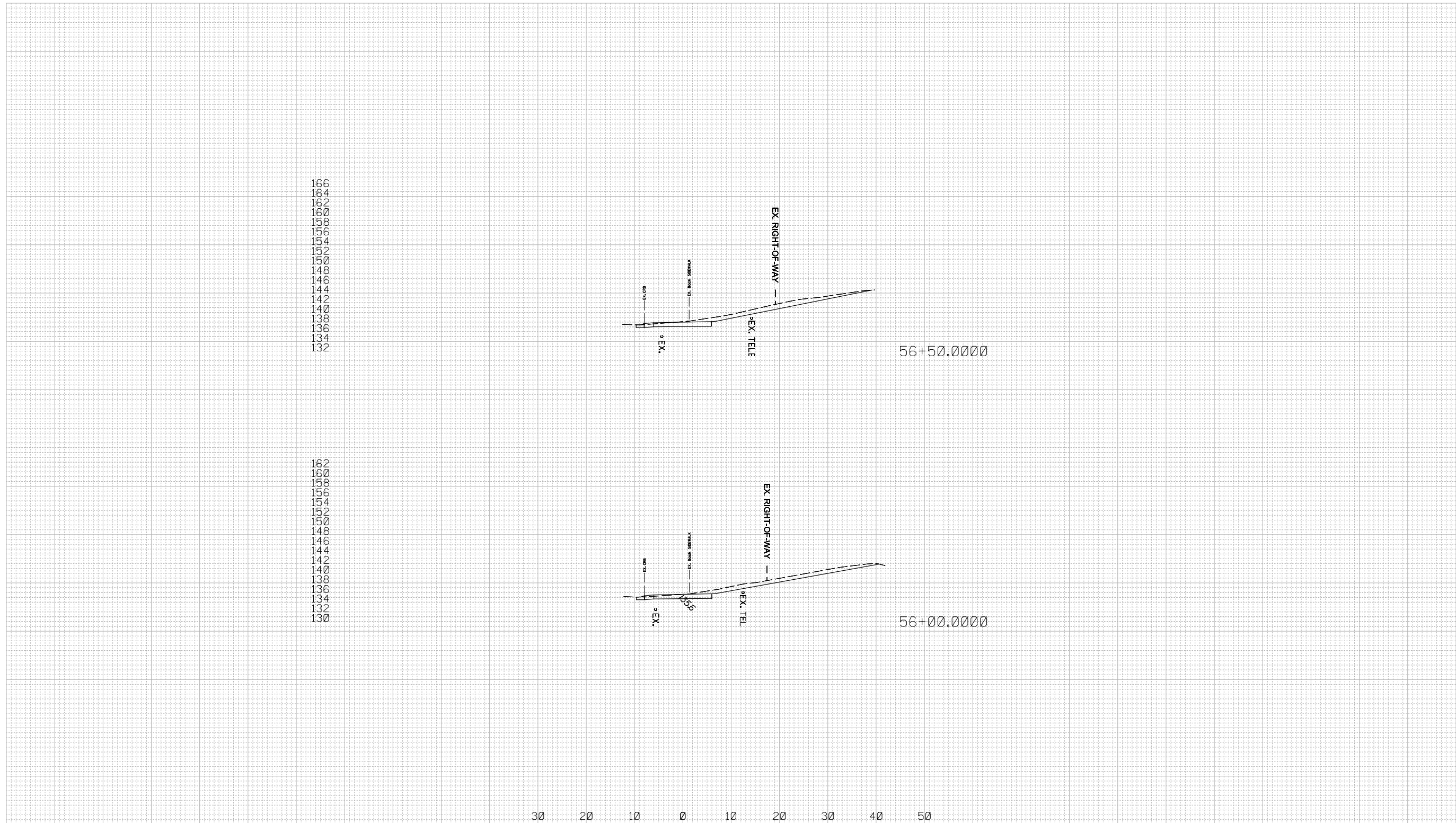
BY: wwismantel -




ROADWAY CROSS SECTION SHEET		ROAD	CACT-60	STATION	50+00.00	TO STATION	77+00.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.	CS24	OF	40	SHEET NO.	24 OF 40		

PLOTTED: Monday, July 18, 2016 AT 07:13 AM
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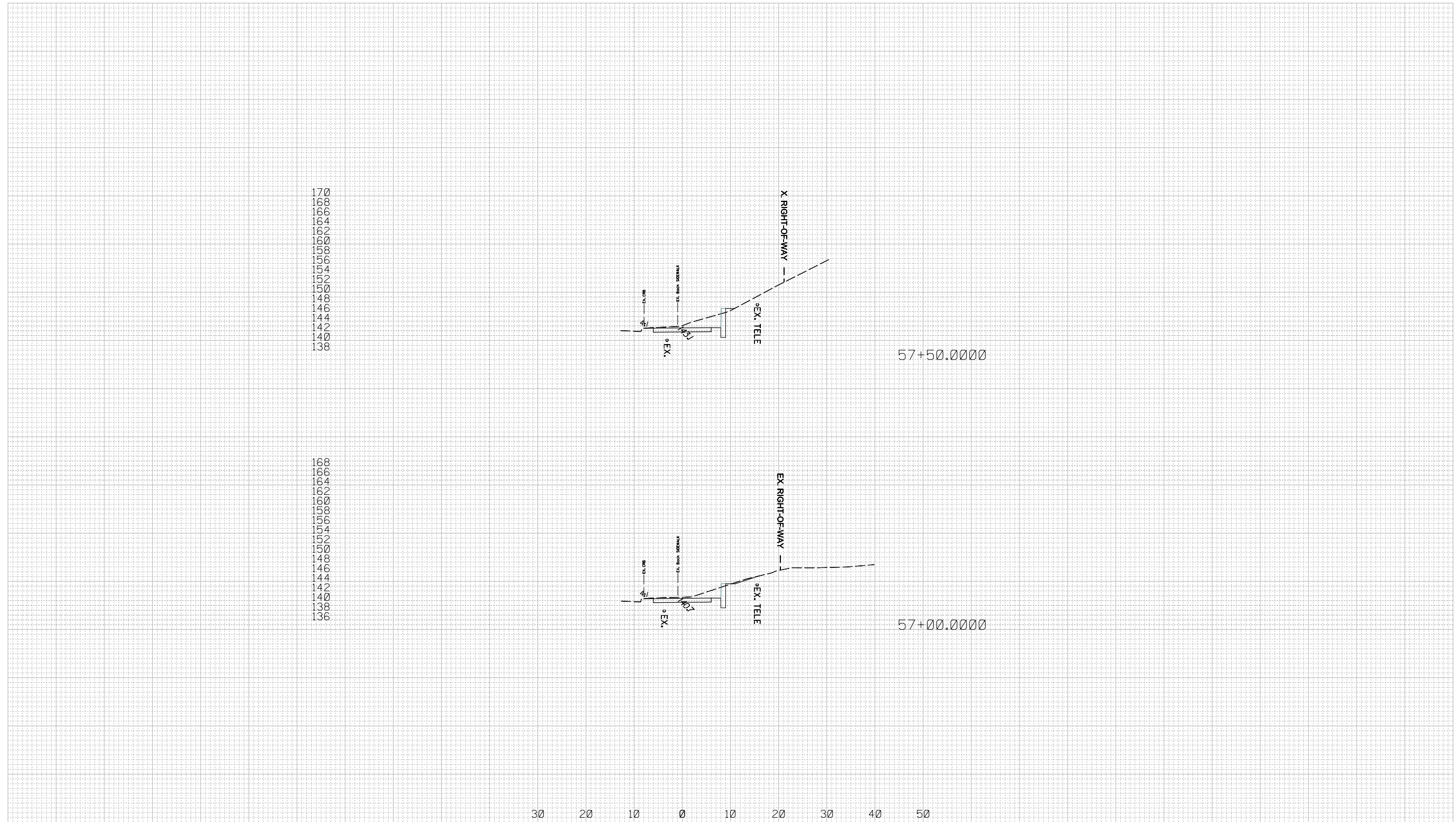
BY: wweismaniel-




ROADWAY CROSS SECTION SHEET		ROAD	CACT-50	STATION	50+00.00	TO STATION	77+00.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.	CS25	OF	40	SHEET NO.	25	OF	40

PLOTTED: Tuesday, August 23, 2016 AT 01:06 PM
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BY: wweisantel-

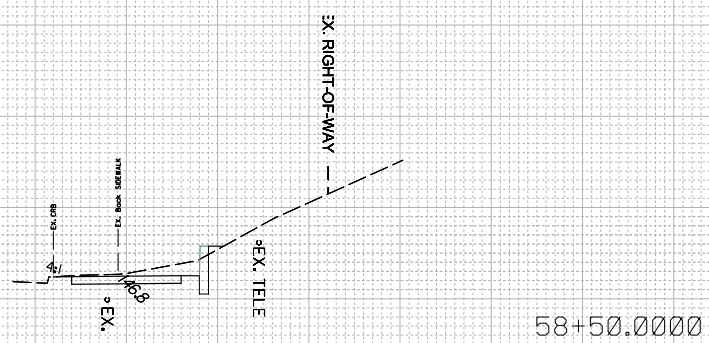


ROADWAY CROSS SECTION SHEET		ROAD	STATION	TO STATION	
 <p>THE MARYLAND- NATIONAL CAPITAL AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>		CACT-50	50+00.00	77+00.00	
		DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S
		DRAWN BY	WRW	CONTRACT NO.	T.B.D.
		CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'
		F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'
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				SHEET NO.	26 OF 40

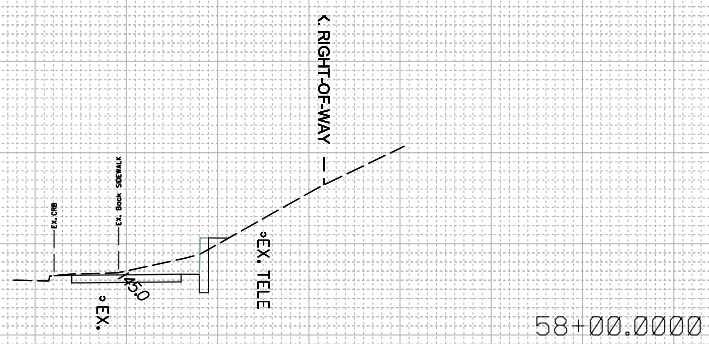
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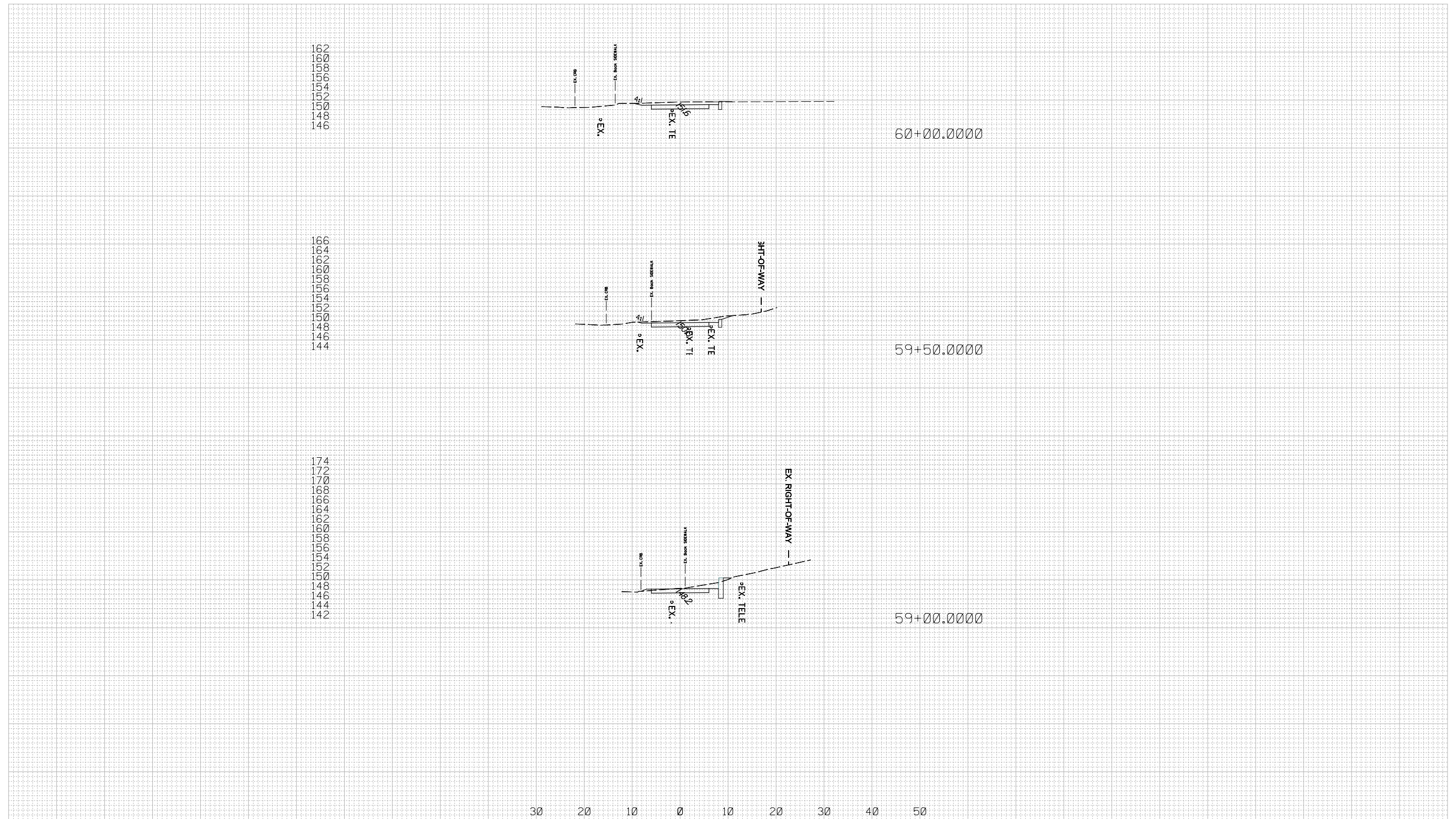
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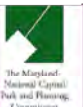
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ROADWAY CROSS SECTION SHEET		ROAD <u>CACT-50</u> STATION <u>50+00.00</u> TO STATION <u>77+00.00</u>	
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY <u>WRW</u>	COUNTY <u>PRINCE GEORGE'S</u>	
	DRAWN BY <u>WRW</u>	CONTRACT NO. <u>T.B.D.</u>	
	CHECKED BY <u>RJG</u>	HORIZONTAL SCALE <u>1" = 10'</u>	
	F.A.P. NO. <u>T.B.D.</u>	VERTICAL SCALE <u>1" = 10'</u>	
DRAWING NO. CS27	OF 40	SHEET NO. 27	OF 40

PLOTTED: Monday, July 18, 2016 AT 07:13 AM
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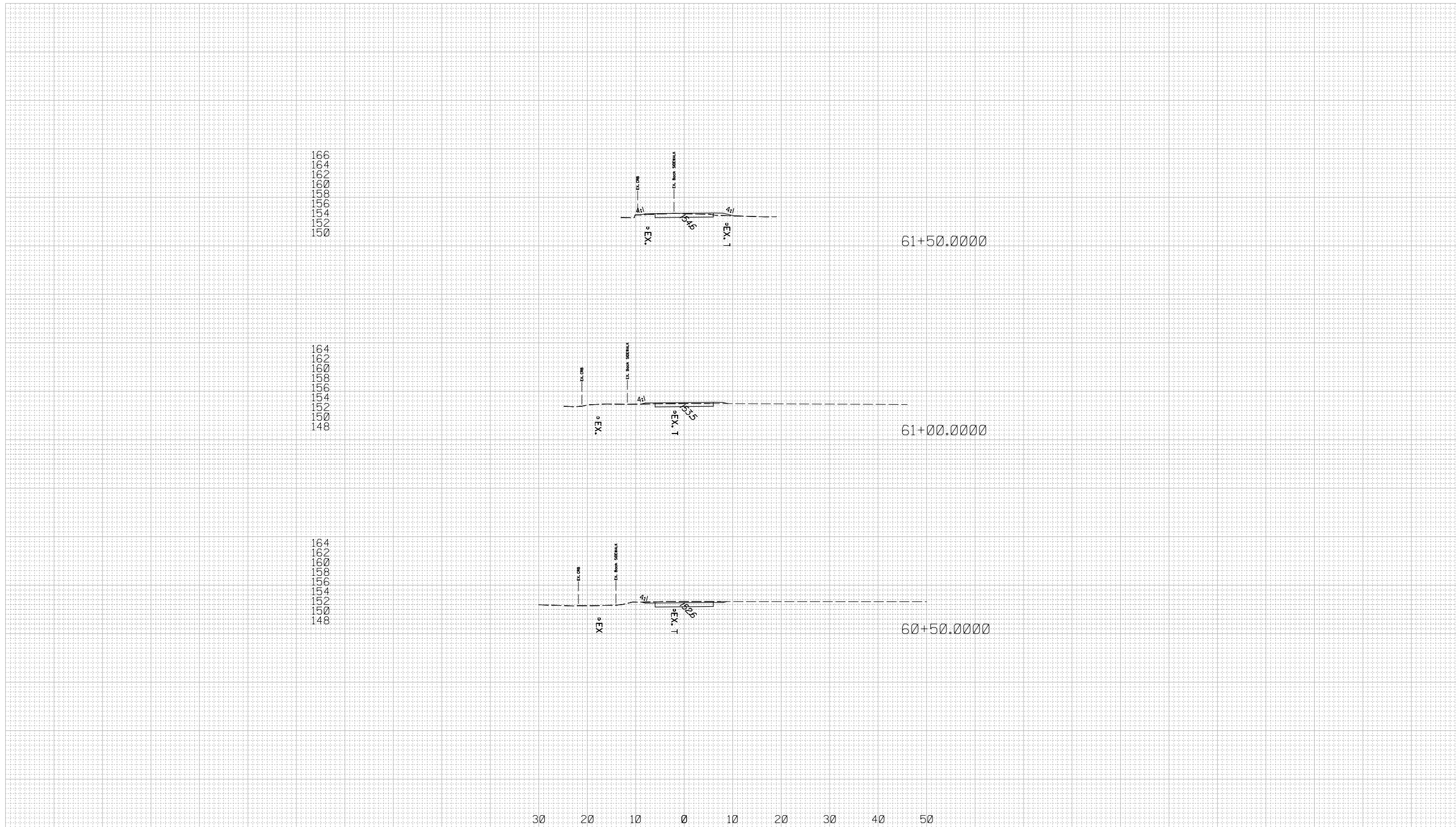
BY: wweisamantel-




ROADWAY CROSS SECTION SHEET		ROAD	STATION	TO STATION	
 <p>THE MARYLAND- NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>		CACT-50	50+00.00	77+00.00	
		DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S
		DRAWN BY	WRW	CONTRACT NO.	T.B.D.
		CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'
		F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'
		DRAWING NO.	CS28	OF	40
				SHEET NO.	28 OF 40

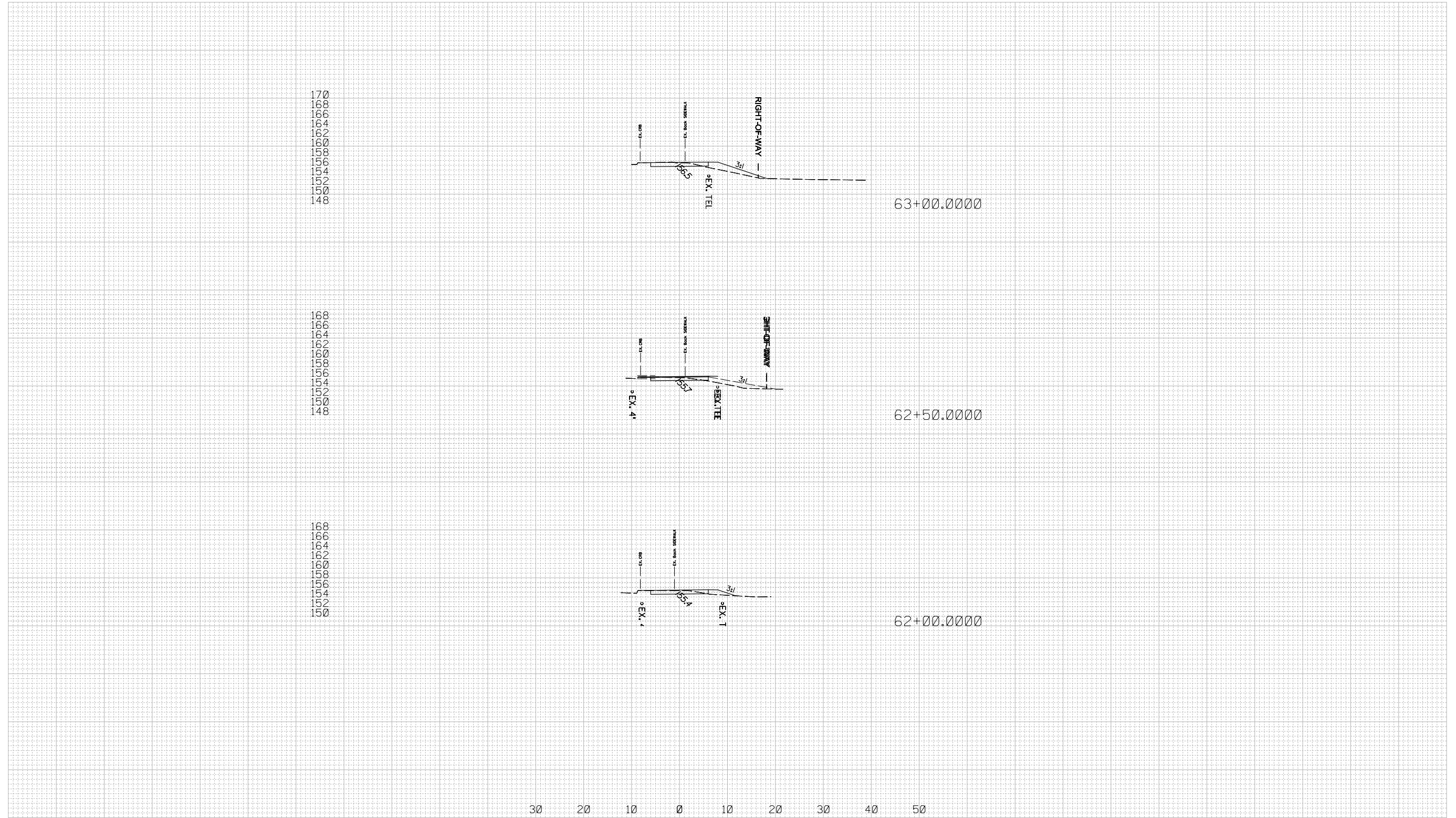
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BY: wwaismantel



ROADWAY CROSS SECTION SHEET		ROAD	CACT-50	STATION	50+00.00	TO STATION	77+00.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO. CS29		OF 40		SHEET NO. 29 OF 40			
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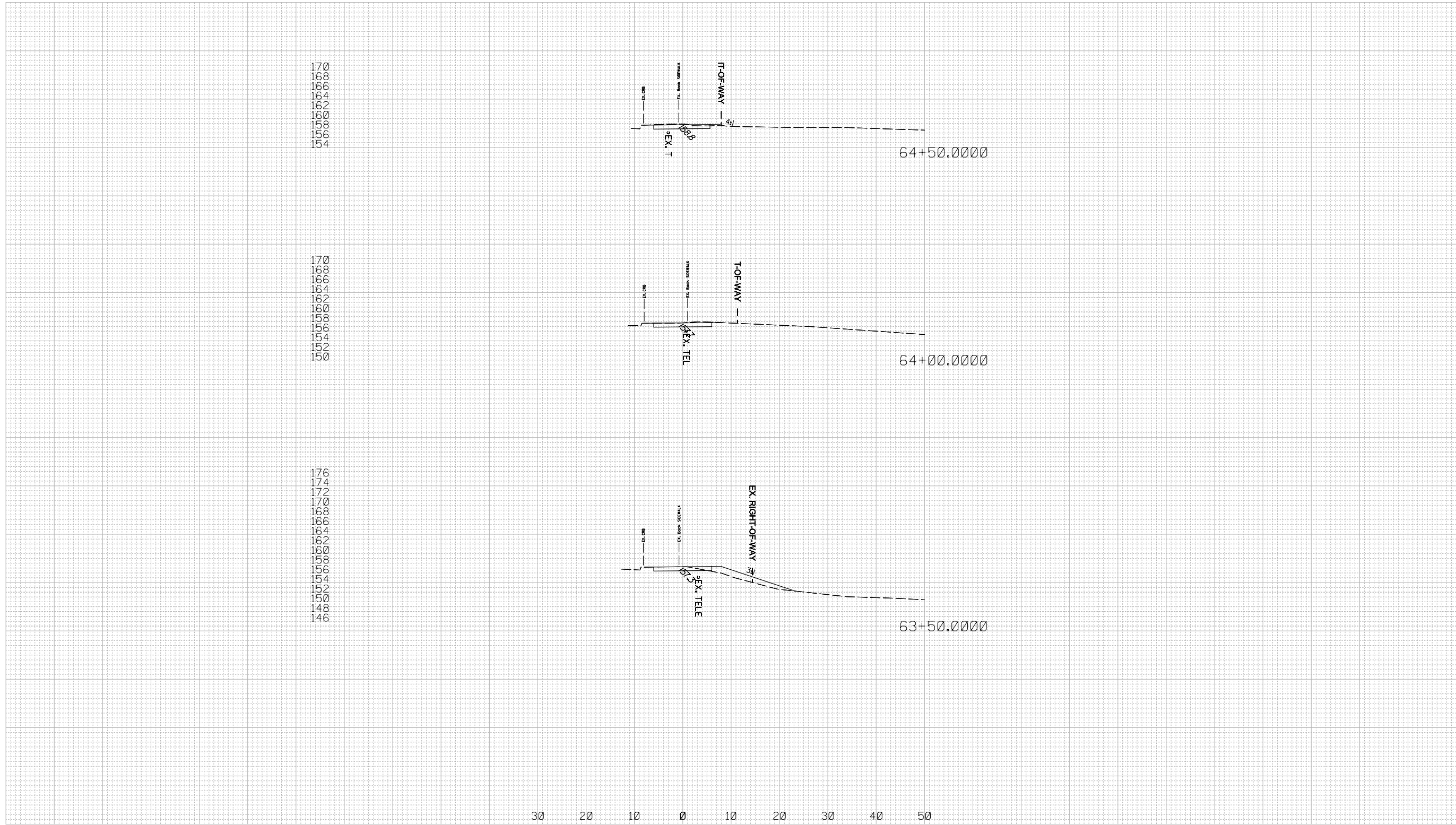
BY: wwelsmantel -




ROADWAY CROSS SECTION SHEET		ROAD	CACT-50	STATION	50+00.00	TO STATION	77+00.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.	CS30	OF	40	SHEET NO.	30 OF 40		

PLOTTED: Monday, July 18, 2016 AT 07:13 AM
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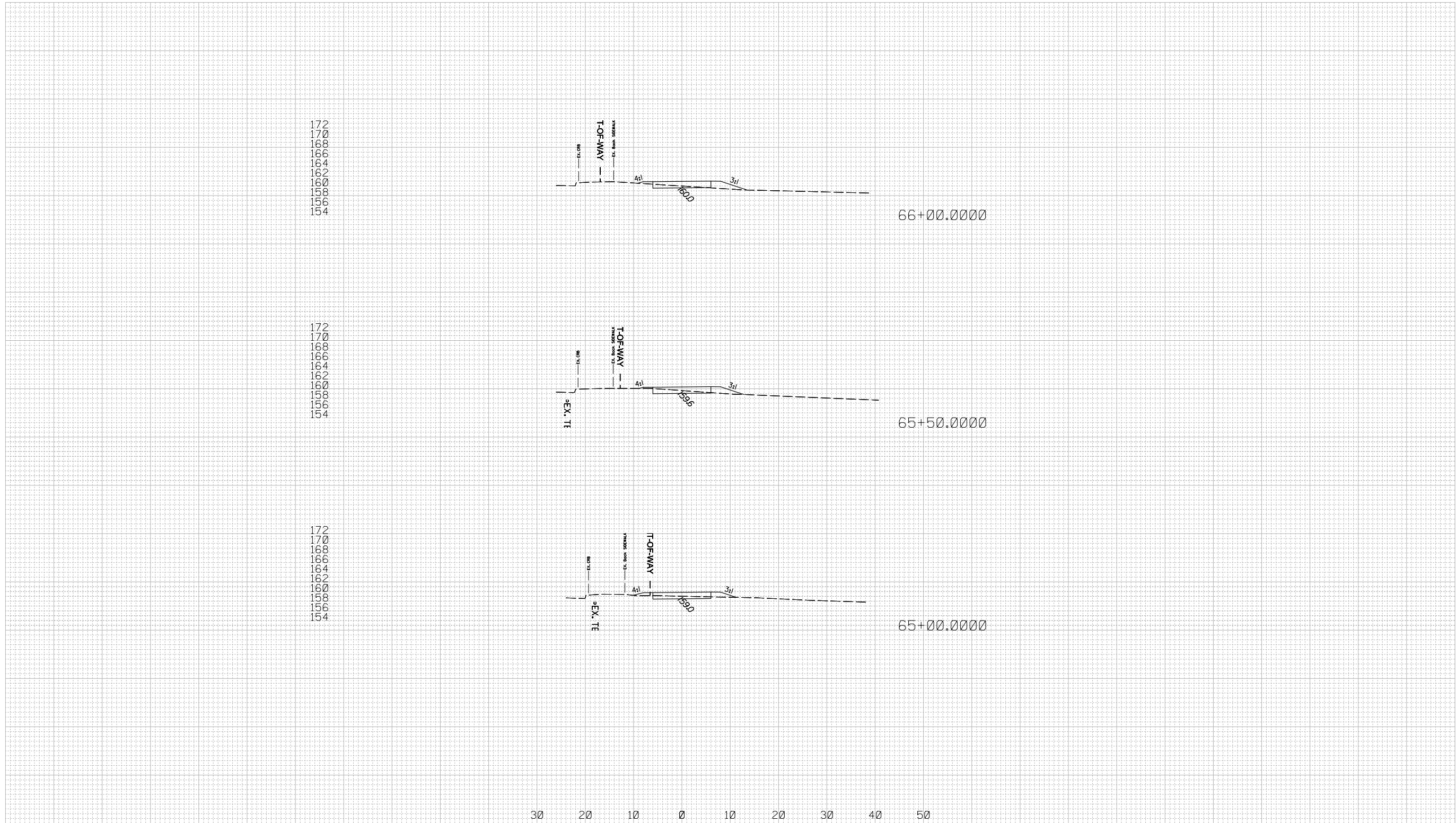
BY: wweisman1 -




ROADWAY CROSS SECTION SHEET		ROAD	CACT-50	STATION	50+00.00	TO STATION	77+00.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.	CS 31	OF	40	SHEET NO.	31	OF	40

PLOTTED: Monday, July 18, 2016 AT 07:13 AM
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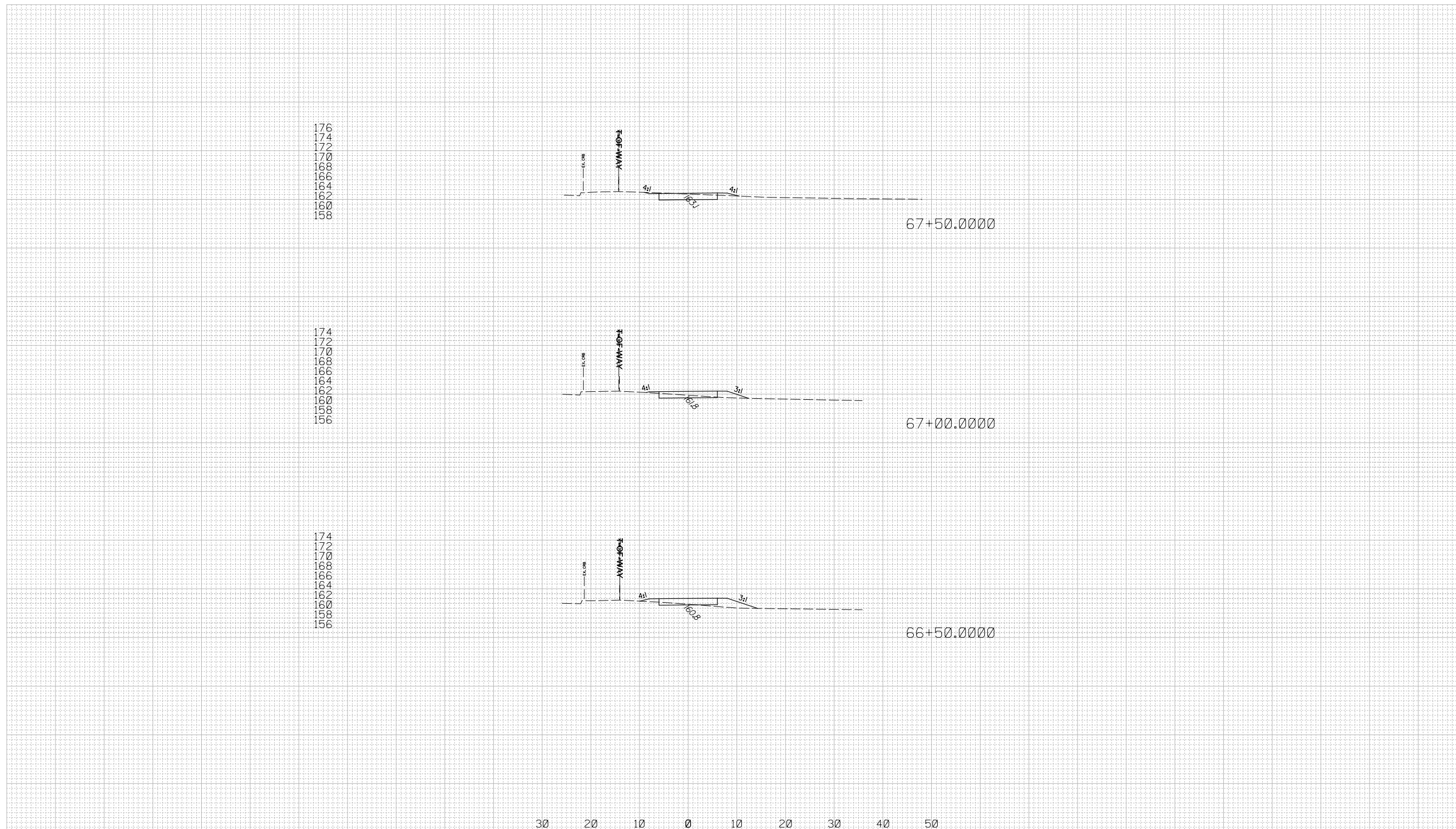
BY: wwismantel -




ROADWAY CROSS SECTION SHEET		ROAD	CACT-50	STATION	50+00.00	TO STATION	77+00.00
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	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.	CS32	OF	40	SHEET NO.	32 OF 40		

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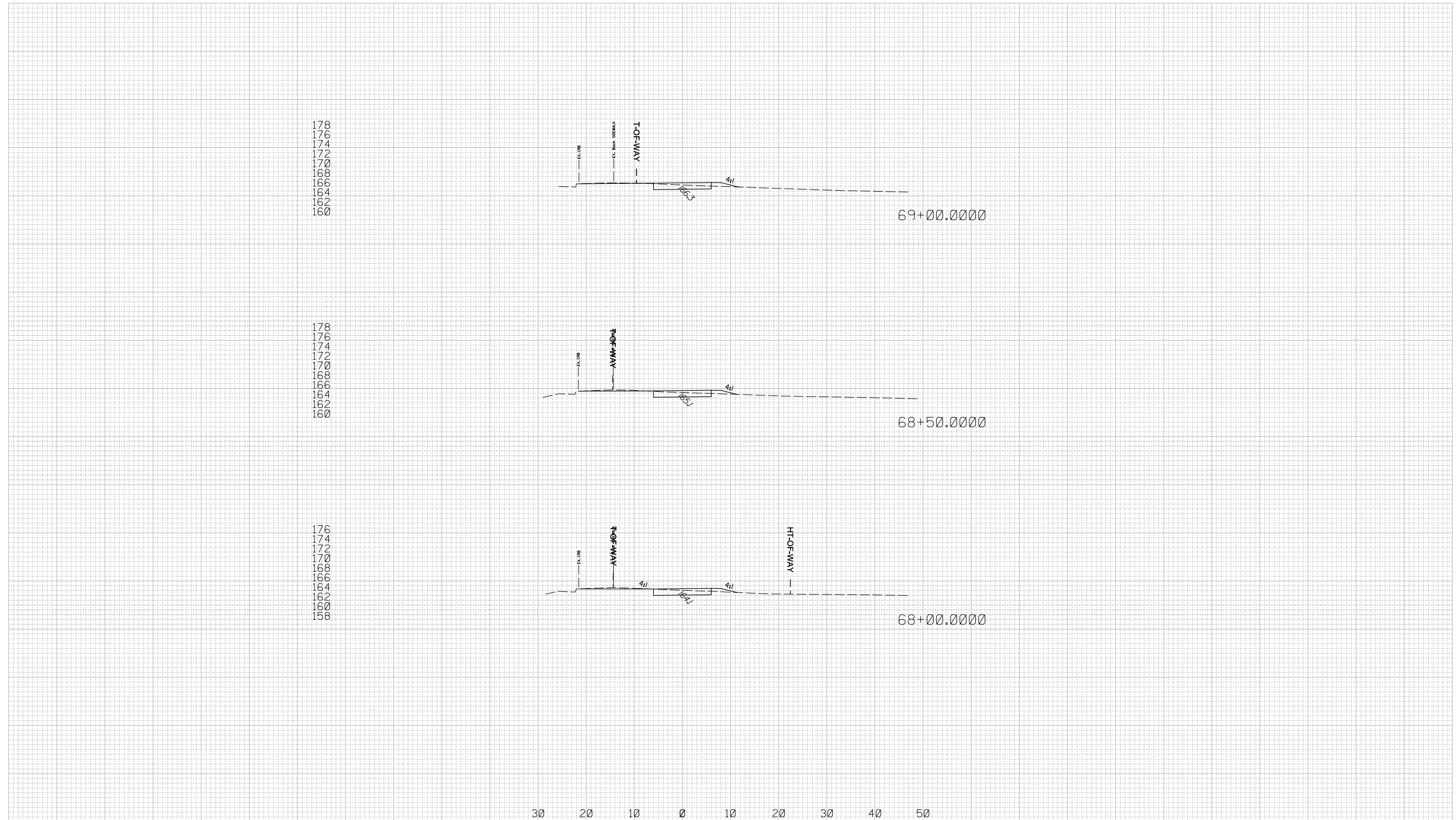
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ROADWAY CROSS SECTION SHEET		ROAD	STATION	TO STATION	
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		DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S
		DRAWN BY	WRW	CONTRACT NO.	T.B.D.
		CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'
		F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'
DRAWING NO.	CS33	OF	40	SHEET NO.	33 OF 40

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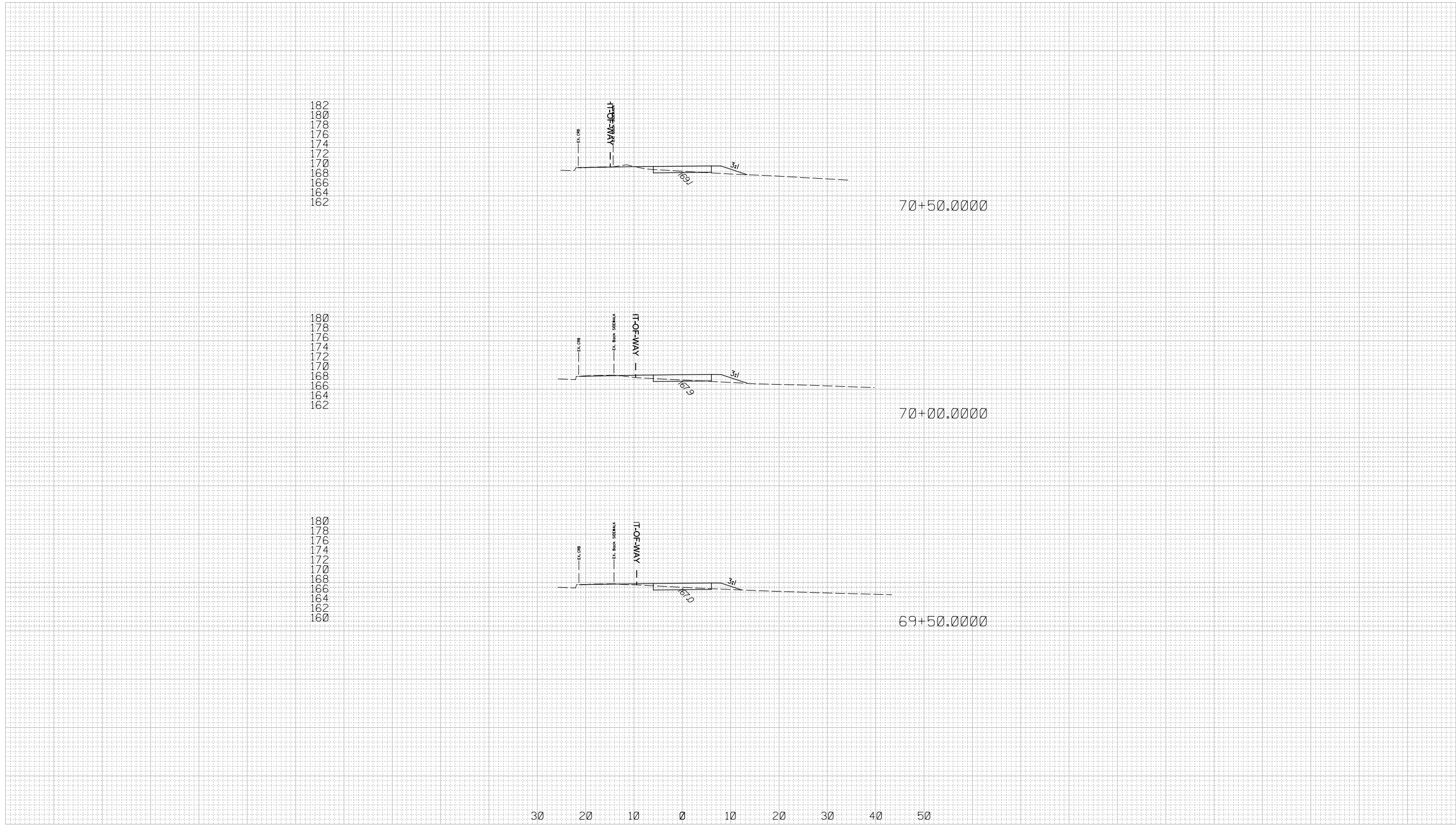
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ROADWAY CROSS SECTION SHEET		ROAD	CACT-50	STATION	50+00.00	TO STATION	77+00.00
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	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.	CS34	OF	40	SHEET NO.	34 OF 40		

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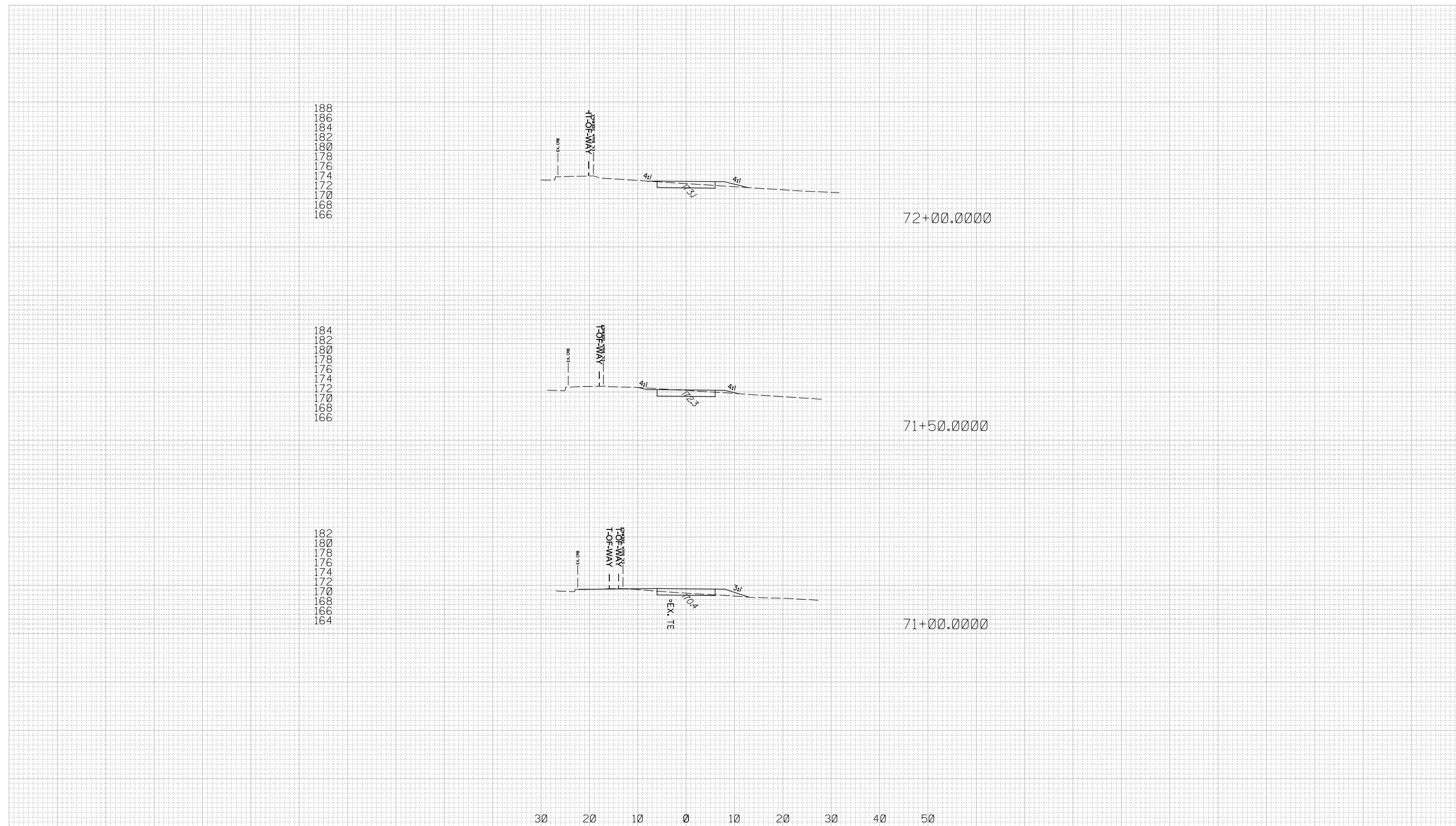
BY: wweisman1




ROADWAY CROSS SECTION SHEET		ROAD <u>CACT-50</u> STATION <u>50+00.00</u> TO STATION <u>77+00.00</u>
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY <u>WRW</u>	COUNTY <u>PRINCE GEORGE'S</u>
	DRAWN BY <u>WRW</u>	CONTRACT NO. <u>T.B.D.</u>
	CHECKED BY <u>RJG</u>	HORIZONTAL SCALE <u>1" = 10'</u>
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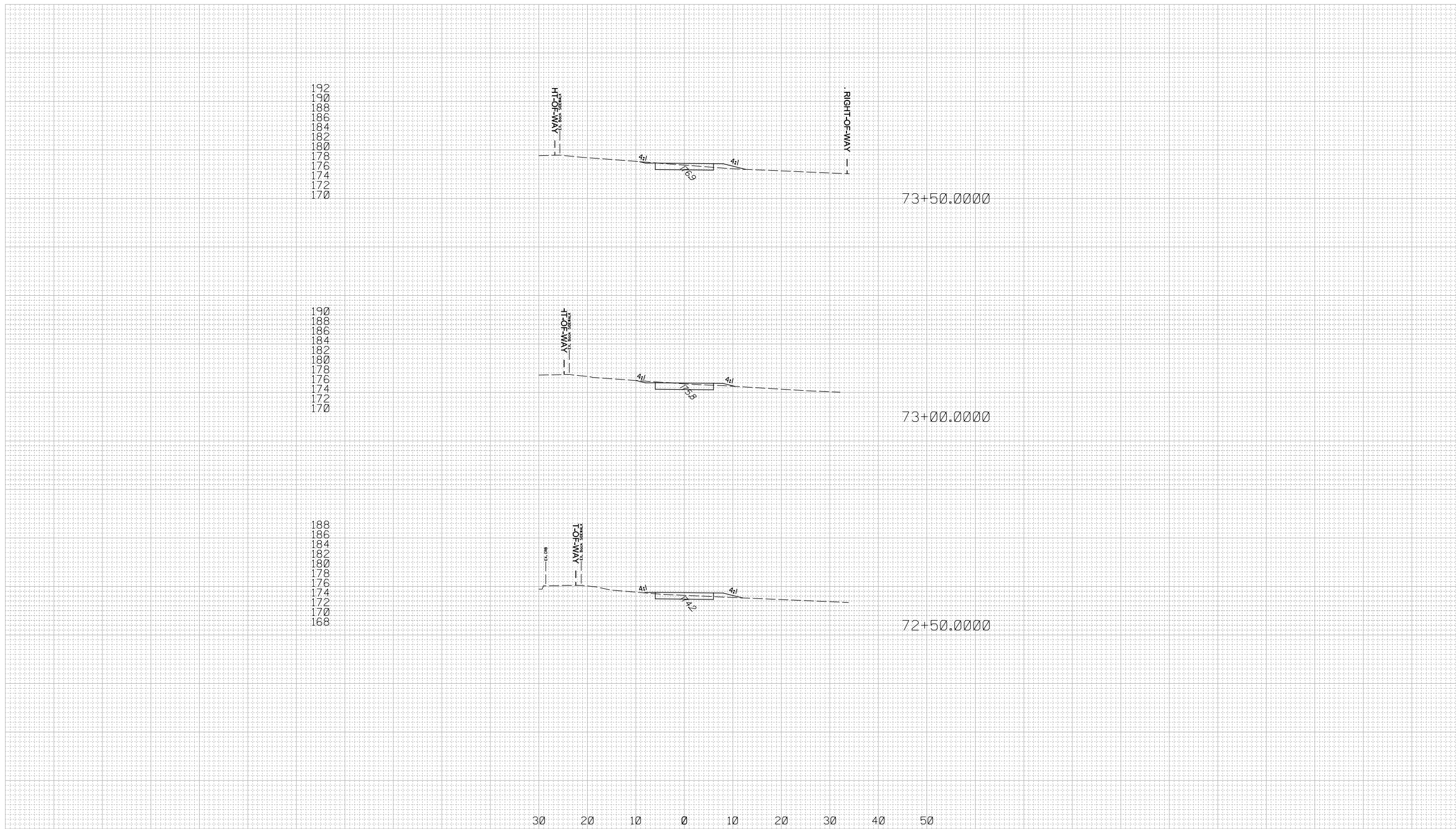
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BY: wwismantel




ROADWAY CROSS SECTION SHEET		ROAD	CACT-50	STATION	50+00.00	TO STATION	77+00.00
 <p>THE MARYLAND- NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
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DRAWING NO.	CS36	OF	40	SHEET NO.	36 OF 40		

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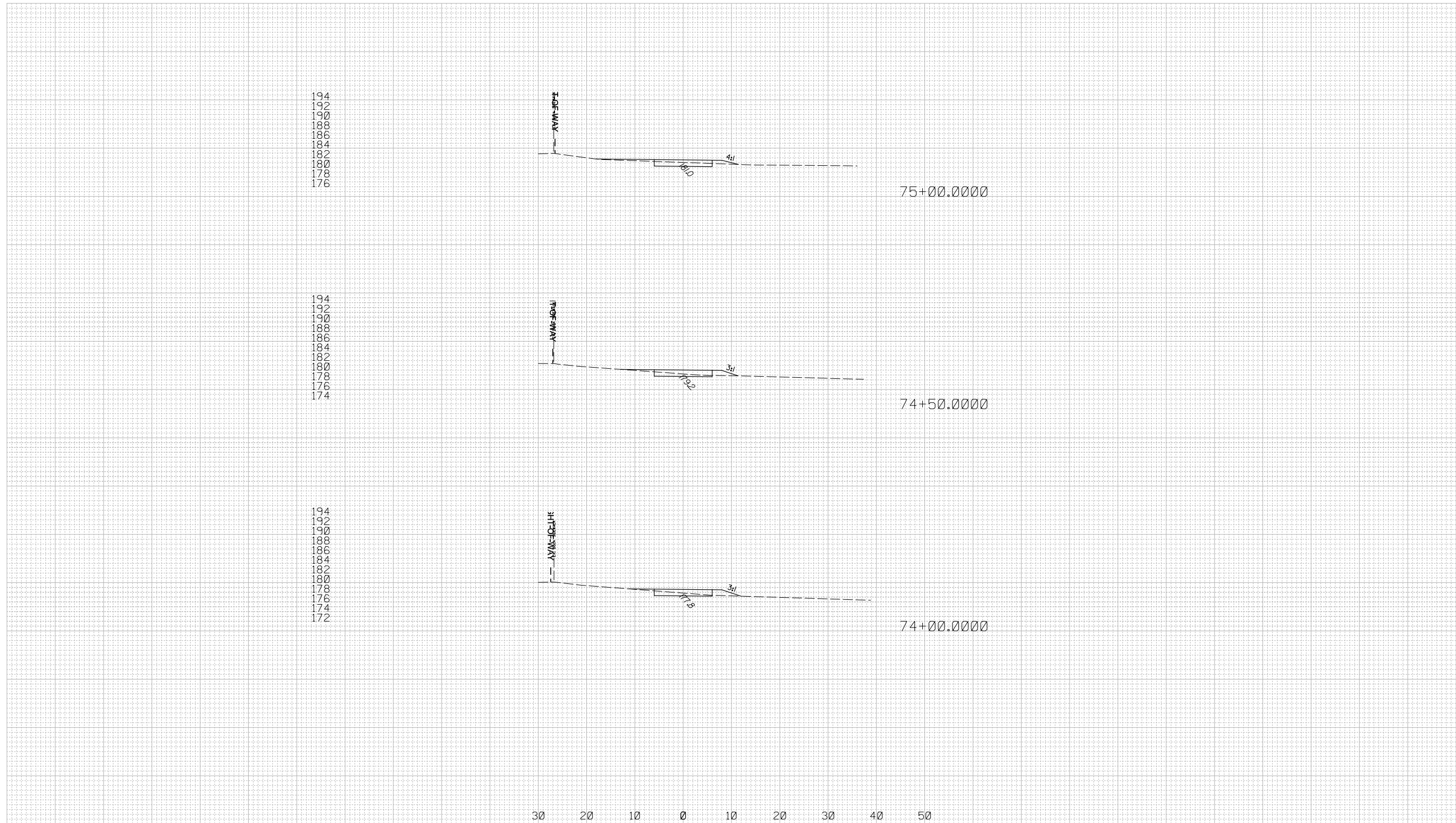


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ROADWAY CROSS SECTION SHEET		ROAD	CACT-50	STATION	50+00.00	TO STATION	77+00.00
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	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.		CS37		OF	40	SHEET NO.	37 OF 40


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BY: wwaismantel

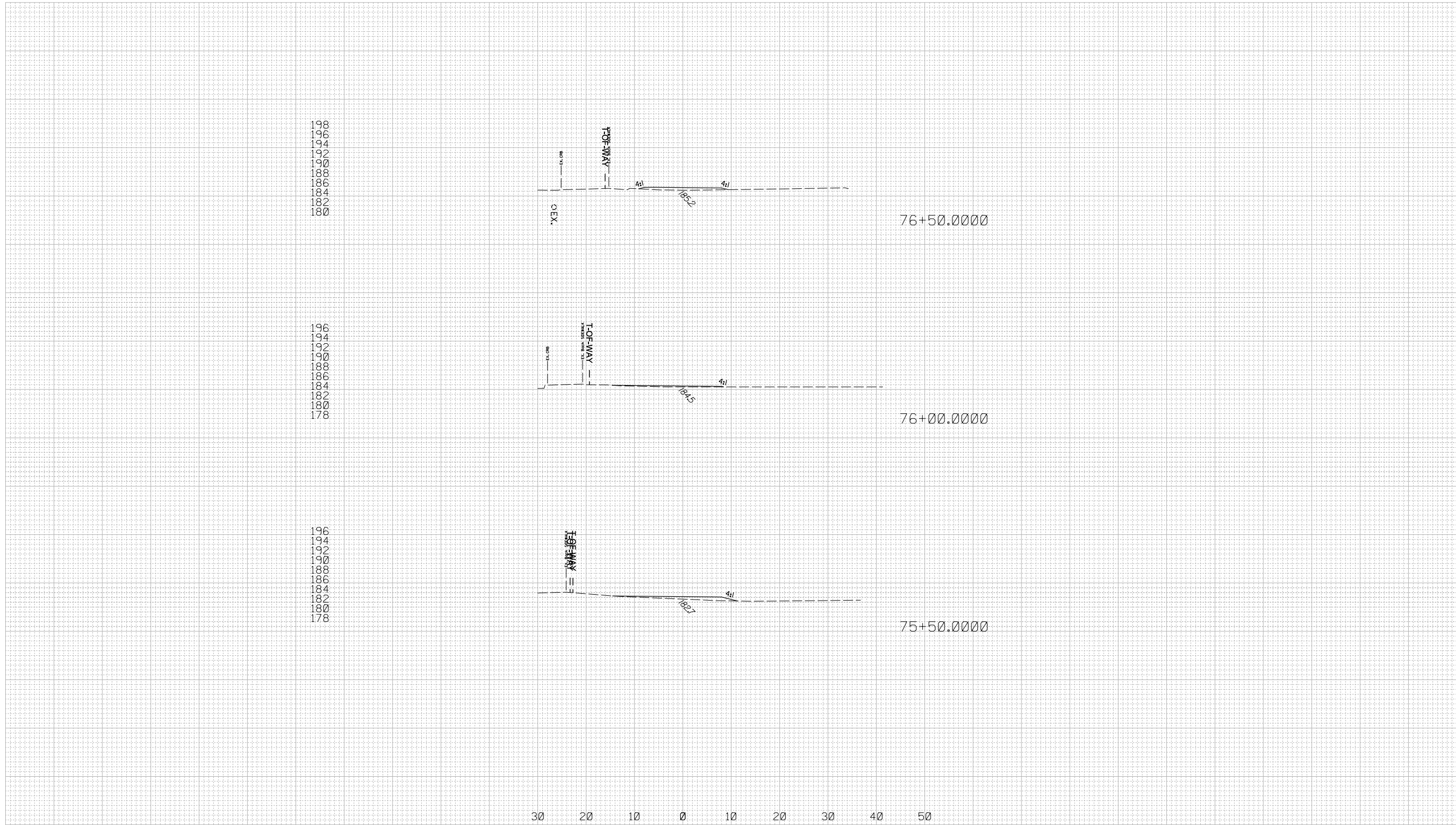


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BY: wweisantel

ROADWAY CROSS SECTION SHEET		ROAD	CACT-50	STATION	50+00.00	TO STATION	77+00.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION</p> <p>MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.		CS38		OF	40	SHEET NO.	38 OF 40

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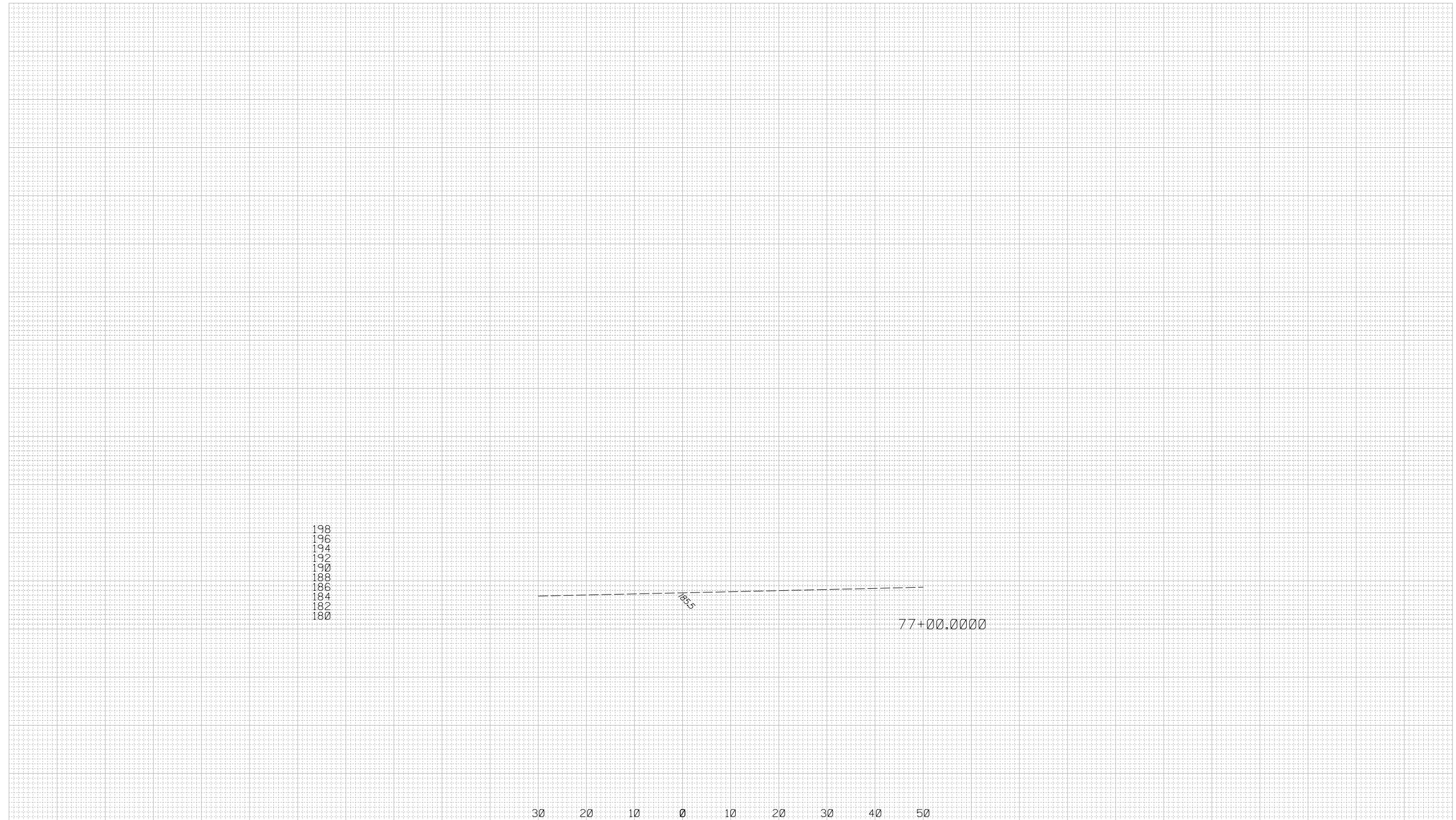



BY: wweisman1

ROADWAY CROSS SECTION SHEET		ROAD	CACT-50	STATION	50+00.00	TO STATION	77+00.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
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DRAWING NO.	CS39	OF	40	SHEET NO.	39 OF 40		

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BY: wwismantel



ROADWAY CROSS SECTION SHEET		ROAD	CACT-50	STATION	50+00.00	TO STATION	77+00.00
 <p>THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION MD 214 (CENTRAL AVENUE) CONNECTOR TRAIL PHASE 1</p>	DESIGNED BY	WRW	COUNTY	PRINCE GEORGE'S			
	DRAWN BY	WRW	CONTRACT NO.	T.B.D.			
	CHECKED BY	RJG	HORIZONTAL SCALE	1" = 10'			
	F.A.P. NO.	T.B.D.	VERTICAL SCALE	1" = 10'			
DRAWING NO.		CS40		OF	40	SHEET NO.	40 OF 40

PLOTTED: Monday, July 18, 2016 AT 07:13 AM
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APPENDIX C:

30% Design Submittal Comment and Response Matrices

APPENDIX C: 30% Design Submittal Comment and Response Matrices

Table 10. WMATA Preliminary Comment and Response Matrix, July 28, 2016

COMMENT NUMBER	30% SHEET NUMBER/LOCATION	DEPARTMENT	COMMENTS	M-NCPPC COMMENTS	STATUS/COMMENT OR DIRECTION/ACTION
1	ALL	Office of Plant Maintenance (PLNT)	Provide a grading plan with topographic information indicating slopes to determine impact.	Grading plans to be provided in a subsequent submission. Limits of work are shown on the roadway plan with the cut-fill lines.	
2	ALL	PLNT	Several good size trees are indicated, which will be impacted by the trail. (Graphic representation does not indicate drip line.) Will the trees be relocated/transplanted or otherwise replaced? Please clarify.	We will not be relocating trees. Trail will either be rerouted or new landscaping will be installed.	
3	9	PLNT	New trail being proposed but note states to retain existing sidewalk when the 30% design study reports that the sidewalk is dangerous. Omitting the sidewalk will positively impact stormwater mitigation by reducing overall impervious area.	To be reviewed/revise in next submission. Will require additional coordination with SHA.	
4	9	PLNT	WMATA currently clears County-owned sidewalk at station from Addison Road to just beyond Cabin Branch Road. The increase in width from 5' to 12' will require additional effort—if WMATA is to retain responsibility for this. Also, the proposed trail is pervious asphalt in a portion of this section which is not something WMATA typically deal with or have the proper equipment to maintain.	M-NCPPC will continue to work with WMATA and other stakeholders to develop a maintenance plan for the trail.	
5	ALL	PLNT	A retaining wall is referenced at a couple of locations and likely will be needed near the station due to the cut proposed into the hill. The wall will be a prime target for graffiti. Who maintains and cleans this? Provide anti-graffiti coating.	A retaining wall is not currently anticipated for the trail along the station. If a retaining wall is desired by WMATA, we will work with WMATA to develop an appropriate design.	
6	Report page 8	PLNT	In the study document on page 8, Figure 4 rendering of the trail in place of the old sidewalk omits the bus stop. Wouldn't this require pavement? This will increase impervious area. There are at least two bus stops that will need to be addressed on WMATA property.	Connections will be maintained at all bus stops. M-NCPPC will coordinate the design details with WMATA in final design.	
7	ALL	PLNT	Confirm the proposed slopes being created as part of the work will be able to be maintained safely with equipment. Do not exceed 15 degrees of slope.	Slopes along the trail are proposed at 2:1 in order to minimize impacts to existing facilities. Modification of slope grades will be reviewed with WMATA during final design. Max slope is 5%.	
8	Drawing 14 of 25	PLNT	This drawing indicates provision of bioswale. Additional maintenance impact on WMATA if we're to be responsible for it.	M-NCPPC will continue to work with WMATA and other stakeholders to develop a maintenance plan for the trail	
9	ALL	ADA Policy and Planning	Curb ramps must show running slopes and top of landing max 2% slope requirements. Existing conditions appear to be shown, and they are not fully compliant. Please also delineate receiving ramps across Central Avenue.	Curb Ramps have been designed to be ADA compliant. Details providing cross slopes and dimensions will be provided in final design.	
10	General	Office of Planning (PLAN)	The Planning office supports the project goals of improving the bicycle and pedestrian access to Addison Road-Seat Pleasant Metro Station. Parts of this project were recently identified as a Metro priority project through the Planning Department's Station Area Strategic Investment Plan.	Comments support the plan as drawn.	
11	Page 7	PLAN	Please provide more information about the treatments that will be used to allow bikes to safely cross the five key intersections.	Design details for the intersections will be developed during final design.	
12	Page 8	PLAN	Though illustrative, the "after photo" does not include the bus stop. How will bus stop access along the trail alignment be treated?	The bus stop was inadvertently omitted from the rendering. Connections to bus stops will be preserved.	
13	Page 13	PLAN	Maintenance—Note: in the case of the Metropolitan Branch Trail, where WMATA has granted easements, the District takes on all maintenance responsibilities for the trail. This also should include snow removal.	M-NCPPC will continue to work with WMATA and other stakeholders to develop a maintenance plan for the trail including snow removal.	

Table 10. WMATA Preliminary Comment and Response Matrix, July 28, 2016

COMMENT NUMBER	30% SHEET NUMBER/LOCATION	DEPARTMENT	COMMENTS	M-NCPPC COMMENTS	STATUS/COMMENT OR DIRECTION/ACTION
14	Design sheets	PLAN	Provide a better view of how the trail will interface with the station entrance and how cyclists will access the station.	Design details will be provided in final design.	
15	Sheet 3 of 25	Construction and Design (CONS/Civil)	Verify/correct the stationings specified in the Trail Typical Detail (e.g. Station 20+20, Station 24+70, Station 15+40, etc. These stations are in the five-inch concrete sidewalk portion of the project and not at the trail.	Station limits will be revised as necessary during final design.	
16	General	CONS/Civil	Add the stationing at the transition points of five-inch concrete sidewalk to impervious asphalt trail, pervious asphalt trail to impervious asphalt trail, etc. Add the stationing of the beginning and end of the sidewalk and pavement removal.	Additional details will be provided during final design.	
17	General	CONS/Civil	Show the centerlines of WMATA's inbound and outbound tracks and label/show WMATA's Addison Road-Seat Pleasant Metro Station.	Additional details will be provided during final design.	
18	General	CONS/Civil	A. Show the boundaries of the required temporary/permanent easements. B. Add the Deed Book and page numbers of the properties shown in the plans. C. Signed and sealed plats and metes and bounds descriptions are required for the permanent acquisition.	Proposed easements and associated information will be provided in final design.	
19	General	CONS/Civil	Include details of the proposed five-inch concrete sidewalk. Is this sidewalk reinforced?	Proposed concrete sidewalk will be constructed to meet SHA standards. Please refer to SHA Standard Specifications for Construction and Materials Section 603—Sidewalks.	
20	Sheets 15 and 16 of 25	CONS/Civil	Do they have matching details at the match line?	Additional details will be provided during final design.	
21	General	CONS/Civil	Provide details at the existing/proposed driveways, ramps crossings, junction with the trail. Provide stop signs for pedestrians.	Additional details will be provided during final design.	
22	Sheet 15 of 25	CONS/Civil	Is there planned signage at the end of the trail or median at Central Avenue/Pepper Mill Drive intersection?	Signage will be developed as part of the next submission.	
23	General	Parking (PARK)	Confirm that tactile areas are shown on curb ramps. Curb ramps and flares are not clearly marked.	To meet SHA ADA Guidelines Detectable Warning Surfaces will be installed. Details of the ADA ramps will be provided at the next submission.	
24	General	PARK	All drainage grates and other obstructions such as fences should be located a minimum of two feet from edge of path.	To be reviewed/revised in next submission.	
25	General	PARK	All curb radii should be reduced to the minimum possible.	Curb radii will be further evaluated during final design.	
26	General	PARK	All existing and proposed walls closer than two feet from edge of path should have reflectors on ends.	Reflectors will be added during final design.	
27	General	PARK	All curb ramp flares should be eight feet long if on a eight-inch curb area.	All curb ramps will be designed to meet SHA ADA Guidelines.	
28	General	PARK	Provide maintenance of traffic (MOT) and signing plans for review.	MOT and signing plans will be provided at the next submission. Details of the ADA ramps will be provided at the next submission.	
29	Sheet 8	PARK	Southwest curb ramp should be aligned into the crosswalk.	To be reviewed/revised in next submission.	
30	Sheet 8	PARK	Station 15+49 provide consistent width of path on north island.	Reduced path width is required to minimize impact to existing utility pole.	

APPENDIX C: 30% Design Submittal Comment and Response Matrices

Table 10. WMATA Preliminary Comment and Response Matrix, July 28, 2016

COMMENT NUMBER	30% SHEET NUMBER/LOCATION	DEPARTMENT	COMMENTS	M-NCPPC COMMENTS	STATUS/COMMENT OR DIRECTION/ACTION
31	Sheet 8	PARK	Flare of ramp next to Station 15+49 appears that it should be eight feet in length if there is an eight-inch curb.	The flare is designed to be eight feet long. Details of the ADA ramps providing dimensions will be provided at the next submission.	
32	Sheet 8	PARK	Curb ramp past Station 24+22 flare should be eight feet long if eight-inch curb and should align into the crosswalk. It is unclear if there is a northbound crosswalk.	The flare is designed to be eight feet long. Details of the ADA Ramps providing dimensions will be provided at the next submission.	
33	Sheet 9	PARK	Show existing crosswalks to determine appropriate movement of pedestrians and bicycles.	Additional details will be provided during final design.	
34	Sheet 9	PARK	Curb ramp opposite Station 10+00 curb ramp does not seem to be aligned. Also, curb radius is very wide on that side.	Curb radius is designed to match existing curb at the intersection. The proposed crosswalk alignment has shifted from existing conditions and will require new crosswalk pavement markings.	
35	Sheet 9	PARK	Station 40+60 reset handrail a minimum of two feet from edge of path per AASHTO.	Railing requirements and details will be further evaluated during final design.	
36	Sheet 9	PARK	At Station 40+40, is there a northbound crosswalk and receiving ramps on the island?	Crosswalk details will be further evaluated and developed during final design.	
37	Sheet 9	PARK	Proposed ditch starting at Station 44+79 should have a two-foot shoulder or use AASHTO Guide for other options.	In locations of proposed ditch there is a two-foot shoulder from the edge of the trail to the hinge point at the top of the ditch.	
38	Sheet 10	PARK	W-Beam traffic barrier should have a 42-inch high railing attached per AASHTO due to drop off on other side.	Traffic barrier attachment options will be reviewed at the next submission.	
39	Sheet 10	PARK	What is agreement for the impervious pavement maintenance? Indicate entire responsible for maintenance.	Implementing agencies do not recommend impervious pavement. We will likely be looking at alternative treatments.	
40	Sheet 11	PARK	Show all existing and proposed crosswalks. Curb ramps should be directed into the curb ramp per ADA. Curb radii on both curbs could be reduced.	Crosswalk details will be further evaluated and developed during final design in consultation with SHA.	
41	Sheet 11	PARK	Proposed SHA entrance at Station 53+50 should have eight-foot-long flares if eight-inch curb.	Driveway Entrance meets SHA MD-630.02.	
42		Metro Transit Police Department (MTPD)	MTPD recommends having camera coverage along the trail, and ideally, would like to be consulted regarding the camera specifications and access to viewing cameras, particularly for cameras that cover WMATA property.	To be reviewed in next submission. Cameras may be integrated into lighting to be coordinated as part of maintenance agreement.	
43		MTPD	Lighting along the trail, particularly on WMATA-owned portions should meet WMATA lighting standards.	To be reviewed in next submission.	
44		MTPD	On page 9, retaining walls are mentioned. MTPD recommends ensuring that retaining walls are either short enough or made of material that does not allow persons to hide behind them for the purposes of criminal activity.	Wall heights will be minimized to the extent possible. Will be examined further in final design.	
45		MTPD	It should be understood that, while there may be some easements of land, that MTPD will not be responsible for emergency response to the trail, nor will it be responsible for maintenance of cameras or call boxes.	Comment acknowledged.	

Table 10. WMATA Preliminary Comment and Response Matrix, July 28, 2016

COMMENT NUMBER	30% SHEET NUMBER/LOCATION	DEPARTMENT	COMMENTS	M-NCPPC COMMENTS	STATUS/COMMENT OR DIRECTION/ACTION
46		Construction and Design	All work within 50 feet of WMATA facilities and/or within the zone of influence of WMATA facilities shall be in conformance with <i>WMATA Adjacent Construction Project Manual</i> (ACPM). For your information and use, please see the link below the WMATA ACPM. http://www.wmata.com/business/joint_development_opportunities/adjacent_construction_information.cfm	Comment acknowledged. Plans designed to comply with JDAC.	
47		Joint Development and Adjacent Construction (JDAC)	See WMATA ACPM for guidance on applicable general procedures, document request form, coordination, submittal process, design and construction requirements, real estate and insurance requirements, WMATA contractor identification cards, roadway workers protection (RWP) training and site-specific work plan (SSWP) etc. for construction projects adjacent to, beneath, on, or over existing WMATA property, facilities, and/or operating rights-of-way. WMATA ID cards are required for every contractor staff/person that work on WMATA property or easement areas. The RWP training is required for contractors staff who are planning to enter with WMATA Escort(s) the WMATA right-of-way (ROW) and/or the WMATA service rooms. The SSWP is required if applicable when you request power outage to perform any work that might impact WMATA facilities and/or utilities.	To be provided in next submission.	
48		JDAC	Show WMATA's zone of influence (ZOI) on all applicable plans. Please reference ACPM, plates A-2A, A-2B and A-2C for ZOI limits	To be provided in next submission.	
49		JDAC	Provide cross sections along trail alignment showing relationship between WMATA station, tunnel, tracks, etc.	To be provided in next submission.	
50		JDAC	Provide calculations (in accordance with ACPM) for all structures and support of excavation within WMATA ZOI.	To be provided in next submission.	
51		JDAC	<p>Add the following preliminary comments to the General Notes of construction document permit set:</p> <ul style="list-style-type: none"> a. All working plans shall include specific reference to the WMATA ACPM for work which will involve and or impact WMATA interests; such as but not limited to work hours, rail road protective liability insurance, no driving of sheet pile within 25 feet of the WMATA ROW, construction sequence plan and staging plan, equipment positioning plan, contingency and monitoring plan, etc. b. Contractor shall verify and locate any underground utilities (both horizontally and vertically) in the vicinity of WMATA utilities or those serving WMATA facilities, and the proposed gas and water lines (to be installed prior to the start of this project) by private utility company prior to performing any work. Contractor shall undertake test pits if necessary to verify locations and depths of utilities located on WMATA property, easements or serving WMATA facilities. c. Contractor shall keep the equipment and machinery to be used for the execution of work inside the fenced or barricaded areas and not to restrict the WMATA use of its access and facilities. d. Contractor shall restore the WMATA permitted premises in accordance with WMATA specifications and requirements upon completion of the work as described in the WMATA approved work plan. e. Contractor shall provide Indemnification and Insurance to WMATA in accordance with the requirements of WMATA's ACPM and WMATA's real estate permit requirements. f. Contractor shall submit as-built plans per the requirements outlined in the WMATA's ACPM for all applicable work located within WMATA zone of influence. 	Notes will be adjusted in future submission.	

APPENDIX C: 30% Design Submittal Comment and Response Matrices

Table 10. WMATA Preliminary Comment and Response Matrix, July 28, 2016

COMMENT NUMBER	30% SHEET NUMBER/LOCATION	DEPARTMENT	COMMENTS	M-NCPPC COMMENTS	STATUS/COMMENT OR DIRECTION/ACTION
52		JDAC	Indicate correctly on plans the existing conditions, such as station, kiss and ride parking, portal wall, retaining wall, concrete drainage swale, etc.	Notes will be adjusted in future submission. Surveys only recorded details within 100 feet of planned alignment.	
53		JDAC	Project agreements between M-NCPPC, Prince George's County and WMATA, and a WMATA's real estate permit for M-NCPPC/Prince George's County's general contractor shall be executed prior to the start of work on WMATA property, easements or interests.	Comment acknowledged.	
54		JDAC	M-NCPPC/Prince George's County shall cause the selected general contractor or subcontractor to apply for a WMATA Right-of-Entry permit in order to enter WMATA property, easements or interests for work activities such as but not limited to bike trail, drainage, retaining/barrier wall, lighting, signage and equipment storage and staging. Please see the following URL for permit application: http://www.wmata.com/business/joint_development_opportunities/forms.cfm .	All standards will be followed during final design and construction.	
55		JDAC	Provide site-specific support of excavation design drawings and calculations per WMATA's ACPM requirements for all applicable work located within WMATA zone of influence.	To be provided in next submission.	
56		JDAC	Indicate clearly on all plans existing WMATA ROW, property lines, easements, structures, facilities and utilities serving WMATA facilities and interests.	To be provided in next submission.	
57		JDAC	Indicate all permanent property and temporary easements required from WMATA. M-NCPPC/Prince George's County shall prepare the necessary documentation for the acquisition of the required WMATA property and easements.	To be provided in next submission.	
58		JDAC	Provide demolition plan.	To be provided in next submission.	
59		JDAC	Provide grounding and bonding per WMATA standards and specifications (See attachments). Provide ground resistance/continuity test results for compliance.	To be provided in next submission.	
60		JDAC	Show Addison Road-Seat Pleasant Metro Station on the cover sheet and applicable design plans.	To be provided in next submission.	
61		JDAC	Provide electrical site plans, photometrics, and electrical pole foundation design and calculations.	To be provided in next submission.	
62		JDAC	Provide Landscaping Plan.	To be provided in next submission.	
63		JDAC	Provide an operation and maintenance agreement to document terms, conditions, responsibilities, liabilities, etc.	To be provided in next submission.	
64		Track, Structures and Facilities (TSFA)	All new construction on WMATA property must meet the WMATA design criteria, current edition.	To be reviewed/revise for next submission.	
65		TSFA	All new construction on WMATA property must meet the WMATA <i>Station Site and Access Planning Manual</i> , current edition.	To be reviewed/revise for next submission.	
66		TSFA	Provide photometric analysis for review in future submission.	To be provided in next submission.	
67		Office of Bus Planning (BPLN)	Just to the west of the project, eastbound East Capitol west of East Capital Street, Metrobus stop #3000951 is not compliant with ADA. Metrobus stop #3000951. The project area should be expanded to make this stop ADA compliant. It needs an expanded pad behind the sidewalk eight feet deep and five feet wide including the existing sidewalk.	To be reviewed/revise for next submission.	

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COMMENT NUMBER	30% SHEET NUMBER/LOCATION	DEPARTMENT	COMMENTS	M-NCPPC COMMENTS	STATUS/COMMENT OR DIRECTION/ACTION
68		BPLN	Metrobus stop #3000954 eastbound Central Avenue nearside of Cabin Branch Road is not compliant with ADA. It should be made ADA compliant as part of this project. It needs an expanded pad behind the sidewalk 8 feet deep and 5 feet wide including the existing sidewalk.	This is beyond project scope.	
69		BPLN	East of Cabin Branch Road, show all intersecting streets to the north of Central Avenue on plans.	To be provided in next submission.	
70		BPLN	Metrobus stop #3002864 westbound Central Avenue, far side of Daimler Drive is not compliant with ADA. It should be made ADA compliant as part of this project. It needs an expanded pad behind the sidewalk eight feet deep and five feet wide including the existing sidewalk, and a connection between the curb and sidewalk.	To be reviewed/revise for next submission.	
71		BPLN	Metrobus stop #3000959 eastbound Central Avenue nearside of Daimler Drive (across) is not compliant with ADA. It should be made ADA compliant as part of this project. It needs an expanded pad behind the sidewalk eight feet deep and five feet wide including the existing sidewalk, and a connection between the curb and sidewalk.	To be reviewed/revise for next submission.	
72		BPLN	Metrobus stop #3000961 westbound Central Avenue nearside of Pepper Mill Drive is not compliant with ADA. It should be made ADA compliant as part of this project. It needs an expanded pad behind the sidewalk eight feet deep and five feet wide including the existing sidewalk, and a connection between the curb and sidewalk.	To be reviewed/revise for next submission.	
73		BPLN	Metrobus stop #3002822 eastbound Central Avenue nearside of Pepper Mill Drive (across) is not compliant with ADA. It should be made ADA compliant as part of this project. It needs an expanded pad behind the sidewalk eight feet deep and five feet wide including the existing sidewalk, and a connection between the curb and sidewalk.	To be reviewed/revise for next submission.	
74		Office of Real Estate and Station Planning (LAND)	Specify lane widths on cross-section concepts. Streets must balance the needs of all forms of traffic, vehicles, bicycle, and pedestrian. Less than 12-foot travel lanes (excluding gutter pan) are too narrow for safe operation by buses currently in the fleet. Also, due to the greater basic width of buses of recent and anticipated future design, increased by the added effective width caused by mirrors deployed to the maximum extent, 12-foot, excluding gutter pan, travel lanes would reduce sideswipe accidents. Also, check turning radii formerly considered adequate may not accommodate transit buses under present design of overall length greater than the current standard of 40 feet or with an axle spacing of greater than 24 feet.	To be provided in next submission.	
75		SHA-OOTS	SHA does not recommend a mid-block crossing for the MD 214 Connector Trail. The eighty-fifth percentile speed of 50 miles per hour on a 30 miles per hour posted, the lack of sight distance due to the horizontal curve, and the left turn conflict with having the trail on the east side contribute to this being an unsafe crossing location. Other options shall be explored by M-NCPPC.	A recommendation to evaluate potential alternatives for the crosswalk at Pepper Mill Drive has been provided in the design report. It should be clarified that the crosswalk is not at a mid-block location because Pepper Mill Drive is a public road.	
76		SHA-OOTS	SHA is currently researching all options for the Addison Road-Seat Pleasant Metro Station mid-block crossing to mitigate the crash problem trends. SHA has identified this section of the corridor as a Pedestrian Road Safety Audit location. A site visit has been conducted and the recommendations are being finalized for the District's review.	So noted.	

Figure 6. SHA Comment Letter



January 31, 2017

Mr. Jordan Y. Exantus, AICP, LEED
PG's County Planning Department
14741 Governor Oden Bowie Drive
Upper Marlboro, MD 20772

Dear Mr. Jordan Y. Exantus:

Thank you for the opportunity to review the SHA trail improvements plan for the proposed Central Avenue Connector Trail – 17APPG002XX on MD-214 Central Avenue (Mile Point 0.68) in Prince George's County. The State Highway Administration (SHA) has reviewed the plans and we are pleased to respond.

Based on the information provided, please address the following comments in a point-by-point response:

Cultural Resources Comments (Provided by Aaron Levinthal):

1. Based on this assessment, the proposed roadway improvements to MD 214 associated with the Central Avenue Connector Trail, MP 0.68 project do not have the potential to impact historic properties. Formal consultation with the Maryland Historical Trust is not recommended.

Innovative Contracting Division (ICD) Comments (Provided by John Vranish):

1. **Sheet PS-01 thru PS-10:** Label all proposed sidewalk width, ramps, ramp details and intersecting sidewalk with a Maryland Standard.

My telephone number/toll-free number is 301-513-7300 or 1-800-749-0737
Maryland Relay Service for Impaired Hearing or Speech 1.800.735.2258 Statewide Toll Free

Street Address: 9300 Kenilworth Avenue • Greenbelt, Maryland 20770 • Phone 301.513.7300 • www.roads.maryland.gov

Mr. Jordan Y. Exantus
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January 31, 2017

District 3 Traffic Comments (Provided by Dave Murnan):

Sheet 7:

1. The Central Avenue Service Road is MD 332. Please label.
2. The spur from MD 332 to MD 214 is MD 332B

Sheet 8:

3. Label MD 332
4. Signing and Marking along MD 332 and MD 214 must be in accordance with state standards for the MdMUTCD. Specifically:
 - a. Continental crosswalk marking shall not be used. Rather use two 12" lines with hatching.
 - b. Do not Block intersection markings should be Option C (Left Option). However, please justify the need for these markings.

Sheet 9:

5. Please coordinate design with the proposed traffic signal at MD 214 and Addison Road metro.

Sheet 15:

6. Do not install a crosswalk across MD 214 at Pepper Mill Drive at this time. Instead, tie the trail into the existing sidewalk on the south side of MD 214. If a future phase of trail construction the trail continues on the north side the need for a crosswalk may be reconsidered; however, appropriate treatments for the crosswalk must be designed and implemented at that time.

Highway Hydraulics Division (HHD) Comments (Provided by Shandale Forbes):

1. We have received and reviewed your submission, which included the proposed trail plans (typical sections, pavement details, geometry, and plan and profile sheets). In order for the Highway Hydraulics Division to complete a detailed review of the project please submit a hydrologic analysis of the existing and proposed site conditions, a hydraulic analysis and design of the existing and proposed storm drain system, and a narrative describing the

Mr. Jordan Y. Exantus
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proposed project. Refer to the *Maryland State Highway Administration Hydraulic Hydrologic Review Guidelines* for additional information.

2. Once obtained please provide documentation of the local agency's review and approval of both the Stormwater management and erosion/sediment control plans.
3. With regard to the storm drain system plans, analysis and design, we have the following comments:
 - a. Please provide supporting computations (including drainage area mapping) for gutter spread, inlet efficiency and the flow across the entrances. As per SHA drainage design criteria, gutter spread cannot exceed 8 feet (2-year frequency storm), inlets must intercept at least 85% of the flow (2-year frequency storm) and flows across entrances cannot exceed 1.0 cfs (2-year frequency storm).
 - b. Please show the inflow and outflow pipes on all plan sheets and their crossing on all profiles.
 - c. Please label existing pipe sizes and show directions with flow arrows.
 - d. Please provide a structure schedule that includes columns for structure number, horizontal location (either station/offset or coordinates), top elevation, invert, vertical depth, type, SHA standard detail
 - e. Please provide a pipe schedule that includes columns for structure from, structure to, length, invert, type, size and notes.
 - f. Please label cross sections to include all cross-slopes, side slopes, and ditch inverts (which should be set at least 1.5 feet below the edge of SHA pavement). Also, show/label the SHA right-of-way line.
 - g. Pipe Profiles (10-year design)
 - i. Please provide the associated storm drain profile(s) – giving both Q10 and V10 for each segment of pipe. Plot the 25-year hydraulic gradient. Include all required supporting computations.
 - ii. Please ensure that any existing underground utility crossings are shown and labeled. Test pits should be performed at this time – rather than just prior to construction by the Contractor.

Mr. Jordan Y. Exantus
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- iii. Outfalls showing (Q10 and V10)
 - iv. Appropriate Rip Rap Aprons and Toe Walls
 - v. Culvert Analysis and Design, if needed, based on roadway classification.
4. Although we defer to the local agency for Stormwater Management approval, due to the possible impacts to SHA right-of-way we have the following comments:
 - a. Please provide existing and proposed drainage area maps to include land uses, soil types, natural resources, topography and planimetrics, legends, POIs, and labeled Tc paths.
 - b. Please provide a Stormwater Management Report to include:
 - i. Hydrology/Methodology (TR-55)
 - ii. Stormwater Management Analysis
 - iii. Proposed Improvements/Mitigation
 - c. BMP/ESD requirements and design (2007 Stormwater Management Act and 2010 Updates).
 5. Although we defer to the local agency for Erosion and Sediment Control approval, due to the possible impacts to SHA right-of-way we have the following comments:
 - a. Please provide erosion and sediment control plans for review. All water should be treated prior to entering the SHA right-of-way or the same day stabilization should be provided.
 - b. All Erosion and Sediment Control design should be per the 2011 Standards.
 6. Based on your current SWM design, we anticipate that SHA BMP numbers will be required. Once all SWM comments have been satisfactorily addressed, directions indicating how to request a BMP number will be provided. The assigned BMP number will then need to be shown on all appropriate drawings. Please note: An SHA BMP number is required for any existing or proposed private stormwater management facilities providing treatment of **SHA impervious** and all facilities proposed within the SHA right-of-way. Facilities proposed within the SHA right-of-way can only treat SHA impervious areas.

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7. Please ensure that all proposed stormwater management facilities within SHA right-of-way conform to the SHA detail and special provision.
8. When stormwater plans include the construction of bioswales, bioretention facilities and other landscaped stormwater facilities on SHIA property or within easements or lands to be conveyed to SHA, the design of such facilities must be coordinated with other plans for landscape construction. Soil, seed, mulch, soil stabilization matting and plant materials are examples of materials that must be reflected in plans developed in conformance with Chapter 6 of the 'SHA Environmental Guide for Access and District Permit Applicants'. The 'Environmental Guide' and other SHA landscape guidance is at <http://www.roads.maryland.gov/index.aspx?PageId=25>. The SHA Office of Environmental Design reviews plans for landscape construction. Please contact Mr. Joseph E. Vervier at jvervier@sha.state.md.us for assistance with any questions related to landscape plans, materials and construction.
9. Please include a discussion in the report regarding any temporary or permanent changes to SHA right of way as needed. Bearing and distances along the right of way should be included. Once finalized, please provide a copy of the signed 'recordable' plat for proposed easements and 'rights to discharge'. For any questions in regards to plat preparation please contact Mr. Jeff Bonnerwith (jbonnerwith@sha.state.md.us) of SHA's Office of Highway Development's Plats and Survey Division.

District 3 Access Management Comments (Provided by José R. González):

1. Please place the following note on the first sheet of the plan set:

The following standards (construction and temporary traffic control) are required for this project (list them out as shown below):

 - a. MD-xxx.xxx – Name of standard
 - b. MD-xxx.xxx – Name of standard

For all standards referred to on the plans the contractor must go to the Book of Standards which will have the most current version. The Book of Standards can be accessed at: <http://apps.roads.maryland.gov/businesswithsha/bizStdsSpecs/desManualStdPub/publicationonline/ohd/bookstd/index.asp>
All items are to be constructed in accordance with the current version of the referenced standard at the time of construction.
2. Please verify the following link for checklist and guidelines for submitting for an SHA access permit.
 - a. <http://www.sha.state.md.us/Index.aspx?PageId=57>.

Mr. Jordan Y. Exantus
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Further plan submittals should reflect the above comments. Please submit one (1) sets of revised plans, a CD containing the plans and supporting documentation in PDF format, one (1) copy of the trip generation study as well as a point-by-point response to reflect the comments noted above directly to Mr. Brian Young at 9300 Kenilworth Avenue, Greenbelt, MD 20770, attention of Mr. Kwesi Woodroffe. Please reference the SHA tracking number on future submissions. Please keep in mind that you can view the reviewer and project status via the SHA Access Management web page at <http://www.roads.maryland.gov/pages/amd.aspx>. If you have any questions or require additional information please contact Mr. Kwesi Woodroffe at 301-531-7347, by using our toll free number (in Maryland only) at 1-800-749-0737 (x7347), or via email at kwoodroffe@sha.state.md.us

Sincerely,



Brian W. Young
District Engineer

BWY/jrg

cc: Mr. Jason Ferner, SHA – HHD
Ms. Shandale Forbes, SHA – HHD
Mr. William Gover, SHA – ICD
Mr. Aaron Levinthal, OPPE – EPLD
Ms. Shadija Maddox, SHA District #3 Traffic
Ms. Anyesha Mookherjee, SHA District #3 Traffic
Mr. Dave Murnan, SHA District #3 Traffic
Ms. Deborah Pitts, SHA – HHD
Mr. John Vranish, SHA – ICD
Mr. Kwesi Woodroffe, SHA District #3 Regional Engineer



APPENDIX D:

Maintenance Checklist for Greenways and Urban Trails (American Trails)

Trail Maintenance and Management

MAINTENANCE CHECKLIST FOR GREENWAYS AND URBAN TRAILS¹

Maintenance to be performed on a continuous, scheduled basis:

1. Trail User Safety

Safety is central to all maintenance operations, and is the single most important trail maintenance concern. Items for consideration include scheduling and documentation of inspections, the condition of railings, bridges, and trail surfaces, proper and adequate signage, removal of debris, and coordination with other agencies associated with trail maintenance.

2. Trails Inspection

Trails inspections are integral to all trail maintenance operations. Inspections will occur on a regularly scheduled basis, the frequency of which will depend on the amount of trail use, location, age, and the type of construction. All trail inspections are to be documented.

3. Trail Sweeping

Trail sweeping is one of the most important aspects of trail maintenance, helping ensure trail user safety. The type of sweeping to be performed depends on trail design and location. Trails that require sweeping of the whole system will be swept by machine. Trails that require only spot sweeping of bad areas will be swept by hand or with blowers. Some trails require a combination of methods. Sweeping will be performed on a regular schedule.

4. Trash Removal

Trash removal from trail corridors is important from both a safety and an aesthetic viewpoint, and includes removing ground debris and emptying trash containers. Trash removal will take place on a regularly scheduled basis, the frequency of which will depend on trail use and location.

5. Tree and Shrub Pruning

Tree and shrub pruning will be performed for the safety of trail users. Pruning will be performed to established specifications on a scheduled and as needed basis, the frequency of which will be fairly low.

6. Mowing of Vegetation

Trails maintenance personnel will mow vegetation along trail corridors on a scheduled basis only where mowing is not performed by other agencies or park districts.

7. Scheduling Maintenance Tasks

Inspections, maintenance, and repair of trail-related concerns will be regularly scheduled. Inspection and repair priorities should be dictated by trail use, location, and design. Scheduling maintenance tasks is a key item towards the goal of consistently clean and safe trails.

Maintenance to be performed on an irregular or as needed basis:

1. Trail Repair

Repair of asphalt or concrete trails will be closely tied to the inspection schedule. Prioritization of repairs is part of the process. The time between observation and repair of a trail will depend on whether the needed repair is deemed a hazard, to what degree the needed repair will affect the safety of the trail user, and whether the needed repair can be performed by the trails maintenance crew or if it is so extensive that it needs to be repaired by outside entities.

2. Trail Replacement

The decision to replace a trail and the type of replacement depends on many factors. These factors include the age of the trail, and the money available for replacement. Replacement involves either completely overlaying and asphalt trail with a new asphalt surface, or replacement of an asphalt trail with a concrete trail. In general, replacing asphalt trails with concrete is desirable. (A discussion of the different philosophies concerning the replacement of an asphalt trail with a concrete surface can be found elsewhere in the Bicycle Master Plan.) Parks Planning will coordinate all trail replacement, and the Trail Coordinator will recommend trails for replacement.

3. Snow and Ice Removal

The trails maintenance crew, with the help of the various districts, will remove snow from all city trails as soon as possible after a snowfall. The trails crew will provide help as needed to any district. Ice control and removal of ice build-up on trails is a continual factor because of the freeze-thaw cycle. Ice control is most important on grade changes and curves. Ice can be removed or gravel/ice melt applied. After the ice is gone, leftover gravel should be swept as soon as possible.

4. Weed Control

Weed control along trails will be limited to areas in which certain weeds create a hazard to users (such as "goathead" thorns along trail edges). Environmentally safe weed removal methods should be used, especially along waterways.

5. Trail Edging

Trail edging maintains trail width, and improves drainage. Problem areas include trail edges where berms tend to build up, and where uphill slopes erode onto the trails. Removal of this material will allow proper draining of the trail surface, allow the flowing action of the water to clean the trail, and limit standing water on trail surfaces. Proper drainage of trail surfaces will also limit ice build-up during winter months.

6. Trail Drainage Control

In places where low spots on the trail catch water, trail surfaces should be raised or drains built to carry away water. Some trail drainage control can be achieved through the proper edging of trails. If trail drainage is corrected near steep slopes, the possibility of erosion must be considered.

¹ Reprinted from AmericanTrails.org (<http://www.americantrails.org/resources/ManageMaintain/MaintCheck.html>), *Maintenance Checklist For Greenways And Urban Trails* by Jed Wagner, Denver Parks and Recreation Department; 1999, updated March 16, 2007.

7. Trail Signage

Trail signs fall into two categories: safety and information. Trail users should be informed where they are, where they are going, and how to use trails safely. Signs related to safety are most important and should be considered first. Information signage can enhance the trail users experience. A citywide system of trail information signage should be a goal.

8. Revegetation

Areas adjacent to trails that have been disturbed for any reason should be revegetated to minimize erosion.

9. Habitat Enhancement and Control

Habitat enhancement is achieved by planting vegetation along trails, mainly trees and shrubs. This can improve the aesthetics of the trail, help prevent erosion, and provide for wildlife habitat. Habitat control involves mitigation of damage caused by wildlife. An example is the protection of trees along waterways from damage caused by beavers.

10. Public Awareness

Creating an understanding among trail users of the purpose of trails and their proper use is a goal of public awareness. Basic concepts of trail use include resolution of user conflicts, and speed limitations. The representatives should be easily accessible to field questions and concerns.

11. Trail Program Budget Development

A detailed budget should be created for the trails program, and revised on an annual basis.

12. Volunteer Coordination

The use of volunteers can help increase public awareness of trails, and provide a good source of labor for the program. Sources of volunteers include Boy Scouts, school groups, church groups, trail users, or court workers. Understanding volunteers' concerns is important, as are possible incentives or recognition of work performed. Implementation of an "Adopt-a-Trail" program should be considered.

13. Records

Good record-keeping techniques are essential to an organized program. Accurate logs should be kept on items such as daily activities, hazards found and action taken, maintenance needed and performed, etc. Records can also include surveys of the types and frequency of use of certain trail sections. This information can be used to prioritize trail management needs.

14. Graffiti Control

The key to graffiti control is prompt observation and removal. During scheduled trail inspections any graffiti should be noted and the graffiti removal crew promptly notified.

15. Mapping

Several maps are privately marketed and available for trail users. From a maintenance standpoint, an accurate, detailed map of the trail system is important for internal park use.

16. Coordination with Other Agencies

Maintenance of trails located within more than one jurisdiction, like the Platte River Trail and the High Line Canal Trail, is provided by other agencies, in addition to Denver Parks Department. A clear understanding of maintenance responsibilities needs to be established to avoid duplicating efforts or missing maintenance on sections of the trails.

17. Education and Interpretation

Many segments of the trail system contain a wealth of opportunities for education and interpretation. A successful example is Denver Public Schools' Greenway Experience, operated for many years. Trails along waterways provide good opportunities to teach and study concepts about urban wildlife and ecology. Educational opportunities range from interpretive signage to educational tours.

18. Law Enforcement

A greater law-enforcement effort might be made toward the goal of a safer trail system. Law enforcement agencies should be aware of the location of trails, and the types and levels of use they receive. Sections of trail corridors being used by transients is an ongoing problem that is not easily solved. Increased law enforcement awareness will be addressed on an as needed basis.

19. Proper Training of Employees

Properly training maintenance employees is essential to the efficient operation of the trails maintenance program. All employees should be thoroughly trained to understand and be aware of all of the above-mentioned aspects of trail maintenance. Safety, a good work ethic, and proper care of equipment and tools will always be the backbone of a good training program. Employees must also be aware of the need for positive public contact. Proper positive attitude towards public questions and concerns is important, as is the conveyance of this information to trail supervisors.



APPENDIX E:

Pedestrian and Bicycle Funding Opportunities (U.S. Department of Transportation)

Pedestrian and Bicycle Funding Opportunities
U.S. Department of Transportation Transit, Highway, and Safety Funds

Revised August 12, 2016

This table indicates potential eligibility for pedestrian and bicycle projects under U.S. Department of Transportation surface transportation funding programs. Additional restrictions may apply. See notes and basic program requirements below, and see program guidance for detailed requirements. Project sponsors should fully integrate nonmotorized accommodation into surface transportation projects. Section 1404 of the Fixing America's Surface Transportation (FAST) Act modified 23 U.S.C. 109 to require federally-funded projects on the National Highway System to consider access for other modes of transportation, and provides greater design flexibility to do so.

Key: \$ = Funds may be used for this activity (restrictions may apply). \$* = See program-specific notes for restrictions. ~\$ = Eligible, but not competitive unless part of a larger project.															
Activity or Project Type	Pedestrian and Bicycle Funding Opportunities														
	U.S. Department of Transportation Transit, Highway, and Safety Funds														
	<u>TIGER</u>	<u>TIFIA</u>	<u>FTA</u>	<u>ATI</u>	<u>CMAQ</u>	<u>HSIP</u>	<u>NHPP</u>	<u>STBG</u>	<u>TA</u>	<u>RTP</u>	<u>SRTS</u>	<u>PLAN</u>	<u>NHTSA</u> <u>402</u>	<u>NHTSA</u> <u>405</u>	<u>FLTP</u>
Access enhancements to public transportation (includes benches, bus pads)	\$	\$	\$	\$	\$		\$	\$	\$						\$
ADA/504 Self Evaluation / Transition Plan								\$	\$	\$		\$			\$
Bicycle plans			\$					\$	\$		\$	\$			\$
Bicycle helmets (project or training related)								\$	\$SRTS		\$		\$*		
Bicycle helmets (safety promotion)								\$	\$SRTS		\$				
Bicycle lanes on road	\$	\$	\$	\$	\$	\$	\$	\$	\$		\$				\$
Bicycle parking	~\$	~\$	\$	\$	\$		\$	\$	\$	\$	\$				\$
Bike racks on transit	\$	\$	\$	\$	\$			\$	\$						\$
Bicycle share (capital and equipment; not operations)	\$	\$	\$	\$	\$		\$	\$	\$						\$
Bicycle storage or service centers at transit hubs	~\$	~\$	\$	\$	\$			\$	\$						\$
Bridges / overcrossings for pedestrians and/or bicyclists	\$	\$	\$	\$	\$*	\$	\$	\$	\$	\$	\$				\$
Bus shelters and benches	\$	\$	\$	\$	\$		\$	\$	\$						\$
Coordinator positions (State or local)					\$ 1 per State			\$	\$SRTS		\$				
Crosswalks (new or retrofit)	\$	\$	\$	\$	\$*	\$	\$	\$	\$	\$	\$				\$
Curb cuts and ramps	\$	\$	\$	\$	\$*	\$	\$	\$	\$	\$	\$				\$
Counting equipment			\$	\$		\$	\$	\$	\$	\$	\$	\$*			\$
Data collection and monitoring for pedestrians and/or bicyclists			\$	\$		\$	\$	\$	\$	\$	\$	\$*			\$
Historic preservation (pedestrian and bicycle and transit facilities)	\$	\$	\$	\$				\$	\$						\$
Landscaping, streetscaping (pedestrian and/or bicycle route; transit access); related amenities (benches, water fountains); generally as part of a larger project	~\$	~\$	\$	\$			\$	\$	\$						\$
Lighting (pedestrian and bicyclist scale associated with pedestrian/bicyclist project)	\$	\$	\$	\$		\$	\$	\$	\$	\$	\$				\$
Maps (for pedestrians and/or bicyclists)			\$	\$	\$			\$	\$		\$	\$*			
Paved shoulders for pedestrian and/or bicyclist use	\$	\$			\$*	\$	\$	\$	\$		\$				\$

Key: \$ = Funds may be used for this activity (restrictions may apply). \$* = See program-specific notes for restrictions. ~\$ = Eligible, but not competitive unless part of a larger project.

Activity or Project Type	Pedestrian and Bicycle Funding Opportunities U.S. Department of Transportation Transit, Highway, and Safety Funds														
	TIGER	TIFIA	FTA	ATI	CMAQ	HSIP	NHPP	STBG	TA	RTP	SRTS	PLAN	NHTSA 402	NHTSA 405	FLTP
Pedestrian plans			\$					\$	\$		\$	\$			\$
Recreational trails	~\$	~\$						\$	\$	\$					\$
Road Diets (pedestrian and bicycle portions)	\$	\$				\$	\$	\$	\$						\$
Road Safety Assessment for pedestrians and bicyclists						\$		\$	\$			\$			\$
Safety education and awareness activities and programs to inform pedestrians, bicyclists, and motorists on ped/bike safety								\$SRTS	\$SRTS		\$	\$*	\$*	\$*	
Safety education positions								\$SRTS	\$SRTS		\$		\$*		
Safety enforcement (including police patrols)								\$SRTS	\$SRTS		\$		\$*	\$*	
Safety program technical assessment (for peds/bicyclists)								\$SRTS	\$SRTS		\$	\$*	\$		
Separated bicycle lanes	\$	\$	\$	\$	\$	\$	\$	\$	\$		\$				\$
Shared use paths / transportation trails	\$	\$	\$	\$	\$*	\$	\$	\$	\$	\$	\$				\$
Sidewalks (new or retrofit)	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$				\$
Signs / signals / signal improvements	\$	\$	\$	\$	\$	\$	\$	\$	\$		\$				\$
Signed pedestrian or bicycle routes	\$	\$	\$	\$	\$		\$	\$	\$		\$				\$
Spot improvement programs	\$	\$	\$			\$	\$	\$	\$	\$	\$				\$
Stormwater impacts related to pedestrian and bicycle projects	\$	\$	\$	\$		\$	\$	\$	\$	\$	\$				\$
Traffic calming	\$	\$	\$			\$	\$	\$	\$		\$				\$
Trail bridges	\$	\$			\$*	\$	\$	\$	\$	\$	\$				\$
Trail construction and maintenance equipment								\$RTP	\$RTP	\$					
Trail/highway intersections	\$	\$			\$*	\$	\$	\$	\$	\$	\$				\$
Trailside and trailhead facilities (includes restrooms and water, but not general park amenities; see guidance)	~\$*	~\$*						\$*	\$*	\$*					\$
Training					\$	\$		\$	\$	\$	\$	\$*	\$*		
Training for law enforcement on ped/bicyclist safety laws								\$SRTS	\$SRTS		\$			\$*	
Tunnels / undercrossings for pedestrians and/or bicyclists	\$	\$	\$	\$	\$*	\$	\$	\$	\$	\$	\$				\$

Abbreviations

ADA/504: Americans with Disabilities Act of 1990 / Section 504 of the Rehabilitation Act of 1973
TIGER: Transportation Investment Generating Economic Recovery Discretionary Grant program
TIFIA: Transportation Infrastructure Finance and Innovation Act (loans)
FTA: Federal Transit Administration Capital Funds
ATI: Associated Transit Improvement (1% set-aside of FTA)
CMAQ: Congestion Mitigation and Air Quality Improvement Program
HSIP: Highway Safety Improvement Program
NHPP: National Highway Performance Program
STBG: Surface Transportation Block Grant Program

TA: Transportation Alternatives Set-Aside (formerly Transportation Alternatives Program)
RTP: Recreational Trails Program
SRTS: Safe Routes to School Program / Activities
PLAN: Statewide Planning and Research (SPR) or Metropolitan Planning funds
NHTSA 402: State and Community Highway Safety Grant Program
NHTSA 405: National Priority Safety Programs (Nonmotorized safety)
FLTP: Federal Lands and Tribal Transportation Programs (Federal Lands Access Program, Federal Lands Transportation Program, Tribal Transportation Program, Nationally Significant Federal Lands and Tribal Projects)

Program-specific notes

Federal-aid funding programs have specific requirements that projects must meet, and eligibility must be determined on a case-by-case basis. For example:

- TIGER: Subject to annual appropriations.
- TIFIA: Program offers assistance only in the form of secured loans, loan guarantees, or standby lines of credit, but can be combined with other grant sources, subject to total Federal assistance limitations.
- FTA/ATI: Project funded with FTA transit funds must provide access to transit. See [Bikes and Transit](#) and the FTA Final Policy Statement on the [Eligibility of Pedestrian and Bicycle Improvements under Federal Transit Law](#).
 - Bicycle infrastructure plans and projects funded with FTA funds must be within a 3 mile radius of a transit stop or station, or if further than 3 miles, must be within the distance that people could be expected to safely and conveniently bike to use the particular stop or station.
 - Pedestrian infrastructure plans and projects funded with FTA funds must be within a ½ mile radius of a transit stop or station, or if further than ½ mile, must be within the distance that people could be expected to safely and conveniently walk to use the particular stop or station.
 - FTA funds cannot be used to purchase bicycles for bike share systems.
 - FTA encourages grantees to use FHWA funds as a primary source for public right-of-way projects.
- CMAQ projects must demonstrate emissions reduction and benefit air quality. See the CMAQ guidance at www.fhwa.dot.gov/environment/air_quality/cmaq/ for a list of projects that may be eligible for CMAQ funds. Several activities may be eligible for CMAQ funds as part of a bicycle and pedestrian-related project, but not as a highway project. CMAQ funds may be used for shared use paths, but may not be used for trails that are primarily for recreational use.
- HSIP projects must be consistent with a State's [Strategic Highway Safety Plan](#) and either (1) correct or improve a hazardous road location or feature, or (2) address a highway safety problem.
- NHPP projects must benefit National Highway System (NHS) corridors.
- STBG and TA Set-Aside: Activities marked "\$SRTS" means eligible only as an SRTS project benefiting schools for kindergarten through 8th grade. Bicycle transportation nonconstruction projects related to safe bicycle use are eligible under STBG, but not under TA (23 U.S.C. 217(a)).
- RTP must benefit recreational trails, but for any recreational trail use. RTP projects are eligible under TA and STBG, but States may require a transportation purpose.
- SRTS: FY 2012 was the last year for SRTS funds, but SRTS funds are available until expended.
- Planning funds must be used for planning purposes, for example:
 - Maps: System maps and GIS;
 - Safety education and awareness: for transportation safety planning;
 - Safety program technical assessment: for transportation safety planning;
 - Training: bicycle and pedestrian system planning training.
- Federal Lands and Tribal Transportation Programs (FLTTP) projects must provide access to or within Federal or tribal lands:
 - Federal Lands Access Program (FLAP): Open to State and local entities for projects that provide access to or within Federal or tribal lands.
 - Federal Lands Transportation Program: For Federal agencies for projects that provide access within Federal lands.
 - Tribal Transportation Program: available for federally-recognized tribal governments for projects within tribal boundaries and public roads that access tribal lands.
- NHTSA 402 project activity must be included in the State's Highway Safety Plan. Contact the State Highway Safety Office for details: <http://www.ghsa.org/html/about/shsos.html>
- NHTSA 405 funds are subject to State eligibility, application, and award. Project activity must be included in the State's Highway Safety Plan. Contact the State Highway Safety Office for details: <http://www.ghsa.org/html/about/shsos.html>

Cross-cutting notes

- FHWA Bicycle and Pedestrian Guidance: http://www.fhwa.dot.gov/environment/bicycle_pedestrian/
- **Applicability of 23 U.S.C. 217(i) for Bicycle Projects:** 23 U.S.C. 217(i) requires that bicycle facilities "be principally for transportation, rather than recreation, purposes". However, sections 133(b)(6) and 133(h) list "recreational trails projects" as eligible activities under STBG. Therefore, the requirement in 23 U.S.C. 217(i) does not apply to recreational trails projects (including for bicycle use) using STBG funds. Section 217(i) continues to apply to bicycle facilities other than trail-related projects, and section 217(i) continues to apply to bicycle facilities using other Federal-aid Highway Program funds (NHPP, HSIP, CMAQ). The transportation requirement under section 217(i) is applicable only to bicycle projects; it does not apply to any other trail use or transportation mode.
- There may be occasional DOT or agency incentive grants for specific research or technical assistance purposes.
- Aspects of many DOT initiatives may be eligible as individual projects. For example, activities above may benefit Ladders of Opportunity; safe, comfortable, interconnected networks; environmental justice; equity; etc.

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THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

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