Town of Upper Marlboro

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MEMORANDUM

To: Board of Town Commissioners

From: Kyle Snyder, Town Administrator

Date: Friday November 19th, 2021

Re: Proposal Responses to RFP UM 2021-03 Roadway Engineering Survey & Design Firm

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Commissioners,

As you are aware, the Town advertised RFP UM 2021-03 Roadway Engineering Survey & Design Firm with a goal to select an engineering firm to conduct a survey of the conditions of all of the Town's roadways to create a road replacement schedule, and to provide construction designs and plans for the redesign, stormwater management upgrades, and repaving of certain roads as listed in the scope to begin construction in Spring 2022. These proposals were due today, Friday November 19th by 5pm. The Town has received three proposals from respected firms for the Board's consideration.

Firms that have submitted Proposals:

- Mead & Hunt of Columbia, MD
- CB3 Consulting Services, Inc of Largo, MD
- Kim Engineering of Beltsville, MD

The proposals are included in your packet for your review.

Next steps are for Director Bond and myself to review & compare the proposals, and provide a staff recommendation for the Board to consider at the December 2021 Board Work Session, with plans to select a firm at the January 2022 Town Meeting.

Mead & Hunt

QUALIFICATIONS FOR

ROADWAY ENGINEERING SURVEY & DESIGN FIRM

Town of Upper Marlboro, Maryland

RFP No. UM-2021-03

November 19, 2021

COVER LETTER

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Mead & Hunt

Town of Upper Marlboro
Kyle Snyder, Town Administrator
Town Hall
14211 School Lane
Upper Marlboro, MD 20772

November 19, 2021

Subject: Request for Proposals – RFP No. UM 2021-03, Roadway Engineering Survey & Design Firm

Dear Mr. Snyder and Members of the Selection Committee:

Mead & Hunt, Inc. (formerly Sabra & Associates, Inc.) has reviewed the subject RFP and we are pleased to submit the following technical proposal in response. Mead & Hunt is a multi-discipline consulting engineering firm with expertise in roadway design, traffic engineering and transportation planning; we also provide comprehensive horizontal and vertical engineering services nationally. We have a successful and well-defined history of providing on-call as well as project specific professional engineering services to local jurisdictions in the Mid-Atlantic, including dozens of municipalities and all counties in Maryland. We will service this contract though our Mid-Atlantic Regional Headquarters located in Howard County, Maryland. We have over 20 licensed professional engineers locally in our civil, traffic engineering and transportation planning departments, along with 10 certified professional traffic operations engineers. Our local office has over 100 staff with expertise in civil engineering, roadway and utility design, bike and pedestrian planning and design, traffic engineering and signal design and structural engineering. We have additional regional offices in Washington, DC and Tysons Corner, Virginia. Our extensive team allows us to bring the resources of extra technical professionals, as needed, for challenging or complex projects or those with accelerated delivery schedules.

We have a long and proven track record working with public agencies throughout the region and in Prince George's County to deliver innovative trail, sidewalk, bike lane and mid-block crossing designs that balance accessibility and safety. We recently completed successful 100% Design sidewalk projects for the Town of Riverdale Park and for the City of Bowie. Our experience ranges from strategic planning, alignment studies, alternatives evaluation, and conceptual design to preliminary engineering through Final Design and construction documents. We understand the goal of this project is to develop Final Design and Bid Documents, in coordination with all permitting and approvals along the way.

To complement our skills, we are partnering with the following highly qualified, minority-owned subconsultants with extensive Prince Georges County experience in stormwater, erosion and sediment control and permitting services and surveying and right-of-way assistance as well as geotechnical engineering.

ZEST, LLC is a small business DBE/MBE providing peer-review and consulting services for drainage, SWM, and E&SC for Prince George's County DPIE permits and soil conservation district, as needed.

DMY is a small business DBE/MBE providing geotechnical engineering services including pavement evaluation design and stormwater facility design recommendations.

Colliers will provide surveying and right-of-way services to include topographic survey, cross section and profile survey, location survey, utility base mapping and right-of-way mapping services.

The Project Manager and primary contact for this contract will be Shashikant (Shashi) Patel, PE, PTOE, DBIA. Shashi may be reached directly, via email, at Shashi.Patel@meadhunt.com or via phone at (443) 741-3688. Doug Bobb, PE will serve as deputy project manager and a secondary point of contact. Doug can be reached via email at Doug.Bobb@meadhunt.com or via phone at 681-313-4448.

The Mead & Hunt team is committed to providing the Town of Upper Marlboro with timely, accurate, and cost-effective services that will exceed all expectations. We are committed to completing all project services, within the proposed time estimate, to the satisfaction of the Town.

Sincerely,

Mead & Hunt, Inc.

Shashikant Patel, PE, PTOE, DBIA

Department Manager, Civil Engineering

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FIRM PROFILE, CAPABILITIES AND PROJECT TEAM

Areas of Expertise

- Civil Engineering
- Roadway Design
- Geometric Design Services
- Sidewalk Design
- Stormwater Management
- Erosion & Sediment Control
- Permitting

Office Location

- 7055 Samuel Morse Drive, Suite 100 Columbia, MD 21046

FIRM PROFILE

Mead & Hunt is an employee-owned architectural and engineering firm with more than 900 professional, technical and support staff in over 35 offices nationwide. We have proudly served the Mid-Atlantic region since 1998. Our regional headquarters in Columbia Maryland is focused on Civil Design, Traffic Engineering, and Transportation Planning with extensive experience in pedestrian and bike facility design and urban transportation planning.

Our record of successful project execution and ability to provide continuity and quality of service is crucial. Mead & Hunt has over 100 local staff members in the Civil Engineering, Traffic Engineering and Transportation Planning Group with an additional 30 support staff. This includes 25 full-time degreed civil engineers as well as GIS, CADD and technical staff. Attuned to the needs of our clients, we have the experience and know-how to understand your unique needs and develop effective solutions.

CAPABILITIES

Our Civil Engineering services include all facets of civil, roadway, and structural engineering services pertaining to street and site, grading, drainage, stormwater management, erosion and sediment control, structural design and stakeholder and public involvement.

Mead & Hunt's key staff members, and those of our subconsultants, offer practical and economical civil engineering solutions through responsiveness, local knowledge, innovative practices, technology, commitment to QA/QC, and technical expertise. Our team has the necessary knowledge and hands-on experience in providing services including roadways, geometric improvements, pedestrian and bicycle facilities which include sidewalks, bike lanes, trails and shared use paths, parks, park-and-ride, site engineering, access management, traffic circulation, operation of traffic signals, ADA compliance and upgrades, hydrology and hydraulic engineering, environmental permiting, SWM design, signing and pavement marking, public communication and outreach, construction management and inspection, design support and construction management.

As necessary and requested by the Town, Mead & Hunt can provide landscape architectural and community engagement services, Design Development and Construction Documents. Community engagement will include a community meeting and presentation to the Mayor and stakeholders during the Design Development phase as well as coordination with adjacent property owners for updates to impacts, improvements, and agreement to proposed improvements or planting on private property. Additionally, if required, Mead & Hunt will prepare natural forest inventory/forest stand delineation and landscape design and tree permitting through M-NCPPC.

Our team is confident that we have the "right fit" of qualifications and experience to meet and exceed the needs of the Town's technical, responsiveness and capacity requirements; and we will look out for the best interests of the Town throughout the life cycle of this contract.

PROJECT TEAM

Mead & Hunt will be responsible for project management and fiscal control, risk management, quality assurance & quality control (QA/QC) and consultant coordination. Furthermore, Mead & Hunt will lead the planning and design for sidewalks, roadway, structures, hydraulics and hydrology, stormwater management, erosion and sediment control, traffic engineering analysis and design,

multi-modal planning, permitting, stakeholder coordination, public outreach, bidding phase and construction phase support services. Mead & Hunt is an employee-owned full-service national AEC firm with three offices in the Mid-Atlantic region which include Columbia, Maryland, Washington, DC and Vienna, VA. Mead & Hunt will be performing all services under this contract from our offices in the Mid-Atlantic, with our project base office located in Columbia, Maryland.

We have assembled a team of specialized local and DBE consultants to assist with other technical aspects of the project. Mead & Hunt, and our teaming partners, have a long history of working together and collectively, we have completed several similar projects within the local region.

Colliers Engineering, and Design (CED) will provide surveying and right-of-way services to include topographic survey, cross section and profile survey, location survey, boundary survey, environmental features delineation such as wetlands, Waters of US, record plat and easement plats preparation, forest conservation easement plats, deed description, land acquisition documents and as-built surveys. CED specializes in all aspects of transportation and infrastructure surveying and mapping. CED survey staff includes licensed surveyors, field crews, and draftsmen with extensive experience working in the heavily traveled highway and rail corridors within the Washington and Baltimore Regions. CED survey department provides topographic surveys, deed research, moMead & Huntcs, work maps, right-of-way plats, easements plats, boundary plats, metes and bounds descriptions and record plats. CED have experience conducting bathymetric surveys for small bodies of water, such as SWM ponds and local ponds and lakes.

DMY Engineering Consultants Inc. (DMY) was founded in 2009 with the mission to provide cost effective engineering solutions to clients throughout the Mid-Atlantic region. DMY is a minority-owned firm, and is a certified MBE/DBE/SBE by MDOT. DMY's expertise lies in providing geotechnical site investigation, drilling, instrumentation, geotechnical design and analysis, laboratory testing, construction materials testing/inspection, facilities and building enclosure services, environmental services, construction management. DMY currently has ten (10) Professional Engineers on staff, and those engineers are supported by a team of professionals including staff engineers, drillers, inspectors and administrative staff. DMY staff is highly experienced in managing and delivering complex geotechnical and construction testing/inspection projects on time and within budget constraints, and all staff uses a web-based electronic project management and report delivery system, DMY Manager®, to efficiently manage projects. DMY has an in-house drilling division that owns and operates a fleet of six (6) drilling rigs, allowing the firm to be on project sites quickly, and to meet the demands of projects with tight deadlines. DMY also has an AASHTO-certified (AMRL) soils and concrete laboratory.

Zest, LLC will provide peer review/expert advising services for drainage and stormwater permitting through Prince George's County DPIE and Soil Conservation District (SCD) and Maryland State Highway Administration Highway Hydraulics Division. Zest is specialized in water resources and environmental engineering includes Stormwater Management (Urban BMP and ESD), Innovative SWM Design, Stormwater System and Open Channel, Erosion and Sediment Control, Drainage Design, Slope/Outfall Stabilization, Stream Restoration, Report and Contract Document Preparation, Permit Application, Field Investigation and Inspection, numerical modeling and research in H&H, Floodplain Management, Dam Breach analysis, and CFD and its application in hydraulic engineering. Zest is one of the first few technical reviewers on Stormwater and Erosion and Sediment Control with MDOT SHA PRD, and a certified reviewer with Prince George's County on SWM, Drainage, H&H, Floodplain Management and site grading.

TECHNICAL APPROACH AND SCOPE OF WORK

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TECHNICAL APPROACH

Mead & Hunt appreciates the opportunity to respond to this RFP; it is our understanding that the Town seeks to hire a highly qualified engineering consultant firm to prepare design and provide contract drawings, specifications and engineering estimate (PS&E) and bid documents, bidding phase services and construction phase services. Per the RFP, we will furnish design services and prepare construction documents for a proposed sidewalk along School Lane, Wilson Lane and Old Mill Road and provide recommendations for improvements to the remainder of Town owned streets.

PROJECT UNDERSTANDING

The Town of Upper Marlboro owns and maintains 2.3 miles of roadways within the Town limits. Over the past few decades, the Town has improved several roadways but lacks a comprehensive road replacement schedule and budgeting plan. The Town is seeking a firm to conduct a survey of the conditions of all of the Town's roadways to create a road replacement schedule, and to provide construction designs and plans for the redesign, stormwater management upgrades and repaving of certain roads as listed in the scope to begin construction in Spring 2022.

The project scope of work includes the following but is not limited to:

- Meet with Town staff and elected officials on several occasions to review the needs and goals of the project, the consultant will conduct a detailed survey of all existing Town roadways
- Survey all 2.3 miles of Town roadways and create a comprehensive road replacement schedule and budgeting plan for the Town
- Draft construction plans and other bid documents for the Town for School Lane, Church Street, Spring Branch Drive, and Old Mill Road. The Town plans to place this project out to bid for construction to begin in Spring 2022
- Survey, inspect and provide repaving estimates for the travel lanes of Marlborough Lane, Marlborough Circle, Marlboro Terrace, Marlborough Court and Marlborough Grove. These roadways are currently owned by an HOA, with plans to have them turned over to the Town

Project requirements and Scope of Work:

As current Prince George's County A/E contract holders, Mead & Hunt is familiar with the town and region as a whole. Mead & Hunt is currently providing related engineering services that include several sidewalk and street improvements projects with the Town of Riverdale Park, the City of College Park and have recently completed similar work for the Town of Bowie – in addition to other local jurisdictions out of the County, including the City of Gaithersburg, the Town of Mount Airy, M-NCPPC and many more.

Design Services required to complete the project will include the following:

- Geometric design of sidewalks
- Geometric design of driveway entrances and private walkways
- Supplemental survey as needed
- Grading and drainage
- Crosswalk design
- Traffic calming measures
- Stormwater management concept approval and permitting

Anticipated Deliverables:

Design and permitting phase concept design (30%, 65% and 100% design)

- During the 65% design phase, we can support the Town with a presentation to the community and stakeholders and perform a preliminary cost estimate
- Roadway/Site, grading, drainage, stormwater management and utility design plans
- Roadway/Site details including pavement
- Final grading and erosion and sediment control plans and permits through Prince George's County Soil Conservation District (PGSCD)

- Final Stormwater management plans and permit through Prince George's County Department of Permitting, Inspections, and Enforcement (DPIE)
- Provide Natural Resources Inventory Equivalency Letter and Woodland Conservation Exemption to M-NCPPC for review.
- Utility coordination and concurrence
- 100% (Final) design plans, specifications and estimate
- PS&E design and constructions plans, specifications and cost estimates

Bidding Phase:

- Preparation of construction bid package including technical specifications and any special provisions
- Assistance with evaluation
- Review and address bidders' questions
- Preparation of addendums

Construction Administration Phase

- Review of submittals including request for information and shop drawings
- Preparation of redline revisions
- Attend pre-construction meeting and perform periodic site visits
- Walk-through for substantial and prepare punch-list
- Final walkthrough and project closeout

METHODOLOGY, TECHNIQUES AND PROCESSES

The following paragraphs highlight key activities, applicable standards, relevant experience, methodology, techniques and processes that will be used to fulfill the scope of work.

The project work includes:

1. School Lane and Wilson Lane Sidewalk and Drainage Improvements
2. Spring Branch Drive Rehabilitation and Resurfacing
3. Old Mill Road Improvements
4. Future Improvements for Planning Budget for Remainder of the Town Owned Street (Approximately 1.5 miles)

The plans, design process and deliverables will be in accordance with Prince George's County Standards and Specifications. Mead & Hunt's overall scope of work includes design concepts, preliminary (30%), semi-final (65%), Final (100%) and Plans, Specifications and Estimates and bidding documents and bidding and construction phase services as described. It is noted that the number of milestone submissions can be minimized depending on the complexity of work.

Mead & Hunt will be responsible for project management and fiscal control, risk management, quality assurance & quality control (QA/QC) and consultant coordination. Furthermore, Mead & Hunt will lead all technical roles for planning and design for sidewalk, roadway, structures, hydraulics and hydrology, stormwater management, erosion and sediment control, traffic engineering analysis and design, multi-modal planning, permitting, stakeholder coordination including utilities, public outreach, bidding phase and construction phase support services.

Key activities will include:

- Project kick-off and review of scope of work
- Concept development
- Design development
- Utility clearance and permit acquisition
- Construction documents
- Right-of-Way clearances
- Advertisement and bidding phase

- Construction phase

Applicable Standards and Guidelines

- The ADA Accessibility Guidelines for Buildings and Facilities (ADAAG)
- Prince George's County, Department of Public Works and Transportation Specification and Standards for Roadways and Bridges
- Prince George's County Soil Erosion and Sediment Control Reference Manual
- Maryland Standards and Specification for Soil Erosion and Sediment Control
- Maryland State Highway Administration Bicycle Policy and Design Guidelines
- The Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation
- MDOT SHA Standards for Highways, Incidental Structures, and Traffic Control Application by and for the Maryland State Highway Administration
- Prince George's County Stormwater Management Design Manual
- The Manual on Uniform Traffic Control Devices

Relevant Project Experience

The Mead & Hunt team has completed numerous projects with similar multimodal facility design services, specifically in Prince George's and Montgomery Counties; including City of College Park, Town of Riverdale Park, City of Hyattsville, City of Bowie, City of Rockville, City of Gaithersburg, City of Annapolis, City of Salisbury and throughout the State of Maryland. Our design experience includes developing and reviewing design concepts, as well as alternatives, preparing bicycle and pedestrian facilities design, wayfinding signs, crosswalks, ancillary access facilities such as parks, structural design, drainage system, hydraulics and hydrology (including new or retrofit SWM and E&SC) design and maintenance of traffic. Stakeholder coordination includes MDOT SHA transit partners MTA, Prince George's County TheBus, WMATA Metrobus, Montgomery County Ride-On and University of Maryland. Our permitting experience includes roadside tree, reforestation, and forest conservation permitting, wetland and Waters of US, Joint Permit Application (JPA), SWM and E&SC permits. Our team's contract documents experience includes development and review of construction plans, specifications, estimates, bid tabulations and bid package. Our utility experience includes development of utility base mapping using records and field investigation, subsurface exploration (test holes), preparation of utility impact matrix, development and review of utility design and coordination with utility companies for impact review, relocation design and construction. Our team's public outreach experience includes preparation of displays, materials and presentations to support project development efforts and to inform Elected Officials, HOAs, Civic Groups, Citizens and institutional stakeholders. Our support design experience includes flood plain studies, geotechnical investigations and recommendation, performing metes and bounds, preparation of forest conservation and easement, right-of-way plats, deed descriptions, review of shop and working drawings, document management support, cost estimating, value engineering, partnering in construction and administration, construction inspection/management, construction claim analysis and program management support.

Mead & Hunt has a proven history of delivering project on-time and within budget. Should any changes be necessary, our staff is minutes away from the Town's office. We can quickly respond to any face-to-face meetings and immediately work with you and your staff to provide quality change order plans that will keep the construction of your project moving forward with no delay.

Grant Preparation: Mead & Hunt has been successful in preparing competitive grant applications for local governments seeking Federal and MPO grants (e.g. TLC grants from MWCOG) and federal support for bicycle and pedestrian projects. We understand how to frame improvements to be most attractive from a technical and financial perspective, emphasizing the ability of the local agency to deliver the project within the bounds of state and federal requirements. Mead & Hunt will monitor grant opportunities and assist with applications for the District based on regional and local priorities.

TYPICAL TECHNICAL APPROACH

Kick-Off Meeting and Data Collection: Upon receiving the NTP, Mead & Hunt's team will schedule a kick-off meeting to discuss the project services required, schedules, point of contacts, key stakeholders, permit requirements, as well as critical path items. During the kick-off meeting we will gather all existing data and information, including record plans and as-built plans on

the project. We will discuss the limits of the project and survey, and any peculiar cultural, socio-economic, environmental, and right-of-way requirements, as well as all project schedules.

Record Documents/Data, Deed Research, Easements: The Mead & Hunt team will explore all necessary resources to collect information for the project including utility companies and land record research. Our staff will visit the Town/County/State offices to expedite the research process. All land record research will be led by our subconsultant Colliers Engineering.

Site Evaluation: The Mead & Hunt team will review as-built/record plans, GIS and aerial survey, right-of-way, environmental features, and other available information, in order to prepare a detailed checklist for the site visit and investigation. Mead & Hunt will evaluate the site in order to document existing conditions, topographic features and to identify any constraints on the development of a site (geographical, environmental, easement, zoning, or code related). The topographic survey task will be performed by our subconsultant Colliers Engineering.

Survey: A topographic survey will be performed for the project site to obtain on-site physical features. The control will be established from local or NGS Control Monuments using the Maryland Coordinate System NAD 83/91. Each traverse point will be referenced to a minimum of three (3) physical objects for recovery and future use. A 3D-model will be created from the surveyed data, and surface and contours will be prepared. Features will include spot shots, break lines, curbs and gutters, edge of pavement, sidewalks, utility poles and their numbers, trees, mailboxes, landscaped areas, etc. We will also perform a field cross-section of each roadway corridor at approximately 50-foot stations within the survey limits.

Right-Of-Way Survey: The necessary deeds and plans will be obtained from the court house and through County websites. The deeds will be plotted and utilized to search for and confirm existing property corners along and near the Right-of-Way lines in question. The previously established traverse will be used to locate existing boundary markers. Surveys will be completed to provide NAD83 coordinates in general conformity with accepted standards of practice for the State of Maryland. The following is a list of procedures necessary to complete the Boundary Survey portion of the project:

- Court House records research of tax map, deed and plan and ownership information
- Plot all appropriate deeds and plans to prepare a deed mosaic to aid in search for property corners
- Location of property corner monumentation from existing traverse
- Prepare traverse worksheet depicting field survey data including the above-mentioned features
- Review boundary re-establish property boundary and prepare survey plan
- Plottable easements and rights of ways will be shown graphically assuming Colliers Engineering & Design can recover enough field information to accurately depict the limits with confidence
- Colliers Engineering & Design will perform a right-of-way survey of the roads within the limits described

Utility Location and Mapping: Utility locating and mapping will be performed to show existing utilities on-site within the project limits and identify potential conflicts and impacts. Our team, in coordination with the Town, will contact pertinent utility companies for identifying the potential impacts, relocation/adjustment required and final utility clearance. We will begin utility coordination at the preliminary design stage once the design is accepted by the Town and other stakeholders. Mead & Hunt will prepare a utility matrix showing record collection, utility conflicts and final clearance/permit correspondence.

The utility locating and designation services will be provided by Colliers Engineering Design (CED) in accordance with the standard guidelines of ASCE/UESI 38. CED will determine if there is a potential for utilities on-site. When warranted, CED will call Miss Utility.

QL-D, Utility Records Research: Conduct comprehensive utility records research and collect applicable utility owner records to assist in identifying utility owners that may have facilities on or be affected by the project. Includes interfacing with utility owners/operators to ascertain the availability and completeness of record documents and to obtain verbal or historical information on existing subsurface facilities and operational status.

QL-C, Surface Feature Survey: Prerequisite: Perform QL-D Tasks. Information obtained by surveying and plotting visible above-ground utility features and by using professional judgment in correlating this information to quality level D information.

QL-B, Utility Designation and Survey: Perform QL-D & QL-C Tasks. Information will be obtained through the application of appropriate surface geophysical methods to determine the existence and approximate horizontal position of subsurface utilities. This information is surveyed to applicable tolerances defined by the project and reduced onto plan documents.

QL-A, Utility Exposure and Identification of Precision Horizontal and Vertical Position: Precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed and surveyed utilities) and subsequent measurement of subsurface utilities, usually at a specific point. Minimally intrusive excavation equipment is typically used to minimize the potential for utility damage. A precise horizontal and vertical location, as well as other utility attributes, is shown on plan documents. Accuracy is typically set to 15-mm vertical and to applicable horizontal survey and mapping.

Traffic Studies and Transportation System Planning: Collectively, our staff has performed thousands of traffic studies including high-crash locations, traffic control needs (signal warrant and all-way stop studies), speed studies, signing studies, parking studies and crosswalk studies, bringing to bear expert knowledge to efficiently identify appropriate solutions. Our process is to identify the problem(s), develop and evaluate concepts that will mitigate the problem(s), develop conceptual plans and cost estimates, and document the process in a report. Safety analyses include traffic data collection; review of site physical and driving conditions such as stopping sight distance, capacity, and level of service analysis; review of accident data by collision type, probable cause and temporal distribution; and evaluation of vehicle speeds, queues, and traffic control devices, including signal phasing and clearance interval timing and development of countermeasures to enhance safety and improve intersection operations.

Traffic Impact Studies (TIS) and Study Scoping: The growth of the Town through new development can create pressures on existing roadways and increase the need for new roadways, intersection improvements, changes in the operations of traffic control devices and traffic calming. The identification and timely implementation of roadway and operational improvements in pace with development phase buildout, are critical to managing growth and maintaining a high quality of life for residents. Mead & Hunt will assist the Town in scoping traffic impact analyses for development projects in compliance with the County's and M-NCPPC's latest regulations. Scoping efforts include assisting in reviewing pre-scoping forms; reviewing the proposed site plan and project sizing; determining if a TIS is required; developing an appropriate study traffic shed based on project size; reviewing local trip rates, applicable trip reductions for non-automobile site access, pass-by and internal capture trips; identifying appropriate rates for growth in background traffic volumes; confirming capacity analysis methodology and software; identifying critical issues that may require supplemental analysis; and coordinating on behalf of the Town with the Prince George's County Planning Department or MDOT SHA District 3 office.

Traffic Calming Planning and Design: Mead & Hunt has extensive experience in traffic calming designs such as speed humps, speed tables, chokers, median islands, diverters, mini-circles and roundabouts that will safely contribute to the reduction of speeds. Once the necessity of a specific access control or traffic management need has been determined, Mead & Hunt will develop typical design details for each measure, illustrating dimensions, paving, materials, curb lines, landscaping and drainage features. Based on our recent experience, many projects now include community-preferred sustainable design treatments such as bioretention, bioswales and rain gardens. Typical work items that Mead & Hunt will perform to assist the Town with traffic calming measure selection and design for eligible roadways are based on the Prince George's County Neighborhood Traffic Management Program guidelines. Mead & Hunt is also experienced in developing Safe Route to School (SRTS) Plans that evaluate potential neighborhood routes for access to schools and address drop-off and circulation issues. SRTS plans are eligible for State grant funding assistance.

Pedestrian and Bicycle Studies and Design: Short-term and long-term planning for pedestrian and bike infrastructure begins with identification and qualitative analysis of existing facilities. Identifying local context, existing and future generators of pedestrian, and bike traffic (via master planning and future zoning changes), as well as barriers, are the first steps in planning for pedestrian and cycling facilities. Typical studies focus not just on existing pedestrian and bike counts, but also the safety and comfort of each mode. Pedestrian and bike planning studies typically utilize GIS to evaluate infrastructure needs. Preliminary and final engineering efforts include design of typical roadway sections to accommodate bicycle and pedestrian accommodations, horizontal and vertical alignments, design waivers, cost estimates, and design details for ADA ramps, crosswalks, refuge islands, and bicycle priority treatments in accordance with MDOT SHA, MUTCD and AASHTO standards. In addition, Mead & Hunt can perform wayfinding signing analysis and design. Mead & Hunt has developed specification book jobs for over a dozen bicycle route networks utilizing on-call areawide contracts to install pavement markings/ signing.

Parking Studies: Mead & Hunt has a wide range of expertise in parking studies and curbside management having completed dozens of parking studies of varying scale from business districts, neighborhoods, campuses and commuter facilities. Studies have included parking asset inventories and mapping, parking data collection and analysis, revenue analysis, parking demand forecasts, stakeholder identification and coordination, parking management strategies, parking technology applications and traveler information. Typical work efforts include on and off-street parking supply and regulatory inventory, GIS mapping, occupancy surveys, parking shed analysis, parking stakeholder needs identification and interviews, evaluation of facility operations, parking demand forecasts and development of parking system and demand management strategies including curbside policy, performance parking, graduated parking, real-time parking information systems, shared parking, event management, wayfinding and priority parking.

Internal Data Collection Capabilities: Mead & Hunt has extensive experience in all types of traffic data collection and has successfully completed hundreds of data collection assignments. Mead & Hunt currently holds the statewide on-call traffic data collection contract with MDOT SHA, and has also performed traffic data collection for FHWA, FTA, numerous MPOs, transit agencies, counties and municipalities throughout the region. Mead & Hunt offers full-service, year-round data collection with over 150 units of state-of-the-art equipment, a fleet of eight (8) vehicles and a pool of up to 20 on-call technicians supporting data collection activities.

Regulatory Agencies' Criteria: At the initiation of the task/project, the Mead & Hunt team will review the concept design and impacts in order to evaluate the applicable codes and the preliminary permitting requirements. Mead & Hunt will then make initial contacts with applicable governmental agencies to obtain commitment pertaining to review time, document submission requirements and other related matters. This information will be compared with the proposed schedule and then presented to the Town of Upper Marlboro. At this time, Mead & Hunt will provide the Town with a list of all permits which must be obtained for the project.

Alternatives: During the beginning of the preliminary stage, Mead & Hunt will review practical and feasible alternatives in order to prepare technical matrices that show the pros/cons of each alternative, with a recommendation of the best value alternative to proceed for final design.

Roadway Geometric Designs: Mead & Hunt will prepare geometric design of roadway in accordance with Prince George's County Standards and guidelines and AASHTO guidelines. The cross-section elements such as lane width, curb and gutter, sidewalk, bike lanes, turning radii, sight distance, profile grades, sight distance, design speed, etc. will be accounted for geometric designs and horizontal and vertical alignments. Roadway modeling using Auto-Cad or Micro-Station will be utilized to prepare detailed roadway cross section modeling and proposed grades. Detailed cross sections will be developed showing utility crossing and all key points offset and elevations.

Roadway Resurfacing: Upon receiving NTP, our Project Manager, Shashi Patel, will kick-off the task with a meeting with the Town Project Manager and will discuss the scope of work, schedule, and milestones. Subsequently, Shashi and his engineering staff will perform the following tasks:

- Obtain GIS and/or aerial base plans to prepare the CADD base sheets for the field sketches
- Obtain any pavement history of the streets and records of all utilities and verify in the field. If no records of existing pavement are found, then pavement core sample will be taken to ensure the existing pavement structure for evaluation and proposed rehabilitation recommendations
- Perform a field walk through (with or without Town staff) to review surface pavement, surface utilities, curb, and sidewalk conditions. Label and quantify proposed improvements (base repair, curb repair, sidewalk repair, surface utilities such as manholes and grates, handicap ramps, bus pads, pavement markings, etc.) by type on the field sketches
- Prepare field sketches (8-1/2" x 11") with recommendation for milling and resurfacing, overlay, pavement repair, curb repairs, sidewalk repairs, ADA improvements, pavement marking, signal upgrades as applicable, etc. and submit to the Town along with preliminary quantities for review
- Attend a "Drive/Walk Thru" review meeting with the Town staff
- Address comments and prepare semi-final sketches with quantities and Engineer's Estimate
- Upon approval of the "Semi-Final Sketches", prepare the semi-final specifications, Engineer's Estimate and the full advertisement "Book" and submit the required copies and/or electronic copies for distribution and comments

Roadway Reconstruction: Reconstruction projects are more involved than resurfacing assignments since they require more extensive roadway, utility and landscaping work. Our approach to a typical reconstruction/rehabilitation project is discussed below and will follow the Prince George's Design Procedures and criteria and MDOT SHA Design guidelines

- Perform a topographic survey and plot base plans on a 1" = 20' scale (AutoCAD/MicroStation format) for highways, storm drain and sanitary sewers and water projects. A scale of 1" = 20' will be used for streetscape projects
- Research above ground and underground utilities and right-of-way information. Update base plans with this information.
- Obtain pavement history and perform a pavement condition analysis to determine adequacy of existing pavement, location of base repair and access conditions of areas where widening will be required
- Develop preliminary plans and identify impact to utilities and drainage system. Prepare request for test-hole data and pavement cores. Roadway profiles will be prepared on a horizontal scale of 1" =20' and vertical scale of 1" =5' for roads and for utilities
- Develop concept maintenance of traffic plans based on the preliminary design plans. The MOT plan will detail the sequence of construction, lane closure, pedestrian treatments, on-street parking restrictions and access to businesses. At this time, we will be prepared to coordinate public meetings with the Town to ensure "adopting" the concepts developed during the preliminary phase
- Following the City's review and comments and acceptance by the public and private agencies, we will proceed with the semi-final design of the roadway and utility plans. This step also will include preparing utility plans, signalization, street lighting, structures such as utility vaults, sidewalk and curb repairs, landscaping and streetscaping, MOT plans and Sediment and Erosion Control measures. Also included will be a complete set of specifications and cost estimate. Project plans and specifications will adhere to the requirements set forth for preparing IFB documents for Town

Surface Drainage and Storm Drain Design: The proposed drainage systems, open channel or closed system, will be evaluated based on on-site conditions and constraints. The system will then be integrated with proposed stormwater low impact development (LID) and environmental site design (ESD) stormwater management facilities. We will perform necessary hydrologic computations in order to perform spread computations to determine the spacing of inlets and sizing for storm drainage systems. The hydraulic gradient will be computed as required. An analysis of the existing drainage system will be performed using field surveyed information, existing as-built plans, aerial topography and field verification. Modifications to the existing system will be analyzed based on the proposed improvements.

Stormwater Management (SWM) and Erosion and Sediment Control (E&SC) Design: Stormwater requirements will be evaluated based on recent stormwater guidelines of the Prince George's County and Maryland Department of Environment (MDE). The design will be performed to meet the requirement according to the maximum extent practicable (MEP) using ESD facilities. A preliminary stormwater management report will be developed including the drainage area map, hydrologic and hydraulic analysis, the description of existing conditions, analysis methods, summary of requirements, summary of proposed design, design calculations and a conclusion. Outfalls will be investigated for stability of existing, as well as proposed conditions, and recommendations will be included in the report. Furthermore, any waiver and variance required for SWM due to proposed improvements will be identified at the preliminary design stage and will be submitted for review. Mead Hunt is extremely familiar with Prince George's County DPIE Permitting requirements and Soil Conservation District review and approval process for obtaining the permit. Typical SWM and E&SC will follow concept design, site development and final design milestone reviews to obtain final approval of design and acquire permits.

Geotechnical Evaluation: Geotechnical investigation and recommendations for pavement, SWM, and grading will be in accordance with ASTM, AASHTO, Prince George's County Design Standards and MDOT SHA's standard specifications and details for construction. The pavement design will be designed for the appropriate vehicle rating. To achieve cost efficiency, Mead & Hunt team will collect and review the existing soil borings and will also perform additional soil borings only as needed to meet the standards.

Traffic Control Plan (TCP): The Maintenance of Traffic (MOT) Plan will be developed based on the size and location of the project with the construction sequencing approach and in accordance with the Prince George's County requirements and the MUTCD. The Traffic Control element will be designed to move all modes of traffic (motorists, pedestrians [ensuring compliance with the Americans with Disabilities Act (ADA)] and bikes) safely through a work zone. Elements of a TCP include information about placement and maintenance of traffic control devices, methods and devices for delineation and channelization,

MOT phasing schedule, application and removal of pavement markings, roadway construction lighting requirements, traffic regulations, work zone protection and flagging operations. The need for detours will consider the amount of traffic demand relative to the necessary running speed, barrier widths, offset required to barriers and clear distance to construction activities. The detour plan also includes measures to ensure safe passage of pedestrians, bicyclists, persons with disabilities, transit vehicles and any unique needs of the community.

Design Submittals (30%, 65%, 100% and PS&E): The Mead & Hunt team will submit a complete preliminary design (30%), semi-final (65%) design, final (100%) design and plan, and specification and estimate (PS&E) review package including cost estimates, permit identification, issues, waivers, variance and design exceptions for review by the Town and Prince George's County.

Milestone Reviews by Town and Prince George's County: Mead & Hunt will coordinate with the Town and County regarding milestone reviews and obtaining necessary permits, traffic control and pavement restoration as applicable.

Permit Application Submittal: At the 30% design stage, Mead & Hunt will prepare permit applications and will submit for review and approval.

Utility Coordination: At the 30% design stage, the Mead & Hunt team will identify utility impacts and will begin coordination with utility companies regarding preservation or relocation of utilities. It is the team's goal to avoid utility impacts/relocation and will work the design around those specific locations in order to reduce the project duration and incurred costs.

Deliverables: The following plan sheets will be submitted as part of the construction documents: Title sheet, typical sections, geometric and stakeout plans, construction plans, profiles, site details plans, stormwater management plans, profiles and sections, erosion and sediment control plans, storm drain plans and profiles, signing and marking, earthwork table, x-sections, SWM report/plans and estimates/specifications.

Bid Phase and Construction Phase Services: Mead & Hunt will attend the pre-bid meeting, respond to all contractor's questions, prepare addendums, assist the Town in reviewing bids, attend progress meetings and provide design support during construction.

Construction Management/Construction Inspection (CM/CI): Mead & Hunt will provide design support, constructability reviews, claims analyses, construction inspection, develop and analyze CPM schedules and cost estimates, feasibility analysis, identification of conflicts such as major utilities, consideration for readily available and affordable materials, value engineering (VE), participate in partnering and VE studies, prepare as-built plans and review change proposals.

Public Involvement: As per the Town's request, Mead & Hunt will participate in public meetings including display preparation, traffic models, renderings, newsletters and mailing lists.

INNOVATIVE DESIGN APPROACH

Due to recent strict regulations for SWM and E&SC, Mead & Hunt understands the importance of innovative approaches to minimize the SWM and E&SC needs for the constraint sites, which is typical for most of the Town's project sites. The following are examples of innovative and practical applications that would benefit the Town.

Low Impact Stormwater Management Facilities: Potential innovative stormwater control measures will be cited and evaluated after the team has received input from the Town. It is important that the controls do not look "engineered". Landscape practices such as tree pits and filter strips will precede structural measures such as water quality inlets. The measures to be considered will include linear stormwater tree pits, permeable pavement for sidewalks, reinforced turf for emergency vehicle access roads, overflow of occasional used parking, disconnection of rooftop runoff/non-roof top runoff, sheet flows to conservation areas, filter strips, bioretention (BioClean, Filterra, etc.) inlets, bio retention areas, grassed ditches, redirection of downspouts, rail barrels, planting rain gardens and the planting of trees and shrubs.

Street Trees and Tree Boxes Concept: A tree's ability to grow and stay healthy is largely dependent on available rooting space. This is particularly evident in highly urbanized areas where many trees exist in small planting spaces with little available soil.

Permeable Sidewalk: Pervious concrete pavement is a unique and effective means to address the important environmental issues and support green, sustainable growth. By capturing stormwater and allowing it to seep into the ground, the porous concrete is instrumental in recharging groundwater and reducing the amount of stormwater runoff. This pavement technology creates more efficient land use by eliminating the need for retention ponds, ditches, and other stormwater management devices.

Design Improvements to Pedestrian Crossings: The primary reason for such studies is to improve the pedestrian mobility and update sidewalk features to meet Americans with Disabilities Act (ADA) requirements. Mead & Hunt recognizes the need for improved access for pedestrians and bicyclists. The project team will employ state-of-the-art techniques while designing ADA compliant sidewalks and ramps around the existing utility poles, structures, and trees, without relocating users.

SITE SPECIFIC TECHNICAL APPROACH AND SCOPE OF WORK

Mead & Hunt's team has performed a site visit along with the Town staff to review the project/contract purpose and needs, project site conditions and discuss the project priorities. The Mead & Hunt team also measured the existing roadway typical sections at critical locations for the priority streets that require new sidewalk and drainage improvements to review proposed improvements, potential impacts and mitigation measures. Based on the scope of the project provided in the RFP, meeting discussions with the Town staff and based on our knowledge of the permitting requirements with Prince George's County DPIE, M-NCPPC and Soil Conservation District, the overall project work can be divided into four major groups as following:

1. School Lane and Wilson Lane Sidewalk and Drainage Improvements
2. Spring Branch Drive Rehabilitation and Resurfacing
3. Old Mill Road Improvements
4. Future Improvements for Planning Budget:
   - CEMETERY LA 0.13 mile
   - CHURCH ST 0.21 mile
   - ELM STREET 0.15 mile (reengineered and resurfaced in 2017)
   - MARLBOROUGH DR 0.14 mile (resurfaced in 2012)
   - OLD MARLBORO PIKE 0.03 mile
   - PRATT ST 0.09 mile
   - RECTORY LA 0.37 mile
   - SERVICE LA 0.13 mile
   - TRINITY LA 0.03 mile
   - VALLEY LA 0.07 mile
   - ST #1 0.05 mile
   - Unnamed Streets 0.05 mile

TECHNICAL APPROACH AND SCOPE OF WORK FOR EACH PROJECT GROUP.

1. School Lane and Wilson Lane Sidewalk and Drainage Improvements

Summary of Proposed Improvements: The project main scope of work includes construction of a sidewalk along School Lane from Old Crain Highway to the end of the street. The work also includes drainage improvements mainly along the east-west section of School Lane. The Town also desires to install a curb on the north (residential) side of School Lane to prevent runoff from draining towards the private properties and evaluate the School Lane / Wilson Lane intersection to install three-way stop signs. Additionally, the Town intends to improve the conveyance of storm-water from the park area located southwest of the Board of Education building. Along Wilson Lane, the Town desires to construct a new sidewalk to provide pedestrian connectivity between School Lane and Rectory Lane. The project will require new curb and gutter along with the sidewalk. The pavement along both School Lane and Wilson Lane will be rehabilitated as necessary. The project limit along School Lane is approximately 1600' and along the Wilson Lane is 400'.

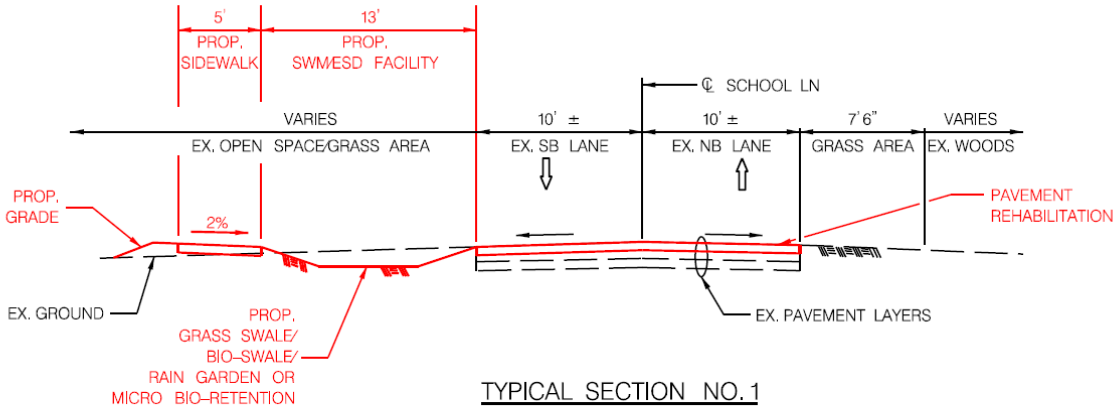
Figure 1: Public ROW along School Lane & Wilson Lane

Installation of new sidewalk along School Lane and along Wilson Lane would provide safer and more convenient pedestrian access from Rectory Lane to the County School Board building as well as Town Hall. It would also allow residents to access Sasscer Field on foot without walking in the street.

While there is sufficient right of way along both streets for installing sidewalk (see figure 1), the existing topography presents problems. Sidewalk construction along both School Lane and Wilson Lane require grading improvements and new curb and gutter, as both roads are generally open section in existing conditions. Additionally, School Lane has stormwater overflow inlets that will need to be adjusted due to new sidewalk.

Mead & Hunt's team will perform detailed topographic survey, right-of-way research and utility mapping along both School Lane and Wilson Lane within the project limits and prepare base mapping. Mead & Hunt team will prepare the design of sidewalk and roadway geometric improvements to include curb and gutter as needed and drainage layout to include storm drain inlet, pipe system and drainage ditches in accordance with Prince George's County Design Standards. Along the north-south section of School Lane, new sidewalk will be proposed on west side in front of the Town hall and will connect to existing sidewalk. For the section with the existing sidewalk, the existing drainage ditch will be regraded and enhanced with retrofit stormwater management/environmental site design (SWM/ESD) facilities to treat the runoff for water quality and quantity.

Figure 2: Topography and drainage elements along School Lane

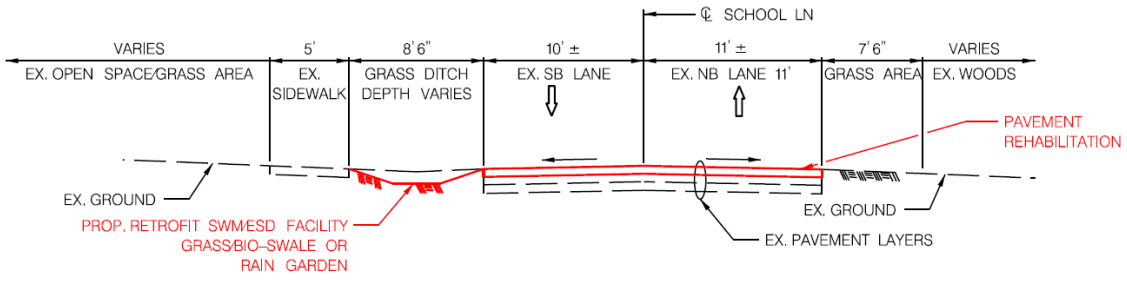


TYPICAL SECTION NO. 1
SCHOOL LANE AT TOWN HALL LOOKING NORTH

LEGEND:

(BLACK) EXISTING

(RED) PROPOSED



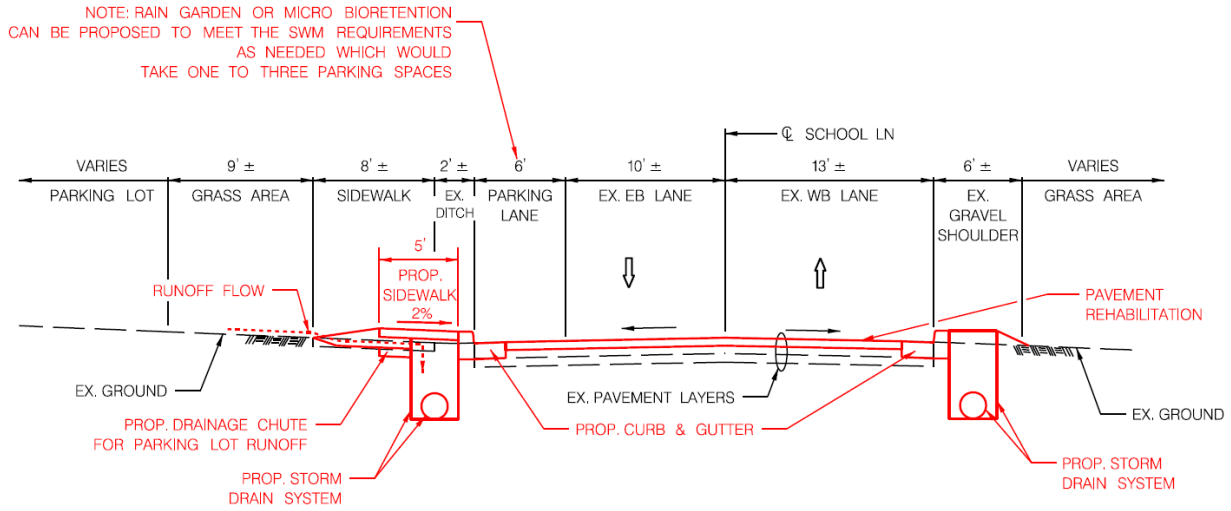
TYPICAL SECTION NO. 2
SCHOOL LANE AT PGCPS SASSCER ADMIN. BUILDING LOOKING NORTH

LEGEND:

(BLACK) EXISTING

(RED) PROPOSED

Further north, the new sidewalk will be proposed on the west side between existing parking lot and School Lane. Along the east-west section of School Lane, the existing 8'± wide sidewalk and 2' shallow drainage ditch will be replaced with 5' sidewalk and curb and gutter and new storm drain system.



TYPICAL SECTION NO. 3
SCHOOL LANE AT PG CO BOARD OF EDU. PARKING LOT – LOOKING WEST

LEGEND:

(BLACK) EXISTING

(RED) PROPOSED

The increased impervious area, due to construction of new sidewalk and reconstruction of existing sidewalk, will necessitate the stormwater management controls on-site. The Stormwater quality treatment and environmental site design volume (ESDv) and, 10-yr and 100-yr peak discharge control will be required to qualify the project for SWM and E&SC permit. The SWM quality, ESDv and 10-yr peak discharge requirements can be met using environmental site design (ESD) facilities. We anticipate minimal increase in peak discharge for 100-yr storm event. Due to site constraints and limited right-of-way, we anticipate 100-yr quantity control requirements will be waived for this project. Accordingly, large SWM structural facilities are not anticipated for this project.

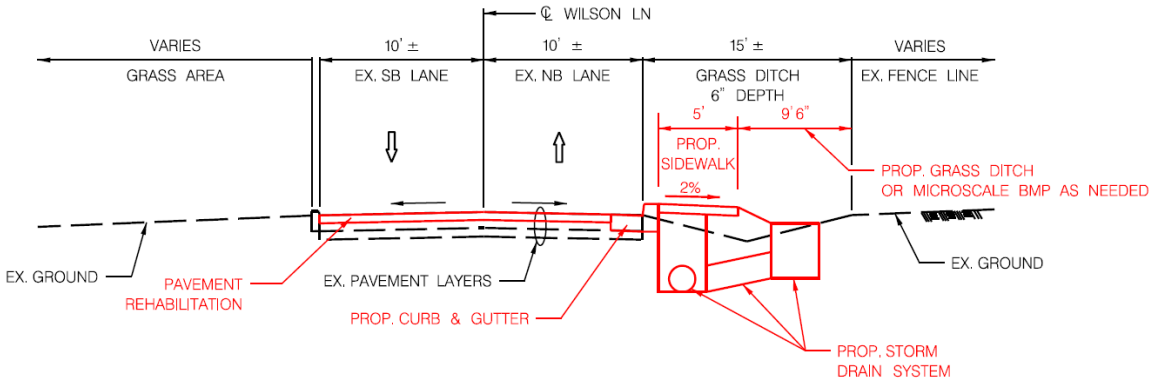
The stormwater permit will be acquired from Prince George's County DPIE. Accordingly, the design development for SWM will require to follow concept design, site development and final review prior to acquiring the final approval and permit.

We anticipate micro-scale ESD facilities such as micro-bioretention, bio-swale, rain garden and grass swale will be best suited for this project. Additionally, the parking lane on south side of School Lane (east-west section of the roadway) offers an opportunity to propose micro-bioretention or a rain garden to treat the runoff for quality and quantity requirements within the existing footprint of roadway. Furthermore, on the northside of School Lane, the impervious gravel strip in front of residential properties can be removed to offset the portion of SWM requirements.

At the intersection of School Lane with Wilson Lane, we recommend all-way stop control. While the intersection may not necessarily meet the Manual on Uniform Traffic Control Devices (MUTCD) guidance for all-way stop control, our engineering judgment is that this is a preferred method for traffic operations, given the unique geometry of the intersection – with perpendicular parking along the southern side of the intersection. In addition to all-way control, we recommend the installation of stop bars and crosswalks, as well as double-yellow center lines at all approaches (for approximately 50 feet) to provide guidance for drivers as they navigate through the intersection.

Along Wilson Lane, new sidewalk along with curb and gutter will be proposed on east side from School Lane to Rectory Lane. Drainage improvements will include combination of open section (grass ditch) and closed storm drain system (inlets and pipes) to convey the runoff from roadway, sidewalk, and adjacent properties. The stormwater quality and quantity require-

ments for Wilson Lane will be addressed using proposed grass ditch and impervious treatment provided along School Lane using proposed SWM/ESDs.



TYPICAL SECTION NO. 4
WILSON LANE – LOOKING NORTH

LEGEND:

(BLACK) EXISTING

(RED) PROPOSED

The Mead & Hunt team will perform pavement and geotechnical investigation which will consist of eight SWM infiltration borings and three pavement cores (two on School Lane and one on Wilson Lane) for pavement evaluation and rehabilitation recommendations. SPT will be performed at the subgrade at 2.0-foot intervals to a depth of up to 10 feet below the existing ground surface or auger refusal, whichever occurs first. We assume the existing pavement is asphalt and there is no cement concrete pavement. We will also perform infiltration tests at 6 ft below the existing ground for SWM facility.

Figure 3: Wilson Lane has drainage side swales

Also due to the extensive drainage improvements required, the project will require us to follow typical milestones to include concept developments, preliminary design, semi-final design, final design, and PS&E/Advertisement documents prior to construction. The design plans will be prepared on full size 22"x34" or 24"x36" sheets.

Please refer to price proposal for detailed itemized design tasks required to complete the project work.

2. Spring Branch Drive Pavement Rehabilitation and Resurfacing

Summary of Proposed Improvements: Based on reviewing the RFP and the Mead & Hunt team's site observation along with the Town staff, the Spring Branch Drive pavement appears aged and requires minor pavement rehabilitation and resurfacing.

The project site pavement condition will be visually evaluated by a professional engineer and using available previous record plans. We have assumed that the Town will provide the resurfacing data for the roadway section that was recently paved by WSSC for water main replacement. The proposed pavement section recommendations will be based on recent resurfacing work and in accordance with Prince George's County Standard and Specifications. The pavement core samples for soil exploration will not be performed. This project plans will be prepared on 8.5"x11" sheets using GIS mapping and field measurements using a wheel and tape. The pavement core locations, limits and type of pavement rehabilitations and quantities will be shown on the plan sheet.

This project plans will be prepared on 8.5"x11" sheets using GIS mapping and field measurements using wheel and tape. The pavement limits and type of pavement rehabilitations and quantities will be shown on the plan sheet.

Since this project does not cause land disturbance, we do not anticipate needing a permit with the exception of maintenance of traffic which can be addressed using standard MDOT SHA application for small streets.

Mead & Hunt will also prepare a cost estimate and special provisions as needed.

Please refer to price proposal for detailed itemized design tasks required to complete the project work.

3. Old Mill Road Improvements

Summary of Proposed Improvements: Based on review of the RFP and the Mead & Hunt team's site observation along with the Town staff, the Town desires to widen the Old Mill Road from Elm Street to 500' north along with the new sidewalk.

The current segment of Old Mill Road, just north of Elm Street is only 10± feet and one-way southbound – serving a handful of private residents. The overall local roadway and pedestrian network would be greatly improved through widening the roadway to County Standards, adding sidewalk, and incorporating two-way traffic operations. However, there a several engineering and logistical challenge to widening this segment of Old Mill Road including:

- Houses along Old Mill Road have shallow setbacks, meaning that any roadway widening, and sidewalk addition would encroach on front yards that are already small – bringing traffic closer to the houses
- Other issues include utility poles and guy wires on both sides; these will be costly to relocate, depending on the type of equipment and number of carriers on each pole.
- There are mailboxes and landscaping along the existing roadway; however, these can be relocated easily and cost-efficiently
- Public ROW width (~10 feet) does not exist to meet county minimums; will need a ROW take

Figure 4: Shallow front yard setbacks along Old Mill Road

Based on these challenges, we recommend minimum expansion of the roadway Prince George's County Standards for an urban residential street, which is 26 feet wide, curb-to-curb. Additionally, we recommend a five feet wide unbuffered sidewalk on one side only. This cross-section will minimize the impact to the overall property owners.

By reconfiguring Old Mill Road from one-way to two- way operations, there will be some changes to travel patterns in the area. Alternatively, to keep the vehicular traffic pattern as is and minimize the impacts and costs, only sidewalk can be proposed without widening the roadway.

Figure 5: Narrow public ROW along Old Mill Road

Since this project offers evaluation of alternatives, Mead & Hunt will prepare initial concept design alternatives along with the cost estimate for Town to review prior to proceeding with the final design.

Please refer to the price proposal for detailed itemized design tasks required to complete the project work.

Detailed topographic survey, utility mapping and right-of-way mapping as well as geotechnical investigation will be performed after the preferred alternative for final design is decided by the Town.

4. Roadway/Street Evaluation for Planning Budget (Approx. 1.5 miles of roadway):

Summary of Proposed Improvements: Based on reviewing the RFP, the Town desires to review the existing roadway and pedestrian facilities and recommendations for improvements for the Town's comprehensive roadway replacement schedule and budgeting plan.

Mead & Hunt's team will perform visual observations of the remainder of the Town's streets (approximately 1.5 miles) and provide recommendation for pavement rehabilitation as well as sidewalk improvements along Church Street.

We will perform visual observations of the entire roadway and perform Ground Penetration Radar (GPR) at randomly selected locations on the 11 roadways to collect pavement thickness information. GPR radiates a polarized electromagnetic wave and receives the reflection of the wave from subsurface interfaces where changes in the electrical properties of the subsurface materials occur. The relative dielectric constant (ϵr) controls wave velocity whereas conductivity (σ) controls signal attenuation. Radar reflections occur when the waves encounter a change in velocity or attenuation which can be used to estimate the pavement thickness.

The project site pavement conditions will be rated as poor, fair, good or excellent. Accordingly, the pavement rehabilitation priorities will be recommended for schedule and budgeting purposes. The proposed pavement section recommendations will be in accordance with Prince George's County Standards and Specifications.

Along Church Street, our team will evaluate the existing sidewalk for ADA compliance and prepare recommendations for improvements.

Project plans will be prepared on 8.5"x11" sheets using GIS mapping and field measurements using a wheel and tape. Plan sheets will also show any improvements required for other cross section elements such as curb and gutter, sidewalk and improvements necessary for ADA compliance.

Mead & Hunt will prepare a planning level cost estimate for budgeting purposes.

Detailed pavement investigations will include pavement cores and analysis which will be required prior to final pavement/ rehabilitation recommendations and preparing the construction plans.

Please refer to our price proposal for detailed itemized design tasks required to complete the project work.

STAFFING CAPACITY AND ABILITY TO ACCOMPLISH THE WORK

Our project team is comprised of a deep bench of civil and transportation engineering and planning professionals with the breadth of technical experience and workload capacity required to execute and complete the assigned task(s) on-time and within budget. Our key personnel have extensive local experience and a proven track record for similar projects in the Town and with similar governmental agencies. Our team will provide an appropriate mix of expertise in pedestrian and bicycle studies and planning and design; we have the capacity, availability and high-quality resources necessary to provide seamless service to the Town despite ongoing work commitments.

Within our Mid-Atlantic offices, Mead & Hunt employs over 25 Professional Engineers, 10 Professional Traffic Operations Engineers, 10 Certified Planners and over 20 CADD, GIS and engineering technicians throughout the Mid-Atlantic region. The Mead & Hunt team will approach all tasks with a client-first philosophy that allows us to provide staffing capacity and deliverables that best meet the needs of the project and the City. This philosophy is comprised of three main aspects:

- Act as a seamless extension of the Town's staff – understand and respond appropriately to internal and external demands, priorities, and politics
- Provide access to a deep pool of available, high-quality resources with the required expertise
- Work as a team and be prepared to mobilize quickly – our job is to serve the Town and that means providing expertise and efficiency, as needed, from any member of our team

COMMUNICATION

Mead & Hunt prepares a communication plan for each project, focusing on internal and external contacts. The communication plan is part of the overall project management plan. Beyond the tools and strategy used to effectively communicate, Mead & Hunt is responsive. Decisions can be made quickly, and projects can move forward.

Internal Communication: An internal communication plan is shared with the project team at the project kick-off meeting. Most plans include weekly team meetings and instructions on when and how to use phone calls, emails and letters. One example is the requirement that the subject line on all project emails must start with the project name to reduce email clutter. Communication responsibilities and roles are established for project team members. Through our internal communication tools,

information such as status of project deliverables, schedule, budget, project modifications and quality checks are shared. Communications are documented to maintain a record of decisions and actions. Typical communication and coordination tools include:

- Project team kick-off meeting
- Regularly scheduled internal progress meetings
- Milestone reviews and comment resolution meetings
- Proactive subconsultant management
- Best available electronic technology

External Communication: Communication with the Town is important throughout our project planning and design activities. The success of this and every project depends on the owner and consultant collaborating as a team to create a solution that addresses all of the project challenges. To foster communication, we pride ourselves on being accessible via in-person meetings, video calls, telephone, cell phone and e-mail or text message. Due to the challenges of the CoVID-19 pandemic, we will establish safe communication methods acceptable to all parties at project inception.

At the start of every project, we implement a communication protocol that defines how communication is best shared through each organization's point of contact. We prepare the protocol with you to ensure that we meet your needs for communication and clearly define your expectations, priorities, desires and preferences. While meetings and telephone conferences complement formal communication needs and group debate, e-mail is an excellent tool to track certain decision processes and discussions. The communication protocol will address aspects of communication related to when meetings occur, who should attend, meeting purpose and anticipated or required outcomes. It will also define how often project updates are required and whether in person, by phone or e-mail. Most importantly, the protocol is designed with you to meet your needs and will be adapted as each assignment moves forward.

Document Control: Mead & Hunt utilizes the latest in networking technology to provide our staff and clients with the tools they need to prepare inventories, data collection, analysis, engineering designs and computations, employ CADD systems and maintain quality document sharing. Our system is designed to efficiently transfer data to other engineering and surveying firms as well as government agencies. Through the use of Microsoft Azure's cloud-based storage and Workspot services, we are able to reduce the need for expensive office-based services while increasing the speed at which documents can be accessed and advanced software can be utilized.

To improve our communication across the entire project team, we use Newforma. Newforma is a project information management software that allows easy access to project-related information in one place and facilitates collaboration across the entire project team. Newforma gives us the ability to centralize emails, tasks and dates, along with other key project aspects, keeping everyone involved in the project aware of all ongoing communication and allowing them to reference current and correct information at any project stage. This removes many of the pitfalls of project teams when data is only updated within a small group of stakeholders and does not filter out to the entire team as needed. Better communication equals an improved project and a happier team.

Computer/CADD: We have demonstrated that Mead & Hunt not only has the availability and necessary skills to accomplish the work, but also to deliver projects on-time and within budget. Doing so requires the right tools. Mead & Hunt utilizes state-of-the-art computer equipment and software to perform traffic data analysis, planning, engineering design, mapping and simulations. We utilize InRoads Civil Design Software, MicroStation and AutoCAD drafting design software, together with numerous design applications. Our staff receive timely training on all design and analysis tools. Mead & Hunt also utilizes the full Microsoft Office Suite for day-to-day business; Microsoft Project for developing, monitoring and tracking schedules; Bluebeam Revu and Adobe Professional for file transfer, signing and sealing plans electronically; graphic design software such as Illustrator and InDesign for public meetings, brochures and website development and ArcGIS for project asset and inventory management and spatial analyses. Our team is versed in numerous advanced traffic analysis software tools.

Roadway Design software includes: MicroStation V8i, InRoads/OpenRoads, GEOPAK V8i, AutoTURN v10, AutoCAD Civil 3D, ArcGIS, ArcInfo, ArcView, MapInfo, Global Mapper LIDAR, Google Earth and QGIS. Surveying software includes: Total Station, P50 Laser Scanner and Phantom 4 Pro sUAS (Drone).

Utilities software includes: Pipehorn 100 Locator, Magno-Track 102 Locator, Pipe and Cable Locators, Metrotech 9890, Metrotech 810, VIVAX vLoc Pro2, Radio Detection 4000 & 7000, 7001, Subsite 950, Ground Penetrating Radar Easy Locator HDR – Mala, Air-Vacuum Excavation Truck 4000 series – Vacmasters and Traceable Duct Rodder – Hunter.

Traffic Engineering software includes: VISTRO, VISSIM, SIDRA, Highway Capacity Analysis, CORSIM, Cube, TransCAD, Guidesign, AutoTurn, PETRA and AGi32.

Hydrology & Hydraulics software includes: TR-20, TR-55, GIS HYDRO, InRoads/OpenRoads Storm & Sanitary, WSP2, FLDWY, HY-8, ABSCOUR, MPADD, GRADEINT, RISER, ROUT2 and FHWA Hydraulic Toolbox.

Structural Analysis software includes: Pile Analysis (COM624P), Cantilever Retaining Wall, Civil CAD, STAAD Pro, BAR7, ABUT5, Retain Pro and PS Beam.

Cost Estimating software includes: AASHTO Cost Estimator, Info Tech Estimator, MCMS, ESTSHA, COST98 and COSTEST. Environmental Evaluation software includes: TNM 2.5 for traffic noise analysis, MOBILE6, CAL3QHCR, MOVES2014a and AERMOD for Air Quality.

Data Processing/Project Management software includes: MS Office Professional, MS SQL Server, Maryland Property View, TREDIS, REMI Policy Insight, IMPLAN, ESRI Business Analyst, Info Group, SPSS, Stata, Corel Office, ProjectWise V8i, MS Project, Primavera SureTrak, ProjectWise and Newforma Project Center.

Mead & Hunt is uniquely equipped to work across the country since we have routinely delivered services to a variety of clients across the country, with 99% of our staff working remotely during the pandemic. Even before CoVID-19, we were successfully performing remote design services for several clients in multiple offices. The quarantine provided Mead & Hunt an opportunity to refine our virtual abilities to provide our client's more effective service.

Our team employs a virtual desktop application called Workspot to work from remote locations. Microsoft Azure Services and Workspot computers are located off-site and provide much stronger computer performance than working over alternative mediums such as VPN. We can display the remote Workspot desktop on our local desktop while taking advantage of the increased performance provided by Workspot hardware. With this technology, Mead & Hunt engineers, designers, planners and technical support teams can collaborate at cloud scale and speed, in real time, ensuring capacity to deliver the project from anywhere in the world at any time without losing computer performance as if we were working from a local desktop.

Additionally, each employee is offered software and hardware that allows for remote video conferencing between Mead & Hunt employees and their clients. We use Microsoft Teams, a web-based service that combines real-time desktop sharing with phone conferencing via the Internet. This allows participants to see the presenter's desktop during meetings and presentations can be used from any computer with an Internet connection. Since it is web-based, no installation is required on our client's part, nor do they need to be a Microsoft Teams subscriber to participate in meetings.

COMPLIANCE WITH PERFORMANCE SCHEDULES

Traceability Between Proposed Key Personnel and Their Availability to Perform the Current Requirements: At Mead & Hunt each project manager prepares a detailed project and staffing needs schedule that includes the project milestone submittal dates and gauges key personnel and support staff requirements in terms of the amount of hourly work efforts which are expected. This schedule is shared with all key personnel and support staff. This schedule is reviewed and updated on weekly basis. This detailed schedule assists each key personnel team member to review their effort required for a given project for next three to six months. The schedule can be adjusted as needed to accommodate other projects, scheduled time-off, etc. while still maintaining the agreed upon milestone schedule for all projects staff members are involved in. We take seriously our commitments of project staff and milestone deadlines and are prepared to spend additional time, at no cost to the Town, if projects fall behind schedule due to our own actions to bring a project back on schedule. Reassignment of staff to other projects requires Department Manager approval by Shashi.

BUDGET AND SCOPE MONITORING – COST CONTROL

The Mead & Hunt team has extensive experience with roadway design services and knows what it takes to produce cost effective deliverables and will harness that experience and bear it in our work on this project. Our approach to cost control consists of three elements:

- Assign the right people with the right experience to correctly perform the work the first time
- Avoid re-design or re-work. Fully understand the requirements from the beginning of the project, develop Basis of Design (BOD), periodic review with the clients and document the requirements and decisions during the review process
- Agree on the major elements of the task early in the process to avoid surprises

With the three cost control elements always in mind, our project manager Shashi Patel, uses several tools to track budgets and scope. Shashi will perform a thorough review of the contract to compare our responsibilities to our deliverables. Our contracts include a budget, schedule, scope and list of deliverables. Tasks are assigned with a budget and a clear understanding of the scope and are reviewed at weekly team progress meetings. Mead & Hunt utilizes Deltek Vision cost-accounting software, which allows real-time capturing and viewing of expended hours and costs, milestones and amount remaining. Shashi will use this reporting tool to assess progress and analyze whether a project is on schedule and within the set forth design budget. Prior to an invoice being sent, Shashi will review the overall project efort to make sure an equal level of progress was made on the project.

One of the biggest risks to exceeding the design budget is not meeting the schedule. Therefore, Shashi will place priority on tracking the schedule and manpower. We understand that failure to meet the Town's schedule is not a reason to request additional design fees from a client. Additionally, failing to fully understand the scope and complexity of the project is not a reason to inflate costs. Therefore, we will work closely with the Town to develop a comprehensive, mutually agreeable scope of services for each assigned task. The appropriate senior staff member will be consulted, as needed, to review the project, define the project and flush out the potential pitfalls. If contingencies need to be placed in the scope, optional services can be addressed at this time. Therefore, the only changes to the design fee would be based upon scope revisions requested by the Town. We would provide recommendations to reduce additional cost if and where possible. Mead & Hunt has a record of providing innovative ways to accomplish this, and we would readily provide suggestions to do so.

Our ability to deliver projects on-time and under budget is due to a combination of our extensive experience, our skilled and large staff, our national and local knowledge (as demonstrated with our Key Staff and project examples) and our state-of-the-art equipment. We have built our firm based on the reputation of partnering with our clients. Our commitment to our clients means that we help them in all aspects of the project's constraints. We are willing to work extra hours to meet your deadlines and budget constraints if unforeseen design complexities arise that were out of our control at the time the task was scoped.

We prepare project construction cost estimates in the beginning; at the 30-, 60- and 95 and 100-percent review stages; and at the PS&E milestones. This information is shared with the client at project meetings, so decisions can be made relative to the project scope, the current construction estimate and funds available for project construction. Occasionally, construction scope modifications are made to remain within budget, something easily accommodated by developing frequent, accurate construction cost estimates and communicating with the client. Starting at the 60-percent submittal, construction cost estimates are based on actual quantities and historic pricing adjusted for site conditions and project location. We understand the importance of providing realistic construction cost estimates to assist the Town with budgeting to achieve their work program agenda.

QUALITY OF WORK – QUALITY ASSURANCE/QUALITY CONTROL

Mead & Hunt's quality philosophy is client-focused, not project or service-focused. Because quality is defined by our clients, we must understand their needs and expectations. Our commitment to quality starts at the highest levels of leadership and extends to every employee. Through establishing a quality culture, each and every Mead & Hunt employee is responsible for quality and continuous improvement. Our desire to produce the highest quality deliverables for our clients is founded on our core principals, as detailed below.

Mead & Hunt follows quality assurance/quality control (QA/QC) processes throughout the duration of each project we deliver. This attention to detail maximizes the quality of the deliverables and optimizes the delivery schedule, resulting in on-time and within budget project delivery. At the beginning of each project, our team establishes a Quality Management Plan (QMP) to best fit our client's specified needs. During any assigned project's initial work planning phase, our team will work with the District to create a matrix that will list project deliverables and their due date, while also identifying the required quality checks and reviews. The deliverables matrix will be maintained and adjusted as needed throughout the life of the project.

Mead & Hunt incorporates the following procedures into our QMP:

- Independent Technical Review: This procedure is required before submitting each deliverable and applies to checking reports, plans, design calculations, load ratings, quantity calculations, special provisions and exhibits. The Independent Technical Reviewer will be completely independent from production work to increase consistency and overall quality
- Disciplined QC Check: Designed to verify the following:
  - Conformance to the deliverables design criteria
  - Accuracy of inputs, outputs, assumptions and conclusions
  - Deliverable meets the required level of completeness
  - CADD standards and style requirements are satisfied
- Constructability Review: For each milestone deliverable, we will perform a constructability review. This will identify opportunities to improve cost effectiveness and the suitability of the design to construction means and methods
- Comment Resolution: Comments may be received in writing or verbally from stakeholders, including the Town and local agencies. A standard procedure will be used to reply to each comment received. Point-by-point responses will be prepared to ensure that all comments are addressed appropriately. This process is repeated until the product meets quality standards

Mead & Hunt also shoulders the responsibility of the quality of the deliverables from our subconsultants. At the beginning of each project we make sure our subconsultants are aware of their responsibility to provide a high-quality product and their duty to follow our QA/QC process. Deliverables from a subconsultant experience a comprehensive review by Mead & Hunt staff. If revisions are necessary, the deliverable is sent back to the subconsultant for modifications until the product meets Mead & Hunt standards.

As demonstrated above and throughout our proposal, Mead & Hunt goes to great lengths to try to ensure error-free plans are submitted well before any project begins construction. We achieve this through the following methods:

- Proactively reaching out to utilities and agencies at the onset of our projects to avoid "surprises" later in design
- Providing consistent and open lines of communication with our clients through bi-weekly/monthly progress reports and meetings
- Conducting weekly check-ins with our in-house designers and subconsultants (as pertinent) to make sure we are on schedule and within budget, as well as discussing any issues and quickly finding the solutions
- Utilizing a QA/QC process that extends to every member of our team and is enacted before each deliverable milestone
- Developing a QMP that includes an Independent Technical Reviewer (Ziad Sabra, PhD, PE, PTOE) to make sure the plans are reviewed with a "fresh set of eyes". Ziad will be completely independent from any aspects of the project's design

Mead & Hunt has a proven history of delivering projects on time and within budget that are let to construction with minimal to no change orders needed. Should any change orders be necessary, our staff is just minutes away from the Town's office. We can quickly respond to any face-to-face meetings and immediately work with you and your staff to provide quality change order plans that will keep the construction of your project moving forward with no delay.

KEY STAFF

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KEY STAFF

KEY STAFF ASSIGNED TO PROJECT/RESPONSIBILITES OF KEY STAFF

1. Shashikant Patel, PE, PTOE, DBIA: Shashi will provide oversight and responsible for quality, schedule and budget control. His responsibilities will include day-to-day coordination with the Town project managers and design teams, allocating resources, expediting work and deliverables, reviewing invoices for accuracy of charges, assisting in coordinating and ensuring the performance of QA/QC tasks and monitoring project schedule and project documentation.

2. Doug Bobb, PE: Doug will serve a the secondar point-of-contact for this project and will be responsible for detailed grading, drainage, stormwater management and erosion and sediment control designs, code compliance, sequence of construction and permit. He will supervise and direct support staff for preparation of designs, calculations and report, details, plans, permit applications, specifications and cost estimate.

3. Bryon White, PE, PTOE: Bryon is experienced and hands-on with using design tools and software and will lead traffic engineering to include development and review of design concepts, evaluation and analysis of multi-modal network and operation of proposed design, parking, design of sidewalk, crosswalks, accessibility to transit bus stop, intersection safety and maintenance of traffic, pavement marking and signage.

4. Peng Lin, PE, PTOE: Peng will serve as the senior civil designer on this project. He is experienced and hands-on with using design tools and software and will be responsible for detailed geometric designs for sidewalk, roadway, grading and preparation of design plans and construction documents, code compliance, specifications and cost estimates and permits. He will supervise and direct support staff for preparation of designs, calculations and report, details, plans, cross sections, specifications and cost estimate.

5. Cyrus Mechanic, PE: Cyrus will serve as the senior structural designer on this project. He will be responsible for detailed structural design and geotechnical requirements of retaining wall, drainage and special structures, calculations and report, code compliance, specifications, and cost estimates and permit requirements for structural elements of the project. He will supervise and direct support staff for preparation of designs, calculations and report, details, plans, permit applications, specifications and cost estimate.

6. Jamie Kendrick, AICP: Jamie will serve as the compliance reviewer and coordination on this project. He will take lead on preparing the documents for environmental compliance, historic properties documentation and concurrence through Maryland Historic Trust and public outreach.

7. Xiaodong Zhang, PhD, AICP: Xiaodong will serve as the expert design and permit coordinator for hydraulics, stormwater management and erosion and sediment control. His extensive experience with MDOT SHA and Prince George's County will expedite this project in developing the permittable designs and detailed review of design and permit documents.

8. Casen Keller, BS: Casen will serve as the senior designer responsible for preparation of public outreach exhibits, presentations and traffic engineering design plans and details including pavement marking and signage, maintenance of traffic plans and cost estimates.

9. Kathleen Hayes PLA, MLA: Kathleen will serve as the Professional Landscape Architect responsible for reviewing existing Natural Resource Inventory, preparing context sensitive designs, design plans, specifications and cost estimates.

10. Xin Chen, PhD, PE: Xin will serve as the Pavement and Geotechnical Engineer responsible for pavement management, pavement engineering/design, pavement field data collection, pavement condition evaluation, pavement forensic study, database, Qlikview, GIS analysis, Asset Management and geotechnical engineering.

11. Russell Smith, PLS: Russell will serve as the senior surveyor responsible for reviewing existing topographic surveys and right-of-way plats, performing supplemental surveys as needed and preparing proposed right-of-way and easement plats and right-of-entry documents.

ORGANIZATIONAL CHART

TOWN OF UPPER MARLBORO

DEPUTY PROJECT MANAGER
Doug Bobb, PE*

PROJECT MANAGER
Shashikant (Shashi) Patel, PE, PTOE, DBIA*

QA/QC
Ziad A. Sabra, PhD, PE, PTOE

DRAINAGE, STORMWATER MGMT. EROSION & SEDIMENT CONTROL
Doug Bobb, PE*
Xiadong Zhang, PhD, PE (Zest)*
Oliver Lei, PE
Leonard Tang, EIT

SIDEWALK/ROADWAY DESIGN
Peng Lin, PE, PTOE*
Casen Keller*
Jahir Montalvo, EIT

TRAFFIC ENGINEERING AND LIGHTING
Bryon White, PE, PTOE*
Shaojia Du, PE, PTOE
Kyle Roberts, PE, PTOE
Katie Masetti, PE
Jeff Weaver (Lighting)

SURVEY, RIGHT-OF-WAY, UTILITIES, TEST-HOLES
Rusty Smith (COL)*
Rob Telscho, PLS (COL)
Joseph Shirey (COL)
Joe King (COL)

PUBLIC OUTREACH AND PRESENTATION
Bryon White, PE, PTOE*
Jamie Kendrick, AICP*
Kathleen Hayes, PLA, MLA*
Casen Keller

NRI/FSD AND LANDSCAPE DESIGN
Kathleen Hayes, PLA, MLA*
Brian Carranza, AICP

CONSTRUCTABILITY REVIEW
Aaron Gillispie, PE
Patience Ayensu
Doug Bobb, PE*

BIDDING PHASE ASSISTANCE
Peng Lin, PE, PTOE*
Bryon White, PE, PTOE*
Doug Bobb, PE*

TAP GRANT SUPPORT, COUNTY, MHT COORDINATION
Bryon White, PE, PTOE*
Jamie Kendrick, AICP*

STRUCTURAL DESIGN AND GEOTECHNICAL ENGINEERING
Cyrus Mechanic, PE*
Xin Chen, PhD, PE (DMY)*
Sameer Ghany, PE (DMY)
Jun Yao, EIT, PhD (DMY)

BIDDING DOCUMENTS PLANS, SPECIFICATIONS & ESTIMATES
Peng Lin, PE, PTOE*
Bryon White, PE, PTOE*
Doug Bobb, PE*

CONSTRUCTION ADMINISTRATION, MANAGEMENT & INSPECTION
Doug Bobb, PE*
Aaron Gillispie, PE
Patience Ayensu

***Bold text indicates Key Staff**

Zest = Zest DMY = DMYConsulting, LLC COL= Colliers

SUPPORT STAFF MATRIX	
Jahir Montalvo, EIT; BSCE, 2016; 4 years exp.	Jahir is experienced in civil engineering, primarily on roadway and sidewalk/bike path designs, preparation of design and constructions, profiles, details, calculations, reports, cost estimates, bid tabulations and specifications. He is well-versed in using design development tools including AutoCAD Civil 3D, MicroStation, InRoads, GeoPAK, AutoTurn, hydrology and hydraulics (H&H) design tools and all applicable design standards and guidelines including Prince George's County and MDOT SHA. His project experience include ADA compliance sidewalk designs, roadway and intersection improvements, drainage improvements and rehabilitation, safety and resurfacing, realignment and new roadways.
Leonard Tang, EIT; BSCE; 4 years exp.; WACEL Concrete I; WACEL Soil I; WACEL Foundation	Leonard is familiar with Prince George's County and MDOT SHA Design Standards and Maryland Stormwater Management Design Manual. He is well versed in using Microstation, Auto-Cad and hydrology and hydraulic tools TR-55 and TR-20 . Leonard is skilled in performing drainage design calculations for closed storm drain systems, pipe culverts, drainage ditches including delineation of drainage areas, hydrologic and hydraulic computations, spread computations for closed section roadways, inlet capacity computations, pipe sizing, hydraulic grade lines, out-fall design. He has prepared design plans for roadway, prepared typical sections, storm drain pipe profiles & details, construction notes, quantity computations and cost estimates.
Jeff Weaver; 35 years exp.; AGI32 Advanced Illumination Eng. Course	Jeff is experienced in design and management of traffic engineering design projects, specifically lighting and signals has prepared over 300 lighting projects, which included continuous roadway, partial roadway, roundabout, intersection, sidewalks/bikeways, culvert, underpass, tunnel, sign, high-mast, parking lots, work zones, toll plazas and site lighting designs. Many of these lighting projects included photometric analysis, light trespass analysis and voltage drop calculations.
Omid Gharavi, PE; M.Eng; 5 years exp.; OSHA 10 hour training; E&SC Cert.	Omid provides structural designs and inspection reports review using InspectTech and is skilled in performreing remedial service for variety of transportation structures such as bridges, culvert, pipes, and retaining walls.He is also involved with performing hands-on forensic evaluation of structures, preparing inspection reports recommendation, and oversea repairs for structures throughout the Maryland. He has hands-on epxerience in structural design analysis, preparation of design plans, sections, details, schedules, cost estimates and specificaitons.
Gino Pompa; BS, Env. Planning; 7 years exp. ISA-Certified Arborist (MA-6031A)	Gino is an ISA-Certified Aborist and is recognized as a Maryland Deapartment of Natural Resources Qualified Professional in Forestry; he brings with him extensive experience in environmental science and civil engineering including experience in field investigations and site visits to determine and identify Specimen or Significant Trees and general forest characterization information for each forest stand, identifying habitat enhancement opportunities, and invasive species with the goal of enhancing the pollutant removal efficiency. Gino is skilled with the use of Microstation, AutoCAD, the Adobe Creative Suite, as well as with forest conservation, plant identification, and construction administration.
Aaron Gillispie, PE; BSME; 25 years exp.	Aaron has 25 years of leadership and construction inspection experience to oversee our team and keep the City informed every step of the way. Aaron is committed to working directly with the District construction staff to exceed engineering and inspection assignment expectations. His background is in highway development and construction, including 20 years in construction materials. His responsibilities have involved pavement design and construction; roadway analysis; underwater bridge inspection; metals materials testing and certification; steel bridge fabrication and inspection; and seven years as the West Virginia State Materials Engineer.
Patience Ayensu; MA MCEM; 12 years exp.	Patience is highly skilled in construction inspection performing a myriad of duties which include inspection of soil, concrete and asphalt testing, traffic control devices, monitoring all aspects of rehabilitation for traffic signal at intersections inlcuidng lighting, signing and pavement markings, DMS sign structures inspections plus administrative duties. Patience is certified in MDOT SHA Erosion and Sediment Control, Yellow & Green Card, OSHA 10 Hour, IMSA Work Zone Safety Certified, IMSA I Signal Inspector Certification, WACEL Certified – Soils 1 Technician, WACEL Certified – Concrete 1 Technician, WACEL Certified – Foundation Technician.
Shaojia Du, PE, PTOE; MSCE; 18 years exp; Certified DPIE Reviewer for Traffic Engnieering Design	Shaojia has hands-on experience in the field of traffic engineering with a focus on traffic engineering design, including roadway signing and marking, signal design, lighting design, Maintenance of Traffic design, warrant analysis, capacity analysis, traffic modeling and simulation, and traffic safety analysis. He has prepared and overseen signing and pavement marking designs for hundreds of miles of roadway, including both newly constructed interstate projects and existing roadway improvement projects. Shaojia has prepared and overseen the maintenance of traffic design for over 100 roadway segments and intersections.
Kyle Roberts, PE, PTOE; BSCE; 11 years exp.	Kyle is experienced in traffic impact analysis, multi-modal traffic operations analysis, transportation planning, signal timing, traffic control studies, bicycle and pedestrian facility planning, design and analysis, traffic safety studies, traffic modeling and simulation, and traffic data collection. Data collection includes travel time, origin-destination studies, speed, gap, queues, and stopped delay. Kyle is versed in Synchro, SimTraffic, Highway Capacity Software, SIDRA, VISSIM, VISTRO, MicroStation, ArcGIS, and JAMAR and knowledgeable in MUTCD, FHWA, MDOT SHA, ITE and AASHTO standards.
Katie Masetti, PE; MSCE; 5 years exp.	Katie has hands-on experience in traffic engineering, specializing in traffic and transportation operations analysis, signal timing and planning including design and simulation. She has performed micro-simulation analysis, traffic operations studies, signal optimization studies, signal warrant studies, GPS-based travel time studies, delay and queue studies, vehicle and pedestrian change and clearance interval calculations, crash data analysis, and concept studies. Notable knowledge and basic proficiency in Java, Microstation, Matlab, Python, CORSIM, CLV Analysis, Creo Parametric 2.0, LCAP, HCM 2010, Vissim, Synchro.
Kathleen Hayes, PLA, MLA, LEED Green Associate; 10 years exp.; ES&C Cert.	Kathleen is a Professional Landscape Architect and brings over 10 years of active transportation planning and design experience for pedestrian and bicycle networks, landscape architecture design, wayfinding, and public outreach and facilitation. She has broad project experience in trails and greenways, open space, and sustainable complete streets. Kathleen's background in graphic design gives her a unique ability to augment landscape architectural design through strategies of branding, wayfinding, interpretive design, and public art.

KEY STAFF RESUMES

Shashikant Patel, PE, PTOE, DBIA

PROJECT MANAGER

Education

- BS, Civil Engineering, 1991

Registrations

- Professional Engineer, Maryland Registered #33339, 2006
- Professional Traffic Operations Engineer #4989, 2020
- Designated Design-Build Professional #1130223, 2020
- MDE E&SC #RPC014105, 2018

Shashi has over 26 years of combined experience in design and management of civil and transportation engineering design and inspection. For last 20 years he has worked on several roadway and side projects for municipalities within Prince George's County and Washington Metropolitan area including City of College Park, Town of Riverdale Park, Town of Berwin Heights and MDOT SHA District 3. His technical expertise includes concept design, preliminary and final engineering plans for a wide variety of projects including retrofits, rehabilitation, safety improvements, capacity improvements and new projects. Project experience includes geometric design of roadway and site/civil engineering, complete streets, pedestrian and bicycle facilities design, trails/shared use path, grading and drainage, SWM and E&SC, maintenance of traffic, sequence of construction, specifications and cost estimates, utility and Right-of-Way coordination, permitting, and construction phase services. He has hands-on experience with design software including AutoCAD, MicroStation and Modeling tools to include InRoads, GeoPak, Autoturn, TR55, TR 20, and HY 8. He is well versed with local design manuals, permitting and approval processes including Prince George's County, MDOT SHA Access Permit, Bicycle and Pedestrian Guidelines, MDE, AASHTO, MUTCD, TMP and TIS Guidelines.

PROJECT EXPERIENCE

Sidewalk project, 48th Avenue Sidewalk Improvements - from Riverdale Road to Longfellow Street, Town of Riverdale Park, Maryland: Shashi is the project manager responsible for preparing design and construction documents of new sidewalk along 48th Avenue. The purpose of the project is to provide pedestrian connectivity between the residential neighborhood and Town Center of the Riverdale Park as well as enhance the safety for children off from the street walking to and from the school bus. Developed and reviewed four (4) design concepts and prepare preliminary design, acquired necessary permits, and prepared final design and construction documents including cost estimates and specifications. During the design development Shashi lead and coordinated the pre-concept SWM meeting with DPIE and acquired final permit, attended virtual public meetings and responded to questions arose in meeting. The design incorporated avoiding impacts to existing matured trees, avoided stormwater management requirements, and acquiring SWM exemption, improved pedestrian safety, avoided impacts on existing storm drain system, maintained on-street parking and two-traffic on roadway.

Mutli-use Trail Extension Project, Sligo Creek Trail Extension to Matthew Henson Trail, M-NCPPC, Montgomery County, Maryland: Shashi is the project manager responsible for the extension of multi-use Sligo Creek Trail from its current termini at Channing Drive to beginning of Matthew Henson Trail at Alderton Road for total of five (5) miles. Shashi is responsible for development of concept and preliminary design documents and cost estimates. He developed the project scope and fee proposal, coordinated, and attended the project kick-off meeting and is coordinating with stakeholders. He led the field topographic survey and geotechnical investigation and obtained the permit requirements for the field investigation and construction. The trial alignment uses the existing roadway for majority of project limits that requires retrofitting the shared use trail within existing roadway and sidewalk section. Specifically, for the segment along the Kemp Mill Road, the existing paved shoulder will be utilized for the side-path without major impacts on wooded upslopes. SWM requirements and treatments will be addressed through non-structural practices as well as reducing the footprint of impervious area.

Northview Drive Allen Pond Trail Midblock Crossing Improvements, of Bowie DPW, Bowie, Maryland: Shashi was the deputy project manager responsible for the design of a road diet to improve the safety for pedestrian crossings. The design work included reduction of four-lane roadway to two-lane roadway (one-lane in either direction), shortening the pedestrian crossing across the roadway and improving the sight distance. He performed sight distance analysis, calculated the lane taper and designed the curb median for cut-through crossings. He designed ADA compliant sidewalk ramps and an asphalt trail that connects shared-use path and proposed midblock crossings. He prepared detailed design plans to include typical sections, geometric design, ADA ramp details, pavement marking and signage, maintenance of traffic (MOT), sequence of construction, cost estimates and specificationsshoulder will be utilized for the side-path without major impacts on

wooded upslopes. SWM requirements and treatments will be addressed through non-structural practices as well as reducing the footprint of impervious area.

Capital Crescent Trail Crossing Improvements Preliminary Engineering Design, M-NCPPC, Montgomery County, Maryland: Shashi was the senior civil engineer that provided QA/QC for a new trail connector and upgraded the midblock trail crossing of Capital Crescent Trail at Little Falls Parkway. He was responsible for review of civil engineering design including typical sections, geometric layout, ADA compliance, grading, drainage, SWM, environmental site design (ESD), utility coordination, constructability, sequence of construction and cost estimates.

Safe Routes to School Improvements, Baltimore City Department of Transportation (BCDOT), Baltimore, Maryland: Shashi was the project manager for the design services for 20 sidewalk ramps. He was responsible for ADA compliance and PS&E construction documents for Safe Routes to School in the City. He directed the design and performed quality control throughout the duration of the project. Due to site constraints and existing underground and above ground utilities, the use of standard ADA ramps was not practical. Therefore, each ramp was designed to work around existing utilities and infrastructure elements. He prepared detailed designs with dimensions and notes to facilitate the construction of retrofit sidewalk and sidewalk ramps.

Midtown Streetscape/Traffic Improvements, Baltimore City Department of Transportation (BCDOT), Baltimore, Maryland: Shashi was the project manager responsible for managing and supervising the design preparation of roadway design support for intersection improvements on Mount Royal Avenue at St. Paul Street, N. Calvert Street and Guilford Road, W. Preston Street and Park Ave/W. Biddle Street. The design included curb bump outs and reconfiguration of sidewalk ramps and crosswalks to improve the vehicular and pedestrian safety. The plans included roadway typical sections, pavement details, retrofit ADA sidewalk ramp design and details and signing and pavement marking plans showing cross-walks. He designed the retrofit two-way bike path along Mt. Royal Avenue including dedicated bike crossing and refuge areas across the intersection. The bike path marking design incorporated the recent on-going research and development for similar sites across the nation.

Irving Street Crosstown Cycle Track, District Department of Transportation (DDOT), Washington, DC: Shashi is the lead civil engineer responsible for reviewing and supervising engineering design to include geometric, grading and drainage design of the Crosstown Cycle Track, an approximately 1-mile cycle track running from the intersection of Michigan Avenue and Irving Street NE to Kenyon Street and Warder Street NW. Work includes the review of existing topographic survey, site visit, evaluation of existing drainage system, utility coordination, geometric design, development of typical section, grading design and evaluation of drainage impacts, stormwater management (SWM) requirements and erosion and sediment control (E&SC). In order to expedite the SWM and E&SC permit from DOEE, advanced coordination was initiated for the project concept/permit review meeting with DOEE and DDOT to discuss the concept and SWM design approach. Accordingly, due to limited available on-site space and to minimize the impacts to existing infrastructure that included roadside trees, a porous pavement for trail was selected to satisfy the SWM requirements. He coordinated with geotechnical engineers to perform soil investigation and obtain recommendations to ensure the feasibility of porous pavement.

Bike Lane, ADA Compliant Sidewalk Ramps and Traffic Barrier, MDOT SHA, Anne Arundel, Charles, St. Mary's and Calvert Counties, Maryland: Shashi was the project manager responsible for managing eight various tasks for the retrofit traffic barrier, ADA ramps and bike lanes for Fund 77 projects across MDOT SHA District 5. The total length of the projects was 34-miles and projects were successfully completed within six months. Shashi was responsible for preparation of task proposals, assembling the design team, coordinating with client, preparation and maintenance of design schedule, quality control and delivering the projects in timely manner. The scope of work included preparation of base mapping using GIS aerial photogrammetry, field investigation, collection of data, design of retrofit design, construction plans and cost estimates. In addition, bike lane and ADA waivers were prepared for areas where it was not feasible to accommodate dedicated bike lane. For the traffic barrier retrofit design, practical design approach was used including field investigation, review of crash history and best engineering judgement. A memorandum was prepared to summarize the practical approach of retrofit traffic barrier design and submitted along with the design and construction documents.

Douglas (Doug) Bobb, PE

DEPUTY PROJECT MANAGER, SENIOR CIVIL ENGINEER

Education

- BS, Civil Engineering, 1992

Registrations

- Professional Engineer, Maryland Registered #24509, 1997

Doug has over 28 years of engineering experience with over 15 years in Prince George's County in the fields of drainage and stormwater engineering, design and permitting. During his career, he has consistently managed and designed multiple simultaneous complex projects while coordinating various development issues, including constructability, utility, and right-of-way impacts, future development issues and coordination with stakeholders. His design experience includes concept development through final design of drainage, green stormwater infrastructure, environmental site design (ESDs), low impact development (LID), best management practices (BMPs), hydrology and hydraulics (H&H), plans preparations, estimates and contract specifications. He is well versed in hydraulic design programs including HEC-RAS, FHWA Hydraulics Toolbox, TR-20, TR-55, HY-8, HEC-14, HEC-15, HEC-22, HDS-2, HDS-4, HDS-5, Prince George's County Design Manual and Standards, 2000 MDE Stormwater Design Manual, MS4 and TMDL Watershed Implementation Plan, Book of Standards, Complete Street's Ordinance. He is well versed in coordinating with various agencies and concerned parties and has an intimate knowledge of the often-competing concerns of project stakeholders.

PROJECT EXPERIENCE

Jericho Park Trail, City of Bowie DPW, Bowie, Maryland: Doug is the project manager for the design of a new ADA compliant 2,200 feet long multi-use trail through Jericho Park. The project will be part of the Bowie Heritage Trail system and connect with an adjacent neighborhood. The alignment was developed after several site visits, topographic surveys and natural resource inventories, and was laid out to avoid impacting any significant trees despite running through well-established forests for over ¼ of a mile. The project includes SWM, E&SC controls, Community Meeting display development, presentation and feedback solicitation, and coordination with and adherence to requirements of various agencies, including MNCPPC, Prince George's County DPW&T, SCD and DPIE, and MDOT SHA.

Horizontal On-Call Contract, Prince George's County DPW&T, Prince George's County, Maryland: Doug was the project manager for several tasks under this On-Call contract. Example Tasks: Carter Avenue Traffic Calming: Designed traffic calming and innovative LID SWM treatment on a collector route through a residential neighborhood. The design included traffic calming "bump-outs", site specific micro-bioretention treatment to improve water quality within the bump-outs, new signing and marking, minor drainage and ADA compliant pedestrian facility upgrades.

Walker Mill Road Regional Park Entrance Widening, Prince George's County, Maryland: Doug was responsible for widening the County road; designing a new park entrance; installing new curb-and-gutter and ADA compliant pedestrian facilities; creating a dedicated bike lane; providing drainage design using LID; and performing environmental investigation that included forest conservation planning and permitting approval through M-NCPPC, Prince George's County and MDE.

Rehabilitation of Bridge SSB-18, City of Rockville DPW, Rockville, Maryland: Doug was the project manager responsible for the design and permitting for widening and addition of ADA pedestrian facilities for a 1,750-feet roadway. The improvements include widening and rehabilitating the existing pavements, new curb & gutter, over 1,500 LF of new sidewalks and ramps, over 2,000 LF of new closed drainage systems, and new on-site stormwater management control and treatment. Performed SWM design using ESD practices per the 2007 SWM Act with MDE micro practices, including bioswales.

Fairground Road Reconstruction, Calvert County DPW, Prince Frederick, Maryland: Doug was the task manager for subconsultant services for the geometric design and modeling of this approximate 1-mile section of hiker/biker trail on new alignment. Responsible for alignment studies and geometric design, survey and mapping, stormwater management and erosion and sediment control. Key aspects including avoiding property impacts while addressing significant elevation changes, with the project subject to MDSHA review for compliance with grant requirements that were used to fund the project as well as coordination with utilities and various other Federal and state agencies.

Bryon White, PE, PTOE

SENIOR PEDESTRIAN FACILITY DESIGNER / TRAFFIC ENGINEER

Education

- BS, Mechanical Engineering, 1998

Registrations

- Professional Engineer, Maryland Registered #30475, 2005
- Professional Traffic Operations Engineer #3476, 2013

Bryon has over 20 years of experience in many aspects of transportation planning and engineering, including bicycle and pedestrian network planning and design. His expertise also includes the development of neighborhood safety, access studies, corridor studies, travel forecasting, traffic simulation, development and site design review, traffic studies including signal warrants, streetscape, and roadway design, master plan design, and traffic data collection and analysis efforts. In addition, he has authored and reviewed many development-impact analyses.

PROJECT EXPERIENCE

Montgomery Count Parks, Capital Crescent Trail Mid-block Crossing Design, Montgomery County, Maryland: Bryon was the Project Engineer for development of alternative and preferred options for constructing a safe and permanent crossing to replace the temporary road diet installed by Montgomery Parks. Options evaluated included formalizing the temporary road diet, relocating trail crossings, and constructing a bridge over Little Falls Parkway. All options included constructing new trails to connect adjacent neighborhoods with the primary CCT "trunk" trail. Permanent speed control and lighting improvements were also part of the 30% design of the preferred option. Efforts also included analysis of alternatives across a dozen metrics including safety, cost, tree impacts, congestion and SWM needs.

Howard County DPW, Planning and Engineering for Complete Streets, Howard County, Maryland: Bryon was the Project Manager for several planning studies to develop short-term improvements for the following corridors: Tamar Drive, Oakland Mills Road and Columbia Road. Documented existing conditions, collected traffic data, evaluated impacts of road diets for protected/buffered bicycle lanes, and analyzed traffic congestion. Developed preliminary engineering concepts and typical sections. Prepared renderings and attended public meetings. Conceptual drawings included traditional, protected, and buffered bike lanes, as well as new sidewalk and pedestrian crossing improvements.

City of Gaithersburg DPW, Trail Feasibility and 30% Design, Gaithersburg, Maryland: Bryon was the Project Manager for a 30% new hard surface trail design for a new trail connecting existing trails within the City of Gaithersburg to a bridge over I-370. Future trail connection is in a densely wooded area with steep slopes but will maintain ADA compliance with low recurring maintenance. Project consists of development of three (3) alternatives, analysis of lifecycles costs, construction costs, SWM feasibility and tree impacts, and a community meeting. Alternatives include options for boardwalks, block retaining walls and impervious pavement.

Anne Arundel County DPW, On-Call Transportation Planning and Engineering for Complete Streets, Anne Arundel County, Maryland: Bryon was the Project Manager who conducted comprehensive facility planning studies and 30% designs for Ridge Road, MD 713, Andover Road, and Jumpers Hole Roads. Work included: ROW analysis, traffic data collection, development and calibration of a Synchro traffic model, crash data review, documentation of existing pedestrian and bicycle infrastructure, and identification of gaps and barriers.He was also responsible for traffic operations analysis of baseline and alternative scenarios.

Rhode Island Ave Streetscape 30% Design, City of College Park, Maryland: Bryon was the Project Manager for the redesign of Rhode Island Ave in North College Park to provide buffered bike lanes, an improved and widened sidewalk, turn lane removal, improved lighting, improved transit facilities, and pedestrian and bike access. 30% design was provided and incorporated use of public space for pocket parks. The provided design also involved coordination between City and County stakeholders.

Peng Lin, PE, PTOE

SENIOR CIVIL ENGINEER

Education

- MS, Civil Engineering, 2001
- BS, Civil Engineering, 1999

Registrations

- Professional Engineer, Maryland Registered #28270, 2005
- Professional Traffic Operations Engineer #4818, 2020
- MDOT SHA Erosion & Sediment Control Certification #18-353

Peng has 27 years of experience in multimodal transportation design. For last 20 years he has worked on several roadway and side projects for municipalities within Prince George's County and Washington Metroploitan area including City of College Park, Town of Riverdale Park, Town of Berwin Heights and MDOT SHA District 3. His technical expertise includes concept design, preliminary and final engineering plans for a wide variety of sidewalk and roadway projects including retrofits, rehabilitation, safety improvements, capacity improvements, and new projects. He is well-versed in using design development tools including AutoCAD Civil 3D, MicroStation, InRoads, GeoPAK, AutoTurn, hydrology and hydraulics (H&H) design tools, Win TR-20, TR-55, HY-8, Culvert Master and InRoads Storm and Sanitary. His experience also includes highway geometric design, highway safety improvements, work zone safety and mobility, cost estimates, H&H engineering design and construction inspections.

PROJECT EXPERIENCE

Northview Drive Allen Pond Trail Midblock Crossing, City of Bowie DPW, Bowie, Maryland: Peng was the project engineer responsible for the road diet design to improve the safety of pedestrian crossings. The design work included the reduction of a four-lane roadway to a two-lane roadway, shortening the pedestrian crossing across the roadway and improving the sight distance. He performed sight distance analysis, calculated the lane taper and designed the curb median for cut-through crossings. He designed ADA compliant sidewalk ramps and an asphalt trail that connects shared-use paths and a proposed midblock crossing. He prepared detailed design plans to include typical sections, geometric design, ADA ramp details, pavement marking/signage, maintenance of traffic (MOT) sequence of construction and cost estimates and specifications.

Sidewalk Project, 48th Avenue Sidewalk Improvements – From Riverdale Road to Longfellow Street – Town of Riverdale Park, Maryland: Peng is the project manager responsible for preparing design and construction documents of new sidewalk along 48th Avenue. The purpose of the project is to provide pedestrian connectivity between the residential neighborhood and Town Center of the Riverdale Park as well as enhance the safety for children off from the street walking to and from the school bus. Developed and reviewed four (4) design concepts and prepared preliminary design, acquired necessary permits, and prepared final design and construction documents including cost estimates and specifications. The design incorporated avoiding impacts to existing matured trees, avoided stormwater management requirements, acquired SWM exemption, improved pedestrian safety, avoided impacts on existing storm drain system and maintained on-street parking and two-way traffic on the roadway.

MacArthur Boulevard Bikeway Improvements from Oberlin Avenue to DC Line, Montgomery County Department of Transportation, Montgomery County, Maryland: Peng was the project engineer for the 2.3-mile roadway widening and bike trail improvements that included widening the MacArthur Boulevard approximately 4 ft and upgrading the existing bike path/lane that runs along the entire length of the project. He prepared horizontal and vertical alignments, typical sections, cross sections, drainage design, E&SC, MOT and cost estimates and specifications.

Highland Transit Stop Improvements from Highland Avenue to South Eaton Street, Baltimore City DPW, Baltimore, Maryland: Peng was the project engineer responsible for the upgrades to five existing intersections and one alley within the limits of the study area including upgrading existing ramps, crosswalks, sidewalks, bus pads, bus shelters benches, trash receptacles and consolidated newspaper stands. He also was responsible for the installation of bike racks, upgrading existing curbs within the intersection and resurfacing existing roadway pavement within a limited area just east and west of each impacted intersection. ryon was trhe Project Manager who conducted comprehensive facility planning studies and 30% designs for Ridge Road, MD 713, Andover Road, and Jumpers Hole Roads. Work included: Right-of-way analysis, traffic data collection, development and calibration of a Synchro traffic model, crash data review, documentation of existing

pedestrian and bicycle infrastructure, and identification of gaps and barriers. Peng was also responsible for a traffic operations analysis of baseline and alternative scenarios.

Capital Crescent Trail Crossing Improvements Preliminary Engineering Design, M-NCPPC, Montgomery County, Maryland: Peng was the project engineer that prepared design and construction documents for a new trail connector and upgraded the midblock trail crossing of Capital Crescent Trail at Little Falls Parkway. He developed geometric design, vertical alignments, typical sections, geometric layout, ADA compliance, grading, drainage, SWM, ESD, utility coordination, constructability, sequence of construction and cost estimates.

MD 186 at Taylor Street ADA Intersection Improvements, MDOT SHA, Prince George's County, Maryland: Peng was the project engineer responsible for the design of ADA intersection improvements and upgrades to the existing sidewalk ramps to meet current ADA compliance. The project work included intersection geometric design to remove existing parking and construct new sidewalks, ADA compliant ramps and surface drainage improvements.

Cyrus Mechanic, PE

SENIOR STRUCTURAL ENGINEER

Education

- MS, Structural Engineering, 1985
- BS, Structural Engineering, 1978

Registrations

- Professional Engineer, Maryland Regisered #16290, 1988
- NBIS Certified for Bridge Inspection

Cyrus is an experienced engineer in all aspects of structural engineering including retaining walls, bridges, culverts, signal and lighting steel poles and pole foundations, overhead signs structures, 2 to 3-story steel, concrete, or timber commercial buildings, highway and transit maintenance buildings, and sanitary water and wastewater treatment facilities. Cyrus is DPIE Certified Structural Design Peer Reviewer. Since 2000, Cyrus has been a senior structural engineer in charge of many projects requiring inspection, analysis and rating, scour remediation, construction cost estimation, and bridge posting. He has also provided rehabilitation recommendations. Cyrus is also experienced in the design and rehabilitation of a variety of structures for water and wastewater facilities, including pipe restraint systems, valve chambers and pipe access, sanitary building structures, hydrologic/hydraulic analyses, and erosion and sediment control plans.

PROJECT EXPERIENCE

Ascension Catholic Church, Front Entrance Retaining Walls and Handy Capped Ramps Bowie, Maryland: Cyrus is the Project Task Manager in charge of structural drawings for construction and permit. The project included design of approximately 110 feet of retaining walls, steps, and over 120 feet of handy capped ramps. The front walls were designed to retain the patio and steps leading to the sidewalks. The walls were structurally designed and details were adopted from the applicable MDOT SHA standards.

Stonecrest Neighborhood Association, Stonecrest Drive Post and Plank Retaining Walls, Ellicott City, Maryland: Cyrus was the project task manager in charge of structural design, construction documents, and securing construction permits. The project included design of approximately 200 feet of timber post and plank with timber tie backs retaining walls and associated steps. The walls were designed to retain approximately 6 feet of fill. The project included Red Line Revisions and updates to the original County drawings using Howard County standards.

Structural Review- Cornell Avenue, Roseburg Drive US 1 Box Culverts, College Park, Prince George's County, Maryland: Cyrus was the Peer Structural Design Peer Reviewer that reviewed structural design plans and calculations for thee culverts in College Park. The review work includled performing a review for code and compliance, consistency, utility conflicts, and constructability and provide return review comments. Cyrus coordinated and discussed review comments and design with the County, as needed.

Traffic Signal Remedial Inspection Program, Howard County DPW, Howard County, Maryland: Cyrus is the Structural Engineer responsible for remedial inspection and design of traffic signal structures. He performed site visits and measured remaining effective cross section thicknesses of several traffic signal poles using D-Meter instrument. The data was transferred to software in order to compute the stress caring capacity of the pole in current condition. Based on the outcome, a decision was made to either remove or replace the signal poles immediately, or to include the signal pole in the replacement schedule.

Gwynns Falls Trail, MDOT SHA, Baltimore, Maryland: Cyrus was the Lead Task Manager/Project Manager in charge of the extension of the Gwynn Falls Trail system. Responsible for design of a 110-foot-long pedestrian bridge, over 400 feet of post and plank retaining walls, alternative analysis, preparation of contract documents, Wetland Identification and Delineation, Dead Run Floodplain Study including survey Hydraulics and Hydrology report, historic structures, and archeological sites, SWM waiver, and Erosion and Sediment Control (E&SC). The project also included reports and submittal of the structure items to MDOT SHA, assisted City of Baltimore to prepare Memorandum of Understanding between Baltimore County, MTA and MDOT SHA regarding present portions of the trail on their property.

Jamie Kendrick, AICP

COMPLIANCE REVIEW AND COORDINATOR

Education

- MA, City & Regional Planning, 2000

Registrations

- American Institute of Certified Planners #30502

Jamie has 20 years of experience in transportation planning, policy, and project management. Jamie's expertise includes multi-modal planning, environmental evaluation, permitting and compliance, strategic and long-range planning, traffic impact analysis, traffic safety analysis, concept development and preliminary engineering, pedestrian and bicycle network planning and design, transit operations and service planning, stakeholder and public involvement, and grant management. Jamie has worked with a diverse client base including federal, state and local governments, and in urban, suburban and rural environments. He previously served as Deputy Director of the Baltimore City Department of Transportation (BCDOT) with responsibility for implementation of the $120 million capital improvement program.

PROJECT EXPERIENCE

Sidewalk Retrofit Project, Town of Riverdale Park, Maryland: Jamie prepared the environmental documentation for a community sidewalk project in Riverdale Park including documentation of several historic resources. This project was funded through the federal Community Development Program which has similar program compliance and documentation requirements as small federally funded projects funded through the Department of Transportation.

Safe Routes to School Program Management, Baltimore, Maryland: Jamie led implementation of the DOT's Safe Routes to Schools program including planning, design, environmental documentation, permitting and compliance and construction which included new sidewalks and ADA ramps, flashing beacons and other traffic safety devices.

Environmental Permitting Coordination – Purple Line/Capital Crescent Trail, Maryland Transit Administration, Baltimore, Maryland: Reconnecting West Baltimore–Trail and Streetscape Project: As Deputy Director of the Baltimore DOT, Jamie led an interagency team of planners, urban designers and traffic engineers to develop a 1.4-mile loop trail in West Baltimore connecting the MARC Commuter Rail station with the historic communities of Harlem Park and Union.

Jones Falls Trail, Phases II and V, Baltimore, Maryland: As Deputy Director of the Baltimore DOT, Jamie oversaw final design and construction of two phases of the Jones Falls Trail: Phase II through downtown Baltimore along the Inner Harbor, and Phase V, running parallel to the Central Light Rail Line in North Baltimore.

Old Main Line Trail, Town of Mount Airy, Maryland: Jamie was the senior planner responsible for trail planning, preliminary engineering and grant application for a 1-mile priority segment between historic Main Street and Watkins Park.

La Plata Park and Ride, Charles County, Maryland: As Project Manager for the Maryland Transit Administration, Jamie led concept planning, site selection, right-of-way acquisition and NEPA approvals for a new 250-space park-and-ride lot in Southern Maryland.

Xiadong Zhang, PhD, PE

WATER RESOURCES ENGINEER

Education

- PhD, Water Resources, 2004
- MS, Structural Engineering, 2001
- BS, Civil Engineering, 1998

Registrations

- Professional Engineer, Maryland Regisered #36713, 2010
- MDE Responsible Person Certification #RPC005505
- MDE ESC Certification #44391
- MDOT SHA Erosion and Sediment Control Certification #10-134

Xiadong's experience in water resources and environmental engineering includes Stormwater Management (Urban BMP and ESD), Innovative SWM Design, Stormwater System and Open Channel, Erosion and Sediment Control, Drainage Design, Slope/Outfall Stabilization, Stream Restoration, Report and Contract Document Preparation, Permit Application, Field Investigation and Inspection, numerical modeling and research in H&H, Floodplain Management, Dam Breach analysis, and CFD and its application in hydraulic engineering. Dr. Zhang's research was awarded the First Place Science and Technology Progress Award at state level. Dr. Zhang is one of the first few technical reviewers on Stormwater and Erosion and Sediment Control with MDOT SHA PRD, and a certified reviewer with Prince George's County on SWM, Drainage, H&H, Floodplain Management, and site grading. Benefited from Baltimore City DPW 2017 Small Business Development Program, Dr. Zhang completed the OSHA construction Safety and Health Training (Number: 15-006086006). In 2018, Dr. Zhang completed the 40 hours EPA NPDES Permit Writer's Training Course. Dr. Zhang was vice chair of EWRI of ASCE MD Chapter and is an adjunct professor at Morgan State University teaching hydraulic engineering, which covers hydrology, pipe flow, open channel flow, groundwater, stormwater, and H&H modeling.

PROJECT EXPERIENCE

Prince George's County DPIE/DOE Peer Review Services on SWM, Drainage, H&H, Floodplain and Fine Grading Permit, Prince George's County, Maryland: Xiadong provided Peer Review Services for Drainage Design, SWM Concept, Fine Grading, and H&H modeling and approval. Projects reviewed include: Calvert Hill and College Park Drainage Improvement Project; Outfall 434 Stabilization; Nine Pond SWM Retrofit; Glenridge Middle School; William Wirt Middle School SWM, ESD, Urban BMP, Molular Wetland System, Drainage, Q100 Management, Fine Grading; City of Bowie Ice Rink Project Drainage Easement; DPW&T's D'Arcy Road Vehicle Wash Facility Proje ct; PEPCO Takoma Substation #27 Expansion SWM and Floodplain Management; PEPCO Palmers Corner Substation #84; Henson Creek Golf Course Bridge Replacement; Henson Creek Wetland Mitigation; DOE Covered Storage Area at Equipment Building 3500H Brown Station Landfill; MNCPPC WB&A Bridge Project; Tinker's Creek Stream Restoration; Bear Branch Stream Restoration; Washington Gas Western Branch Wetland Mitigation; Windsor Park Stream Restoration; and Beaver Dam 20 Stream Restoration Project.

MDOT SHA PRD Review on SWM and E&SC, Baltimore, Maryland: As an MDOT SHA PRD approved reviewer, Xiadong reviewed projects ranging from noise wall construction and state wide culvert replacement to large scale projects like the design build and P3 projects, which include US 113 Phase 4 Design Build, MD 404, MD 32, MD 97 Brookeville Bypass, I-270 Innovative Congestion Management Project, MD 500 from DC line to MD208, MD 355 at Old Baltimore Ave, Culvert and Bridge replacement statewide, Noise Wall Construction along I-695, MD 27 Sidewalk, MD 214 Sidewalk Improvements, MDOT SHA OED TMDL program SWM Design Group 1 in Anne Arundel County, TMDL Stream Restoration and Outfall Stabilization at Patapsco Valley State Park, TMDL SWM Design in SHA District 7, MD 185, MD4, MD424, MD769C, US1 at Kitkat Road, US50 Hiker/Biker Path, Paint Branch Fish Passage, Centreville and Leonardtown Maintenance Facility Reconstruction, etc.

The Purple Line Design Build Project, City of College Park, Maryland: Xiadong was the project manager in charge of Segment 6 SWM design. As the largest P3 project, the purple line transit light rail project is fast paced with aggressive schedule. Segment Six of the project starts from west side of UMCP campus to south side of the WMATA College Park Metro Station, and it is the most challenging segment for SWM due to the high urbanization and intensive conflict with

utilities throughout the campus, which is also similar to City of Baltimore. The SWM design needs to implement ESD to MEP and manage 10 year and 100 year peak discharges. Field investigation and verification of the SD system, SWM, DA and Tc delineation, urban BMP and ESD design and calculation were performed, and SWM plans, DA maps, and SWM reports were prepared. 23 POIs were analyzed. 45 planter boxes, two Micro-BioRetention, and one sand filter were designed. The SWM concept was approved in 2018.

MD 500 Road Surfacing, Reconstruction of Sidewalk Raised Median From MD208 to MD410, MDOT SHA, Baltimore, Maryland: Xiadong served as project engineer responsible for Drainage, Erosion and Sediment Control, SWM design, and field investigation. Tasks include POI identification and drainage area delineation, existing drainage system capacity analysis with rational method and HY-22, proposed storm drain and inlet design, LOD delineation, ESD hydrologic computations and preliminary SWM quantitative volume calculations.

MD24 at MD924 Park and Ride Facility Design, MtA, Harford County, Maryland: Xiadong was the project manager responsible for reviewing 30%, 60%, 90%, and PS&E construction document plans, specification and engineer's estimates for storm drain, H&H, Urban BMP and ESD, Erosion and Sediment Control, and Stormwater Management and Erosion and Sediment Control Concept, Site Development, and Final Reports for MDE submission. Project involved designing a new park and ride lot for the I 95 ETL NB extension at the south east corner of the intersection of MD 24 and MD 924. This task has aggressive schedule while all reviews were managed to be completed on time. Field investigation and evaluation were performed, and input were provided to adjust storm drain design, revise DA and Tc delineation, adopt the proper SWM calculation, refine cost estimate, and adjust sequence of construction to ensure ESC function properly.

MD212A Powdermill Road Design and Reconstruction, MDOT SHA,Baltimore, Maryland: Xiadong was the Project Manager responsible for Drainage design, drainage field investigation, conflicts with utilities and resolution, and SWM and Erosion and Sediment Control Design.

City of New Carrollton Drainage Improvement Project, City of New Carrollton, Maryland: Xiadong is currently the Project Manager responsible for contract administration, Drainage Design, H&H, SWM Concept application and approval, NRI-EL application and approval, SCD erosion and sediment control design, application and approval, floodplain boundary delineation and approval, fine grading permit preparation, application and approval, and cost estimate, plans, and reports preparation.

Prince George's County Green Street Project, Stormwater Management, Erosion and Sediment Control for Swann Road Improvements, Prince George's County, MD: Xiadong was the Project Manager responsible for SWM, Drainage, and E&Sc design and permit application. This project required the design team to investigate the option of providing SWM with new LID on the property of William Beanes Elementary School to compensate the SWM requirement from the roadway improvement.

Casen Keller

SENIOR DESIGNER

Education

- BS, Geography, 2008

Casen is a Senior Designer with experience in transportation planning and engineering including feasibility studies, conceptual engineering, roadway and trail horizontal and vertical alignment, right of way analysis, environmental impact, traffic engineering design including signals, signing, lighting, traffic control plans and pavement marking, as well as preliminary engineering studies, cost estimates and contract specifications. Casen is versed in MicroStation, AutoCAD and GIS analysis tools. as well as DDOT, NACTO, and MUTCD guidelines

PROJECT EXPERIENCE

Eastern Downtown Protected Bike Lane Study and Design, District of Columbia DOT, Washington, DC: Casen was the project designer for development of CADD base plans, signing and marking, signal modifications, parking modifications and cost estimates for multiple alternatives along 6th and 9th Streets NW from Constitution Avenue to Rhode Island Avenue.

Middle Lane/ Washington Street Protected Bike Land Study and Design, City of Rockville, Maryland: Casen served as the project designer for planning and preliminary engineering of retrofit protected bike lanes in downtown Rockville. Responsible for field inventory, base mapping, concept design including typical sections and signing and marking, renderings and illustrations, and cost estimate.

Capital Crescent Trail at Little Falls Parkway Improvements, Montgomery County, Maryland: Casen served as the Project Designer for development of alternative and preferred options for constructing a safe and permanent crossing to replace the temporary road diet multiple installed by Montgomery Parks. Options evaluated included formalizing the temporary road diet, relocating trail crossings, and constructing a bridge over Little Falls Parkway. Developed CADD base mapping, existing and proposed typical sections, concepts, 30% design, renderings/ illustrations and prepared construction cost estimates.

Western Run Greenway Feasibility Study, Baltimore, Maryland: Casen served as the Project Designer for developing alternatives of alignment of greenway trail from Reisterstown Plaza Metro station to Mount Washington Light Rail Station along Cross Country Boulevard and Western Run Road. He evaluated bicycle and pedestrian safety and traffic volumes, and proposed roadway cross-sections to accommodate a proposed Greenway. He also Developed preliminary cost estimates and prepared conceptual plans.

Hanover Parkway Bicycle Lane Feasibility Study and Design, City of Greenbelt, Maryland: Casen served as the Project designer responsible for development of CADD base plans, typical sections, signing, marking and signal plans and cost estimates for a 1.5 mile of new expanded sidewalk, trail and retrofit protected bike lane.

University Drive Sidewalk and Bike Lane Design, City of Fairfax, Virginia: Casen served as the Project Designer tasked to design multi-modal improvements, including a road diet to incorporate a bicycle lane along University Drive from Armstrong Street to Main Street and a new sidewalk between Armstrong Street and Breckinridge Lane. Developed geometric design, typical sections, and bike lane signing and striping plans.

Anacostia to WB&A Trail Connection Feasibility Study, Prince George's County, Maryland: Casen served as the Project Designer responsible for base plan development, field inventory, singing, marking, sidewalk and ADA design as part of 30% preliminary engineering plans for improved bicycle and pedestrian connections along and beside streets within the New Carrollton area.

Kathleen Hayes, PLA, MLA

LANDSCAPE ARCHITECT

Education

- MLA, Landscape Architecture, 2016
- MFA, Design, 2001
- BA, Fine Art, 1991

Registrations

- Licensed Landscape Architect - Maryland #4115, 2019
- Erosion & Sediment Control Certification - Maryland #ROC007292, 2016

Kathleen is a Professional Landscape Architect with a passion for connecting people to places. Kathleen brings over 10 years of active transportation planning and design experience for pedestrian and bicycle networks, landscape architecture design, wayfinding, and public outreach and facilitation. She has broad project experience in trails and greenways, open space and sustainable complete streets. Kathleen's background in graphic design gives her a unique ability to augment landscape architectural design through strategies of branding, wayfinding, interpretive design and public art. She is noted for her attention to detail and has contributed to numerous projects in the Mid-Atlantic and Northeast, working collaboratively with stakeholders, clients, engineers and architects.

PROJECT EXPERIENCE

Connecticut Avenue Corridor Pedestrian and Bicycle Access and Safety Study, Town of Kensington, Montgomery County, Maryland: Kathleen serves as the Senior Planner/Designer responsible for development of multi-modal improvement alternatives, graphic design, renderings and public outreach for MD 185 through the Town of Kensington to address transportation safety and equity concerns.

Discovery District Multiuse Trail Transit Access Plan, City of College Park, Prince George's County, Maryland: Kathleen is the Senior Planner/Designer responsible for trail planning and feasibility including alignment, typical sections, renderings and illustrations, and public outreach for a proposed trail segment linking the Discovery District research park to the City of College Park and Town of Riverdale Park along the Purple Line Light Rail.

Baltimore City Complete Streets Design Manual, Baltimore, Maryland: Kathleen was the Senior Planner/Designer responsible for collaboration and creation of a street typology unique to Baltimore City. She developed written content and provided editing support. Kathleen executed visualization graphics and report design and layout.

Indian Head Rail Trail Extension Feasibility Study, Charles County, Maryland: Kathleen was the Senior Planner/Designer responsible for performing field and desktop analysis to develop existing conditions profiles. She delineated three potential alternate trail alignments using GIS workflow. Kathleen developed public-facing maps and presented alignment options at a public workshop.

Druid Lake Vision Plan, Baltimore, Maryland: Kathleen served as the Senior Planner/Designer responsible for developing multimodal circulation plans for Druid Lake Park Drive. She created diagrams and illustrative plans and sections. Kathleen presented concepts to large, multi-agency stakeholder meetings.

Baltimore Greenway Boston Street Trail Concept Design, Baltimore, Maryland: Kathleen was the Senior Planner who was in charge of developing schematic design concepts and illustrative sections. She created graphics and presentation materials for meetings with stakeholders and the public.

Santa Maria Active Transportation Plan, Santa Maria, California: Kathleen was the Senior Planner responsible for developing the standalone Design Elements Toolkit. She provided graphic design, data visualization and document layout technical support.

Empire State Trail, New York State: Kathleen was the Wayfinding Task Manager responsible for internal multi-disciplinary coordination for developing trailhead kiosk maps, including stakeholder outreach, GIS mapping, content development, design and production. She procured and managed services performed by outside consultants and vendors.

Xin Chen, PhD, PE

PAVEMENT AND GEOTECHNICAL ENGINEER

Education

- BS, Civil Engineering, 1997
- MS, Civil Engineering, 2000
- PhD, Civil Engineering, 2004

Registrations

- Professional Engineer, Maryland Registered #37166, 2011

Xin has over 15 years of experience in civil engineering, pavement management, pavement engineering/design, pavement field data collection, pavement condition evaluation, pavement forensic study, database, Qlikview, GIS analysis, Asset Management and geotechnical engineering. He is responsible for all work related to pavement engineering (design/management) and geotechnical engineering including proposal preparation, pavement and geotechnical engineering planning, field data collection, data analysis and interpretation, database management, engineering analyses, report preparation, meeting with clients/customers and research & development. Xin also published and presented papers related to pavement management and asset management on international journals and conferences. He is proficient in Microsoft Office and AutoCAD.

PROJECT EXPERIENCE

Pavement Management System, Howard County, Maryland: Xin is the project manager in charge of overseeing pavement surface data collection using an automatic pavement data collection vehicle, QA/QC pavement condition index (PCI), preparing pavement condition summary report, developing pavement maintenance, repair & rehabilitation recommendations and implementing Pavement Management System (PMS) for Howard County Bureau of Highway, Maryland for 1000 lane miles roadway.

Pavement Management Project, City of Laurel, Maryland: This project includes total eleven streets in the City of Laurel. Dr. Chen was responsible for surface distress visual survey, pavement coring and Falling Weight Deflectometer testing (FWD); developing Pavement Condition Index; evaluating pavement structural and surface condition; recommendation of maintenance, repair, and rehabilitation (MR&R) options; providing MR&R priority management strategies, project selection, and funding strategies.

MDOT SHA Office of Material Technologies, Hanover, Maryland: Xin was the Assistant Division Chief for the Engineering Geology Division and was overseeing Specification Review and Geotechnics programs which support MDOT SHA pavement design and pavement management sections on pavement preservation specification development and pavement engineering utilizing Pavement Management Data Warehouse. He spearheaded several business improvement projects (e.g. web-based GIS-based Geotechnical Database and Slope Management System) which supplement the Pavement Data Warehouse.

Prince George's County Public Works, Prince George's County Correction Center, Upper Marlboro, Maryland: Xin was the Geotechnical Engineer for this project. Prince George's County Correction Center is a two-floor building built in 1984. The facility experienced issues with drainage, wall cracking, and floor settlement DMY's scope of work was to obtain the subsurface condition and to investigate the potential cause(s) of settlement of floor at the Housing Unit H-12. He reviewed existing information such as as-built plans, previous geotechnical report, construction records, photos/pictures, etc. DMY performed a subsurface exploration program (field and laboratory testing), evaluated field and laboratory data, conducted geotechnical analyses, and prepared three options to address the issues.

Maryland State Highway Administration AX7665D82 Area Wide TMDL Design Build Area Wide, Maryland: Xin is serving as the Geotechnical Engineer for this project. The purpose of the project is to provide the design, permit, and construction of retrofit Stormwater Management (SWM) BMP Facilities and stabilization of Outfalls to meet requirements of the Chesapeake Bay Total Maximum Daily Load (TMDL). His responsibilities are to develop the geotechnical planning reports, supervise the geotechnical field exploration activities, develop the lab assignments, prepare boring logs, conduct geotechnical analyses (e.g. slope stability, settlement, foundation, retaining wall), and prepare geotechnical investigation summary reports and final geotechnical reports.

DMY ENGINEERING CONSULTANTS INC.

Russell Smith, PLS

CHIEF LAND SURVEYOR

Education

- AA, Surveying, 1986

Registrations

- Professional Land Surveyor (PLS) Maryland

Russell has over 37 years of extensive hands-on experience in the Survey field including deed research, boundary resolution, subdivision applications, fieldwork, drafting for property surveys, topography, 3D mapping, and construction stakeout. He has managed field crews, survey techs and office staff. Russell is adept at the processing of raw field data and production of final deliverables for state and local agencies as well as Proposal writing and budget management. He is experienced in Project and people management, particularly in the Topographic Survey, Right-of-Way, and Subsurface Utility Designation area. Russell's varied experience and responsibilities has equipped him with broad spectrum knowledge of the field of Survey. Russell is very familiar with Prince George's land records, plats and deeds research and preparation base mapping as well as preparing easement and right-of-way plats.

PROJECT EXPERIENCE

Miscellaneous Engineering Services, Contract No.515827, P515827B, 515827B, MDOT Maryland Port Administration Community of Newburg, Charles County, Maryland: Russell performed deed and plat research from online, courthouse, and MDOT State Highway Administration sources. He resolved boundary lines to identify gaps and overlaps in title. Back-deeds and historical data were evaluated for relevance and to established original parent tract lines. Russell also completed QA/QC for all final deliverables, coordinated field crew activities, and held meetings to schedule subcontractor crews, acquire project status and assess progress to better accommodate delivery date and budget. The major projects under this contract are Hart Miller and Poplar Islands, Cox Creek facility, survey control monumentation updates for all terminals, Point Breeze boundary survey and pier monitoring surveys and evaluations.

Miscellaneous Engineering Services, Contract Number 513001C, 513001, MDOT Maryland Port Administration City of Baltimore, Baltimore County, Maryland: Russell performed deed and plat research for the Sparrows Point, Masonville, and Fairfield facilities for a comprehensive boundary survey. He also identified easements, right-of-ways and permanent corner monumentation set to finalize plans. To adhere to the budget and schedule Russell managed and coordinated office and field staff for the update and delivery of the Locust Point utility base map project, coordinated and managed projects to complete electrical upgrades for the terminal cranes and utility pits, completed site visits and participated in project progress meetings to coordinated surveying efforts with MPA and tenants.

Right of Way Plat Prep and Metes & Bounds Survey Services, BCS 2010-05, MDOT State Highway Administration City of Baltimore, Baltimore County, Maryland: Russell was responsible for highway and hydrographic surveys including electronic data collection, topographic surveys, M&B surveys, profiles, spur lines, right-of-way stakeouts, interchange stakeouts, wetland identification, cross-sections and utility locating and designating. A highlighted task included MD 136/MD 543 Intersection Improvements (Fund 87). Russell performed topographic and M&B surveys, utility designation, utility test pits and right-of-way plat preparation.

On-Call Transportation Roads and Bridges, MD. Department of Public Works Cecil County, Maryland: As Project Surveyor, Russell provided site/civil work, right-of-way, H/H, value engineering, topographic surveying, roadway and site design, preparation of contract documents, transportation improvements, drainage Improvements, environmental permitting, metes and bounds plats culvert replacements, construction phase services and project management. The County follows SHA standards, specs and CADD standards bridge inspection/rehabilitation roadway improvements, SWM and E&S control.

Colliers Engineering & Design

SUBCONTRACTOR COMMITMENT

ZEST LLC
Engineering • Science • Technology

November 1, 2021

Ziad A. Sabra, PhD, PE, PTOE
Vice-President
Mead & Hunt
7055 Samuel Morse Drive, Suite 100
Columbia, MD 21046

Subject: Statement of Commitment
Roadway Engineering Survey & Design Firm, Town of Upper Marlboro, Maryland
RFP No. UM 2021-03
Consulting, Peer Review, and Permitting Assistance Services
ZEST Project No. 214601

Dear Mr. Sabra:

ZEST LLC (ZEST) is pleased for the opportunity to work with you on the above-referenced project. We are an MDOT Office of Minority Business Enterprise certified Asian American Minority Business (12-535). ZEST will provide peer-review and consulting services for drainage, SWM, and E&Sc for State Highway Administration (SHA) and Prince George's County DPIE permits, as needed.

Thank you for considering ZEST for this contract. Please do not hesitate to contact me at (443)583-9218 or via email at zest.md@zestllc.com if we can be of further assistance.

Sincerely,

Xiaodong Zhang, Ph.D, P.E.

President

• 9111 Edmonston Road, Suite 407A, Greenbelt, MD 20770 • (443) 583-9218

DMY ENGINEERING CONSULTANTS INC.

Chantilly, VA
Williamsburg, VA
Washington, DC
Gaithersburg, MD

November 15, 2021

Ziad A. Sabra, PhD, PE, PTOE
Vice-President
Mead & Hunt
7055 Samuel Morse Drive, Suite 100
Columbia, MD 21046

Subject: **Statement of Commitment**
Roadway Engineering Survey & Design Firm, Town of Upper Marlboro, Maryland
RFP No. UM 2021-03

Dear Mr. Sabra,

DMY Engineering Consultants, Inc. (DMY) commits to join the Mead & Hunt team for the subject project. DMY is an MDOT certified DBE firm (MDOT cert. No. 14-473) and is certified for the following NAICS code(s):

- 541330 – Engineering Services
- 541380 – Testing Laboratories
- 541690 – Other Scientific and Technical Consulting Services

DMY commits to providing geotechnical engineering support services. DMY certifies that we able to provide the required resources, services, etc. to fulfill our role for this contract. We will provide these services to the satisfaction of Mead & Hunt and the Town of Upper Marlboro.

Sincerely,

DMY Engineering Consultants Inc.

Peng "Paul" Zhang, PE
Vice President
301.768.4168
pzhang@dmyec.com

1305 Mall of Georgia Boulevard
Suite 120
Buford, Georgia 30519
Main: 877 627 3772

Colliers
Engineering
& Design

November 16, 2021

Ziad A. Sabra, PhD, PE, PTOE
Vice-President
Mead & Hunt
7055 Samuel Morse Drive, Suite 100
Columbia, MD 21046

Subject: **Statement of Commitment**
Roadway Engineering Survey & Design Firm, Town of Upper Marlboro, Maryland
RFP No. UM 2021-03

Dear Mr. Sabra,

Colliers Engineering & Design is pleased to be a member of the Mead & Hunt team for the above-referenced project.

Colliers Engineering & Design is committed to providing site control, right of way determination and topographic surveying for School Lane, Wilson Lane and Old Mill Road to a total lineal distance of approximately 2'800 feet. Deliverables will include a signed and sealed right of way drawing and topographic AutoCAD file in Civil 3D format. Colliers Engineering & design will also notify Miss Utility to acquire utility records within the public space along the roads listed above. Excluded from this scope of services are any underground utility designation, excavation or soft dig to located existing utilities. Also excluded from this scope is the determination of existing easements not specifically provided by the client.

Colliers Engineering & Design certifies that the firm will provide the required services and resources to ensure completion of all work, as required, to the full satisfaction of Mead & Hunt and the Town of Upper Marlboro. Colliers Engineering & Design hereby commits its personnel and resources towards the successful completion of this project and looks forward to the opportunity of working with Mead & Hunt and the Town of Upper Marlboro in this endeavor.

Sincerely,

Colliers Engineering & Design, Inc.
(DBA Maser Consulting)

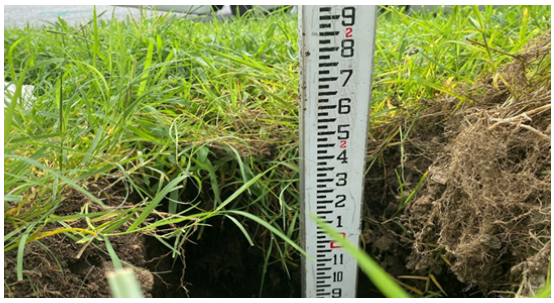
Rusty Smith, PLS
Geographic Discipline Lead

RELEVANT EXPERIENCE

7

PROJECT EXAMPLES

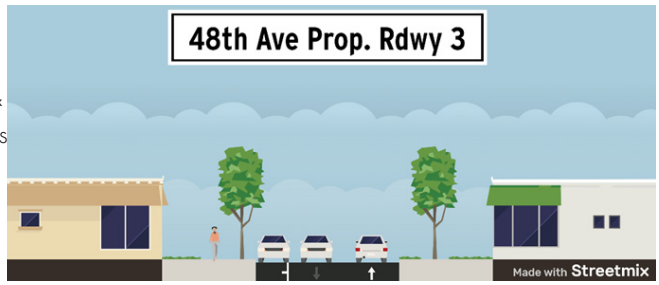
ON-CALL ENGINEERING SERVIES



Town of Riverdal Park, MD

Mead & Hunt provided concept, preliminary engineering and final design and construction documents for the project as described below.

48th Avenue Sidewalk Improvements – From Riverdale Road to Longfellow Street: The purpose of the project is to provide pedestrian connectivity between the residential neighborhood to the Town Center of the Riverdale Park as well as enhance the safety for children off from the street walking to and from the school bus. The scope of work included the development and review of various design concepts and prepare preliminary design, acquire necessary permits, and prepare final design and construction documents including cost estimates and specifications. Since the project work was constraint by the limited construction funds and time limit, the project development and preparation of design required extensive coordination with the permitting agency (Prince George's County, Maryland) to ensure the project goals are met.



Prior to development of a detailed design scope of work, Mead & Hunt met with the Town and reviewed the purpose and scope of the project. During the review, Mead & Hunt identified the potential design alternatives and options and the impacts and permit requirements of the project. Mead & Hunt, along with the Town Project Manager, scheduled a meeting with Prince George's County to review the project and permit requirements such as street construction permit and stormwater management and erosion and sediment control permits. Mead & Hunt documented the meeting discussions and prepared a detailed scope of work for Town's review and approval.

Mead & Hunt prepared the base mapping using Prince George's County GIS data, as-built plans, and field measurements. Base mapping included all existing topographic features including but not limited to road edges, curb & gutter, sidewalks, above ground and underground utilities and storm drain systems. We prepared four (4) alternative design concepts for the proposed sidewalk, identified impacts, permit requirements, pros and cons and cost estimates and reviewed with the Town. Mead & Hunt also recommended the design option that met the project purpose and need at optimum cost and within the allocated short project duration. We prepared sidewalk design exhibits including typical sections and submitted for public information meetings. Mead & Hunt Participated in Virtual Public Meeting and presented proposed preferred design concept and answered questions that arose during the meeting. We then prepared public meeting notes and action items and followed up with Town to resolve outstanding comments. Mead and Hunt reviewed roadway geometrics for pedestrian safety and evaluated traffic calming options as well as bike accommodations. Traffic calming and pedestrian crossing options included one-way traffic and bump-outs with street parking. Additionally, the proposed sidewalk was designed around the existing street trees, existing fire hydrant and surface utility structures and utility poles to minimize the impacts and cost to the project. The footprint of the sidewalk was maintained within the existing right-of-way.

Mead & Hunt addressed all comments received from the Town and through the public meeting as appropriate and complete the final design plans for sidewalk including title (cover) sheet, general notes, typical sections, roadway plans and ADA ramp details, driveway profiles and erosion and sediment control plans. The roadway plans included detailed dimensions, stakeout, driveway schedules, crosswalk pavement marking and traffic signage, construction notes and quantity tables.

For stormwater management (SWM) and erosion and sediment control (E&SC) permit, Mead & Hunt prepared and submitted Site Development Concept Plan application and documents through EPlan system of Prince George's County's Department of Permitting, Inspection and Enforcement. Mead & Hunt prepared detailed runoff drainage maps and hydrologic and

hydraulics calculations and SWM and E&SC narrative report and permit plans including roadway and erosion and sediment control plans including sequence of construction

Urgent Needs Task - 5006 Somerset Road Sinkhole Investigation: Mead & Hunt was assigned an urgent need task to investigate the sinkhole along the Somerset Road in the Town of Riverdale Park. Upon a phone call request from the Town, Mead & Hunt immediately reviewed the problem and as-built data for the existing aboveground and underground infrastructure and ensure the recently formed sinkhole does not cause safety Issue. We recommended the Town to locate all existing utilities around the sink hole using the Miss Utility. Mead & Hunt engineers than performed detailed investigation through test pitting, accessing the storm drain manhole and using the water/dye and sound test to identify the cause of sink hole. Investigation revealed a broken existing storm drain system that has an mysterious horizontal and vertical alignment. We provided on-site recommendations for the short-term remedy. Mead & Hunt then prepared a brief investigation report along with recommendation for the long-term repairs of the failed storm drain. Mead and Hunt's approach and action of investigation has saved the Town from expensive investigative work.

OPEN-END HIGHWAY ENGINEERING DESIGN SERVICES

Prince George's and Montgomery Counties, District 3

Mead & Hunt provided civil engineering design services in Prince George's and Montgomery Counties for various highway design assignments as a part this on-call deign contract. Design responsibilities included improving existing intersection design by investigating existing stormdrain facilities, evaluating existing beam traffic barriers and upgrading them to meet Maryland State Highway Design Criteria, preparing concept development studies, upgrading existing intersections to enhance traffic operations, providing ADA design upgrades for existing ramps, sidewalks and driveways to meet latest design criteria and guidelines, preparing roadway plans, typical sections, maintenance of traffic control plans, storm drain layout and profile, erosion and sediment control plans, roadway x-sections utilizing Microstation and AutoCADD, earthwork quantities, preparing final plans for resurfacing existing urban and rural roadways, reconstructing and widening existing roadways, providing concept and construction bid document for roadway extensions, and providing design support and responding to contractors' questions during bidding and construction.

US 1 ADA, Sidewalk, and Safety Improvements, Albion Road to Paint Branch Pkwy. Prince George's County, Maryland: Mead & Hunt provided design services for the US 1 project which included: evaluating existing sidewalks, curb and gutter, medians and driveways (where the curb crosses a pedestrian path) and recommended replacement, evaluating existing inlets and recommended improvements if they are structurally damaged, replacing concrete cross walks at intersections with HMA cross walks, upgrading pedestrian ramps, sidewalks, and driveways, installation of detectable warning surfaces, designing of intersection islands to meet the latest ADA design guidelines, MDOT SHA design criteria, "SHA Accessibility Policy & Guidelines for Pedestrian Facilities along State Highways dated December 2005" and "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and developing quantities and cost estimate, providing design support during construction. Mead & Hunt also investigated the existing fire hydrants and utility poles within sidewalks that were in conflict with the aforementioned design guidelines. In cases of design conflicts, Mead & Hunt proposed alternatives, such as providing bump-outs to avoid relocating fire hydrants and utility poles. Such recommendations were summarized by preparing ADA waiver applications that were submitted to MDOT SHA for review and approval. Mead & Hunt was also responsible for roadway construction bid documents for milling and resurfacing, upgrading and investigating existing storm drain pipes, inlets and manholes, MOT design, preparing erosion and sediment control plans, and SWM management design and analysis.

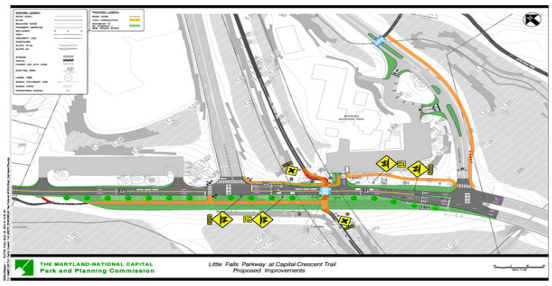
Bus Stops and ADA Evaluations Prince George's and Montgomery Counties, Maryland: Mead & Hunt provided evaluations of approximately 25 existing bus stop facilities, ramps, driveways, and sidewalks over the last two years to see if they

comply with ADA guidelines. As a result of the evaluations, upgrades were designed. These tasks included: conducting site visits to gather existing information and field measurements, evaluating existing bus stops and submitted recommendations, measuring existing slopes and widths of all pedestrian ramps, sidewalks and driveways to determine ADA compliance, preparing design plans and details to upgrade the design and location of pedestrian ramps, sidewalks, and driveways to accommodate ADA requirements, providing design specifications for detectable warning surfaces, investigating fire hydrants and utility poles within sidewalks that conflicted with the design guidelines and designing alternatives such as bump-outs, preparing stormwater management reports and submitted to MDE for approval, and developing quantities and engineer's estimates.



MD 197/US 301 Intersection Resurfacing and ADA Improvements Prince George's County, Maryland: Mead & Hunt provided highway, drainage and traffic engineering design services for this two-mile safety improvement project from the conceptual stage to construction documents and provided design support during construction. The MD 97 project included: field measurements of existing slopes and widths of all pedestrian ramps, sidewalks and driveways, to determine ADA compliance, preparing design plans and details to upgrade the location of pedestrian ramps, sidewalks, and driveways, providing design and specification for detectable warning surfaces, designing cut-through ramps within intersection islands and medians, designing three traffic signal modifications to upgrade pushbuttons and pedestrian signals to meet MUTCD and ADA requirements, designing signing and marking plans to replace damaged/faded signs and improve guidance and warning, Investigated fire hydrants and utility poles within sidewalks that conflicted with the design guidelines and designed alternatives such as bump-outs, preparing ADA waiver applications, as necessary, designing the upgrade of all existing W-Beam traffic barriers and end treatments, preparing roadway construction bid documents for milling and resurfacing, Investigated and prepared design for upgrading existing storm drain pipes, inlets and manholes, preparing erosion and sediment control and stormwater management design, and preparing maintenance of traffic control plans. All designs met the latest ADA design guidelines, MDOT SHA design criteria, "SHA Accessibility Policy & Guidelines for Pedestrian Facilities along State Highways dated December 2005" and "Americans with Disabilities Act Accessibility Guidelines".





CAPITAL CRESCENT TRAIL CROSSING IMPROVEMENTS PRELIMINARY ENGINEERING DESIGN AT LITTLE FALLS PARKWAY

Montgomery County, Maryland

Mead & Hunt prepared concept and preliminary design documents for new trail connectors, as well as an upgraded midblock trail crossing on the Capital Crescent Trail at Little Falls Parkway. The total length of the project is approximately 0.34 miles. The project work included the development of base mapping, field review, right-of-way review, surface drainage evaluation, utility and storm drain review, removal of existing roadway pavement and the development of ADA compliant sidewalk/trail ramp designs, and sediment control plans including details and permitting.

Mead & Hunt prepared the base mapping using GIS data, and supplemented with the field survey and measurements. Mead & Hunt prepared typical sections for the construction of trail facilities to retrofit the existing conditions. The proposed typical sections included cross slopes, grass buffers, and proposed grading slopes to tie-in with the existing ground showing the percent (%) slopes, dimensions, and description of all the elements. During the design development, various pavement materials, clearance from existing trees, sight distance, crossing the roadway, pavement marking, and signage were reviewed for the concurrence with standards and compliance. Comprehensive detail plans were prepared for an ADA compliant trail showing the geometric design, dimensions, cross slopes, and labels. The Mead & Hunt team prepared a complete set of plans to include a title sheet, typical sections, general notes, construction plans, details, SWM plans and details, landscape plans, signing and pavement marking, and traffic signal plans. Mead & Hunt prepared a detailed quantity takeoff as well as an itemized cost estimate.

The Mead & Hunt team reviewed SWM analysis and environmental site design (ESD) facilities design plans and details. One Bio-Swale and two Bio-Retentions were proposed to satisfy the required ESD Volume.

PRELIMINARY ENGINEERING DESIGN SERVICES FOR OFFICE OF HIGHWAY DEVELOPMENT, CONTRACT NO. BCS 2011-09

Statewide, Maryland

Mead & Hunt provided concept, preliminary, final design and construction phase support services on following projects:

MD 212A from Pine Street to US 1: Neighborhood conservation/streetscape project to improve the vehicular travel, provide ADA compatible bike lane/sidewalks and improve intersections and access management. Included development/review of design concepts & alternatives, highway geometrics, H/H, drainage upgrades, signage, lighting, traffic signalization, MOT, review of traffic analysis, utility designation, test-holes/test-pits, bicycle/ pedestrian facilities, streetscape/landscape coordination, survey, metes/bounds/right-of-way, PG Coy Coordination, constructability review, drainage repairs, access management, SWM/ESC, storm drain profiles, details, ESC and permit through PRD, cost estimates.

Access Management Reviews: Provided on-site staffing at various districts to support reviews for AMD. Provided coordination with MDOT SHA internal stakeholders such as Travel Forecasting, Regional Planning, OOTS and Districts to facilitate TIS reviews. Reviewed and compile comments, circulate through TIS and distributed to local jurisdiction/applicant. Review of geometric design, traffic analysis, and adherence to MDOT SHA policy, traffic operations, overall content, and attended project partnering meetings.

SWM and E&SC Permit Reviews at Plan Review Division (PRD): Provided on-site staffing services to support SWM and ESC Plans and Report reviews at PRD. Coordinated with MDOT SHA internal stakeholders such as HHD, HDD, Districts to facilitate reviews and permits. Reviewed/ compiled review comments, circulated through PRD and distributed to local jurisdictions/ applicants. Reviewed geometric design, drainage design, ESD, SWM ponds, sediment basins, various hydraulic structures such as MD 378 pond embankment, seepage control/core trench, control structures/outfalls, flood plain & adherence to MSHA policy.

Safe Route to School Pedestrian Facility Design, Garrett Park: Upgraded pedestrian facilities to current ADA standards. Our design services included reconstruction of non-compliant sidewalks, design new sidewalks. Established baseline, conducted field investigations, surface utility reviews and recorded ground mounted signs and crosswalk marking. Developed base plans using GIS. Developed geometric design, typical sections, roadway plans, ramp details, driveway details and pavement details. Also, prepared ADA waiver and right-of-entry plans.

Pedestrian Roadway Safety Audit Program (PRSA) Support: Assisted MDOT SHA in the administration and operation of the PSRA, acting as a facilitator for the program's teams. Work efforts included evaluating crash data, forming and coordinating PRSA audit teams, developing GIS mapping for the PRSA corridors, collecting and analyzing data, developing safety countermeasures, coordinating with various stakeholders, and assisting in geocoding recommended action items. Also, coordinated with utility owners.

MD 261 (Bay Avenue) from 9th Street to Anne Arundel County Line, North Beach: Prepared a feasibility study. Conducted site visits and developed roadway alignments, typical sections, evaluated culvert/bridge options, resurfacing, grading, Right-of-way and property impacts, and earthwork and cost estimates. Identified potential utility relocations and attended meetings, with MDOT SHA Survey & Engineering Services for District 3 Contract BCS 2011-04G, 03E & 03F; Montgomery and Prince George's Counties, Maryland County & utility companies, reviewed for environmental & SWM and E&SC permits.

SURVEY & ENGINEERING SERVICES FOR DISTRICT 3 CONTRACT BCS 2011-04G, 03E & 03F

Montgomery and Prince George's Counties, Maryland

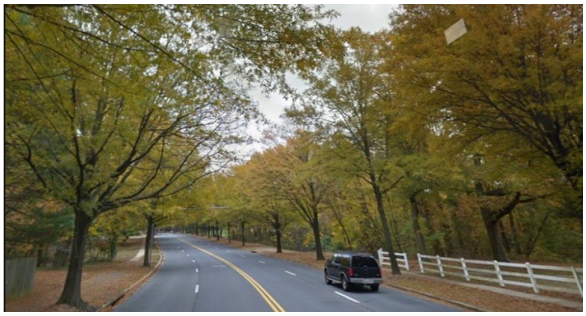
Mead & Hunt provided concept, preliminary, final design and construction phase support services for the following projects:

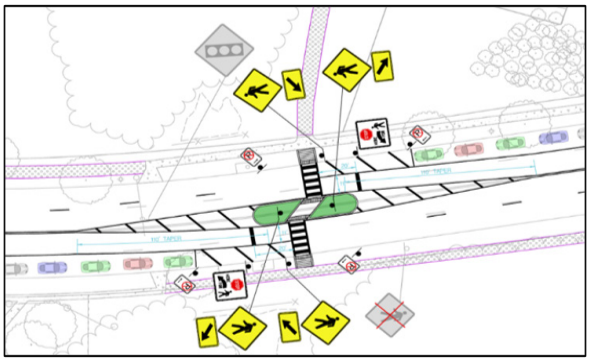
MD 186 at Taylor Street Intersection Improvements: Intersection improvements at MD 186 and Taylor Street and upgrade existing sidewalk and ramps to current MDOT SHA ADA compliance. Scope included geometric design to remove existing parking, construct new sidewalk, ADA compliance ramps and improve surface drainage. Work included concept/design alternatives, evaluation of bicycle facilities, sight distance and surface drainage. Surveys were performed, and base mapping was prepared which included utility designation through Miss-Utility and field investigation and right-of-way review. Two alternatives were developed with PIRs. Design included preparation of horizontal and vertical alignments, pavement grade evaluations, storm drain design, IART calculations and evaluation of (SWM) and (E&SC) permit through PRD), environmental permits review, MOT phasing/detour plan, grinding and resurfacing, patching, sidewalk ramps details and pavement marking and signing. Design coordinated with Town of Chevy Chase and public officials.

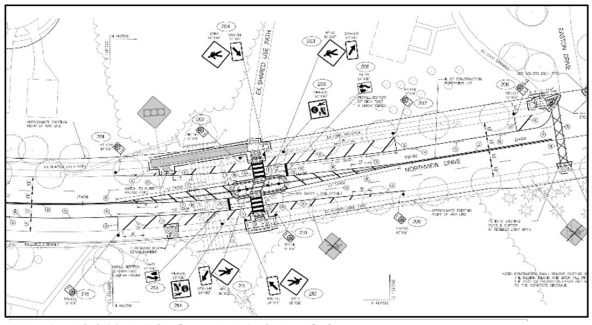
MD 107 between Fyffe Road and Milford Mill Road: MD 107 is a two-lane Rural Major Collector. Project included removal of existing bump-out and widening of pavement to provide for an extension of right-turn lane. Prepared geometric improvements, grading and drainage, reviewed SWM and ESC and identified permit requirements through PRD. Coord. design with Town of Poolesville and public officials.

ADA Compliance Upgrades: The scope entails upgrading existing sidewalk ramps to current ADA Compliance and evaluation of existing w-beam traffic barrier. and utilities along the corridor, right-of-way and prepare construction documents for reconstruction/replacement. Several ramps designed for Compliance and new signs were proposed. In addition, a three-leg intersection was evaluated for pedestrian crossing and safety. SWM and ESC permit from PRD for Concept, SD and FR submission process.

MD 119 at Kentlands Boulevard / Orchard Ridge Drive: To improve the intersection capacity and address pedestrian safety and vehicular maneuvering and conformance to MDOT SHA ADA compliance. Included intersection geometric revisions to existing median on Orchard Ridge Drive to improve the left-turn movement from southbound MD 119. Included extension of left-turn lane to increase the storage on westbound Orchard Ridge Drive, utility review and coordination, bike lane compatibility, right-of-way and concept design review and; final design and construction documents including plans, estimate and specifications. Included preparation of alignments, roadway geometrics, pavement grade evaluations, storm drainage, traffic signal design, MOT phasing plans, resurfacing of existing pavement. The design was coordinated with City of Gaithersburg and public officials. Provided Phase V services.







FINAL 100% DESIGN DRAWINGS

NORTHVIEW DRIVE TRAFFIC CALMING AND CROSSWALK UPGRADE

Bowie, Maryland

Mead & Hunt provided initial concept, preliminary, final design, and specifications for construction for the project as described below.

Mead & Hunt was tasked with first determining if a road diet was feasible on Northview Drive. Based on traffic counts, analysis, and a spot speed study, Mead & Hunt determined that a road diet from four lanes to two lanes was feasible and necessary for any midblock trail crossings. Mead & Hunt first conducted a field investigation and by using GIS, developed a baseline existing condition and proposed midblock crosswalk design to align with the termination of an existing trail.

Mead & Hunt then turned this concept into 100% design plans, including roadway geometric design, stormwater structure designs, signing and marking, detail sheets, and signage quantities. Mead & Hunt designed new ADA compliant pedestrian ramps and an extension of the existing trail network. Finally, Mead & Hunt conducted a lighting evaluation based on FHWA standards in order to determine if existing street lighting provided sufficient illumination for the proposed new crosswalk or if new path lighting or supplemental lighting was needed. 100% Design plans added: New sidewalk, New ADA ramps, new 8' Asphalt Trail, new Pedestrian median Refuge and all signing and marking.

PRINCE GEORGE'S COUNTY HORIZONTAL ENGINEERING SERVICES FOR A/E DESIGN SERVICES AND CONSTRUCTION MANAGEMENT SERVICES, S04-18

Prince George's County, Maryland

Mead & Hunt, as a subconsultant, performed various traffic engineering design services at 21 locations in Prince George's County as part of the Horizontal Engineering Services S04-18 contract.

Traffic Signal Design: Mead & Hunt performed traffic signal design services and signal interconnect plans for Cherry Hill Road, Brown Station Road at Brooke Lane, Wheeler Road at Owens Road, Cherry Hill Road and 47th Avenue, and Rhode Island Avenue at Edgewood Road. Work included preparation of base plan, field verification of existing intersection geometrics, field measurement of existing overhead utility height, layout of proposed signal poles, sign heads and conduits, identifying the power source, preparation of interconnect design, coordination with highway, drainage, landscaping and utility designs, preparation of the quantity and cost estimates and development of specifications. Mead & Hunt also performed traffic signal modification for MD 414 at Wheeler Road and interconnect plans for Wheeler Road between MD 414 and Owens Road.

Lighting Design: Mead & Hunt performed engineering design and development of lighting design plans and Engineers estimate utilizing PG County lighting guidelines at the Croom Station Road and Chew Road intersection. Work included performing design and photometric analysis for intersection lighting. The design included coordination with Prince George's County DPW&T Street Lighting Section and the local utility companies. Mead & Hunt also designed a pedestrian lighting system along US 1 (Baltimore Avenue) from Guilford Avenue to College Avenue.

Signing and Pavement Marking Design: Mead & Hunt performed signing and pavement marking design for Cherry Hill Road at the entrance to College Park Marketplace Shopping Center and crosswalks for Brown Station Road at Brooke Lane.

Traffic Studies: Mead & Hunt performed turning movement counts, machine counts, traffic calming bi-direction speed and volume counts, traffic operations and a signal warrant study. Turning movement counts were performed at the intersections of Wheeler Road and Owens Road and MD 414 at Wheeler Road. A traffic operations and signal warrant study was performed for Montgomery Road at Sellman Road, and queuing analysis using Synchro to determine if the distance between MD 414 and Owens Road along Wheeler Road was sufficient.

Pedestrian Bridge Maintenance and Replacement Program: Development of a GIS layer with structure inventory data and preparation of a report summarizing the result of the latest inspections.

Cherry Hill Road Access: Maintenance of Traffic Control Design, permanent signing and pavement markings in accordance with the 2009 and 2011 MUTCD, and a permanent traffic signal at the intersection of Cherry Hill Road and Townley Apartments/Maryland Farms Commercial Center. Work includes a field investigation of existing conditions, recommendations based on field reconnaissance and traffic signal plans to install a new signal for the access improvements.

Auth Road Improvements: Traffic data collection and analysis at nine locations along Auth Road in order to support additional planning and preliminary engineering for improvements to auth Road between Henderson Way and Allentown Road. Reviewed County and MDOT SHA traffic count databases as well as the Andrews Transportation Study and Southern Green Line Staion Plan and performed new counts. Performed an summarized all findings in a technical memorandum highlighting overall project improvements and recommendations for changes in traffic controls and lane configuration.

Sunnyside Avenue over Indian Creek: Mead & Hunt provided roadway lighting design services including photometric analysis for Sunnyside Avenue from the CSX Railroad to MD 201 in Prince George's County.

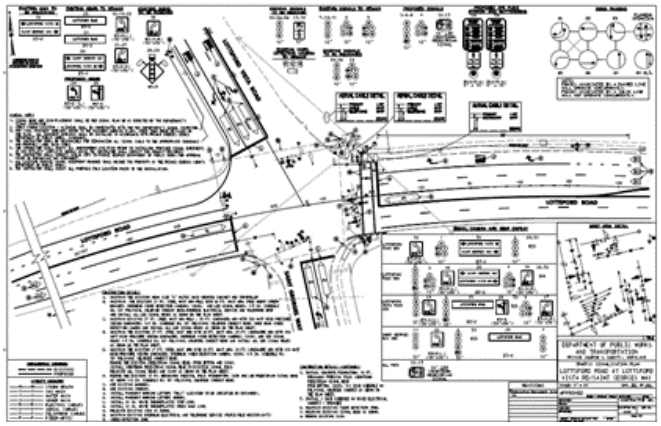
LOTTSFORD ROAD INTERSECTION IMPROVEMENTS

Prince George's County, Maryland

Mead & Hunt, as a subconsultant, performed traffic engineering analysis and design services including signals, signing, marking and lighting for a roadway widening and intersection improvement project. Signal design included phasing, equipment and conduit detail, and wiring as well as temporary signal design. Responsible for MDOT SHA approval, utility coordination and preparation of engineering cost estimates and construction specifications.

Key Issues:

- Traffic data collection and coordination with County Planning Department on future traffic volumes
- Development of Synchro traffic model to finalize proposed intersection design including queuing and level of service
- Developed a multi-phased maintenance of traffic sequence of construction including temporary signal phasing and design



Relevant Contract Experience:

- Geometric Survey & Design
- TCD Inventory and Design
- Work Zone Traffic Design
- Development of Concepts
- Hydrologic & Hydraulic Comps
- Preliminary Cost Estimates
- Field Investigations
- Microstation CADD

UNIVERSITY DRIVE SIDEWALK 100% DESIGN AND NEW BIKE LANES

Fairfax, Virginia

Mead & Hunt, under an open-end transportation planning and engineering contract, was tasked to evaluate multi-modal improvements including a road diet to incorporate a bicycle lane along University Drive from Armstrong to Main Street, as well as prepare design drawings for new sidewalk between Armstrong Street and Breckinridge Lane. Task efforts included:

- Concept development and alternatives evaluation for the sidewalk retrofit and bike lane/road diet reconfiguration
- New sidewalk Right-of-way identification, topographic survey, geometric design, storm water management design, and landscape design
- Utility company coordination
- Property owner coordination and preparation of easement and appraisals
- Permitting and approvals from VDOT
- Public meetings/presentation to City Council
- Preliminary engineering design of bike lane signing and striping
- Traffic operations analysis of road diet lane reductions
- Evaluation of impacts to bus operations, emergency vehicle access and driveway access

The projects were completed on time and within budget, and the construction bids came in under the Engineer's estimate.

SAMPLE PROJECT PLANS

8

DRILL HOLES

DRILL HOLES

DRILL HOLES

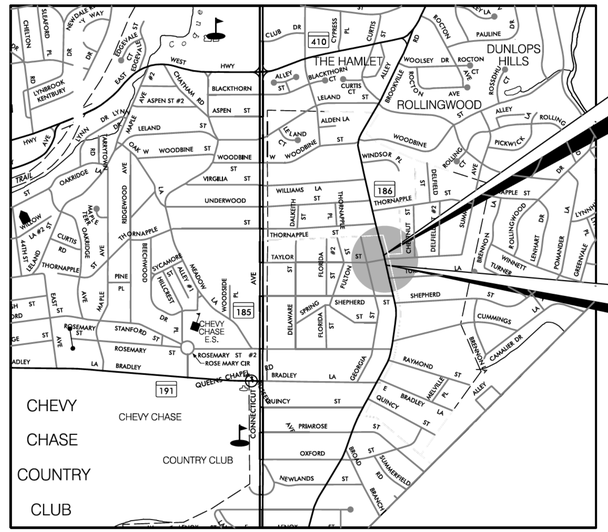
BY: jmontalvo –

INDEX OF SHEETS

MARYLAND DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY ADMINISTRATION

S.H.A. CONTRACT NO. – XX1645176
FEDERAL AID PROJECT NO. – PENDING
ADA UPGRADES AND INTERSECTION IMPROVEMENTS
MD 186 (BROOKVILLE ROAD) AT TAYLOR ST



LIMIT OF WORK
CONTR. NO. XX1645176
MD 186 (BROOKVILLE ROAD)
STA. 10 + 50

LIMIT OF WORK
CONTR. NO. XX1645176
MD 186 (BROOKVILLE ROAD)
STA. 12 + 00

MONTGOMERY – CHEVY CHASE

HORIZONTAL DATUM	NAD 83 /91
VERTICAL DATUM	NAD 88

LENGTH OF PROJECT:
MD RTE. 186 = 0.03 MILES

SCALE: 1" = 1000'

1000 0 1000 2000 feet

GEOMETRIC DESIGN CRITERIA
THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH THE 2011 PUBLICATION OF AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."

STANDARD SPECIFICATIONS BOOK, BOOK OF STANDARDS AND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)
ALL WORK ON THIS PROJECT SHALL CONFORM TO: THE MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION (MDOT SHA) SPECIFICATIONS ENTITLED **"STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS"** DATED MAY 2017 REVISIONS THEREOF OR ADDITIONS THERETO; THE SPECIAL PROVISIONS INCLUDED IN THE INVITATION FOR BIDS BOOK; THE ADMINISTRATION'S **"BOOK OF STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES"** AND THE LATEST ADOPTED 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 FEE RIGHT OF WAY AND EASEMENT INFORMATION, SEE 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.

ADA COMPLIANCE
THE DESIGN OF THIS PROJECT HAS INCORPORATED FACILITIES TO ACCOMODATE PERSONS WITH DISABILITIES IN COMPLIANCE WITH STATE AND FEDERAL REQUIREMENTS.

ENVIRONMENTAL INFORMATION
ALL STORMWATER MANAGEMENT FACILITIES CONSTRUCTED FOR THIS CONTRACT SHALL BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE MDOT SHA BEST MANAGEMENT PRACTICES (BMP) INSPECTION AND REMEDIATION PROGRAM.

STANDARD STABILIZATION NOTE:
FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN THREE (3) CALENDAR 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 (MDE) 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 MDE COMPLIANCE INSPECTORS.

EXISTING STRUCTURES PLANS
FOR THE CONVENIENCE AND INFORMATION OF BIDDERS, PRINTS OF PLANS OF EXISTING PERTINENT STRUCTURE(S) ARE INCLUDED WITH THIS CONTRACT. NO RESPONSIBILITY FOR THEIR ACCURACY OR COMPLETENESS IS ASSUMED BY THE MDOT SHA. DIMENSIONS, DETAILS, ETC., AS SHOWN THEREON MAY NOT BE AS BUILT.

SEDIMENT AND EROSION CONTROL REGULATIONS WILL BE STRICTLY ENFORCED DURING CONSTRUCTION

Mead & Hunt

MEAD & HUNT, INC.
7055 SAMUEL MORSE DRIVE
SUITE 100
COLUMBIA, MD 21046
(443) 741-3500
WWW.MEADHUNT.COM

HIGHWAY DESIGN

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.
MD LICENSE NO. 33339 EXPIRATION DATE: 08–02–2018

STATE OF MARYLAND — SHASHIKANT S. MIVE — NO. 33339 — PROFESSIONAL ENGINEER

DESIGN DESIGNATION

ROADWAY	MD 186 (BROOKVILLE RD)	ROADWAY	MD 186 (BROOKVILLE RD)	ROADWAY	.
ROADWAY LENGTH (MILES)	.03	ROADWAY LENGTH (MILES)	.03	ROADWAY LENGTH (MILES)	.
CONTROLS YEARS	2016	CONTROLS YEARS	2036	CONTROLS YEARS	20__
AVERAGE DAILY TRAFFIC (A.D.T.)	7,475	AVERAGE DAILY TRAFFIC (A.D.T.)	7,850	AVERAGE DAILY TRAFFIC (A.D.T.)	.
DESIGN HOURLY VOLUME (D.H.V.)	10%	DESIGN HOURLY VOLUME (D.H.V.)	10%	DESIGN HOURLY VOLUME (D.H.V.)	.
DIRECTIONAL DISTRIBUTION	77%	DIRECTIONAL DISTRIBUTION	77%	DIRECTIONAL DISTRIBUTION	.
% TRUCKS (A.D.T.)	4%	% TRUCKS (A.D.T.)	4%	% TRUCKS (A.D.T.)	%
% TRUCKS (D.H.V.)	3%	% TRUCKS (D.H.V.)	4%	% TRUCKS (D.H.V.)	%
FUNCTIONAL CLASSIFICATION	URBAN COLLECTOR	FUNCTIONAL CLASSIFICATION	URBAN COLLECTOR	FUNCTIONAL CLASSIFICATION	.
CONTROL OF ACCESS	PARTIAL	CONTROL OF ACCESS	PARTIAL	CONTROL OF ACCESS	.
INTENSITY OF DEVELOPMENT	URBAN	INTENSITY OF DEVELOPMENT	URBAN	INTENSITY OF DEVELOPMENT	.
TERRAIN	LEVEL	TERRAIN	LEVEL	TERRAIN	.
DESIGN SPEED (M. P. H.)	40 M.P.H.	DESIGN SPEED (M. P. H.)	40 M.P.H.	DESIGN SPEED (M. P. H.)	.
ANTICIPATED POSTED SPEED (M. P. H.)	25 M.P.H.	ANTICIPATED POSTED SPEED (M. P. H.)	25 M.P.H.	ANTICIPATED POSTED SPEED (M. P. H.)	.

SURVEY BOOK NUMBERS	RIGHT OF WAY PLAT NUMBERS
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REVISIONS
NOTE: SEE SHEET NO. 2 FOR LIST OF REVISED SHEET NUMBERS

APPROVED _____ DATE _____
DISTRICT ENGINEER, DISTRICT _

APPROVED _____ DATE _____
DIRECTOR, OFFICE OF HIGHWAY DEVELOPMENT

DATE _____

APPROVED _____ DATE _____
DEPUTY ADMINISTRATOR / CHIEF ENGINEER
FOR PLANNING, ENGINEERING, REAL ESTATE AND ENVIRONMENT

R:\2014\73 SHA BCS 2011-04G_District 3 Survey & Eng_Brudis_$497K\Task 18 MD 186 at Taylor Street(100%)\DWG\Print Sheets\pTI-P001_MD186.dgn

STRUCTURE INVENTORY NO.:

Wednesday, February 07, 2018 AT 01:08 PM

CONTRACT NO.: –

PEDESTRIAN CROSSING: W11-2 (36"x36")
ARROW: W16-7PR (30"x18")

PEDESTRIAN CROSSING: W11-2 (36"x36")
AHEAD: W16-9P (30"x18")
* PLACE SIGNS 250' BEFORE CROSSWALK IN EACH DIRECTION OR AS DIRECTED BY THE AREA ENGINEER.

PEDESTRIAN CROSSING: W11-2 (36"x36")
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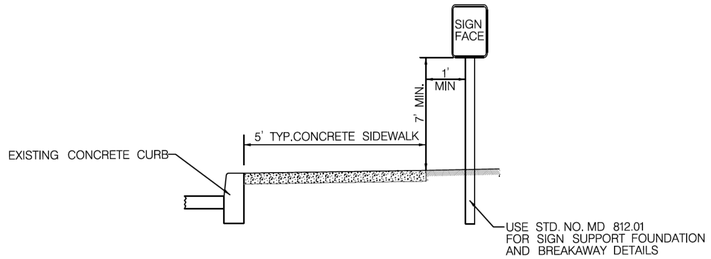


SIGN INSTALLATION /RELOCATION DETAIL

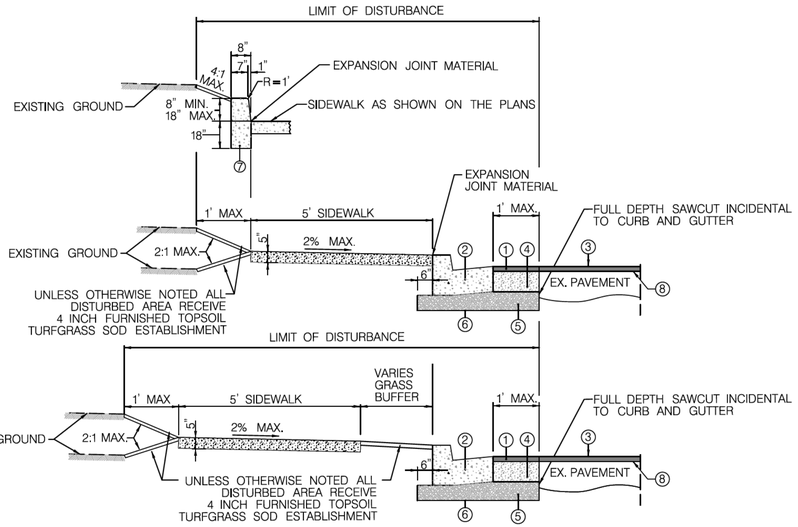
NOT TO SCALE

NOTES:

1 INSTALL NEW SIGNS AS DIRECTED BY THE ENGINEER

2 ALL SIGNS BEING RELOCATED SHALL BE RELOCATED ONTO NEW WOOD SUPPORTS

3 FOR INSTALLATION INTO CONCRETE SIDEWALK, A 5' MINIMUM PATH MUST BE MAINTAINED ADJACENT TO THE POST. A SLEEVED FOUNDATION SHALL BE USED PER MD. STD. NO. 812.05-01 AND NO.812.05-02.



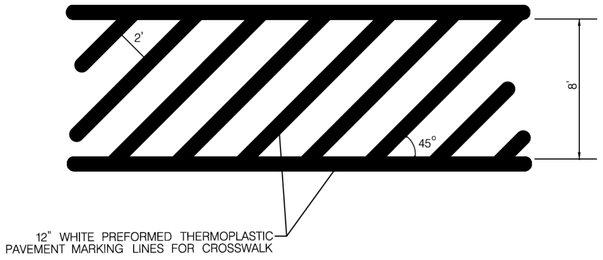
TYPICAL CURB & GUTTER AND 5' SIDEWALK

NOT TO SCALE

GENERAL NOTE: REFER TO STD. 580.03 FOR ADDITIONAL DETAILS ON NEW COMBINATION CURB AND GUTTER PLACEMENT ALONG EXISTING PAVEMENT

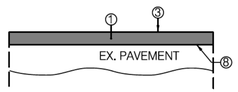
LEGEND

1. VARIABLE DEPTH SUPERPAVE ASPHALT MIX 9.5 MM FOR SURFACE, PG 64S-22, LEVEL 2, MATCH EXISTING SURFACE COURSE PAVEMENT DEPTH AMD PROPOSED GRADE ELEVATION WHEN SHOWN ON PLAN (1' WIDE STRIP FOR CURB AND GUTTTER INSTALLATION IS INCIDENTAL TO CURB AND GUTTER WHEN CURB AND GUTTER IS PROPOSED)
2. TYPE A COMBINATION CURB AND GUTTER (STD. 620.02) 12 INCH GUTTER PAN, ANY DEPTH SEE PLANS FOR DETAIL
3. TOP OF EXISTING PAVEMENT
4. VARIABLE DEPTH PORTLAND CEMENT CONCRETE, MIX NO. 9 FOR PLACEMENT OF CURB AND GUTTER (INCIDENTAL TO CURB AND GUTTER)
5. 6.0" GRADED AGGREGATE BASE COURSE (INCIDENTAL TO CURB AND GUTTER)
6. TOP OF SUBGRADE AND LIMIT OF EXCAVATION
7. TYPE A CURB ANY HEIGHT OR DEPTH (STD. NO. MD 620.02)
8. TOP OF EXISTING PAVEMENT AFTER 2" FINE MILLING



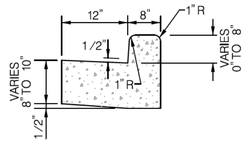
TYPICAL CROSSWALK DETAIL

NOT TO SCALE



2 INCH FINE MILLING AND RESURFACING

NOT TO SCALE



MODIFIED COMBINATION CURB AND GUTTER

NOT TO SCALE

GENERAL NOTES:

1. DIMENSIONS AND STATIONS ARE APPROXIMATE. BASELINE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. SIDEWALK RECONSTRUCTION LIMITS SHALL COINCIDE WITH CRACK CONTROL JOINTS (JOINTER GROOVES) OR EXPANSION JOINTS IN EXISTING SIDEWALK. NEW EXPANSION JOINTS SHALL BE PROVIDED AT THE INTERFACE OF EXISTING AND PROPOSED SIDEWALK. SEE SHA STANDARD MD-655.01.
3. INSTALL DETECTABLE WARNING SURFACE ON SIDEWALK RAMPS AS PER SHA STANDARD MD-655.40.
4. FORM NEW SIDEWALK AND EXPANSION JOINT MATERIAL AROUND EXISTING UTILITY POLES, MANHOLE COVERS, VALVE COVERS AND FIRE HYDRANTS AS NECESSARY.
5. MATCH EXISTING ELEVATIONS AT THE EDGE OF PROPOSED SIDEWALK, SIDEWALK RAMPS AND CURB AND GUTTER.
6. RESET ANY SIGNS DISTURBED BY THE CONSTRUCTION AS DIRECTED BY THE ENGINEER.
7. ADJUST EXISTING UTILITIES AS REQUIRED FOR SIDEWALK AND RAMP REPLACEMENT.
8. THE CONTRACTOR SHALL REPLACE EXISTING DAMAGED CURB WHICH IS ADJACENT TO LOCATIONS WHERE CURB RAMPS ARE BEING RECONSTRUCTED OR INSTALLED.
9. EXISTING INLETS SHALL NOT BE DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL REPLACE INLETS DAMAGED BY THE CONSTRUCTION ACTIVITIES AT NO ADDITIONAL COST TO THE ADMINISTRATION.
10. EXISTING CURB HEIGHTS PROVIDED ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR. RAMP AND DRIVEWAY TRANSITION LENGTHS SHALL BE VERIFIED IN THE FIELD ACCORDING TO SHA STANDARDS MD-630.01, MD-630.02, MD-655.11, MD-655.12 AND MD-655.13.
11. ALL CURB REPLACEMENTS TERMINI ADJACENT TO PARKING LOT DRIVEWAY ENTRANCES SHALL BE CONSTRUCTED NOSE DOWN TO MATCH EXISTING GRADE OR AS DIRECTED BY THE ENGINEER.
12. EXISTING TREES, SHRUBS AND THEIR RESPECTIVE ROOT SYSTEMS SHALL NOT BE DISTURBED DURING CONSTRUCTION.
13. PAVEMENT MARKINGS SHOWN ARE EXISTING UNLESS OTHERWISE NOTED ON DWG. PS-01
14. ALL DISTURBED AREAS SHALL RECEIVE 4" FURNISHED TOPSOIL AND TURFGRASS SOD ESTABLISHMENT UNLESS OTHERWISE NOTED.

MAINTENANCE OF TRAFFIC NOTES:

1. ALL STANDARD REGULATORY AND WARNING SIGNS USED FOR MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MD MUTCD LATEST EDITION) AND MARYLAND EDITION OF THE MARYLAND STANDARD SIGN BOOK
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE MOST RECENT STANDARD MD 104.02-01 THRU 106.09.
3. NO WORK IS TO BEGIN UNTIL ALL ADVANCED WARNING SIGNS, DRUMS AND ARROW PANELS ARE IN PLACE AND OPERATIONAL.
4. ADVANCE NOTIFICATION OF SIDEWALK CLOSURE SHALL BE PROVIDED. A BARRIER THAT IS DETECTABLE BY A PERSON WITH VISUAL DISABILITY SHALL BE PLACED ACROSS THE FULL WIDTH OF THE CLOSED SIDEWALK.
5. TRAFFIC CONTROL DEVICES AND OTHER CONSTRUCTION MATERIALS AND FEATURES SHALL NOT INTRUDE ONTO THE USABLE WIDTH OF THE SIDEWALK, TEMPORARY PATHWAY OR OTHER PEDESTRIAN FACILITY.
6. PEDESTRIAN DETOUR SHALL BE PERFORMED IN ACCORDANCE WITH THE MOST RECENT STANDARD MD 104.06-09B
7. CURB RAMP AND SIDEWALK WORK SHALL BE PERFORMED ONE QUADRANT AT A TIME TO ALLOW FOR PEDESTRIAN DETOUR.
8. MISS UTILITY MUST BE NOTIFIED 72 HOURS PRIOR TO THE PLACEMENT OF SIGNING (800)257-7777

E&S NOTES :

1. CONSTRUCTION SHALL BE PERFORMED SUCH THAT THE WORK AREA OF DISTURBANCE CAN BE STABILIZED AT THE END OF EACH WORKING DAY. ADDITIONALLY, NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
2. SEDIMENT AND EROSION CONTROL REGULATIONS WILL BE STRICTLY ENFORCED DURING CONSTRUCTION. REFER TO ES-01 FOR EROSION AND SEDIMENT CONTROL REQUIREMENT.

Mead & Hunt

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

HIGHWAY DESIGN DIVISION
DISTRICT 3 – PROJECT DEVELOPMENT

ADA UPGRADES AND INTERSECTION IMPROVEMENTS
MD186 AT TAYLOR STREET

GENERAL NOTES & DETAILS

SCALE N.T.S. ADVERTISED DATE FEB. 2018 CONTRACT NO. XX1645176

DESIGNED BY JM
DRAWN BY JM
CHECKED BY SP
MDE/PRD N/A

COUNTY MONTGOMERY
LOGMILE 0.910 TO 0.940
HORIZONTAL SCALE SEE PLAN
VERTICAL SCALE N/A

DRAWING NO. DE-01 OF 03 | SHEET NO. 2 OF 8

BY: jmontalvo –

PLOTTED: Wednesday, February 07, 2018 AT 01:14 PM
FILE: R:\2014\I73 SHA BCS 2011-04G_District 3 Survey & Eng_Brudis_$497K\Task 18 MD 186 at Taylor Street(100%)\DWG\Print Sheets\pDE-D001_MD186.dgn

PEDESTRIAN CROSSING: W11–2 (36"x36")
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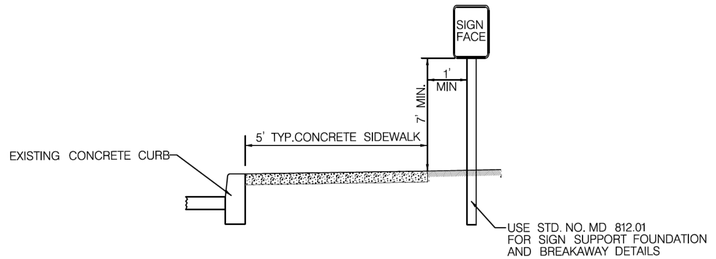

SIGN INSTALLATION /RELOCATION DETAIL

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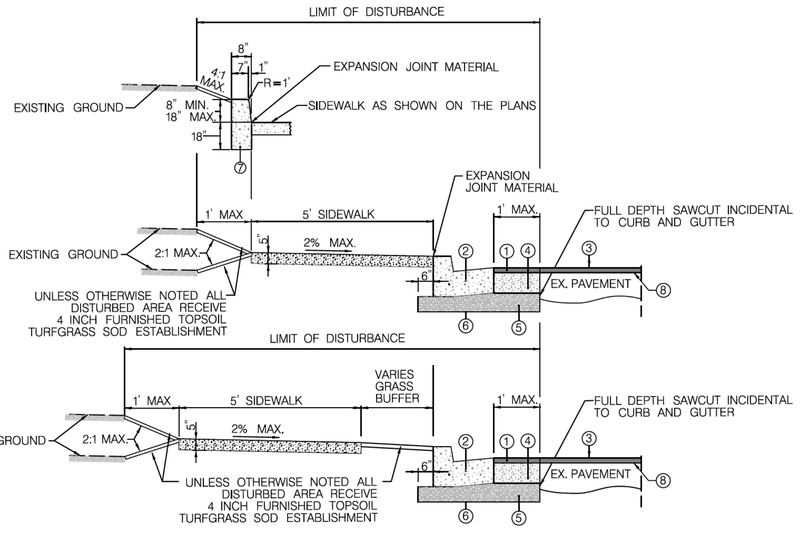

TYPICAL CURB & GUTTER AND 5' SIDEWALK

NOT TO SCALE

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LEGEND

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③ TOP OF EXISTING PAVEMENT

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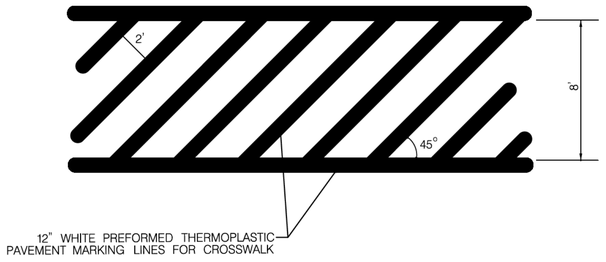
⑦ TYPE A CURB ANY HEIGHT OR DEPTH (STD. NO. MD 620.02)

⑧ TOP OF EXISTING PAVEMENT AFTER 2" FINE MILLING



TYPICAL CROSSWALK DETAIL

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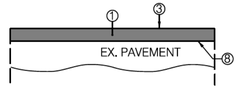

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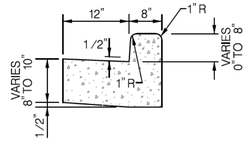

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Mead & Hunt

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

HIGHWAY DESIGN DIVISION
DISTRICT 3 – PROJECT DEVELOPMENT

ADA UPGRADES AND INTERSECTION IMPROVEMENTS
MD186 AT TAYLOR STREET

GENERAL NOTES & DETAILS

SCALE N.T.S. ADVERTISED DATE FEB. 2018 CONTRACT NO. XX1645176

DESIGNED BY JM
DRAWN BY JM
CHECKED BY SP
MDE/PRD N/A

COUNTY MONTGOMERY
LOGMILE 0.910 TO 0.940
HORIZONTAL SCALE SEE PLAN
VERTICAL SCALE N/A

DRAWING NO. DE–01 OF 03 SHEET NO. 2 OF 8

BY: jmontalvo –

PLOTTED: Wednesday, February 07, 2018 AT 01:14 PM
FILE: R:\2014\I3 SHA BCS 2011-04G_District 3 Survey & Eng_Brudis_5497K\Task 18 MD 186 at Taylor Street(100%)\DWG\Print Sheets\pDE-0001_MD186.dgn

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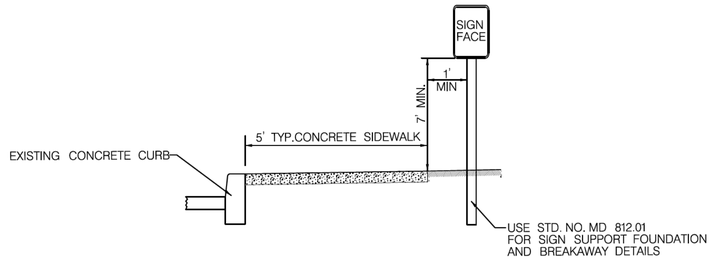

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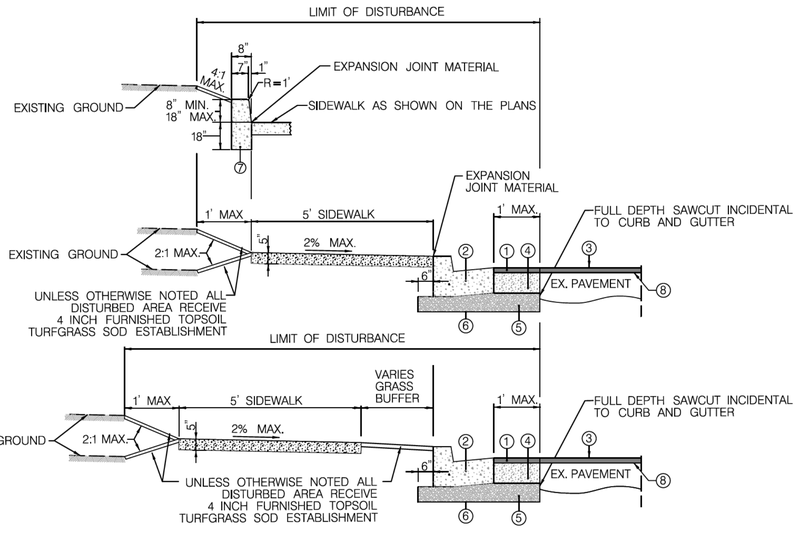

TYPICAL CURB & GUTTER AND 5' SIDEWALK

NOT TO SCALE

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② TYPE A COMBINATION CURB AND GUTTER (STD 620.02) 12 INCH GUTTER PAN, ANY DEPTH SEE PLANS FOR DETAIL

③ TOP OF EXISTING PAVEMENT

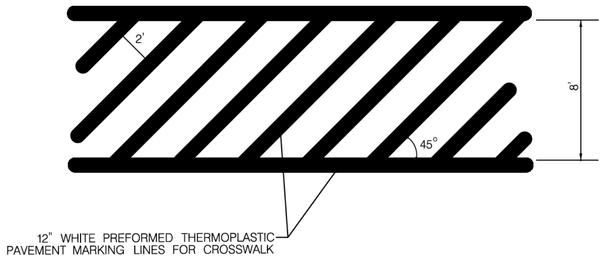
④ VARIABLE DEPTH PORTLAND CEMENT CONCRETE, MIX NO. 9 FOR PLACEMENT OF CURB AND GUTTER (INCIDENTAL TO CURB AND GUTTER)

⑤ 6.0" GRADED AGGREGATE BASE COURSE (INCIDENTAL TO CURB AND GUTTER)

⑥ TOP OF SUBGRADE AND LIMIT OF EXCAVATION

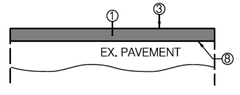
⑦ TYPE A CURB ANY HEIGHT OR DEPTH (STD. NO. MD 620.02)

⑧ TOP OF EXISTING PAVEMENT AFTER 2" FINE MILLING



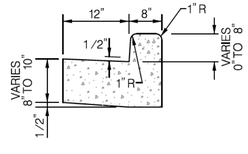
TYPICAL CROSSWALK DETAIL

NOT TO SCALE



2 INCH FINE MILLING AND RESURFACING

NOT TO SCALE



MODIFIED COMBINATION CURB AND GUTTER

NOT TO SCALE

GENERAL NOTES:

1. DIMENSIONS AND STATIONS ARE APPROXIMATE. BASELINE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. SIDEWALK RECONSTRUCTION LIMITS SHALL COINCIDE WITH CRACK CONTROL JOINTS (JOINTER GROOVES) OR EXPANSION JOINTS IN EXISTING SIDEWALK. NEW EXPANSION JOINTS SHALL BE PROVIDED AT THE INTERFACE OF EXISTING AND PROPOSED SIDEWALK. SEE SHA STANDARD MD–655.01.
3. INSTALL DETECTABLE WARNING SURFACE ON SIDEWALK RAMPS AS PER SHA STANDARD MD–655.40.
4. FORM NEW SIDEWALK AND EXPANSION JOINT MATERIAL AROUND EXISTING UTILITY POLES, MANHOLE COVERS, VALVE COVERS AND FIRE HYDRANTS AS NECESSARY.
5. MATCH EXISTING ELEVATIONS AT THE EDGE OF PROPOSED SIDEWALK, SIDEWALK RAMPS AND CURB AND GUTTER.
6. RESET ANY SIGNS DISTURBED BY THE CONSTRUCTION AS DIRECTED BY THE ENGINEER.
7. ADJUST EXISTING UTILITIES AS REQUIRED FOR SIDEWALK AND RAMP REPLACEMENT.
8. THE CONTRACTOR SHALL REPLACE EXISTING DAMAGED CURB WHICH IS ADJACENT TO LOCATIONS WHERE CURB RAMPS ARE BEING RECONSTRUCTED OR INSTALLED.
9. EXISTING INLETS SHALL NOT BE DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL REPLACE INLETS DAMAGED BY THE CONSTRUCTION ACTIVITIES AT NO ADDITIONAL COST TO THE ADMINISTRATION.
10. EXISTING CURB HEIGHTS PROVIDED ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR. RAMP AND DRIVEWAY TRANSITION LENGTHS SHALL BE VERIFIED IN THE FIELD ACCORDING TO SHA STANDARDS MD–630.01, MD–630.02, MD–655.11, MD–655.12 AND MD–655.13.
11. ALL CURB REPLACEMENTS TERMINI ADJACENT TO PARKING LOT DRIVEWAY ENTRANCES SHALL BE CONSTRUCTED NOSE DOWN TO MATCH EXISTING GRADE OR AS DIRECTED BY THE ENGINEER.
12. EXISTING TREES, SHRUBS AND THEIR RESPECTIVE ROOT SYSTEMS SHALL NOT BE DISTURBED DURING CONSTRUCTION.
13. PAVEMENT MARKINGS SHOWN ARE EXISTING UNLESS OTHERWISE NOTED ON DWG. PS–01
14. ALL DISTURBED AREAS SHALL RECEIVE 4" FURNISHED TOPSOIL AND TURFGRASS SOD ESTABLISHMENT UNLESS OTHERWISE NOTED.

MAINTENANCE OF TRAFFIC NOTES:

1. ALL STANDARD REGULATORY AND WARNING SIGNS USED FOR MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MD MUTCD LATEST EDITION) AND MARYLAND EDITION OF THE MARYLAND STANDARD SIGN BOOK
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE MOST RECENT STANDARD MD 104.02–01 THRU 106.09.
3. NO WORK IS TO BEGIN UNTIL ALL ADVANCED WARNING SIGNS, DRUMS AND ARROW PANELS ARE IN PLACE AND OPERATIONAL.
4. ADVANCE NOTIFICATION OF SIDEWALK CLOSURE SHALL BE PROVIDED, A BARRIER THAT IS DETECTABLE BY A PERSON WITH VISUAL DISABILITY SHALL BE PLACED ACROSS THE FULL WIDTH OF THE CLOSED SIDEWALK.
5. TRAFFIC CONTROL DEVICES AND OTHER CONSTRUCTION MATERIALS AND FEATURES SHALL NOT INTRUDE ONTO THE USABLE WIDTH OF THE SIDEWALK, TEMPORARY PATHWAY OR OTHER PEDESTRIAN FACILITY.
6. PEDESTRIAN DETOUR SHALL BE PERFORMED IN ACCORDANCE WITH THE MOST RECENT STANDARD MD 104.06–09B
7. CURB RAMP AND SIDEWALK WORK SHALL BE PERFORMED ONE QUADRANT AT A TIME TO ALLOW FOR PEDESTRIAN DETOUR.
8. MISS UTILITY MUST BE NOTIFIED 72 HOURS PRIOR TO THE PLACEMENT OF SIGNING (800)257–7777

E&S NOTES :

1. CONSTRUCTION SHALL BE PERFORMED SUCH THAT THE WORK AREA OF DISTURBANCE CAN BE STABILIZED AT THE END OF EACH WORKING DAY. ADDITIONALLY, NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
2. SEDIMENT AND EROSION CONTROL REGULATIONS WILL BE STRICTLY ENFORCED DURING CONSTRUCTION. REFER TO ES–01 FOR EROSION AND SEDIMENT CONTROL REQUIREMENT.

Mead & Hunt

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

HIGHWAY DESIGN DIVISION
DISTRICT 3 – PROJECT DEVELOPMENT

ADA UPGRADES AND INTERSECTION IMPROVEMENTS
MD186 AT TAYLOR STREET

GENERAL NOTES & DETAILS

SCALE N.T.S. ADVERTISED DATE FEB. 2018 CONTRACT NO. XX1645176

DESIGNED BY JM
DRAWN BY JM
CHECKED BY SP
MDE/PRD N/A

COUNTY MONTGOMERY
LOGMILE 0.910 TO 0.940
HORIZONTAL SCALE SEE PLAN
VERTICAL SCALE N/A

DRAWING NO. DE–01 OF 03 SHEET NO. 2 OF 8

BY: jmontalvo –

PLOTTED: Wednesday, February 07, 2018 AT 01:14 PM
FILE: R:\2014\I3 SHA BCS 2011-04G_District 3 Survey & Eng_Brudis_5497K\Task 18 MD 186 at Taylor Street(100%)\DWG\Print Sheets\pDE-0001_MD186.dgn

STRUCTURE SCHEDULE

NO.	STATION	OFFSET	MD STD.	DESCRIPTION	TOS	INVERT OUT	VERTICAL DEPTH	REMARKS
I–1	10+77	12' LT.	374.63	10' COG INLET	312.37	305.60	0.5	SEE NOTE 1
I–2	10+75	19.7' RT.	374.51	10' COG INLET	312.17	305.86	0.2	CONSTRUCT NEW INLET, SEE NOTE 3
(EX. I–1)	10+87	LT	–	REMOVE EXISTING INLET	–	–	–	SEE NOTE 2
M–2 (EX. I–2)	10+97	22.1' RT.	383.00	48" SQ. STD SHALLOW MANHOLE	311.95	305.57	2.6	REMOVE EX. INLET EX–1–2 AND CONSTRUCT NEW MANHOLE, SEE NOTE 4
M–1	11+10	11.1' LT.	ADJUST TOP OF EXSITING MANHOLE. EXISTING ELEVATION. 311.42, PROPOSED ELEVATION 311.79					

NOTES:
1. CONTRACTOR SHALL VERIFY EXISTING DIMENSIONS AND LAYOUT OF EXISTING PIPE PRIOR TO ORDERING STRUCTURES. BASE UNIT SHALL ACCOMODATE EXISTING PIPE
2. REMOVE EXISTING INLET AND EXISTING PIPE(S) INSIDE THE INLET
3. STATION AND OFFSET AT CENTER OF STRUCTURE AT THE FACE OF CURB
4. STATION AND OFFSET AT CENTER OF STRUCTURE

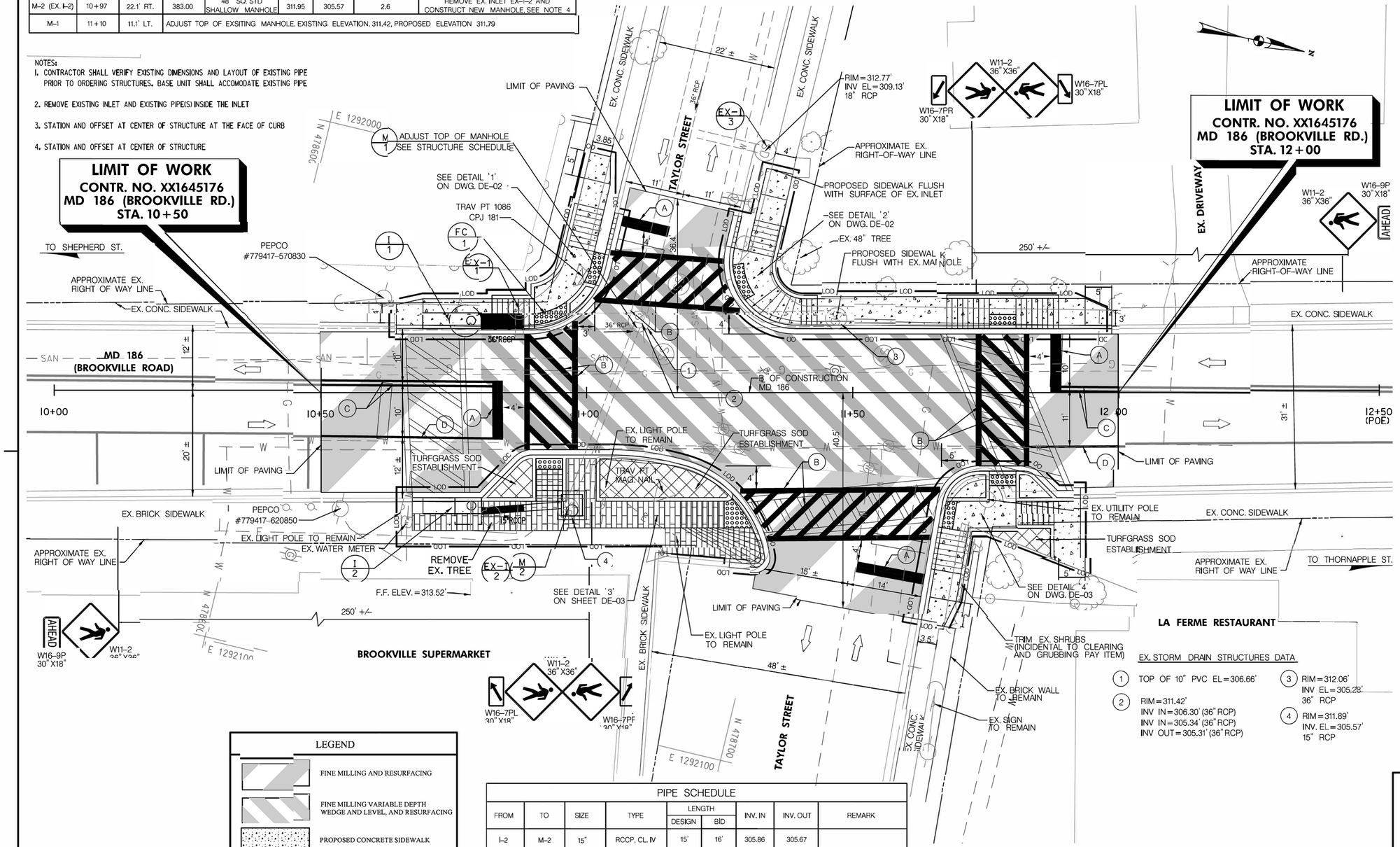
REMOVE EX. PIPE (ANY SIZE)

FROM FC–1 TO SOUTH END OF I–1	17 LF

NOTES:
1. PEDESTRIAN SIGN PLACEMENT SHALL BE PLACED IN THE FIELD AT THE APPROXIMATE LOCATIONS OR AS APPROVED OF BY THE AREA ENGINEER.
2. THE CONTRACTOR SHALL REMOVE EXISTING ADA SIGN AND RETURN TO SHA PROJECT ENGINEER.

SEE INTERSECTION DETAIL DWG. ID–01 FOR BASELINE STAKEOUT AND TRAVERSE INFORMATION

NOTE: FOR EX. SIGNS RELOCATION AND NEW SIGNS, PLEASE SEE DETAIL DWG. DE–02 AND DE–03



LEGEND

- FINE MILLING AND RESURFACING
- FINE MILLING VARIABLE DEPTH WEDGE AND LEVEL, AND RESURFACING
- PROPOSED CONCRETE SIDEWALK
- DETECTABLE WARNING SURFACE
- ADA COMPLIANT RAMP
- SIDEWALK/ PAVEMENT REMOVAL
- PROPOSED BRICK SIDEWALK

PAVEMENT MARKING LEGEND

- (A) 24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES
- (B) 12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES
- (C) 5 INCH YELLOW LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS
- (D) 5 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS

PIPE SCHEDULE

FROM	TO	SIZE	TYPE	LENGTH DESIGN	LENGTH BID	INV. IN	INV. OUT	REMARK
I–2	M–2	15"	RCCP, CL. IV	15'	16'	305.86	305.67	
I–1	FC–1	36"	RCCP, CL. IV	12'	16'	305.60	305.50	REMOVE EX. PIPE AND CONSTRUCT NEW PIPE

REMOVE AND RESET BRICK SIDEWALK*

461 SF.	MD 186 – STA. 10+67 TO STA. 11+33 RT.

NEW BRICK SIDEWALK

46 SF.	(10% OF REMOVE AND RESET)

*REMOVE AND SALVAGE EX. BRICK AND RESET FOR PROPOSED BRICK SIDEWALK AS SHOWN ON PLAN

DATUM: NAD 83/91 Horizontal
NAVD 88 Vertical

SCALE: 1" = 10'

REMOVAL OF EXISTING SIDEWALK

5.0 CY.	MD 186 – STA. 11+02 TO STA. 11+27 RT.
1.3 CY.	MD 186 – STA. 11+83 TO STA. 11+87 RT.

REMOVAL OF EXISTING PAVEMENT

5.0 CY.	MD 186 – STA. 10+78 TO STA. 11+00 RT.

FINE MILLING ASPHALT PAVEMENT 0 INCH TO 2 INCH

591 SY	MD 186 – STA. 10+50 TO STA. 12+00

MODIFIED COMBINATION CURB AND GUTTER (ANY TYPE) 12 INCH GUTTER PAN, ANY DEPTH

56 LF.	MD 186 – STA. 10+64, LT TO STA. 11+06, LT.
88 LF.	MD 186 – STA. 11+27, LT TO STA. 11+99, LT.
86 LF.	MD 186 – STA. 10+67, RT. TO STA. 11+33, RT.
55 LF.	MD 186 – STA. 11+63, RT. TO STA. 11+94, RT.

5 INCH CONCRETE SIDEWALK

285 SF.	MD 186 – STA. 10+64 TO STA. 11+04, LT.
8 SF.	MD 186 – STA. 10+97 TO STA. 11+01, LT.
439 SF.	MD 186 – STA. 11+28 TO STA. 11+97, LT.
273 SF.	MD 186 – STA. 11+64 TO 11+94, RT.
24 SF.	MD 186 – STA. 11+67 TO 11+75, RT.
17 SF.	MD 186 – STA. 11+81 TO 11+87, RT.

TYPE A CURB ANY HEIGHT OR DEPTH (STD. NO. MD 620.02)

28 LF.	MD 186 – STA. 10+82 LT. TO STA. 10+98, LT.
19 LF.	MD 186 – STA. 11+37 LT. TO STA. 11+43, LT.
21 LF.	MD 186 – STA. 11+68 LT. TO STA. 11+89, LT.
20 LF.	MD 186 – STA. 10+78 RT TO STA. 10+91, RT.
8 LF.	MD 186 – STA. 10+96 RT TO STA. 10+96, RT.
34 LF.	MD 186 – STA. 11+02 RT TO STA. 11+27, RT.
13 LF.	MD 186 – STA. 11+68 RT. TO STA. 11+76, RT.
18 LF.	MD 186 – STA. 11+81 RT. TO STA. 11+94, RT.
35 LF.	MD 186 – STA. 11+70 RT. TO STA. 11+88, RT.

DETECTABLE WARNING SURFACE (STD. NO. MD 655.40)

14 SF.	MD 186 – STA. 10+93, LT. – YELLOW MAT
14 SF.	MD 186 – STA. 11+02, LT. – YELLOW MAT
14 SF.	MD 186 – STA. 11+28, LT. – YELLOW MAT
10 SF.	MD 186 – STA. 11+78, LT. – YELLOW MAT
10 SF.	MD 186 – STA. 10+93, RT. – RED MAT
20 SF.	MD 186 – STA. 11+30, RT. – RED MAT
12 SF.	MD 186 – STA. 11+67, RT. – RED MAT
10 SF.	MD 186 – STA. 11+78, RT. – RED MAT

5 INCH WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS

35 LF.	MD 186 – STA. 10+50 TO STA. 10+85 RT.
19 LF.	MD 186 – STA. 11+81 TO STA. 12+00 RT.

5 INCH YELLOW LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKINGS

64 LF.	MD 186 – STA. 10+50 TO STA. 10+82
26 LF.	MD 186 – STA. 11+87 TO STA. 12+00

12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES

522 LF.	MD 186 – STA. 10+88 TO STA. 11+82

24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINES

11 LF.	MD 186 – STA. 10+83 TO STA. 10+83 RT.
11 LF.	MD 186 – STA. 11+87 TO STA. 11+87 LT.
13 LF.	MD 186 – STA. 11+50 TO STA. 11+63 RT.
9 LF.	MD 186 – STA. 11+06 TO STA. 11+15 LT.

TURFGRASS SOD ESTABLISHMENT

4 SY.	MD 186 – STA. 10+79 TO STA. 10+90 RT.
15 SY.	MD 186 – STA. 11+02 TO STA. 11+27 RT.
4 SY.	MD 186 – STA. 11+75 TO STA. 11+88 RT.

Mead & Hunt

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

HIGHWAY DESIGN DIVISION
DISTRICT 3 – PROJECT DEVELOPMENT

ADA UPGRADES AND INTERSECTION IMPROVEMENTS
MD186 AT TAYLOR STREET

ROADWAY PLAN

SCALE 1" = 10' ADVERTISED DATE FEB. 2018 CONTRACT NO. XX164517.6

DESIGNED BY	JM	COUNTY	MONTGOMERY
DRAWN BY	JM	LOGMILE	0.910 TO 0.940
CHECKED BY	SP	HORIZONTAL SCALE	SEE PLAN
MDE/PRD	N/A	VERTICAL SCALE	N/A

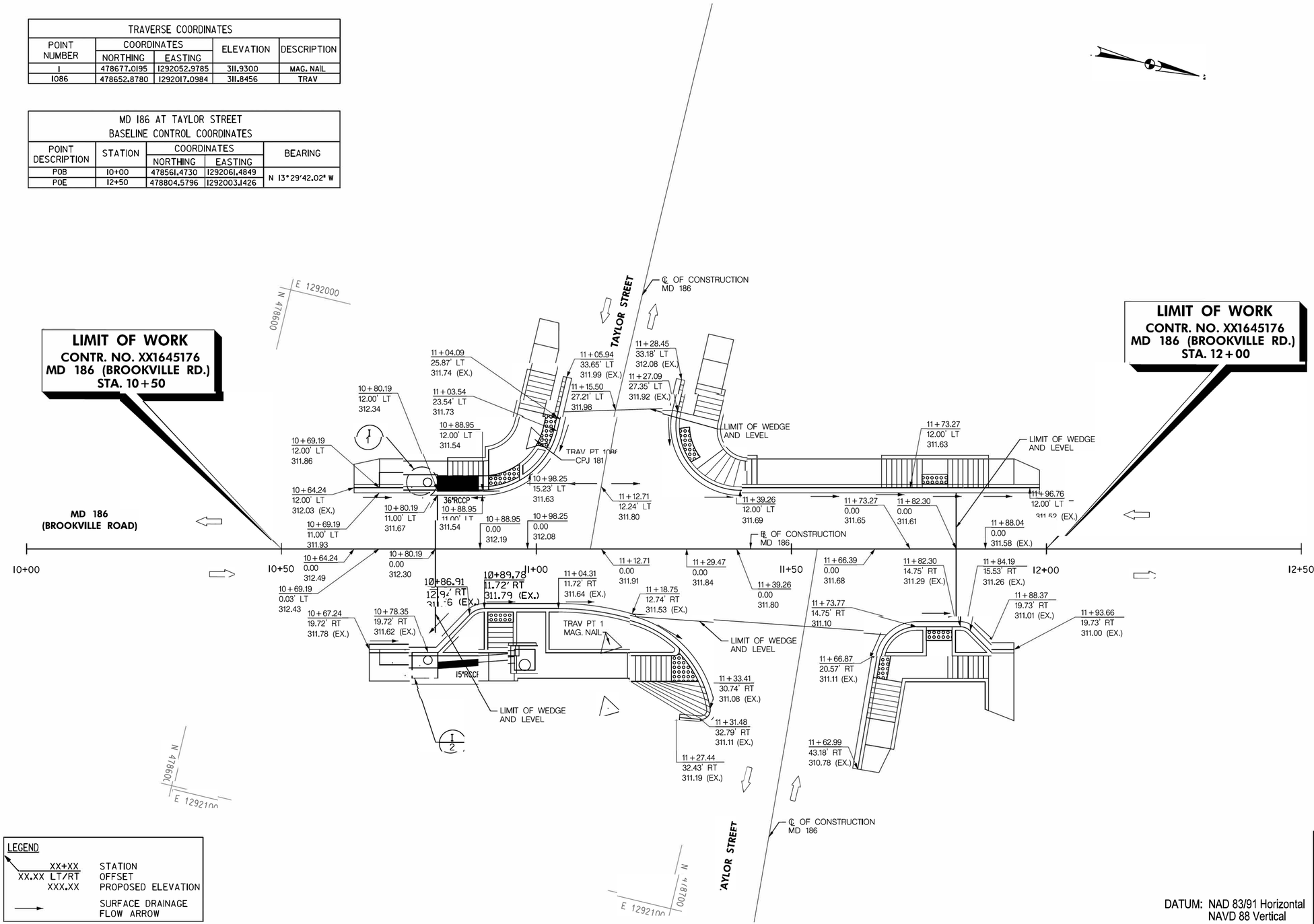
DRAWING NO. PS – 01 OF 01 SHEET NO. 5 OF 8

BY: jhontalvo –

PLOTTED: Wednesday, February 07, 2018 AT 01:20 PM
FILE: R:\2014\3 SHA BCS 2011-04G_District 3 Survey & Eng_Brudis_$497K\Task 18 MD 186 at Taylor Street(100%)\DWG\Print Sheets\phD-P001_MD186.dgn

TRAVERSE COORDINATES				
POINT NUMBER	COORDINATES		ELEVATION	DESCRIPTION
	NORTHING	EASTING		
1	478677.0195	1292052.9785	311.9300	MAG. NAIL
1086	478652.8780	1292017.0984	311.8456	TRAV

MD 186 AT TAYLOR STREET BASELINE CONTROL COORDINATES				
POINT DESCRIPTION	STATION	COORDINATES		BEARING
		NORTHING	EASTING	
POB	10+00	478561.4730	1292061.4849	N 13°29'42.02" W
POE	12+50	478804.5796	1292003.1426	



LEGEND	
XX+XX	STATION
XX.XX LT/RT	OFFSET
XXX.XX	PROPOSED ELEVATION
→	SURFACE DRAINAGE FLOW ARROW

DATUM: NAD 83/91 Horizontal
NAVD 88 Vertical

Mead & Hunt

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

HIGHWAY DESIGN DIVISION
DISTRICT 3 – PROJECT DEVELOPMENT

ADA UPGRADES AND INTERSECTION IMPROVEMENTS
MD186 AT TAYLOR STREET

INTERSECTION DETAIL

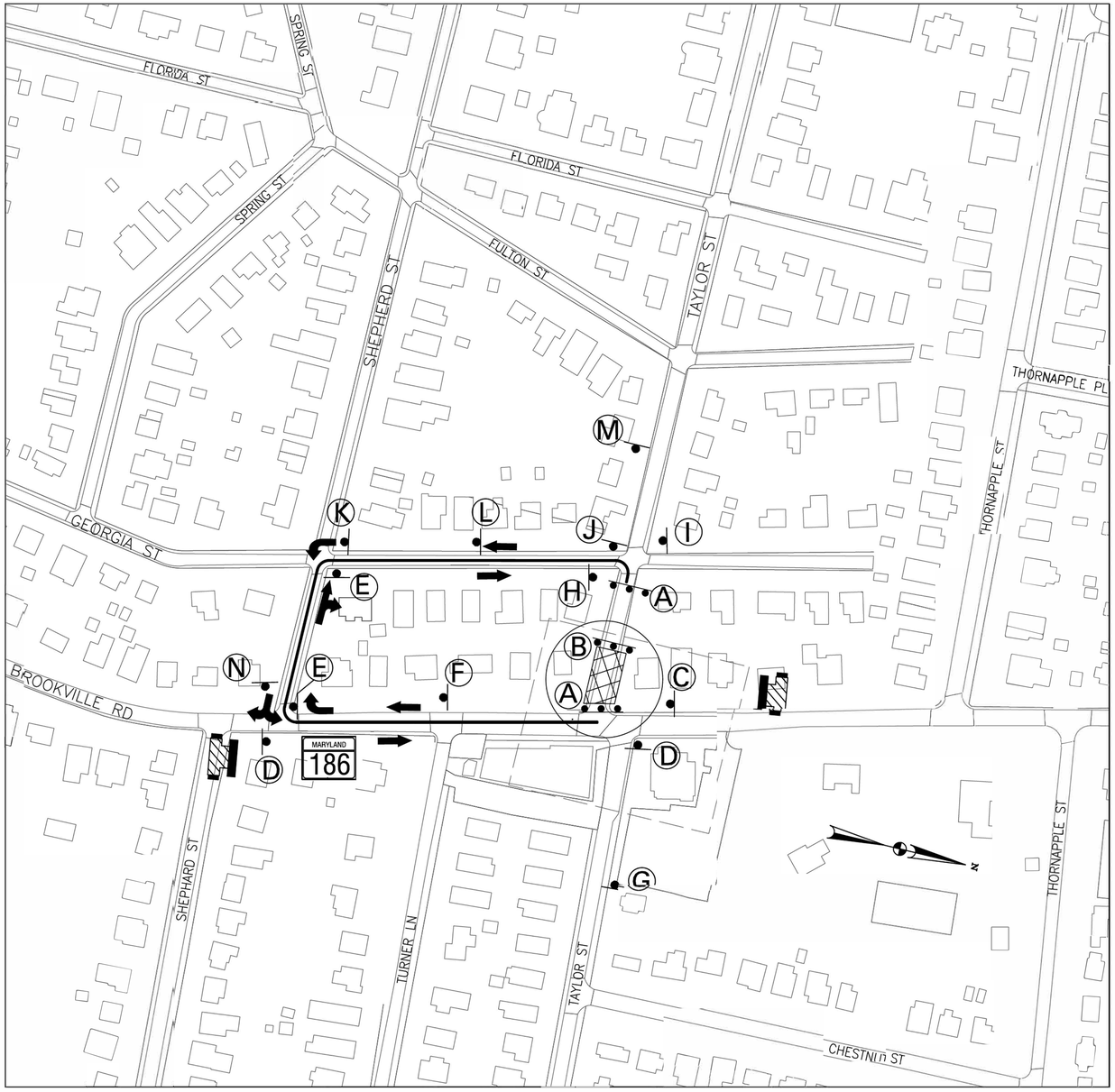
SCALE 1" = 10' ADVERTISED DATE FEB. 2018 CONTRACT NO. XX1645176

DESIGNED BY	JM	COUNTY	MONTGOMERY
DRAWN BY	JM	LOGMILE	0.910 TO 0.940
CHECKED BY	SP	HORIZONTAL SCALE	SEE PLAN
MDE/PRD	N/A	VERTICAL SCALE	N/A

DRAWING NO. ID – 01 OF 01 SHEET NO. 6 OF 8

BY: jhontalvo –

PLOTTED: Wednesday, February 07, 2018 AT 01:21 PM
FILE: R:\2014\I\3 SHA BCS 2011-04G_District 3 Survey & Eng_Brudis_$497K\Task 18 MD 186 at Taylor Street(100%)\DWG\Print Sheets\pDI-P002_MD186 -Intersection Detail.dgn



A

R11-2(2)
(48"x12")

M4-10(L)
(48" x 18")
INSTALLED ON THE DAY OF CLOSURE
TYPE III BARRICADE
(6' WIDE MAX.)

OR

B

R11-2(2)
(48"x12")

TYPE III BARRICADE
(6' WIDE MAX.)

C

M4-9(1)
(30" x 12")
BLK/W

M4-9
(30"x24")
BLK/FO

D

M4-9(1)
(30" x 12")
BLK/W

M4-9L
(30"x24")
BLK/FO

E

M4-9(1)
(30" x 12")
BLK/W

M4-9R
(30"x24")
BLK/FO

F

M4-9(1)
(30" x 12")
BLK/W

M4-9(MOD.)
(30"x24")
BLK/FO

G

M4-9(1)
(30" x 12")
BLK/W

M4-9(MOD.)
(30"x24")
BLK/FO

H

M4-9(1)
(30" x 12")
BLK/W

M4-8a(1)
(36"x24")
BLK/FO

I

M4-9(1)
(30" x 12")
BLK/W

M4-9
(30"x24")
BLK/FO

J

M4-9(1)
(30" x 12")
BLK/W

M4-9R
(30"x24")
BLK/FO

K

M4-9(1)
(30" x 12")
BLK/W

M4-9L
(30"x24")
BLK/FO

L

M4-9(1)
(30" x 12")
BLK/W

M4-9(MOD.)
(30"x24")
BLK/FO

M

M4-9(1)
(30" x 12")
BLK/W

M4-9(MOD.)
(30"x24")
BLK/FO

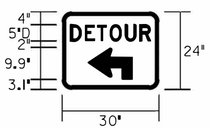
N

M4-9(1)
(30" x 12")
BLK/W

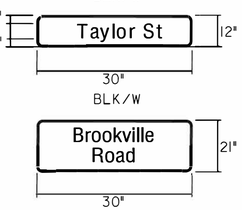
M4-8a(1)
(36"x24")
BLK/FO

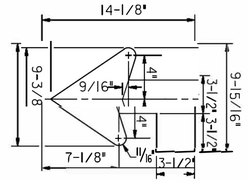
SIGN DETAILS

1



2





M4-9(MOD)
(30"x24")

TAYLOR STREET DETOUR PLAN NOTES:

1. DETOUR SHALL BE IMPLEMENTED DURING THE REPAVING OF TAYLOR STREET BETWEEN 9:00AM AND 3:00PM MONDAY THROUGH FRIDAY.
2. ROAD CLOSED AND EFFECTIVE SIGNS SHALL BE PLACED TWO (2) WEEKS PRIOR TO THE ROAD CLOSURE. THE EFFECTIVE SIGNS SHALL BE REMOVED AND REPLACED WITH THE REOPENS SIGNS TWO DAYS AFTER THE ACTUAL DATE OF THE ROAD CLOSURE (SEE MONTGOMERY COUNTY STANDARD NO. TCP-110.02-01).
3. ACCESS SHOULD BE PROVIDED TO LOCAL RESIDENCES AT ALL TIMES.
4. ALL TEMPORARY TRAFFIC SIGNS SHALL CONFORM TO AND BE INSTALLED IN ACCORDANCE TO MARYLAND DEPARTMENT OF TRANSPORTATION AND MATERIALS, INCLUDING REFLECTIVITY REQUIREMENTS, SECTION 104.08 AND NCHRP 350.
5. ALL DETOUR SIGNS SHALL BE PLACED SO THAT THEY DO NOT OBSTRUCT EXISTING TRAFFIC CONTROL DEVICES OR INTERSECTION OR ROADWAY SIGHT DISTANCE AS PER AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS 2011 EDITION."
6. PORTABLE VARIABLE MESSAGE SIGNS (PVMS) SHALL BE USED AS DIRECTED BY THE CONSTRUCTION PROJECT ENGINEER.
7. THE CONTRACTOR SHALL COVER OR REMOVE ALL TEMPORARY SIGNS THAT ARE IN CONFLICT WITH CURRENT TRAFFIC FLOW OR WHEN DETOUR IS NOT IN EFFECT OR AS DIRECTED BY THE ENGINEER.
8. THE CONTRACTOR SHALL COVER ALL GROUND MOUNTED SIGNS THAT ARE IN CONFLICT WITH THE DETOUR SIGNS WHEN A DETOUR IS IN EFFECT.
9. MISS UTILITY MUST BE NOTIFIED 72 HOURS PRIOR TO THE PLACEMENT OF SIGNING (800)257-7777.
10. THE CONTRACTOR SHALL CONFORM TO MONTGOMERY COUNTY DOT WORK ZONE TRAFFIC CONTROL STANDARDS BOOK FOR ALL MOT ON MONTGOMERY COUNTY ROADS.

LEGEND & BACKGROUND COLOR:
BLK= BLACK, FO= FLUORESCENT ORANGE, W= WHITE

Mead & Hunt

BY: jmontalvo -

LEGEND

- WORK AREA
- SIGN AND SIGN POST
- TYPE III BARRICADE
- PORTABLE VARIABLE MESSAGE SIGN

PORTABLE VARIABLE SIGN MESSAGES

SEVEN (7) DAYS PRIOR TO ROAD CLOSURE	FIRST SEVEN (7) DAYS OF ROAD CLOSURE
TAYLOR ST CLOSED AT BROOKVILLE	FOLLOW DETOUR

CONTRACTOR SHALL ENSURE THAT PVMS HAS CAPABILITY OF 9 CHARACTERS PER LINE

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

HIGHWAY DESIGN DIVISION
DISTRICT 3 – PROJECT DEVELOPMENT

ADA UPGRADES AND INTERSECTION IMPROVEMENTS
MD186 AT TAYLOR STREET

DETOUR PLAN

SCALE 1" = 100' ADVERTISED DATE FEB. 2018 CONTRACT NO. XX1645176

DESIGNED BY	JM	COUNTY	MONTGOMERY
DRAWN BY	JM	LOGMILE	0.910 TO 0.940
CHECKED BY	SP	HORIZONTAL SCALE	SEE PLAN
MDE/PRD	N/A	VERTICAL SCALE	N/A

DRAWING NO. MOT – 01 OF 03 SHEET NO. 7 OF 8

PLOTTED: Wednesday, February 07, 2018 AT 01:22 PM
FILE: R:\2014\V3 SHA BCS 2011-04G_District 3 Survey & Eng_Brudis_$497K\Task 18 MD 186 at Taylor Street(100%)\DWG\Print Sheets\pMOT-P001_MD186.dgn

EROSION AND SEDIMENT CONTROL – GENERAL NOTES

1. NOTIFICATION

NOTIFY THE REGIONAL ENVIRONMENTAL COORDINATOR (REC) IN WRITING AND/OR BY TELEPHONE AT (410) 365-0164 PRIOR TO THE FOLLOWING POINTS:
- PRE-CONSTRUCTION MEETING.
- EROSION AND SEDIMENT CONTROL (ESC) MEETING (MINIMUM 7 WORKING DAYS PRIOR TO COMMENCING EARTH DISTURBING ACTIVITIES).
- UPON INSTALLATION OF INITIAL ESC MEASURES.
- INSTALLATION OF MAJOR ESC BASINS/TRAPS.
- REMOVAL OR MODIFICATION OF ANY ESC MEASURES.
- REMOVAL OF ALL ESC DEVICES.
- FINAL ACCEPTANCE BY THE ADMINISTRATION.

2. STANDARDS AND SPECIFICATIONS

CONSTRUCT THIS PLAN ACCORDING TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", THE MDE "2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I & II", THE MDOT SHA "FIELD GUIDE FOR EROSION AND SEDIMENT CONTROL", THE ANNOTATED CODE OF MARYLAND, THE CODE OF MARYLAND (COMAR) 26.17.01 AND 26.17.02, ALL REVISIONS THERE OF, AND AS SPECIFIED. KEEP A COPY OF THE 2011 "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" ON THE SITE AT ALL TIMES. PERFORM VEGETATIVE STABILIZATION ACCORDING TO THOSE STANDARDS AND AS SPECIFIED.

3. INSPECTION

DAILY INSPECT ALL ESC MEASURES AND MAINTAIN THEM IN A CONTINUOUSLY-EFFECTIVE OPERATING CONDITION UNTIL REMOVED AS APPROVED BY THE REC AND THE ENGINEER.

4. SHUTDOWNS / LIQUIDATED DAMAGES

COMPLETE COMPLIANCE WITH THE APPROVED ESC PLAN IS EXPECTED AT ALL TIMES. IN CASES WHERE THE CONTRACTOR IS FOUND TO BE IN NON-COMPLIANCE, THE ADMINISTRATION WILL TAKE STEPS TO IMPOSE SELECTED OR TOTAL SHUTDOWNS AND MAY IMPOSE LIQUIDATED DAMAGES FOR NON-COMPLIANCE.

THE ADMINISTRATION'S DISTRICT ENGINEER MAY IMPOSE A TOTAL OR PARTIAL SHUTDOWN IF THE PROJECT MAY ADVERSELY IMPACT THE WATERS OF THE STATE.

5. RECORD KEEPING

ENSURE THE STORMWATER MANAGEMENT (SWM)/ESC APPROVAL LETTER, APPROVED EROSION AND SEDIMENT CONTROL PLANS, APPROVED MODIFICATIONS, MODIFICATION APPROVAL LETTER(S), DAILY LOG BOOKS, TEST REPORTS, AND NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) NOTICE OF INTENT (NOI) PERMIT ARE AVAILABLE ON-SITE FOR REVIEW AND INSPECTION BY THE ADMINISTRATION.

6. CLEARING AND GRUBBING

UNLESS OTHERWISE SPECIFIED OR APPROVED, LIMIT THE CLEARING AND GRUBBING AREA TO A SINGLE 20-ACRE GRADING UNIT PER GRADING OPERATION. ONCE THIS FIRST UNIT IS HALF GRADED, STABILIZATION MEASURES ARE IN PLACE, AND APPROVED, WORK MAY PROCEED TO A SECOND 20-ACRE GRADING UNIT. UNLESS SPECIFICALLY APPROVED, NO MORE THAN 30 ACRES MAY BE DISTURBED AT ANY TIME.

7. SENSITIVE AREAS

WITH THE APPROVAL AND ASSISTANCE OF THE ENGINEER, COORDINATE WITH THE APPROPRIATE ADMINISTRATION REPRESENTATIVES TO COORDINATE WITH THE APPROPRIATE REGULATORY AGENCIES TO ENSURE THAT ALL PERMIT CONDITIONS ARE MET PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES WITHIN SPECIFIED SENSITIVE AREAS. SENSITIVE AREAS INCLUDE BUT ARE NOT LIMITED TO FLOODPLAINS, WETLANDS, WETLAND BUFFERS, CHESAPEAKE BAY CRITICAL AREA, FORESTS, ARCHEOLOGICAL SITES, HISTORIC SITES, PARKLAND, AND OPEN WATERS. DESIGNATE A RESPONSIBLE PARTY TO MONITOR ALL WORK IN THESE AREAS AND ENSURE THAT REASONABLE CARE IS TAKEN DURING WORK IN AND ADJACENT TO THESE AREAS.

8. INGRESS / EGRESS CONTROLS

PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS AND PREVENT THE DEPOSITION OF MATERIALS ON PUBLIC ROADS. IF DEPOSITION OCCURS, MECHANICALLY REMOVE ALL MATERIALS DEPOSITED ON PUBLIC ROADS IMMEDIATELY. FLUSHING OF ROAD SURFACES IS PROHIBITED.

9. EROSION AND SEDIMENT CONTROL EXCAVATION

DISPOSE OF MATERIAL REMOVED FROM ESC DEVICES IN AN APPROVED WASTE SITE AS SPECIFIED IN SECTION 201. MATERIALS MAY BE STORED FOR RE-USE. MATERIALS STORED ON-SITE MAY BE REUSED ONCE IT IS DRIED AND IF IT MEETS THE REQUIREMENTS FOR EMBANKMENTS OR OTHER UNSPECIFIED NEEDS.

10. DEWATERING PRACTICES

OPERATE DEWATERING PRACTICES IN A MANNER THAT DOES NOT DISCHARGE SEDIMENT INTO WATERWAYS. NO VISIBLE CHANGES TO STREAM CLARITY ARE ACCEPTABLE.

11. STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, COMPLETE PERMANENT OR TEMPORARY STABILIZATION WITHIN THREE (3) CALENDAR DAYS FOR SURFACES OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE SITE. ENSURE CONTINUED STABILIZATION.

12. INCREMENTAL STABILIZATION

REFER TO THE MDE "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR THE INCREMENTAL STABILIZATION OF CUT AND FILLS.

13. SEDIMENT TRAPS AND BASINS

PLAN DIMENSIONS ARE RELATIVE TO THE OUTLET ELEVATION. MAINTAIN INFLOW AND OUTFLOW LOCATIONS FOR TRAPS AND BASINS IN STABLE CONDITION.

14. OFF-SITE UTILITY WORK

FOLLOW ADDITIONAL BEST MANAGEMENT ESC PRACTICES FOR UTILITY CONSTRUCTION IN AREAS OUTSIDE OF DESIGNED CONTROLS:

(a) CALL "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO THE START OF WORK.
(b) PLACE EXCAVATED MATERIAL ON THE HIGH SIDE OF TRENCHES.
(c) BACKFILL, COMPACT, AND STABILIZE AT THE END OF EACH WORKING DAY ALL TRENCHES FOR UTILITY INSTALLATIONS. WHEN THIS IS NOT POSSIBLE, CONFORM TO (d).
(d) PLACE TEMPORARY SILT FENCES IMMEDIATELY DOWNSTREAM OF ANY DISTURBED AREA THAT IS INTENDED TO REMAIN DISTURBED FOR MORE THAN ONE (1) DAY.

15. SITE INFORMATION*

A. TOTAL AREA DISTURBED	0.07	ACRES
B. TOTAL CUT	22	CU. YDS.
C. TOTAL FILL	0	CU. YDS.
D. OFFSITE WASTE/BORROW AREA LOCATION (IF KNOWN)	N/A	

* (NOT FOR BIDDING PURPOSES)

16. MODIFICATIONS

SUBMIT MODIFICATIONS OF THE ESC MEASURES OR PLAN TO THE ADMINISTRATION FOR APPROVAL. OBTAIN ALL APPROVALS PRIOR TO IMPLEMENTING ANY MODIFICATION.

STANDARD SYMBOLS

AT-GRADE INLET PROTECTION	AGIP	PERMANENT SOIL STABILIZATION MATTING-TYPE B	B B B	TEMPORARY ACCESS BRIDGE	TB
BAFFLE BOARDS	BB	PERMANENT SOIL STABILIZATION MATTING-TYPE C	C C C	TEMPORARY ACCESS CULVERT	
BENCHING	BENCHING	PIPE OUTLET SEDIMENT TRAP ST I	ST-I	TEMPORARY ASPHALT BERM	TAB
CATCH BASIN INSERT	CBI	PIPE SLOPE DRAIN (NOTE: DESIGNATION PSD-12 REFERS TO PIPE SLOPE DRAIN WITH 12 IN PIPE)	PSD - 12	TEMPORARY BARRIER DIVERSION	TBD
CLEAR WATER DIVERSION PIPE (NOTE: DESIGNATION CWD-12 REFERS TO CLEAR WATER DIVERSION WITH 12 INCH PIPE.)	CWD - 12	PLUNGE POOL	PP	TEMPORARY GABION OUTLET STRUCTURE	TGOS
CLEAR WATER PIPE	CWP	PORTABLE SEDIMENT TANK	PST	TEMPORARY SOIL STABILIZATION MATTING-TYPE A	A A A
COMBINATION INLET PROTECTION	COIP	REMOVABLE PUMPING STATION	RPS	TEMPORARY SOIL STABILIZATION MATTING-TYPE E	E E E
CONCRETE WASHOUT STRUCTURE	CWS	RIPRAP INFLOW PROTECTION	RRP	TEMPORARY SOIL STABILIZATION MATTING-TYPE D	D D D
CURB INLET PROTECTION	CIP	RIPRAP OUTLET SEDIMENT TRAP ST III	ST-III	TEMPORARY STONE OUTLET STRUCTURE	TSOS
DIVERSION FENCE	DF	ROCK OUTLET PROTECTION I	ROPI	TEMPORARY SWALE (NOTE: PLACE DESIGNATION (A-1, B-2, ETC.) ON FLOW CHANNEL SIDE OF SWALE.)	A-I
EARTH DIKE (NOTE: PLACE DESIGNATION (A-1, B-2, ETC.) ON FLOW CHANNEL SIDE OF DIKE.)	A-I	ROCK OUTLET PROTECTION II	ROPII	VERTICAL DRAW-DOWN DEVICE	VDDD
EMERGENCY SPILLWAY	ES	ROCK OUTLET PROTECTION III	ROPIII	WASH RACK OPTION	WR
FILTER BAG	FB	SILT FENCE	SF	CHESAPEAKE BAY CRITICAL AREA	CBCA
FILTER BERM	FB-A / FB-B	SILT FENCE ON PAVEMENT	SFOP	DRAINAGE BOUNDARY	DA
FILTER LOG (NOTE: DESIGNATION FL-18 REFERS TO FILTER LOG WITH 18 INCH DIAMETER.)	FL-18	SOD		EXISTING CONTOURS	100
GABION INFLOW PROTECTION	GP	STABILIZED CONSTRUCTION ENTRANCE (SCE)	SCE	LIMIT OF DISTURBANCE (LOD)	LOD
GABION INLET PROTECTION	GIP	STANDARD INLET PROTECTION	SIP	PROPOSED CONTOURS	100
HORIZONTAL DRAW-DOWN DEVICE	HDDD	STOCKPILE AREA		TEMPORARY ORANGE CONSTRUCTION FENCE (TOCF)	TOCF
LIMIT OF DISTURBANCE	LOD	STONE CHECK DAM	CD	TREE PROTECTION FENCE	TPF
MEDIAN INLET PROTECTION	MIP	STONE/RIPRAP OUTLET SEDIMENT TRAP ST II	ST-II	WETLAND	
MEDIAN SUMP INLET PROTECTION	MSIP	SUBSURFACE DRAINS	SSD	WETLAND BUFFER	B
MOUNTABLE BERM	MB	SUMP PIT	SP	100-YEAR FLOODPLAIN	
PERIMETER DIKE/SWALE	PDS-I	SUPER SILT FENCE	SSF		

SEQUENCE OF CONSTRUCTION:

1. NOTIFY THE REGIONAL ENVIRONMENTAL COORDINATOR IN ACCORDANCE WITH GENERAL NOTE NO.1 ON THIS PLAN SHEET.
2. UTILIZING SAME DAY STABILIZATION TECHNIQUES, CONSTRUCT ROADWAY IMPROVEMENT AS SHOWN ON THE PLANS. LIMIT EACH DAYS ACTIVITIES SUCH THAT NO DISTURBED AREA IS LEFT UNSTABILIZED OVERNIGHT UNLESS RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE. DEWATER ALL EXCAVATIONS THROUGH AN APPROVED FILTERING DEVICE.
3. FINE GRADE AND STABILIZE ALL DISTURBED AREAS.
4. EROSION AND SEDIMENT CONTROL MEASURES OR DEVICES, IF APPLICABLE, ARE TO REMAIN IN PLACE UNTIL INSPECTOR APPROVES THEIR REMOVAL.
5. WITH APPROVAL OF THE INSPECTOR, REMOVE EROSION AND SEDIMENT CONTROL DEVICES AND STABILIZE ANY AREA DISTURBED BY THIS PROCESS.

Mead & Hunt

BY: jmontalvo –

P.E. 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. 33339

EXPIRATION DATE: 8/2/18

DESIGN CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, THE 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I & II INCLUDING SUPPLEMENTS, THE ENVIRONMENT ARTICLE SECTIONS 4-101 THROUGH 116 AND SECTIONS 4-201 AND 215, AND THE CODE OF MARYLAND REGULATIONS (COMAR) 26.17.01 AND COMAR 26.17.02 FOR EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT, RESPECTIVELY.

DATE 2/7/2018 DESIGNER'S SIGNATURE

MD REGISTRATION NO. 33339 PRINTED NAME SHASHIKANT PATEL, PE

P.E., R.L.S., R.L.A., OR R.A. (CIRCLE ONE)

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

HIGHWAY DESIGN DIVISION
DISTRICT 3 – PROJECT DEVELOPMENT

ADA UPGRADES AND INTERSECTION IMPROVEMENTS
MD186 AT TAYLOR STREET

EROSION & SEDIMENT CONTROL GENERAL NOTES

SCALE NTS ADVERTISED DATE FEB. 2018 CONTRACT NO. XX1645176

DESIGNED BY JH
DRAWN BY EAS
CHECKED BY SP
MDE/PRD N/A

COUNTY MONTGOMERY
LOGMILE 0.910 TO 0.940
HORIZONTAL SCALE SEE PLAN
VERTICAL SCALE N/A

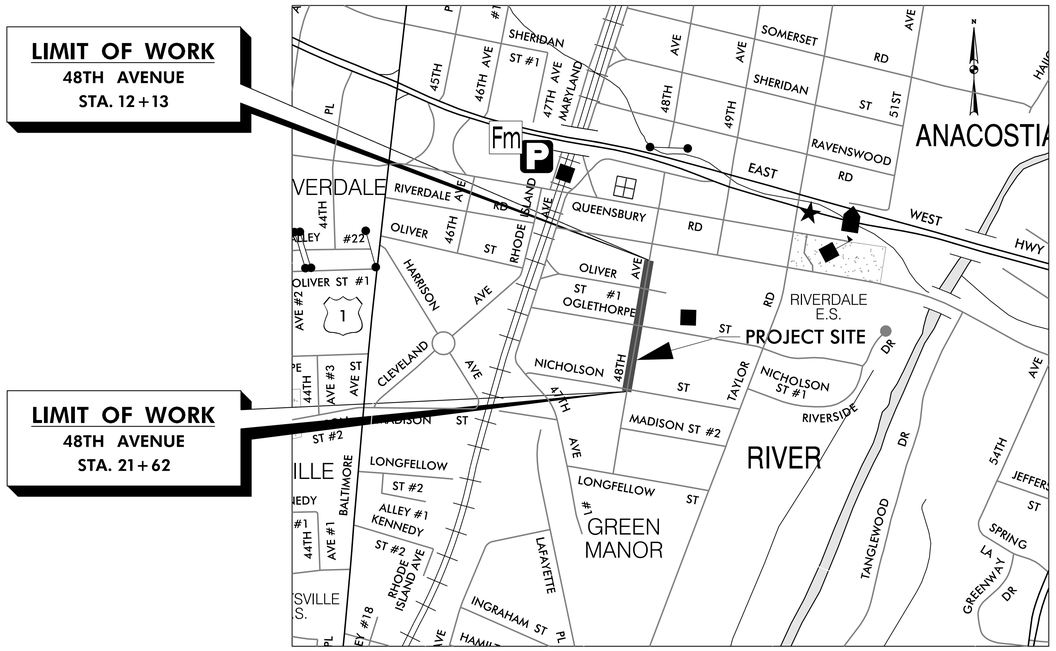
DRAWING NO. ES-01 OF 01 | SHEET NO. 8 OF 8

PLOTTED: Wednesday, February 07, 2018 AT 04:54 PM
FILE: R:\2014\3 SHA BCS 2011-040_District 3 Survey & Eng_Brudis_$497K\Task 18 MD 186 at Taylor Street(100%)\DWG\Print Sheets\pES-N000_MD186.dgn

DEPARTMENT OF PUBLIC WORKS

TOWN OF RIVERDALE PARK

48TH AVENUE SIDEWALK IMPROVEMENTS
FROM RIVERDALE ROAD TO NICHOLSON STREET



VICINITY MAP
SCALE: 1" = 500'

INDEX OF SHEETS:

STATE OF MARYLAND
SHASHIKANT B. PATEL
No. 33339
PROFESSIONAL ENGINEER

SIGNATURE

080620
DATE

MEAD & HUNT, INC.

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY PROFESSIONAL ENGINEER UNDER THE LAW OF

STATE OF MARYLAND, LICENSE No. 33339

EXPIRATION DATE 08-02-2022

Mead & Hunt

MEAD & HUNT, INC.
7055 SAMUEL MORSE DRIVE
SUITE 100
COLUMBIA, MD 21046
(443) 741-3500
WWW.MEADHUNT.COM

APPROVED: _____ DATE

_____ DIRECTOR OF PUBLIC WORKS

DEPARTMENT OF PUBLIC WORKS
TOWN OF
RIVERDALE PARK
5008 QUEENSBURY ROAD RIVERDALE PARK, MARYLAND

ADDENDUMS & REVISIONS			
NO.	DESCRIPTION	BY.	DATE

TITLE SHEET

48TH AVENUE SIDEWALK IMPROVEMENTS
FROM RIVERDALE ROAD TO NICHOLSON STREET

DATE: AUGUST 25, 2021
JOB NO.: -

SHEET NO. 1 OF 10

DWG. NO. TI-01

PLOTTED: 8252021
FILE: R:\2019\58 Riverdale On-Call Engineering Services\Task 01 Sidewalk Design 48th St\DWG\Print Files\pTI-0001_48th_Ave.dgn

GENERAL NOTES:

1. DIMENSIONS AND STATIONS ARE APPROXIMATE. BASELINE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
2. SIDEWALK RECONSTRUCTION LIMITS SHALL COINCIDE WITH CRACK CONTROL JOINTS (JOINTER GROOVES) OR EXPANSION JOINTS IN EXISTING SIDEWALK. NEW EXPANSION JOINTS SHALL BE PROVIDED AT THE INTERFACE OF EXISTING AND PROPOSED SIDEWALK. SEE SHA STANDARD MD-655.01.
3. INSTALL DETECTABLE WARNING SURFACE ON SIDEWALK RAMPS AS PER SHA STANDARD MD-655.40. USE RED OR YELLOW COLORED MAT. SEE ROADWAY PLANS FOR LOCATIONS.
4. FORM NEW SIDEWALK AND EXPANSION JOINT MATERIAL AROUND EXISTING UTILITY POLES, MANHOLE COVERS, VALVE COVERS AND FIRE HYDRANTS AS NECESSARY.
5. MATCH EXISTING ELEVATIONS AT THE EDGE OF PROPOSED SIDEWALK, SIDEWALK RAMPS AND CURB AND GUTTER.
6. RESET ANY SIGNS DISTURBED BY THE CONSTRUCTION AS DIRECTED BY THE ENGINEER.
7. ADJUST EXISTING UTILITIES AS REQUIRED FOR SIDEWALK AND RAMP REPLACEMENT.
8. THE CONTRACTOR SHALL REPLACE EXISTING DAMAGED CURB WHICH IS ADJACENT TO LOCATIONS WHERE CURB RAMPS ARE BEING RECONSTRUCTED OR INSTALLED.
9. EXISTING INLETS SHALL NOT BE DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL REPLACE INLETS DAMAGED BY THE CONSTRUCTION ACTIVITIES AT NO ADDITIONAL COST TO THE TOWN OF RIVERDALE PARK.
10. EXISTING CURB HEIGHTS PROVIDED ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR. RAMP AND DRIVEWAY TRANSITION LENGTHS SHALL BE VERIFIED IN THE FIELD.
11. ALL CURB REPLACEMENTS TERMINI ADJACENT TO PARKING LOT DRIVEWAY ENTRANCES SHALL BE CONSTRUCTED NOSE DOWN TO MATCH EXISTING GRADE OR AS DIRECTED BY THE ENGINEER.
12. EXISTING TREES, SHRUBS AND THEIR RESPECTIVE ROOT SYSTEMS SHALL NOT BE DISTURBED DURING CONSTRUCTION.
13. ALL DISTURBED AREAS SHALL RECEIVE 4" FURNISHED TOPSOIL, TURFGRASS SEED ESTABLISHMENT, AND TEMPORARY MULCH UNLESS OTHERWISE NOTED.
14. NO COORDINATED SURVEY WAS PERFORMED FOR THIS PROJECT, EXISTING CONDITIONS SHOWN HEREIN ARE APPROXIMATE. ALL INFORMATION ON EXISTING CONDITIONS ARE FROM GIS MAPPING INFORMATION, AERIAL MAPPING INFORMATION AND SITE INVESTIGATION. CONTRACTOR SHALL PERFORM SITE VISIT TO VERIFY THE EXISTING CONDITIONS PRIOR TO BEGINNING OF CONSTRUCTION.
15. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF THE MAINS BY DIGGING TEST PITS, BY HAND OR VACUUM, AT UTILITY CROSSINGS WELL IN ADVANCE OF TRENCHING. IF CLEARANCES TO WATER AND SEWER LINES ARE LESS THAN SHOWN ON THIS PLAN, OR LESS THAN TWELVE (12) INCHES, CONTACT THE DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION (DPW&T) INSPECTOR BEFORE PROCEEDING WITH CONSTRUCTION.
16. ALL ROADWAY CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING: THE DPW&T SPECIFICATIONS AND STANDARDS FOR ROADWAYS AND BRIDGES; THE PRINCE GEORGE'S COUNTY CODE, SUBTITLE 23, ROAD ORDINANCE; AND THE PRINCE GEORGE*S COUNTY POLICY AND SPECIFICATION FOR UTILITY INSTALLATION AND MAINTENANCE.
17. PRIOR TO DIGGING WITHIN THE ROADWAY, CALL MISS UTILITY TOLL FREE AT (800) 257-7777 FOR UTILITY LOCATION AT LEAST 48 HOURS BEFORE BEGINNING CONSTRUCTION.
18. IT SHALL BE THE RESPONSIBILITY OF THE PERMITTEE TO ARRANGE FOR THE ADJUSTMENT OR RELOCATION OF ALL UTILITIES.
19. ALL UNSUITABLE MATERIAL MUST BE REMOVED AND REPLACED WITH SUITABLE MATERIAL TO A DEPTH AS DIRECTED BY THE GEOTECHNICAL ENGINEER, THE DPW&T INSPECTOR, AND/OR THE DEPARTMENT*S ENGINEER.
20. ALL CURB AND GUTTER SHALL BE CONSTRUCTED IN ACCORDANCE WITH DPW&T STANDARD NO. 300.01 UNLESS DIRECTED OTHERWISE BY THE DEPARTMENT.
21. POSITIVE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE AREA COVERED BY THIS PERMIT AND THROUGH ADJACENT PROPERTY FRONTAGES.
22. ALL UNPAVED AREAS WITHIN THE LOD SHALL RECEIVE 4" FURNISHED TOP SOIL, TURFGRASS SEED ESTABLISHMENT, AND TEMPORARY MULCH.
23. ALL SIDEWALK RAMPS SHOWN ON THIS PLAN SHALL BE CONSTRUCTED IN ACCORDANCE WITH DPW&T STANDARDS AND SHALL COMPLY WITH THE LATEST REVISION TO THE FEDERAL ACCESSIBILITY GUIDELINES OF THE AMERICANS WITH DISABILITIES ACT.
24. ALL SIDEWALKS SHOWN ON THIS PLAN SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST DPW&T STANDARDS AND SHALL COMPLY WITH THE LATEST REVISION TO THE FEDERAL ACCESSIBILITY GUIDELINES OF AMERICANS WITH DISABILITIES ACT.
25. REMOVE EXISTING PAVEMENT MARKINGS THAT ARE IN CONFLICT WITH PROPOSED PAVEMENT MARKINGS AND AS NOTED ON PLANS USING HYDROBLASTING.
26. ALL EXCAVATION AND DISPOSAL REQUIRED TO COMPLETE THE PROJECT AS SHOWN IN CONTRACT DOCUMENTS WILL BE CONSIDERED INCIDENTAL TO THE TOTAL CONTRACT OF BID PRICE
27. PRINCE GEORGE'S COUNTY, DEPARTMENT OF PERMITTING, INSPECTION & ENFORCEMENT STORMWATER MANAGEMENT CONCEPT APPROVAL CASE NO. 18558-2020-00
28. SEDIMENT CONTROL APPROVAL NUMBER: WAIVER
29. REMOVAL OF EXISTING SIGN, SIGN SUPPORT, AND INSTALLATION OF EXISTING SIGN ON NEW SUPPORT WILL BE CONSIDERED INCIDENTAL TO NEW SIGN SUPPORT.
30. REMOVAL OF EXISTING SIDEWALK AND ANY ADJACENT AREA NECESSARY TO CONSTRUCT NEW SIDEWALK WILL BE CONSIDERED INCIDENTAL TO NEW SIDEWALK.
31. REMOVAL OF EXISTING SIDEWALK AND DRIVEWAY AND ADJACENT AREA BEYOND THE LIMITS OF PROPOSED SIDEWALK AND DRIVEWAY WILL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OF PROPOSED SIDEWALK AND DRIVEWAY.

MAINTENANCE OF TRAFFIC NOTES:

1. ALL STANDARD REGULATORY AND WARNING SIGNS USED FOR MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MD MUTCD 2011 EDITION) AND MARYLAND EDITION OF THE STANDARD SIGN BOOK REVISED 2009 & ANY REVISIONS THEREAFTER.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE MOST RECENT STANDARDS SECTION 104 AND THE MUTCD.
3. NO WORK IS TO BEGIN UNTIL ALL ADVANCED WARNING SIGNS, DRUMS AND ARROW PANELS ARE IN PLACE AND OPERATIONAL.
4. TWO-WAY TRAFFIC SHALL BE MAINTAINED ALL THE TIME
5. ADVANCED NOTIFICATION OF SIDEWALK CLOSURE SHALL BE PROVIDED, A BARRIER THAT IS DETECTABLE BY A PERSON WITH VISUAL DISABILITY SHALL BE PLACED ACROSS THE FULL WIDTH OF THE CLOSED SIDEWALK.
6. TRAFFIC CONTROL DEVICES AND OTHER CONSTRUCTION MATERIALS AND FEATURES SHALL NOT INTRUDE ONTO THE USABLE WIDTH OF THE SIDEWALK, TEMPORARY PATHWAY OR OTHER PEDESTRIAN FACILITY.
7. MAINTENANCE OF TRAFFIC WILL NOT BE MEASURED AND PAID SEPARATELY, BUT THE COST WILL BE CONSIDERED INCIDENTAL TO TOTAL BID PRICE OF THE PROJECT.

E&S NOTES :

1. CONSTRUCTION SHALL BE PERFORMED SUCH THAT THE WORK AREA OF DISTURBANCE CAN BE STABILIZED AT THE END OF EACH WORKING DAY. ADDITIONALLY, NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
2. SEDIMENT AND EROSION CONTROL REGULATIONS SHALL BE STRICTLY ENFORCED DURING CONSTRUCTION.
3. EROSION AND SEDIMENT CONTROL WILL NOT BE MEASURED AND PAID SEPARATELY, BUT THE COST WILL BE CONSIDERED INCIDENTAL TO TOTAL BID PRICE OF THE PROJECT.

SEQUENCE OF CONSTRUCTION:

1. DURING OFF-PEAK HOURS, WHILE MAINTAINING TWO-WAY TRAFFIC AND USING APPROPRIATE TRAFFIC CONTROL STD. PERFORM SIDEWALK CONSTRUCTION.

Mead & Hunt

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STATE OF MARYLAND
SHASHIKANT B. PATEL
No. 33939
PROFESSIONAL ENGINEER

TOWN OF RIVERDALE PARK

GENERAL NOTES

48TH AVENUE SIDEWALK IMPROVEMENTS
BETWEEN RIVERDALE ROAD AND NICHOLSON STREET

SCALE N.T.S. DATE AUGUST 25, 2021

DESIGNED BY JAM
DRAWN BY JAM
CHECKED BY PL

COUNTY PRINCE GEORGE'S
SHEET NO. 2 OF 10
DRAWING NO. GN-01 OF GN-01

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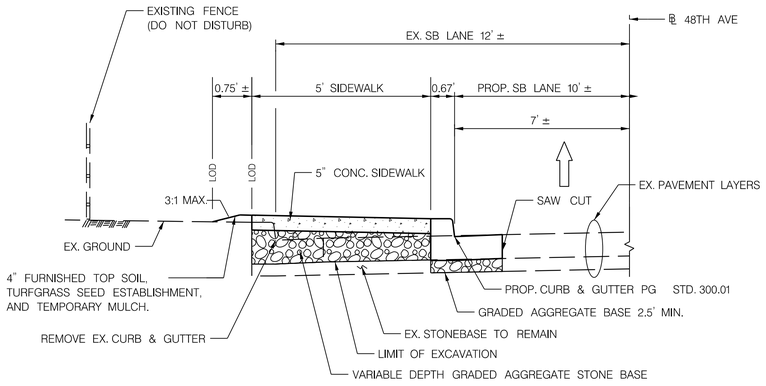
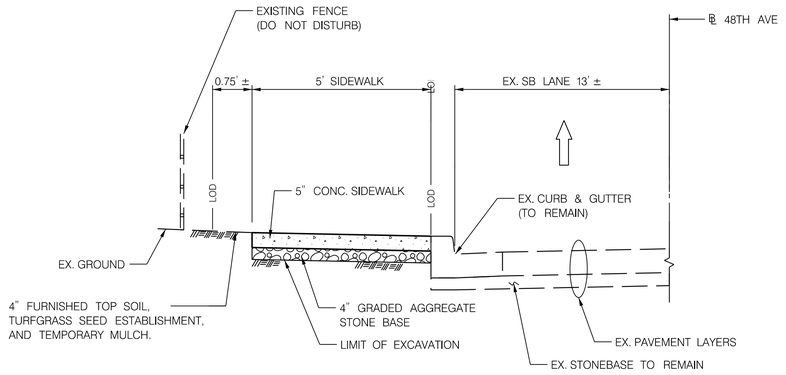
8/25/2021



48th AVE TYPICAL SECTION 1 (Bump Out)

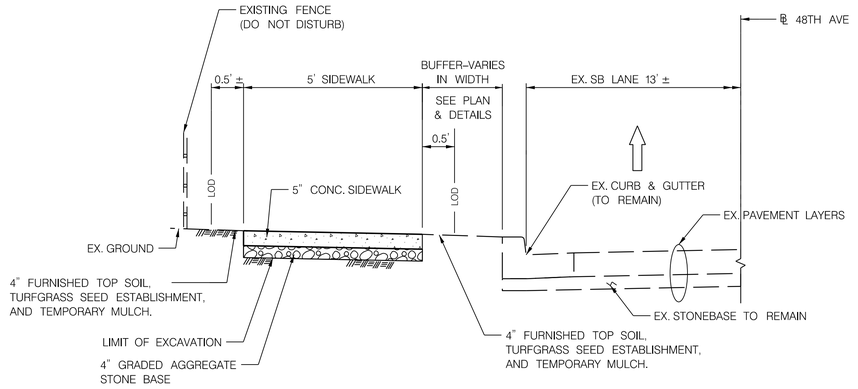
STATION 16+87 TO 18+27



48th AVE TYPICAL SECTION 2

STATION 14+30 TO 16+13

STATION 18+27 TO 18+46 & 19+02 TO 20+58

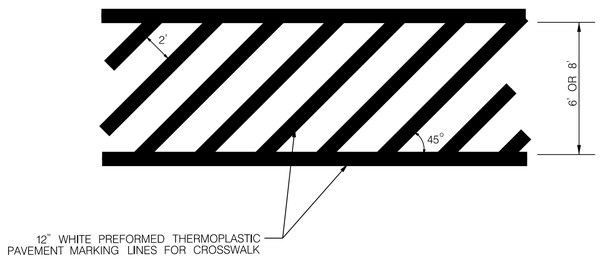


48th AVE TYPICAL SECTION 3

STATION 12+14 TO 14+02

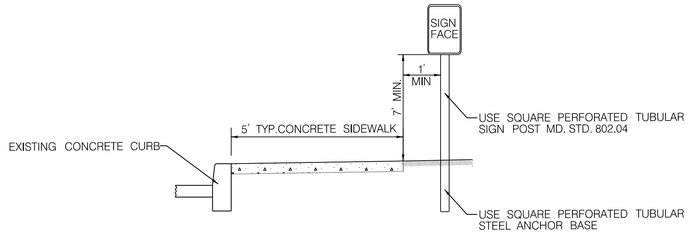
STATION 18+46 TO 19+02

STATION 20+58 TO 21+13



TYPICAL CROSSWALK DETAIL

NOT TO SCALE



SIGN INSTALLATION /RELOCATION DETAIL

NOT TO SCALE

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STATE OF MARYLAND
SHASHIKANT B. PATEL
No. 39559
PROFESSIONAL ENGINEER

TOWN OF RIVERDALE PARK

TYPICAL SECTIONS

48TH AVENUE SIDEWALK IMPROVEMENTS
BETWEEN RIVERDALE ROAD AND NICHOLSON STREET

SCALE N.T.S. DATE AUGUST 25, 2021

DESIGNED BY JAM COUNTY PRINCE GEORGE'S

DRAWN BY JAM SHEET NO. 3 OF 10

CHECKED BY PL DRAWING NO. HT-01 OF HT-01

R:\2019\58 Riverdale On-Call Engineering Services\Task 01 Sidewalk Design 48th St\UMO\Print Files\pHT-0000_48th_Ave.dgn
8/25/2021

5" CONCRETE SIDEWALK (PG. STD. 300.05)	
78 SF	48TH AVE - 12+14, RT. TO 12+31, RT.
710 SF	48TH AVE - 12+68, RT. TO 14+00, RT.
691 SF	48TH AVE - 14+31, RT. TO 15+65, RT.
95 SF	48TH AVE - 15+84, RT. TO 16+00, RT.

DETECTABLE WARNING SURFACE (STD. NO. MD. 655.40) YELLOW	
22 SF	48TH AVE - 13+95, RT.
17 SF	48TH AVE - 14+34, RT.

TYPE A CURB ANY HEIGHT OR DEPTH	
7 LF	48TH AVE - 13+83, RT. TO 13+90, RT.
17 LF	48TH AVE - 13+83, RT. TO 13+93, RT.
7 LF	48TH AVE - 13+98, RT. TO 14+00, RT.
18 LF	48TH AVE - 14+31, RT. TO 14+46, RT.

CONCRETE CURB & GUTTER (16 INCH GUTTER PAN) STD. 300.01	
33 LF	48TH AVE - 13+78, RT. TO 14+03, RT.
63 LF	48TH AVE - 14+28, RT. TO 14+69, RT.
20 LF	48TH AVE - 15+64, RT. TO 15+84, RT.

TWELVE INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS	
167 LF	48TH AVE - 13+94, RT. TO 14+35, RT.
132 LF	48TH AVE - 14+29, RT. TO 14+38, RT.

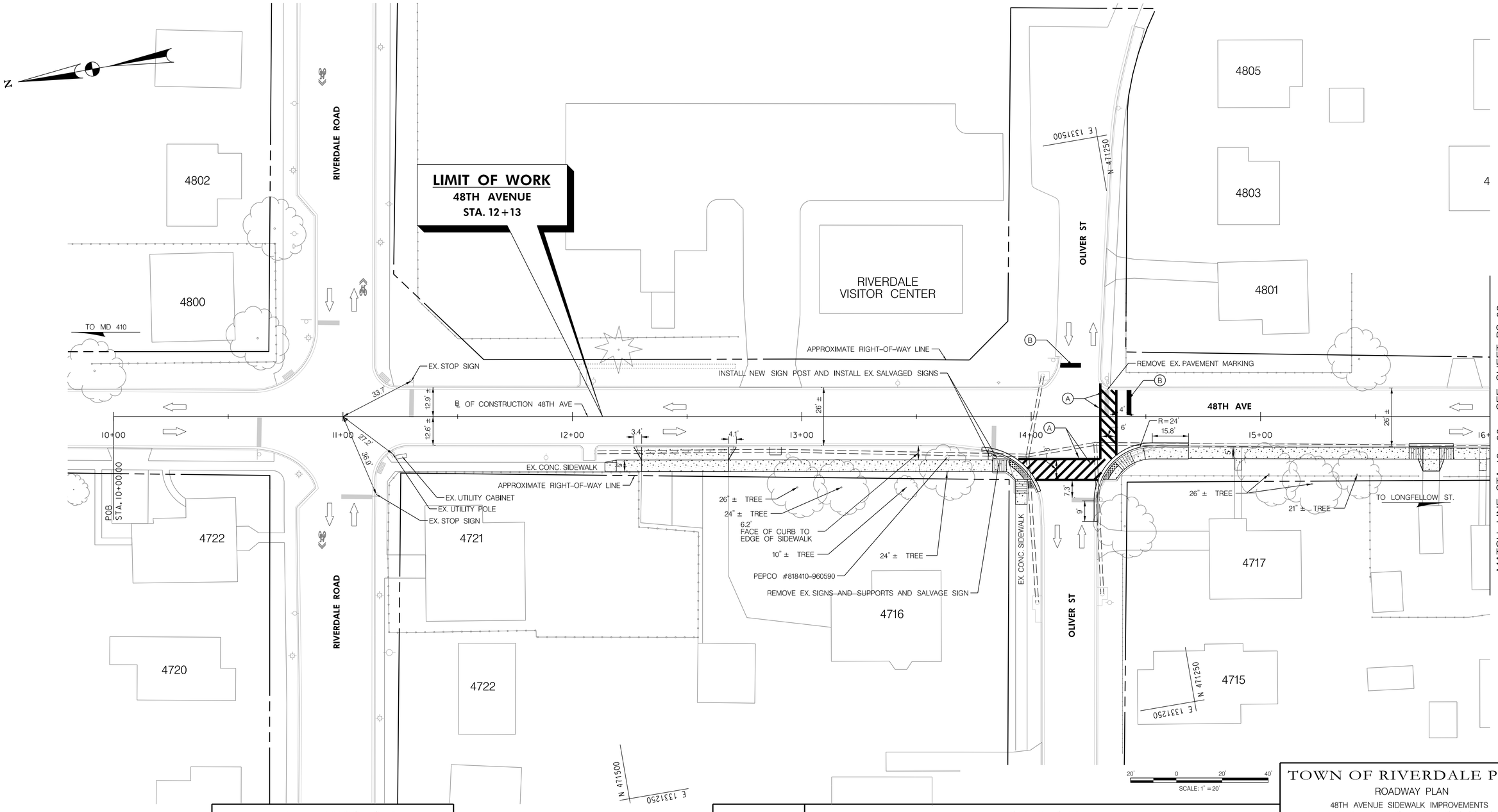
REMOVAL OF EXISTING PAVEMENT MARKING LINES, ANY WIDTH	
11 LF	48TH AVE - 14+33, RT. TO 14+33, RT.

TWENTY FOUR INCH (24") WIDE THERMOPLASTIC STOP BAR	
11 LF	48TH AVE - 14+42, LT. TO 14+42, LT.
9 LF	48TH AVE - 14+13, LT. TO 14+22, LT.

REMOVE AND REPLACE RESIDENTIAL DRIVEWAY ENTRANCE	
48 SY	48TH AVE - 12+48, RT. PG. STD. 200.01
16 SY	48TH AVE - 15+74, RT. PG. STD. 200.02

SQUARE PERFORATED TUBULAR STEEL SIGN POST	
1 EA	48TH AVE - 13+82, RT.
1 EA	48TH AVE - 13+84, RT.

SQUARE TUBULAR STEEL ANCHOR BASES	
1 EA	48TH AVE - 13+82, RT.
1 EA	48TH AVE - 13+84, RT.



PAVEMENT MARKING LEGEND	
(A)	12 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS
(B)	24 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS

ROADWAY LEGEND			
DETECTABLE WARNING SURFACE	TRAFFIC FLOW	PAVEMENT/SIDEWALK REMOVAL	
	EX. STORM DRAIN PIPE	PROPOSED SIDEWALK	
	LOD LIMIT OF DISTURBANCE	PROPOSED CURB & GUTTER	

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STATE OF MARYLAND
JAMES ANTHONY MEYER
PROFESSIONAL ENGINEER

TOWN OF RIVERDALE PARK

ROADWAY PLAN

48TH AVENUE SIDEWALK IMPROVEMENTS
BETWEEN RIVERDALE ROAD AND NICHOLSON STREET

SCALE 1"=20' DATE AUGUST 25, 2021

DESIGNED BY JAM
DRAWN BY JAM
CHECKED BY PL

COUNTY PRINCE GEORGE'S
SHEET NO. 4 OF 10
DRAWING NO. PS-01 OF PS-02

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8/25/2021

5" CONCRETE SIDEWALK

392 SF	48TH AVE - 16+00, RT. TO 16+63, RT.
140 SF	48TH AVE - 16+88, RT. TO 17+09, RT.
390 SF	48TH AVE - 17+29, RT. TO 18+01, RT.
220 SF	48TH AVE - 18+20, RT. TO 18+60, RT.
60 SF	48TH AVE - 18+67, RT. TO 18+80, RT.
214 SF	48TH AVE - 18+88, RT. TO 19+26, RT.
214 SF	48TH AVE - 19+46, RT. TO 19+85, RT.
454 SF	48TH AVE - 20+05, RT. TO 20+91, RT.
133 SF	48TH AVE - 20+99, RT. TO 21+11, RT.

DETECTABLE WARNING SURFACE (STD. NO. MD. 655.40) YELLOW

18 SF	48TH AVE - 16+58, RT.
13 SF	48TH AVE - 16+90, RT.
20 SF	48TH AVE - 21+07, RT.

TYPE A CURB ANY HEIGHT OR DEPTH

17 LF	48TH AVE - 16+46, RT. TO 16+57, RT.
17 LF	48TH AVE - 16+88, RT. TO 16+99, RT.
33 LF	48TH AVE - 19+53, RT. TO 19+89, RT.
2 LF	48TH AVE - 20+88, RT. TO 20+90, RT.
2 LF	48TH AVE - 20+88, RT. TO 20+90, RT.
6 LF	48TH AVE - 20+99, RT. TO 21+03, RT.
9 LF	48TH AVE - 21+08, RT. TO 21+08, RT.
8 LF	48TH AVE - 21+08, RT. TO 21+11, RT.

CONCRETE CURB & GUTTER (16 INCH GUTTER PAN) STD. 300.01

25 LF	48TH AVE - 16+48, RT. TO 16+64, RT.
161 LF	48TH AVE - 16+67, RT. TO 18+29, RT.
42 LF	48TH AVE - 18+53, RT. TO 18+95, RT.
20 LF	48TH AVE - 19+26, RT. TO 19+46, RT.
21 LF	48TH AVE - 19+84, RT. TO 20+05, RT.
34 LF	48TH AVE - 20+84, RT. TO 21+13, RT.

TWENTY FOUR INCH (24") WIDE THERMOPLASTIC STOP BAR

13 LF	48TH AVE - 17+05, LT. TO 17+05, LT.
13 LF	48TH AVE - 14+26, RT. TO 14+39, RT.
13 LF	48TH AVE - 21+61, RT. TO 21+61, RT.

TWELVE INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS

136 LF	48TH AVE - 16+57, RT. TO 16+90, RT.
134 LF	48TH AVE - 21+02, RT. TO 21+11, LT/RT.
149 LF	48TH AVE - 21+08, RT. TO 21+49, RT.
145 LF	48TH AVE - 21+10, RT. TO 21+48, LT.
115 LF	48TH AVE - 21+47, RT. TO 21+56, LT/RT.

REMOVE AND REPLACE RESIDENTIAL DRIVEWAY ENTRANCE

24 SY	48TH AVE - 17+19, RT. PG. STD. 200.02
25 SY	48TH AVE - 18+10, RT. PG. STD. 200.02
14 SY	48TH AVE - 18+64, RT. PG. STD. 200.01
15 SY	48TH AVE - 18+85, RT. PG. STD. 200.01
24 SY	48TH AVE - 19+36, RT. PG. STD. 200.02
17 SY	48TH AVE - 19+95, RT. PG. STD. 200.02
18 SY	48TH AVE - 20+95, RT. PG. STD. 200.01

SQUARE PERFORATED TUBULAR STEEL SIGN POST

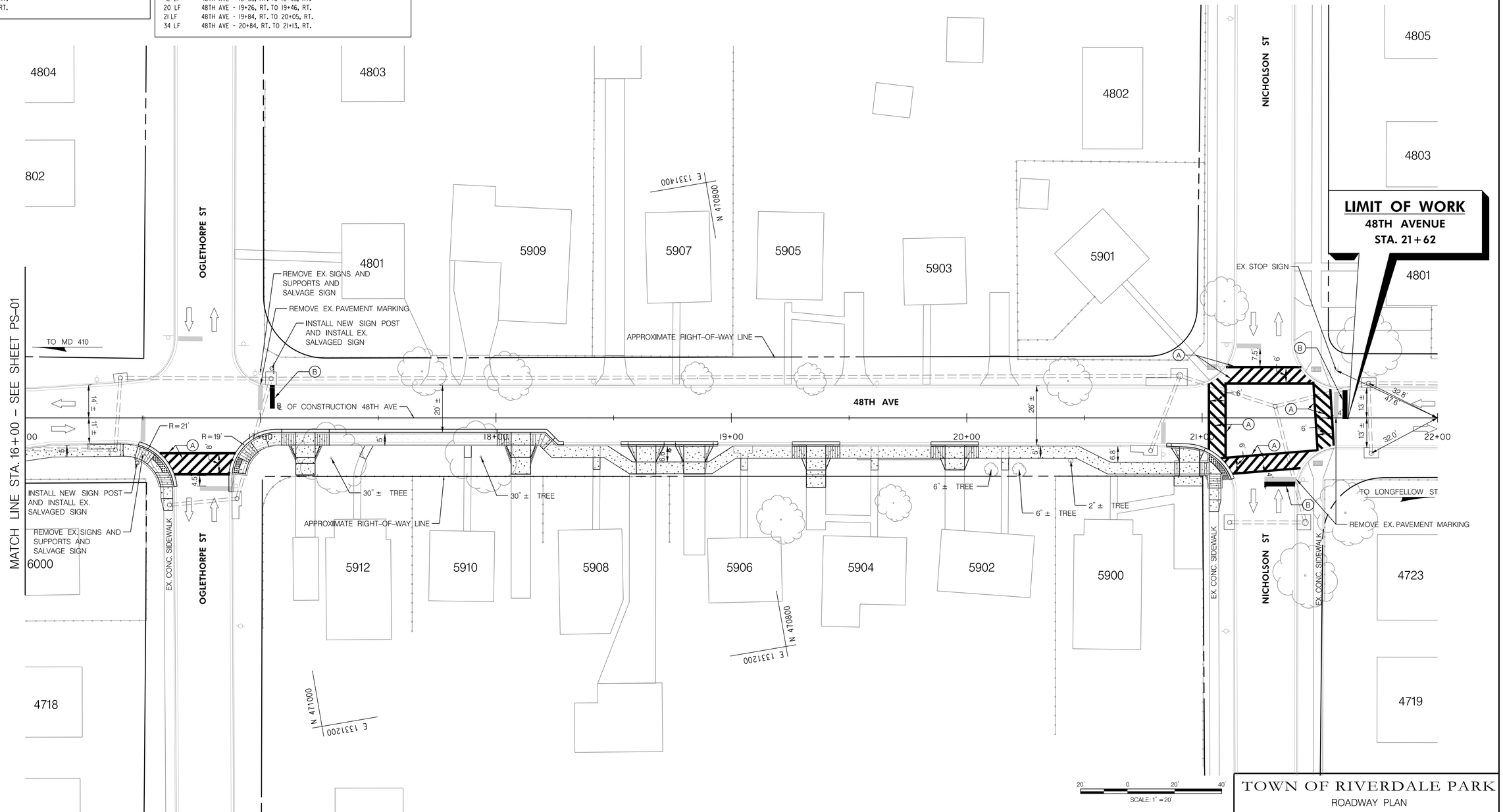
1 EA	48TH AVE - 16+48, RT.
1 EA	48TH AVE - 17+05, RT.

SQUARE TUBULAR STEEL ANCHOR BASES

1 EA	48TH AVE - 16+48, RT.
1 EA	48TH AVE - 17+05, RT.

PAVEMENT MARKING REMOVAL

14 LF	48TH AVE - 21+26 RT TO 21+40, RT.
11 LF	48TH AVE - 21+61, LT. TO 21+61, LT.
11 LF	48TH AVE - 17+00, LT. TO 17+00, LT.



PAVEMENT MARKING LEGEND

Ⓐ 12 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS

Ⓑ 24 INCH WHITE THERMOPLASTIC PAVEMENT MARKINGS

ROADWAY LEGEND

- DETECTABLE WARNING SURFACE
- TRAFFIC FLOW
- EX. STORM DRAIN PIPE
- LOD LIMIT OF DISTURBANCE
- PAVEMENT/SIDEWALK REMOVAL
- PROPOSED SIDEWALK
- PROPOSED CURB & GUTTER

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STATE OF MARYLAND — SHASHIKANT B. PATEL — No. 39931 — PROFESSIONAL ENGINEER

TOWN OF RIVERDALE PARK

ROADWAY PLAN

48TH AVENUE SIDEWALK IMPROVEMENTS
BETWEEN RIVERDALE ROAD AND NICHOLSON STREET

SCALE 1" = 20' DATE AUGUST 25, 2021

DESIGNED BY JAM
DRAWN BY JAM
CHECKED BY PL

COUNTY PRINCE GEORGE'S
SHEET NO. 5 OF 10
DRAWING NO. PS-02 OF PS-02

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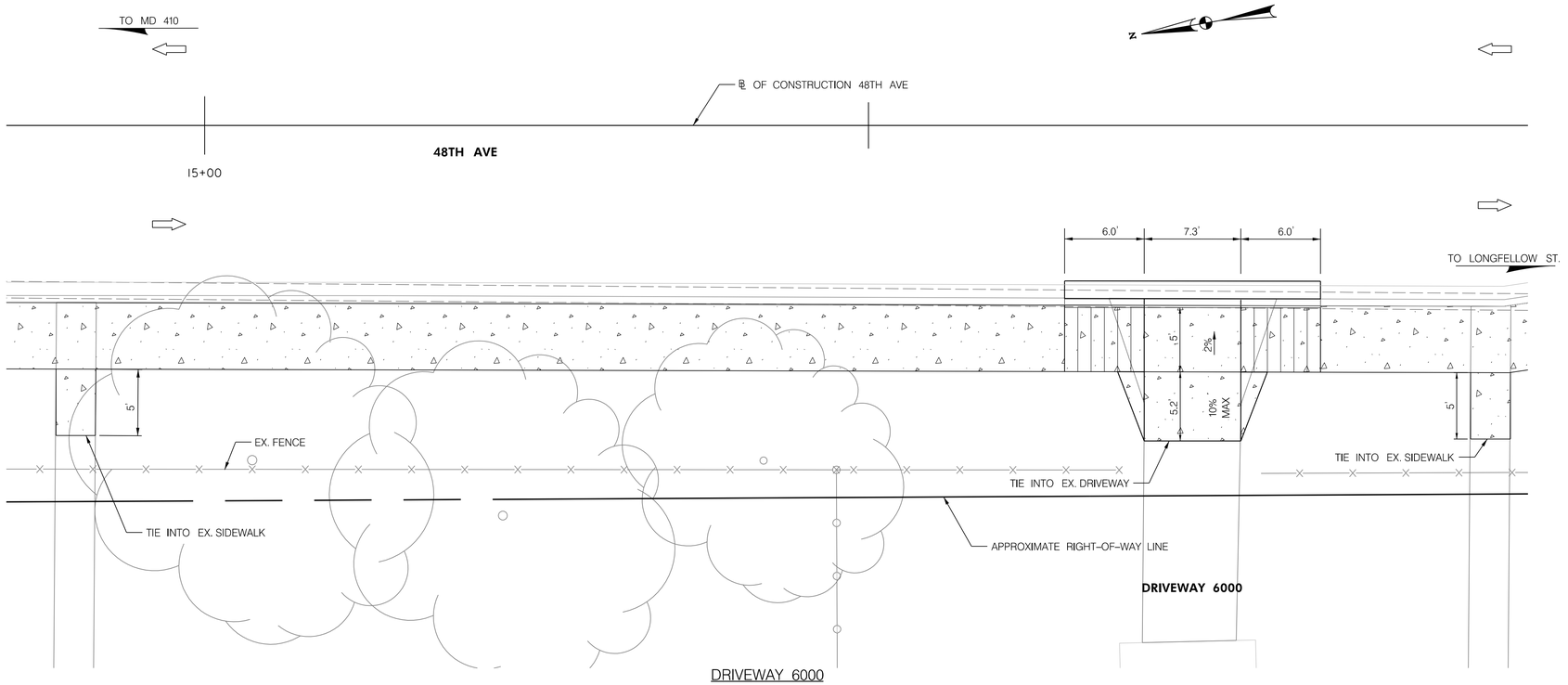
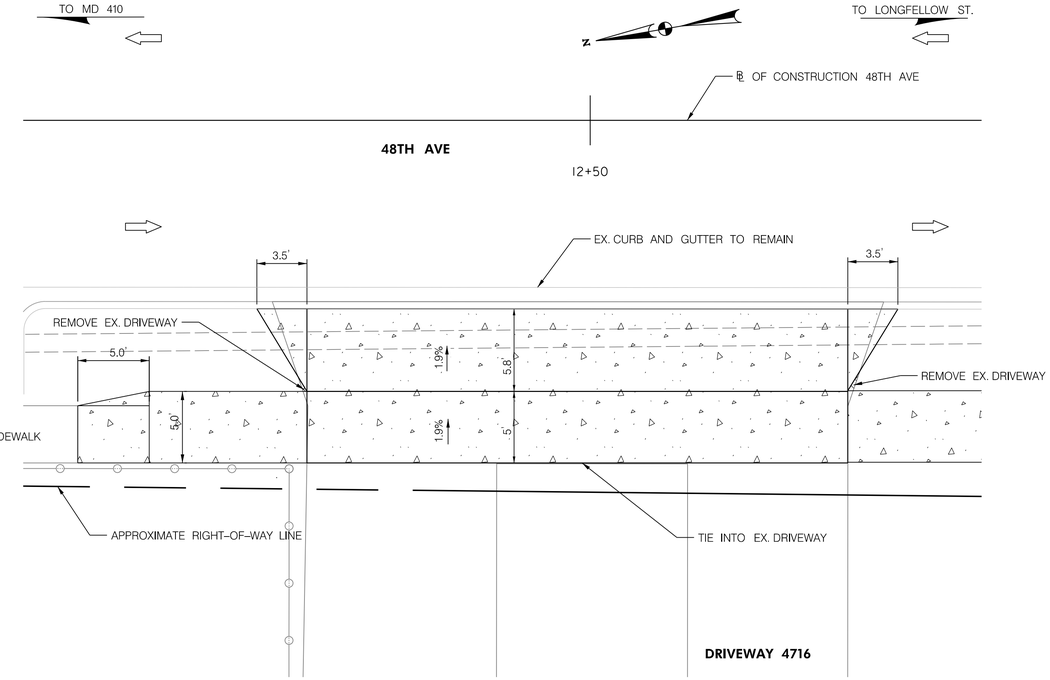
8/25/2021

NOTES:

1. RECONSTRUCT CURB & GUTTER AND SIDEWALK RAMPS AS NECESSARY TO ACHIEVE 2% MAXIMUM LATERAL CROSS SLOPE.
2. CONTRACTOR'S RESPONSIBILITY TO TRANSITION THE PROPOSED CONCRETE CROSS SLOPE, TO TIE INTO EXISTING PEDESTRIAN FACILITY.



DRIVEWAY 6000



DRIVEWAY 4716

5' 0 5' 10'
SCALE: 1" = 5'

TOWN OF RIVERDALE PARK

DRIVEWAY & SIDEWALK RAMP DETAILS

48TH AVENUE SIDEWALK IMPROVEMENTS
BETWEEN RIVERDALE ROAD AND NICHOLSON STREET

SCALE 1"=5' DATE AUGUST 25, 2021

DESIGNED BY JAM
DRAWN BY JAM
CHECKED BY PL

COUNTY PRINCE GEORGE'S
SHEET NO. 6 OF 10
DRAWING NO. DE-01 OF DE-04

STATE OF MARYLAND
SHASHIKANT B. PATEL
No. 33939
PROFESSIONAL ENGINEER

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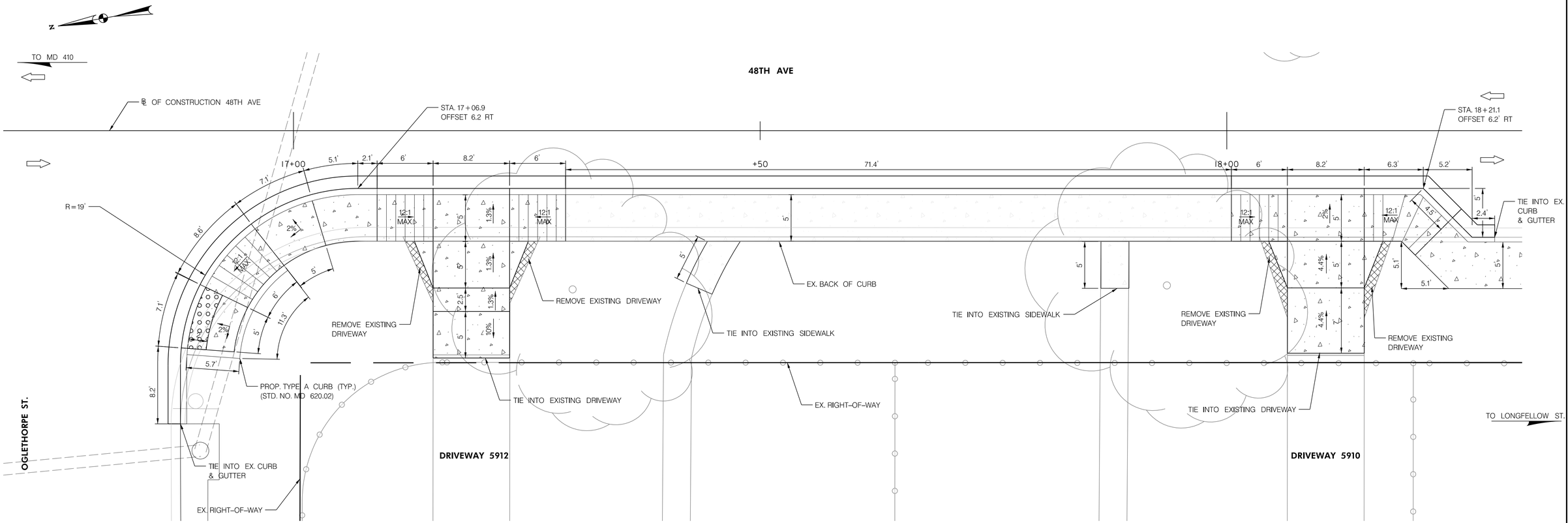
8/25/2021

NOTES:

1. RECONSTRUCT CURB & GUTTER AND SIDEWALK RAMPS AS NECESSARY TO ACHIEVE 2% MAXIMUM LATERAL CROSS SLOPE.
2. CONTRACTOR'S RESPONSIBILITY TO TRANSITION THE PROPOSED CONCRETE CROSS SLOPE, TO TIE INTO EXISTING PEDESTRIAN FACILITY.



DRIVEWAYS 5912 & 5910

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5' 0 5' 10'
SCALE: 1" = 5'

STATE OF MARYLAND
SHASHIKANT B. PATEL
No. 33939
PROFESSIONAL ENGINEER
Dated

TOWN OF RIVERDALE PARK

DRIVEWAY & SIDEWALK RAMP DETAILS

48TH AVENUE SIDEWALK IMPROVEMENTS
BETWEEN RIVERDALE ROAD AND NICHOLSON STREET

SCALE 1" = 5' DATE AUGUST 25, 2021

DESIGNED BY JAM COUNTY PRINCE GEORGE'S
DRAWN BY JAM SHEET NO. 7 OF 10
CHECKED BY PL DRAWING NO. DE-02 OF DE-04

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8/25/2021

NOTES:

1. RECONSTRUCT CURB & GUTTER AND SIDEWALK RAMPS AS NECESSARY TO ACHIEVE 2% MAXIMUM LATERAL CROSS SLOPE.
2. CONTRACTOR'S RESPONSIBILITY TO TRANSITION THE PROPOSED CONCRETE CROSS SLOPE, TO TIE INTO EXISTING PEDESTRIAN FACILITY.

N

TO MD 410

48TH AVE

℄ OF CONSTRUCTION 48TH AVE

TIE INTO EXISTING CURB & GUTTER

+50

19+00

+50

20+00

TIE INTO EXISTING CURB & GUTTER

TIE INTO EXISTING CURB & GUTTER

TIE INTO EXISTING CURB & GUTTER

TIE INTO EXISTING CURB & GUTTER

10.6'
5.7' 3' 3.5' 8.3' 3.5' 4.8' 3.5' 9' 3.5' 2' 6.5'
10.5'

6' 8.2' 6'

6' 8.2' 6'

REMOVE EXISTING DRIVEWAY

REMOVE EXISTING DRIVEWAY

PROP. TYPE A CURB (TYP.) (STD. NO. MD 620.02)

5.7' 2' 26.6'

TIE INTO EXISTING SIDEWALK

TIE INTO EXISTING DRIVEWAY

TIE INTO EXISTING DRIVEWAY

TIE INTO EXISTING SIDEWALK

EX. RIGHT-OF-WAY

TIE INTO EXISTING DRIVEWAY

TIE INTO EXISTING SIDEWALK

TIE INTO EXISTING DRIVEWAY

DRIVEWAY 5908

DRIVEWAY 5906

DRIVEWAY 5904

DRIVEWAY 5902

DRIVEWAYS 5908, 5906, 5904, & 5902

TO LONGFELLOW ST.

5' 0 5' 10'
SCALE: 1" = 5'

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STATE OF MARYLAND
SHASHIKANT B. PATEL
No. 33939
PROFESSIONAL ENGINEER

TOWN OF RIVERDALE PARK

DRIVEWAY & SIDEWALK RAMP DETAILS

48TH AVENUE SIDEWALK IMPROVEMENTS
BETWEEN RIVERDALE ROAD AND NICHOLSON STREET

SCALE 1"=5' DATE AUGUST 25, 2021

DESIGNED BY JAM COUNTY PRINCE GEORGE'S
DRAWN BY JAM SHEET NO. 8 OF 10
CHECKED BY PL DRAWING NO. DE-03 OF DE-04

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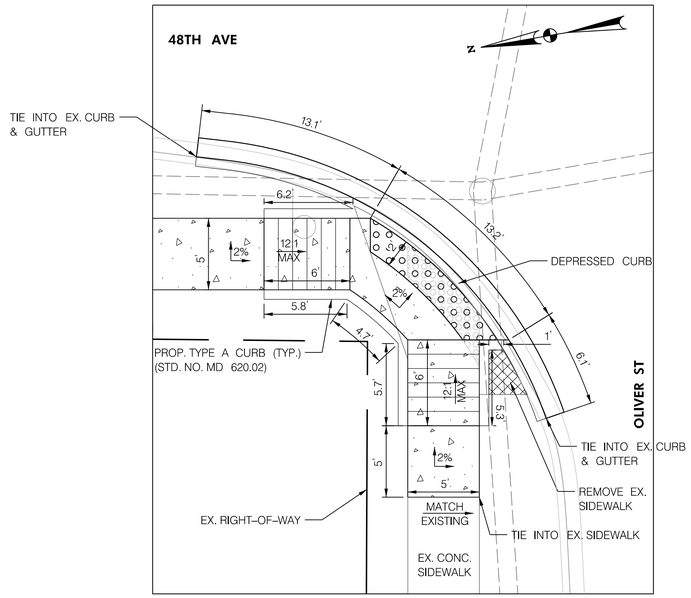
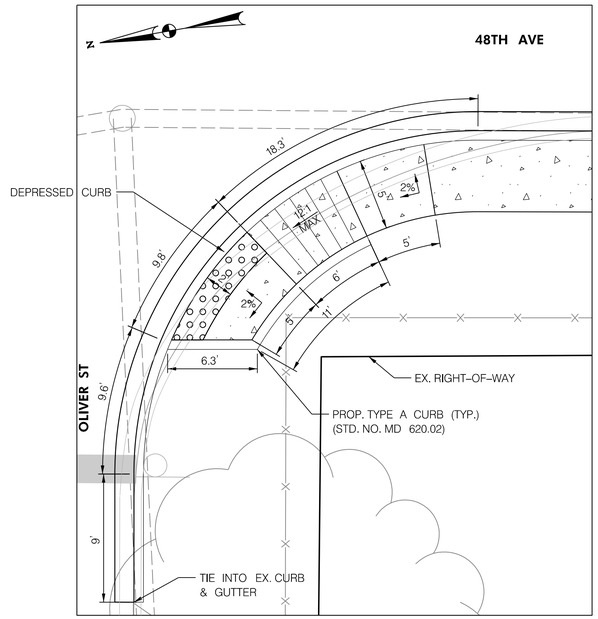
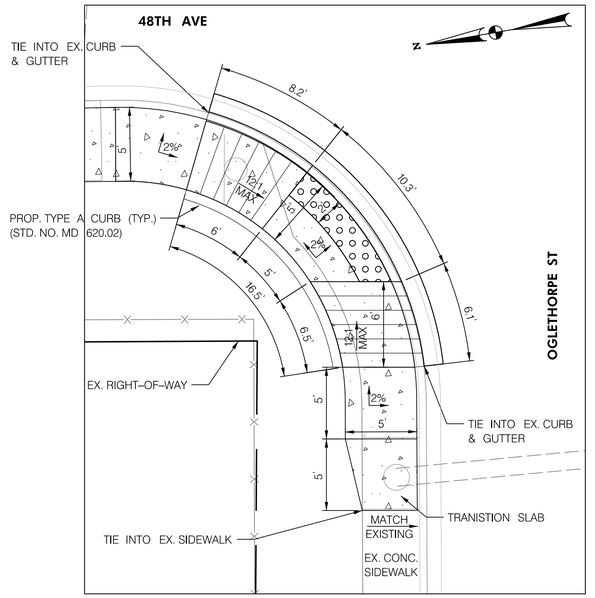


CURB RAMP STATION 13+96, RT



CURB RAMP STATION 14+35, RT



CURB RAMP STATION 16+58, RT

CURB RAMP STATION 21+07, RT & DRIVEWAY 5900

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5' 0 5' 10'
SCALE: 1" = 5'

STATE OF MARYLAND · SHASHIKANT G. PATEL · No. 33939 · PROFESSIONAL ENGINEER

TOWN OF RIVERDALE PARK

DRIVEWAY & SIDEWALK RAMP DETAILS

48TH AVENUE SIDEWALK IMPROVEMENTS
BETWEEN RIVERDALE ROAD AND NICHOLSON STREET

SCALE 1"=5' DATE AUGUST 25, 2021

DESIGNED BY JAM COUNTY PRINCE GEORGE'S
DRAWN BY JAM SHEET NO. 9 OF 10
CHECKED BY PL DRAWING NO. DE-04 OF DE-04

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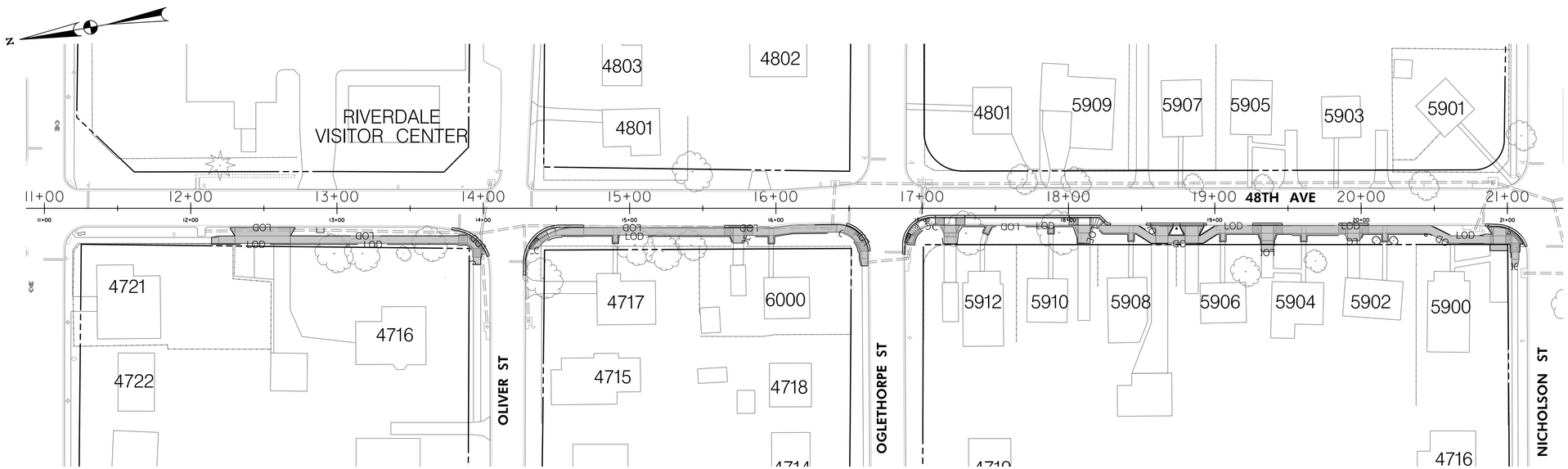
8/25/2021



DAILY STABILIZATION NOTES

1. ALL DISTURBED AREAS THAT DO NOT DRAIN TO AN APPROVED SEDIMENT CONTROL DEVICE MUST BE STABILIZED AT THE END OF THE WORKDAY.

2. ANY SEDIMENT OR TRACKED MUD MUST BE REMOVED AND/OR SWEPT TO KEEP ROADWAY CLEAN.

SOIL EROSION AND SEDIMENT CONTROL GENERAL NOTES:

A. THE DEVELOPER IS RESPONSIBLE FOR THE ACQUISITION OF ALL REQUIRED EASEMENT, RIGHT AND/OR RIGHTS-OF-WAY PURSUANT TO THE DISCHARGE FROM THE EROSION AND SEDIMENT CONTROL PRACTICES, STORMWATER MANAGEMENT PRACTICES AND THE DISCHARGE OF STORMWATER ONTO OR ACROSS AND GRADING OR OTHER WORK TO BE PERFORMED ON ADJACENT OR DOWNSTREAM PROPERTIES AFFECTED BY THIS PLAN.

B. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1) AND B) SEVEN (7) CALENDAR DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE, THE IN-PLACE SEDIMENT CONTROL MEASURES WILL BE MAINTAINED ON A CONTINUING BASIS UNTIL THE SITE IS PERMANENTLY STABILIZED AND ALL PERMIT REQUIREMENTS ARE MET.

C. THE OWNER/DEVELOPER OR REPRESENTATIVE SHALL REQUEST THAT THE INSPECTION AUTHORITY APPROVE WORK COMPLETED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN, THE GRADING OR BUILDING PERMIT AND SHALL OBTAIN WRITTEN INSPECTION APPROVALS BY THE INSPECTOR AT THE FOLLOWING STAGES IN THE DEVELOPMENT OF THE SITE:

1. PRIOR TO THE START OF EARTH DISTURBANCE;

2. UPON COMPLETION OF INSTALLATION OF TREE PROTECTION DEVICES, FOLLOWEDBY THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, PRIOR TO PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZEDUNTIL INITIAL APPROVAL BY THE INSPECTOR IS MADE;

3. UPON COMPLETION OF STRIPPING, THE STOCKPILING OF TOPSOIL, THE CONSTRUCTION OF TEMPORARY SEDIMENT AND EROSION CONTROL FACILITIES, DISPOSAL OF ALL WASTE MATERIAL AND PREPARATION OF THE GROUND;

4. UPON COMPLETION OF ROUGH GRADING, BUT PRIOR TO PLACING TOPSOIL, PERMANENT DRAINAGE OR OTHER SITE DEVELOPMENT IMPROVEMENTS AND GROUND COVERS;

5. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OFANOTHER GRADING UNIT;

6. PRIOR TO THE REMOVAL OF SEDIMENT CONTROL PRACTICES; AND

7. UPON COMPLETION OF FINAL GRADING, REFORESTING, PERMANENT DRAINAGEAND EROSION CONTROL FACILITIES INCLUDING ESTABLISHED GROUND COVERS AND PLANTING, AND ALL OTHER WORK OF THE BUILDING PERMITS.

D. APPROVAL SHALL BE REQUESTED UPON FINAL STABILIZATION OF ALL SITES WITH DISTURBED AREAS IN EXCESS OF TWO ACRES BEFORE REMOVAL OF CONTROLS.

E. ALL PERMITS UNDER AN EROSION AND SEDIMENT CONTROL PLAN MUST AND CAN ONLYBE ISSUED TO THE OWNER/DEVELOPER THAT SIGNS THE CERTIFICATION ON THE PLAN. THE OWNER/DEVELOPER THAT SIGNS THE CERTIFICATION ON AN EROSION AND SEDIMENT CONTROL PLAN IS THE RESPONSIBLE PARTY REGARDLESS OF ANY SALE OF THE PROPERTY OR WORK OF SUBCONTRACTORS. EROSION AND SEDIMENT CONTROL PLANS ARE APPROVED FOR ONE OWNER/DEVELOPER ONLY.

F. PGSCD APPROVAL OF A EROSION AND SEDIMENT CONTROL PLAN, PURSUANT TO MEETING LOCAL PERMIT REQUIREMENTS FOR GRADING, BUILDING OR STREET PERMITS, ETC., IS VALID ONLY WHEN THE WORK TO BE PERFORMED UNDER THE PERMIT IS THE SAME AS (NO MORE/NO LESS THAN) THAT CONTAINED IN THE PLAN AS APPROVED BY THE PGSCD.

G ANY CHANGES OR MODIFICATIONS TO AN APPROVED EROSION AND SEDIMENT CONTROL PLAN, NOT APPROVED BY THE PGSCD, SHALL INVALIDATE THE PLAN APPROVAL.

H. OFFSITE BORROW OR SPOIL AREAS MUST HAVE AN APPROVED AND ACTIVE EROSION AND SEDIMENT CONTROL PLAN.

I. TEMPORARY DESIGNED SEDIMENT BASINS SHALL BE REMOVED WITHIN 36 MONTHS AFTER THE BEGINNING OF CONSTRUCTION OF THE BASIN.

SITE INFORMATION

A. TOTAL AREA DISTURBED	0.11	ACRES
B. TOTAL CUT	82.75	CU. YDS.
C. TOTAL FILL	0	CU. YDS.
D. OFFSITE WASTE/BORROW AREA LOCATION (IF KNOWN)	N/A	

OWNER'S/DEVELOPER'S INFORMATION

Name of company: Town of Riverdale Park
Name of contact person: John N. Lestitian
Address: 5008 Queensbury Road, Riverdale Park, MD, 20737
Phone number: 301-927-6831

P.E. 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

NAME SHASHIKANT PATEL, PE DATE 6/19/2020
LICENSE NO. 33339

STATE OF MARYLAND · SHASHIKANT B. PATEL · No. 33339 · PROFESSIONAL ENGINEER

LEGENDS

SAME DAY STABILIZATION

LOD — LIMIT OF DISTURBANCE

Mead & Hunt

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WWW.MEADHUNT.COM

TOWN OF RIVERDALE PARK

EROSION AND SEDIMENT CONTROL PLAN

48TH AVENUE SIDEWALK IMPROVEMENTS
BETWEEN RIVERDALE ROAD AND NICHOLSON STREET

SCALE 1"=40' DATE AUGUST 25, 2021

DESIGNED BY LT
DRAWN BY LT
CHECKED BY SP
COUNTY PRINCE GEORGE'S
SHEET NO. 10 OF 10
DRAWING NO. ES-01 OF ES-01

R:\2019\59 Riverdale On-Call Engineering Services\Task 01 Sidewalk Design 48th St\DWG\ES\ES-P000_48th Ave.dgn
8/25/2020

DAILY STABILIZATION NOTES:

1. ALL DISTURBED AREAS THAT DO NOT DRAIN TO AN APPROVED SEDIMENT CONTROL DEVICE MUST BE STABILIZED AT THE END OF THE WORKDAY.

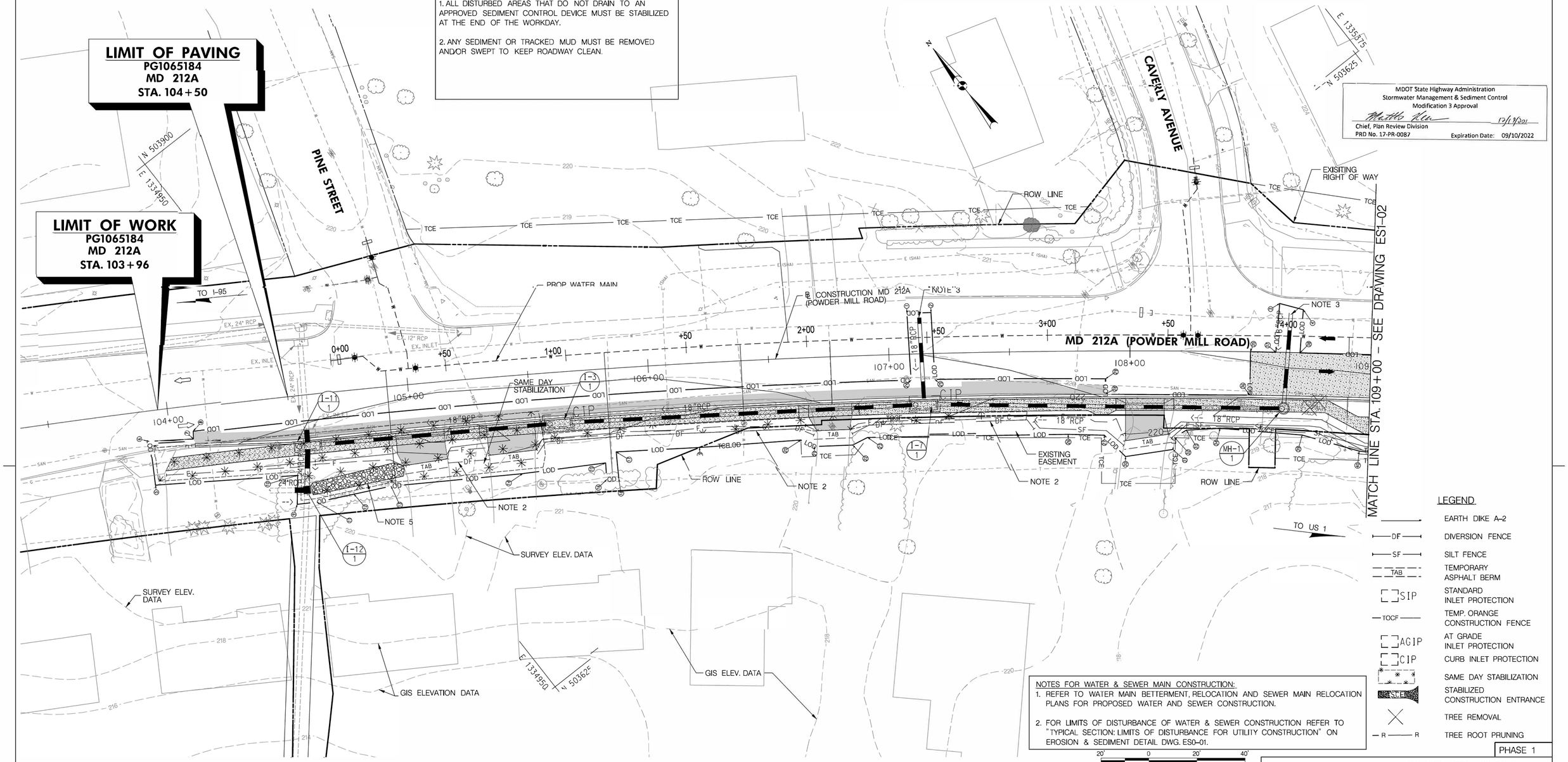
2. ANY SEDIMENT OR TRACKED MUD MUST BE REMOVED AND/OR SWEPT TO KEEP ROADWAY CLEAN.

LIMIT OF PAVING
PG1065184
MD 212A
STA. 104+50

LIMIT OF WORK
PG1065184
MD 212A
STA. 103+96

MDOT State Highway Administration
Stormwater Management & Sediment Control
Modification 3 Approval

Chief, Plan Review Division — 12/17/2020
PRD No. 17-PR-0087 — Expiration Date: 09/10/2022



LEGEND

- EARTH DIKE A–2
- DF — DIVERSION FENCE
- SF — SILT FENCE
- TAB — TEMPORARY ASPHALT BERM
- SIP — STANDARD INLET PROTECTION
- TOCF — TEMP. ORANGE CONSTRUCTION FENCE
- AGIP — AT GRADE INLET PROTECTION
- CIP — CURB INLET PROTECTION
- SCD — SAME DAY STABILIZATION
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- TREE REMOVAL
- R — R — TREE ROOT PRUNING

NOTES FOR WATER & SEWER MAIN CONSTRUCTION:
1. REFER TO WATER MAIN BETTERMENT, RELOCATION AND SEWER MAIN RELOCATION PLANS FOR PROPOSED WATER AND SEWER CONSTRUCTION.
2. FOR LIMITS OF DISTURBANCE OF WATER & SEWER CONSTRUCTION REFER TO "TYPICAL SECTION: LIMITS OF DISTURBANCE FOR UTILITY CONSTRUCTION" ON EROSION & SEDIMENT DETAIL DWG. ES0–01.

20' 0 20' 40'
SCALE: 1" = 20'

PHASE 1

DIVERSION FENCE						
QTY	STATION	OFFSET		STATION	OFFSET	DRAINAGE AREA
20 LF	105+31.4	33.9 ' RT	TO	105+13.9	33.9 ' RT	0.39 AC
120 LF	106+67.5	32.2 ' RT	TO	105+51.5	33.3 ' RT	0.28 AC
80 LF	107+59.8	32.1 ' RT	TO	106+83.6	32.2 ' RT	0.11 AC

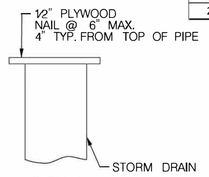
SILT FENCE					
QTY	STATION	OFFSET		STATION	OFFSET
40 LF	107+59.9	29.1 ' RT	TO	107+97.4	39.2 ' RT
180 LF	108+17.3	36.1 ' RT	TO	109+75.8	67.5 ' RT

INLET PROTECTION				
QTY	TYPE	STATION	OFFSET	DRAINAGE AREA
1 EA	CIP	105+61.2	20.7 ' RT	0.11
1 EA	CIP	107+14.3	20.8 ' RT	0.14

ORANGE CONSTRUCTION FENCE					
QTY	STATION	OFFSET		STATION	OFFSET
40 LF	104+45.3	3.8 ' LT	TO	104+84.4	2.7 ' RT
21 LF	106+92.2	28.9 ' RT	TO	107+12.5	28.6 ' RT
26 LF	108+47.0	31.6 ' RT	TO	108+73.6	33.2 ' RT
24 LF	108+91.6	38.4 ' RT	TO	109+15.5	41.5 ' RT

TEMPORARY ASPHALT BERM					
QTY	STATION	OFFSET		STATION	OFFSET
20 LF	104+95.2	35.1 ' RT	TO	105+13.9	33.9 ' RT
20 LF	105+31.4	33.9 ' RT	TO	105+51.5	33.3 ' RT
15 LF	106+67.5	32.2 ' RT	TO	106+83.6	32.2 ' RT
20 LF	107+97.4	39.2 ' RT	TO	108+17.3	36.1 ' RT

NOTES:
1. SEE SHEET ESN–2 FOR SEQUENCE OF CONSTRUCTION.
2. IMMEDIATELY STABILIZE AREAS UPSLOPE OF DIVERSION FENCE AFTER INSTALLATION.
3. BLOCK END OF PIPE UNTIL PHASE 2 CONSTRUCTION. SEE DETAIL 1 ON SHEET ES1–01
4. SEE DRAWINGS NO. TCP–01 THROUGH TCP–39 FOR MAINTENANCE OF TRAFFIC PLANS.
5. PROVIDE RIPRAP OUTFALL PROTECTION BETWEEN TEMPORARYASPHALT BERM AND INLET.
6. PORTABLE SEDIMENT TANK (PST) SHOULD BE USED IN THE EVENT DEWATERING BECOMES NECCESSARY.



DETAIL 1

LEGEND
- 5 FOOT CONCRETE SIDEWALK
- FULL DEPTH CONSTRUCTION – ASPHALT
- FULL DEPTH CONSTRUCTION – CONCRETE
- GRIND AND RESURFACE

REVISIONS

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MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

HIGHWAY HYDRAULICS DIVISION

MD 212A (POWDER MILL ROAD)
FROM PINE STREET TO
US 1 (BALTIMORE AVENUE)
URBAN RECONSTRUCTION PROJECT

EROSION AND SEDIMENT CONTROL PLAN

SCALE 1" = 20' ADVERTISED DATE 02/17/2020 CONTRACT NO. PG1065184

DESIGNED BY FL
DRAWN BY LT
CHECKED BY SP
MDE/PRD 19-SF-0704 /17-PR-0087

COUNTY PRINCE GEORGE'S
LOGMILE
HORIZONTAL SCALE
VERTICAL SCALE

DRAWING NO. ES1–01 OF 16

SHEET NO. 135 OF 238

BY: 02374 –

PLOTTED: 12/17/2019

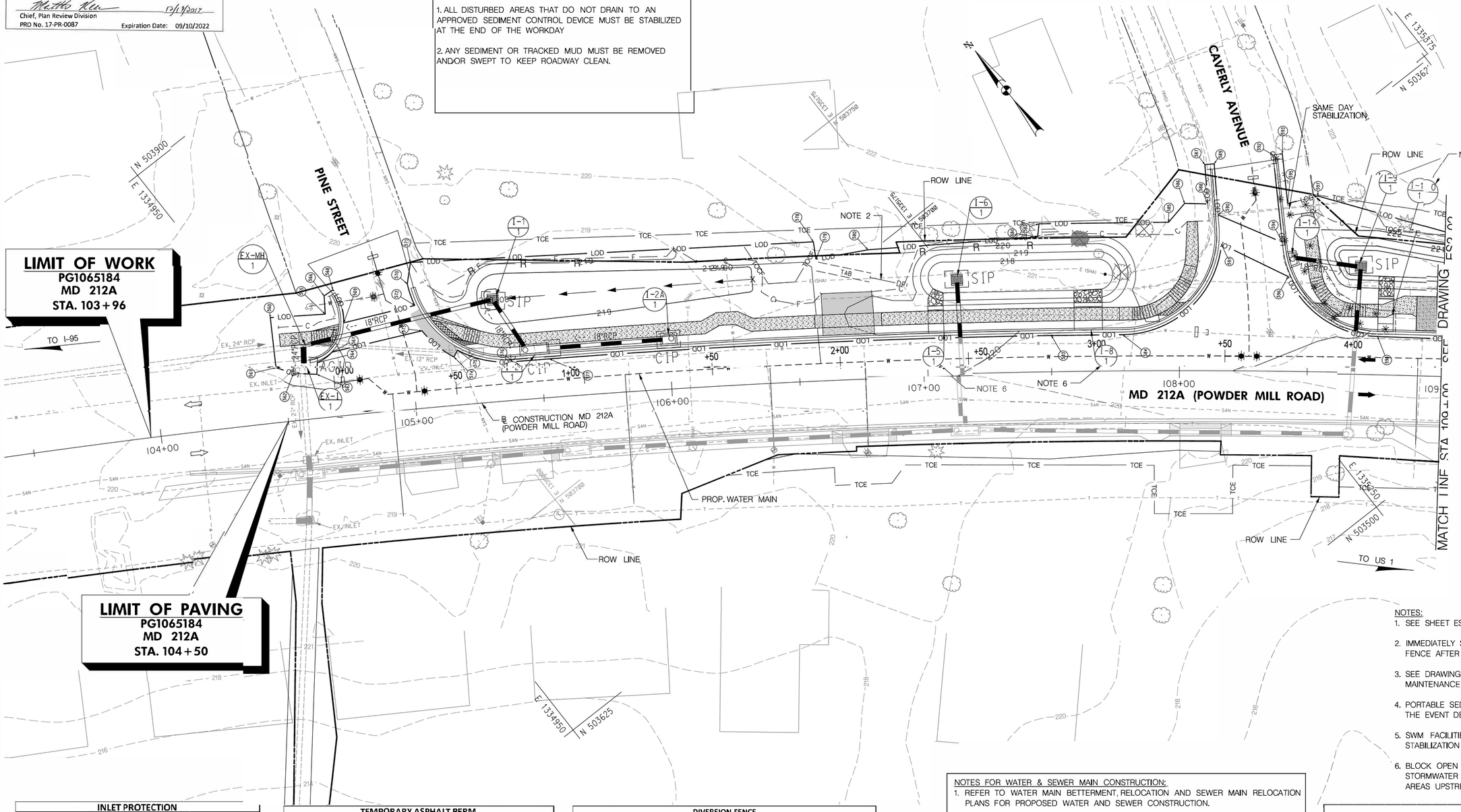
MDOT State Highway Administration
Stormwater Management & Sediment Control
Modification 3 Approval

Chief, Plan Review Division
PRD No. 17-PR-0087 Expiration Date: 09/10/2022

DAILY STABILIZATION NOTES:

1. ALL DISTURBED AREAS THAT DO NOT DRAIN TO AN APPROVED SEDIMENT CONTROL DEVICE MUST BE STABILIZED AT THE END OF THE WORKDAY

2. ANY SEDIMENT OR TRACKED MUD MUST BE REMOVED AND/OR SWEPT TO KEEP ROADWAY CLEAN.



INLET PROTECTION				
QTY	TYPE	STATION	OFFSET	DRAINAGE AREA
1 EA	AGIP	104+58.8	21.1 ' LT	1.00
1 EA	SIP-B	105+33.4	39.5 ' LT	0.89
1 EA	CIP	105+48.1	19.1 ' LT	0.04
1 EA	CIP	105+99.9	19.4 ' LT	0.10
1 EA	SIP-B	107+12.2	37.8 ' LT	0.60
1 EA	SIP-B	108+67.9	42.7 ' LT	0.33

ORANGE CONSTRUCTION FENCE					
QTY	STATION	OFFSET		STATION	OFFSET
42 LF	106+31.1	53.7 ' LT	TO	106+57.8	51.2 ' LT
35 LF	108+73.5	63.1 ' LT	TO	109+04.2	55.4 ' LT

TEMPORARY ASPHALT BERM					
QTY	STATION	OFFSET		STATION	OFFSET
20 LF	106+58.8	44.6 ' LT	TO	106+78.9	39.5 ' LT

DIVERSION FENCE						
QTY	STATION	OFFSET		STATION	OFFSET	DRAINAGE AREA
15 LF	106.78.9	39.5 ' LT	TO	106+92.9	36.0 ' LT	0.37

LEGEND

	EARTH DIKE A-2	TOCF	TEMP. ORANGE CONSTRUCTION FENCE
DF	DIVERSION FENCE	AGIP	AT GRADE INLET PROTECTION
SF	SILT FENCE	CIP	CURB INLET PROTECTION
TAB	TEMPORARY ASPHALT BERM		SAME DAY STABILIZATION
SIP	STANDARD INLET PROTECTION	SCE	STABILIZED CONSTRUCTION ENTRANCE
X	TREE REMOVAL	R	TREE ROOT PRUNING

NOTES FOR WATER & SEWER MAIN CONSTRUCTION:
1. REFER TO WATER MAIN BETTERMENT, RELOCATION AND SEWER MAIN RELOCATION PLANS FOR PROPOSED WATER AND SEWER CONSTRUCTION.
2. FOR LIMITS OF DISTURBANCE OF WATER & SEWER CONSTRUCTION REFER TO "TYPICAL SECTION: LIMITS OF DISTURBANCE FOR UTILITY CONSTRUCTION" ON EROSION & SEDIMENT DETAIL DWG. ES0-01.

20' 0 20' 40'
SCALE: 1" = 20'

NOTES:
1. SEE SHEET ESN-2 FOR SEQUENCE OF CONSTRUCTION.
2. IMMEDIATELY STABILIZE AREAS UPSLOPE OF DIVERSION FENCE AFTER INSTALLATION.
3. SEE DRAWINGS NO. TCP-01 THROUGH TCP-39 FOR MAINTENANCE OF TRAFFIC PLANS.
4. PORTABLE SEDIMENT TANK (PST) SHALL BE USED IN THE EVENT DEWATERING BECOMES NECESSARY.
5. SWM FACILITIES WILL BE CONSTRUCTED FOLLOWING STABILIZATION OF UPSTREAM AREAS.
6. BLOCK OPEN BACK INLETS (I-51, I-81, I-101) TO STORMWATER MANAGEMENT FACILITIES UNTILL ALL AREAS UPSTREAM ARE STABILIZED.

PHASE 2

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

HIGHWAY HYDRAULICS DIVISION
MD 212A (POWDER MILL ROAD)
FROM PINE STREET TO US 1 (BALTIMORE AVENUE)
URBAN RECONSTRUCTION PROJECT

LEGEND
- 5 FOOT CONCRETE SIDEWALK
- FULL DEPTH CONSTRUCTION - ASPHALT
- FULL DEPTH CONSTRUCTION - CONCRETE
- GRIND AND RESURFACE

REVISIONS

EROSION AND SEDIMENT CONTROL PLAN

SCALE 1" = 20' ADVERTISED DATE 02/11/2020 CONTRACT NO. PG1065184

DESIGNED BY F L
DRAWN BY LT
CHECKED BY S P
MDE/PRD 19-SF-0704 /17-PR-0087

COUNTY PRINCE GEORGE'S
LOGMILE
HORIZONTAL SCALE
VERTICAL SCALE

DRAWING NO. ES2-01 OF 16 SHEET NO. 151 OF 238

Mead & Hunt
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(443) 741-3500
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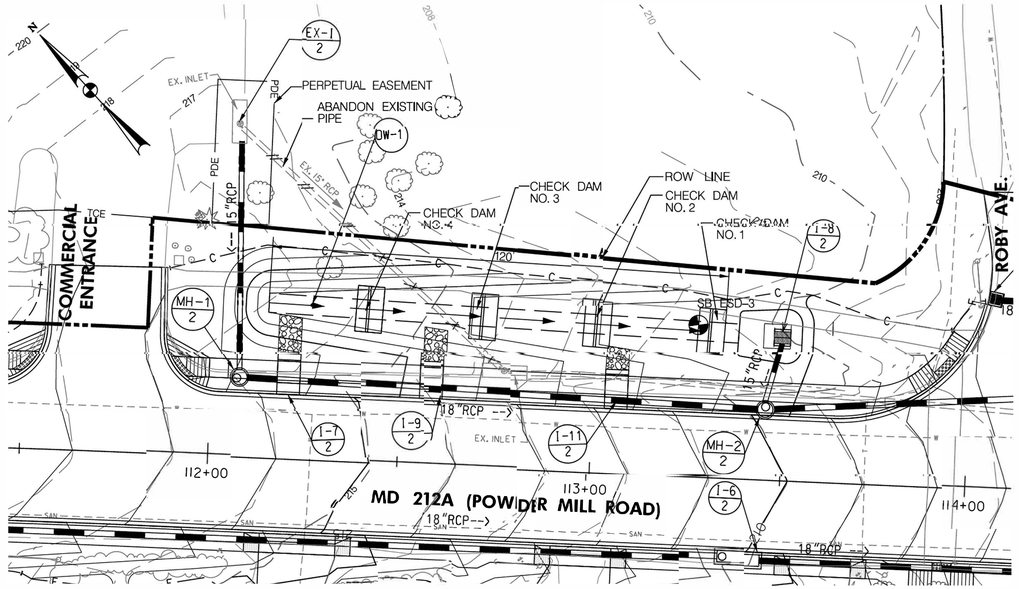
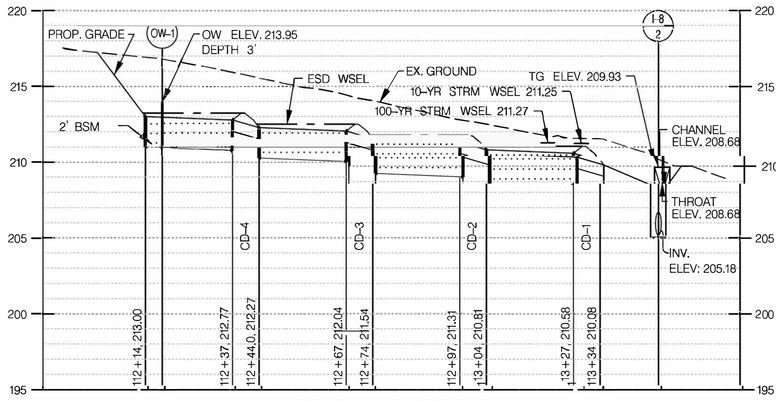
BY: 02374 -

PLOTTED: 12/17/2019



ESD–7 (BMP NO.162513) BIO–SWALE PLAN

SCALE: 1" = 20'



BIO–SWALE PROFILE

STATIONING NOTE:
BIOSWALE STATIONS ARE REFERENCED TO THE ROADWAY CENTERLINE.

HORT. SCALE: 1" = 20'
VERT. SCALE: 1" = 5'

BS - OBSERVATION WELL SCHEDULE					
OBSERVATION WELL ID	STATION	OFFSET	SIZE	INVERT	REMARK
OW-1	112+25.29	38.60'	6"	210.95	SUB-DRAIN VENT

4" TOP SOIL	
310 SY	

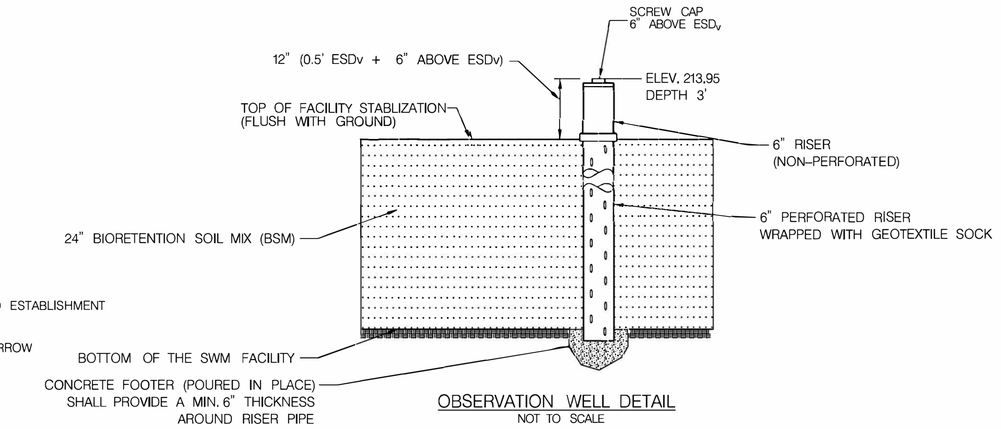
24" BIORETENTION SOIL MIX	
39 CY	

6" SUBDRAIN PIPE	
3 LF	

SWM FACILITY AS-BUILT CERTIFICATION	
1	

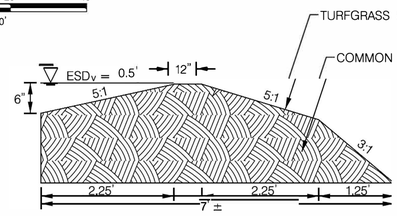
CHECK DAM DATA							
NO.	STATION	OFFSET (FT)	WEIR ELEV	TOP OF DAM	WEIR LENGTH	SLOPES	
						LEFT	RIGHT
CD-1	113+29.8	38.5	211.0	211.0	23 ft	5:1	5:1/3:1
CD-2	112+99.8	39.1	211.8	211.8	23 ft	5:1	5:1/3:1
CD-3	112+69.8	39.7	212.5	212.5	23 ft	5:1	5:1/3:1
CD-4	112+39.8	40.4	213.2	213.2	23 ft	5:1	5:1/3:1

BIOSWALE BSM AND FILTER MEDIA CELL DATA			
CELL NO.	FROM STATION	TO STATION	TOP ELEVATION
CELL-1	112+14	112+37	213.00
CELL-2	114+44	112+67	212.27
CELL-3	112+74	112+97	211.54
CELL-4	113+04	113+27	210.81



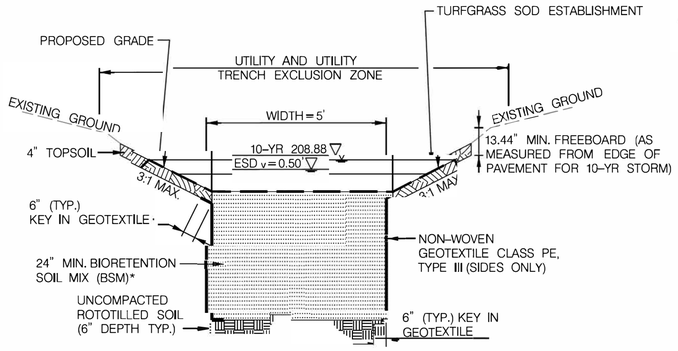
OBSERVATION WELL DETAIL

NOT TO SCALE



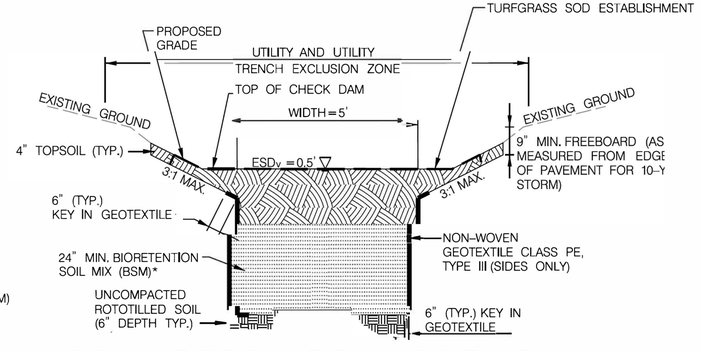
CHECK DAM PROFILE

NOT TO SCALE



BIO–SWALE TYPICAL SECTION

NOT TO SCALE



BIO–SWALE TYPICAL SECTION AT CHECK DAM

NOT TO SCALE

ENVIRONMENTAL SITE DESIGN FACILITY DIMENSIONS TABLE														
BMP NO.	FACILITY NO.	BASELINE NO.	STATION		POI	OUTFALL TYPE	W	L	SIDE		ELEVATIONS (FT)		SWALE	SOIL	INFILTRATION
							WIDE	LENGTH	SLOPE		UPSTREAM	DOWNSTREAM	SLOPE	BORING	RATE
			FROM	TO			(FT)	(FT)	Z1	Z2	TOP	TOP	FT/FT	ID	(IN/HR)
162513	BIO-SWALE ESD-7	MD 212A	112+14	113+34	1D	INLET/STORM DRAIN SYSTEM	5	92	3:1	3:1	213.00	210.58	.01	ESD-3	5

MDOT State Highway Administration
Stormwater Management & Sediment Control
Modification 3 Approval

Chief, Plan Review Division — 12/16/2019
PRD No. 17-PR-0087 — Expiration Date: 09/10/2022

Mead & Hunt
MEAD & HUNT, INC.
7055 SAMUEL MORSE DRIVE
SUITE 100
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MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

HIGHWAY HYDRAULICS DIVISION

MD 212A (POWDER MILL ROAD)
FROM PINE STREET TO
US 1 (BALTIMORE AVENUE)
URBAN RECONSTRUCTION PROJECT

REVISIONS

SWM PLAN & DETAILS

SCALE 1" = 20' ADVERTISED DATE 02/11/2020 CONTRACT NO. PG1065184

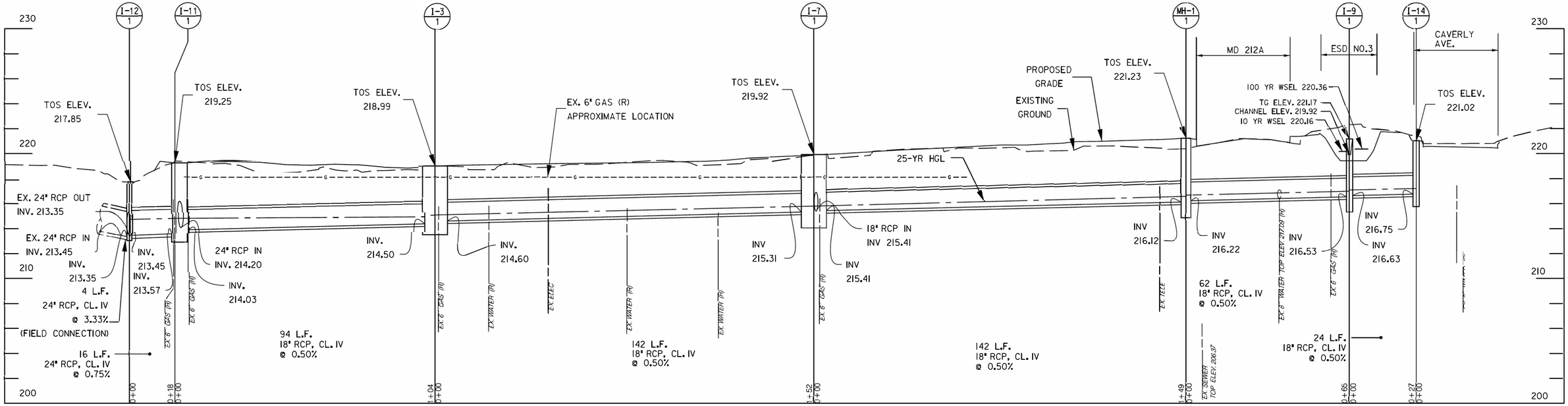
DESIGNED BY FL
DRAWN BY LT
CHECKED BY SP
MDE/PRD 19-SF-0704 /17-PR-0087

COUNTY PRINCE GEORGE'S
LOGMILE
HORIZONTAL SCALE
VERTICAL SCALE

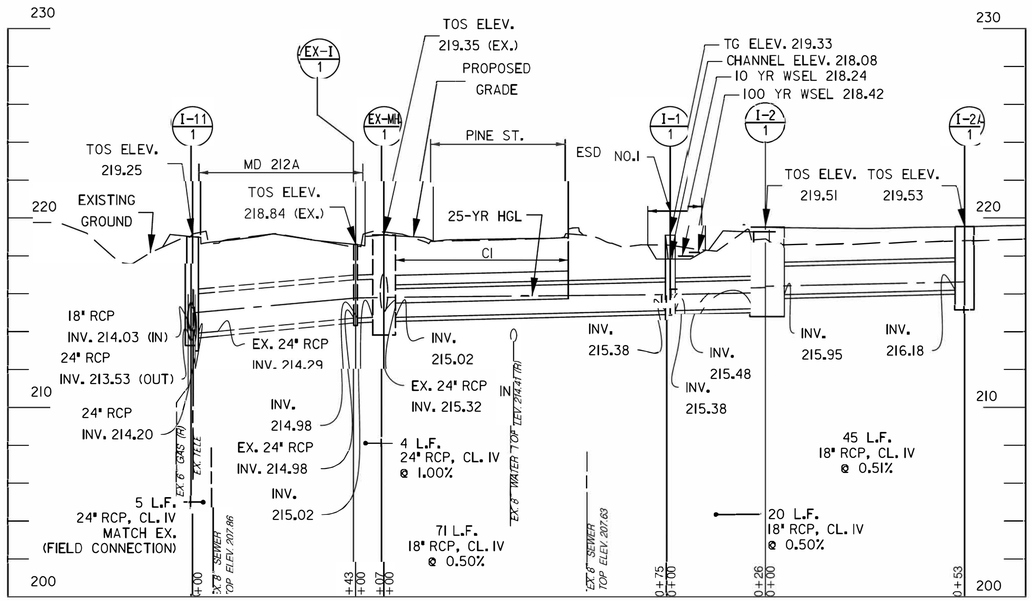
DRAWING NO. SW-06 OF 13
SHEET NO. 99 OF 238

BY: 02374 –

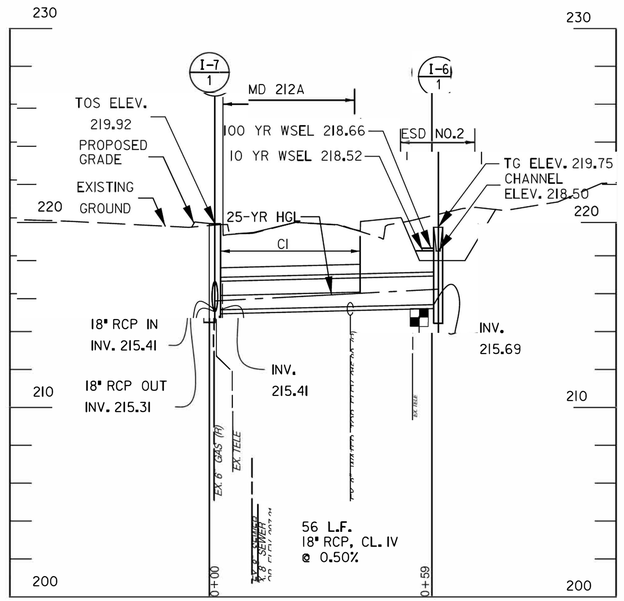
PLOTTED: 12/16/2019



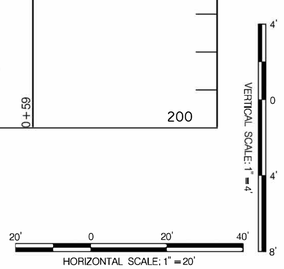
I-121 TO I-141
STA. 104+55 TO 108+40



I-111 TO I-2A1
STA. 104+56 TO 106+00



I-171 TO I-161
STA. 107+15



NOTE:

1. ALL UTILITY SERVICE CONNECTIONS SHALL BE ADJUSTED AS NECESSARY TO AVOID STORMDRAIN CONFLICTS.

LEGEND:

(R) – REMOVE EX. UTILITY
CI – CONCRETE ENCASEMENT, SEE DETAIL DS-02

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MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

HIGHWAY HYDRAULICS DIVISION

MD 212A (POWDER MILL ROAD)
FROM PINE STREET TO
US 1 (BALTIMORE AVENUE)
URBAN RECONSTRUCTION PROJECT

REVISIONS

PIPE PROFILE

SCALE AS SHOWN ADVERTISED DATE 02/11/2020 CONTRACT NO. PG1065184

DESIGNED BY FL
DRAWN BY LT
CHECKED BY SP
MDE/PRD 19-SF-0704 /17-PR-0087

COUNTY PRINCE GEORGE'S
LOGMILE
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 4'

DRAWING NO. PP-01 OF 18
SHEET NO. 109 OF 238

BY: ang -

PLOTTED: Friday, November 01, 2019 AT 09:29 AM

DRAINAGE STRUCTURE SCHEDULE

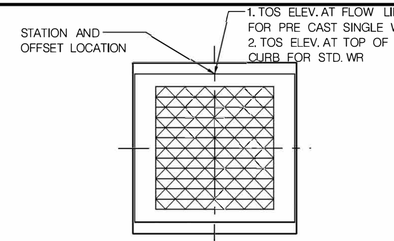
STRUCTURE NUMBER	STRUCTURE TYPE	STATION	OFFSET	T.G. / T.S. / T.C.	INV. IN	INV. OUT	STRUCTURE DEPTH	STANDARD NUMBER	REMARKS
I-12/1	Yard Inlet	104+53.9	39.26 RT	217.85	213.35, 213.45	213.35	4.50	SD 15.0	See Detail, DWG No. DD-01
I-11/1	Type A-10 Precast Inlet 3' W	104+56.2	19.00 RT	219.25	214.20, 214.03	213.53	219.25	SD 10.1	See Detail, DWG No. DD-01
I-1/1	Type K Inlet Single Opening	105+33.3	39.83 LT	219.33	215.38	215.38	3.95	SD 17.0	See Detail, DWG No. DD-02
I-2/1	Type A-10 Precast Inlet 3' W	105+47.7	17.00 LT	219.51	215.95	215.48	4.03	SD 10.1	See Detail, DWG No. DD-01
I-2A/1	Type A-5 Precast Inlet 3' W	106+00.0	17.00 LT	219.53	-	216.18	3.35	SD 10.1	See Detail, DWG No. DD-01
I-3/1	Type A-10 Precast Inlet 3' W	105+61.2	19.00 RT	218.99	214.60	214.50	4.49	SD 10.1	See Detail, DWG No. DD-01
I-5/1	COG 5' Curb Opening	107+03.7	17.00 LT	220.18	-	-	-	MD 374.68	See MD SHA Standard
I-6/1	Type K Inlet Single Opening	107+12.3	37.48 LT	219.75	-	215.69	4.06	SD 17.0	See Detail, DWG No. DD-02
I-7/1	Type A-10 Precast Inlet 3' W	107+14.0	19.00 RT	219.92	215.41, 215.41	215.31	4.61	SD 10.1	See Detail, DWG No. DD-01
I-8/1	COG 10' Curb Opening	107+65.2	17.00 LT	220.74	-	-	-	MD 374.68	See MD SHA Standard
I-14/1	Type CI/CIP Inlet	108+39.8	44.19 LT	221.02	-	216.75	4.27	SD 13.0	See Detail, DWG No. DD-02
MH-1/1	Type "B" Precast Shallow MH	108+64.2	23.26 RT	221.23	216.22	216.12	5.11	SD 22.0	See Detail, DWG No. DD-01
I-9/1	Type K Inlet Single Opening	108+67.9	42.07 LT	221.17	216.63	216.53	4.64	SD 17.0	See Detail, DWG No. DD-02
I-10/1	COG 5' Curb Opening	108+77.9	17.00 LT	221.55	-	-	-	MD 374.68	See MD SHA Standard
I-1/2	COG 5' Curb Opening	109+57.2	17.00 LT	221.84	-	-	-	MD 374.68	See MD SHA Standard
I-2/2	Type A-5 Precast Inlet 3.5' W	111+41.3	19.00 RT	218.78	213.31	213.21	5.57	SD 10.1	See Detail, DWG No. DD-01
I-4/2	Type A-10 Precast Inlet 3' W	111+32.0	17.00 LT	219.31	215.89	213.50	5.81	SD 10.1	See Detail, DWG No. DD-01
MH-1/2	48" Dia Precast MH	112+07.0	21.02 LT	216.78	209.55	209.30	7.48	SD 21.1	See Detail, DWG No. DD-01
I-7/2	COG 5' Curb Opening	112+19.9	17.00 LT	216.24				MD 374.68	See MD SHA Standard
I-9/2	COG 5' Curb Opening	112+58.2	17.00 LT	214.60	-	-	-	MD 374.68	See MD SHA Standard
I-11/2	COG 5' Curb Opening	113+06.2	17.00 LT	212.26	-	-	-	MD 374.68	See MD SHA Standard
I-6/2	Type A-10 Precast Inlet 3' W	113+40.5	19.00 RT	210.59	206.85	205.20	5.39	SD 10.1	See Detail, DWG No. DD-01
I-8/2	Type K Inlet Double Opening	113+49.2	37.67 LT	209.93	-	205.18	4.75	SD 17.0	See Detail, DWG No. DD-02
MH-2/2	48" Dia Precast MH	113+45.5	18.51 LT	210.41	205.11, 205.11	202.87	7.54	SD 21.1	See Detail, DWG No. DD-01
I-2/3	Type E Inlet	114+03.0	50.43 LT	206.68	-	201.66	5.02	SD 16.0	See Detail, DWG No. DD-01
I-1/3	Type A-10 Precast Inlet 3' W	114+33.9	49.52 LT	206.15	200.75	200.65	5.50	SD 10.1	See Detail, DWG No. DD-01
MH-1/3	Type "B" Precast Shallow MH	114+56.2	28.59 LT	204.85	199.89, 199.89	199.79	5.06	SD 22.0	See Detail, DWG No. DD-01
I-4/3	Type A-10 Precast Inlet 3' W	114+70.4	19.00 RT	204.04	197.68	197.58	6.46	SD 10.1	See Detail, DWG No. DD-01
I-3/3	Type A-10 Precast Inlet 3.5' W	115+84.6	17.00 LT	198.11	192.80	192.70	5.41	SD 10.1	See Detail, DWG No. DD-01
ES-1/3	15" RCP End Section	116+45.0	37.00 LT	-	193.55	193.55	-	SD 34.0	See Detail, DWG No. DD-01
I-5/3	Type A-10 Precast Inlet 3.5' W	116+57.5	17.00 LT	194.90	191.68, 190.67	190.07	4.83	SD 10.1	See Detail, DWG No. DD-01
I-6/3	Type A-10 Precast Inlet 3' W	116+98.6	19.00 RT	193.45	189.25, 189.50	189.15	4.30	SD 10.1	See Detail, DWG No. DD-01
I-7/3	Yard Inlet	117+00.8	29.25 RT	192.70	-	189.53	3.17	SD 15.0	See Detail, DWG No. DD-01
ES-2/3	15" RCP End Section	118+28.5	27.36 LT	-	187.41	187.41	-	SD 34.0	See Detail, DWG No. DD-01
MH-2/3	Type "B" Precast Shallow MH	118+28.6	19.11 LT	189.81	185.28, 187.35	185.18	4.63	SD 22.0	See Detail, DWG No. DD-01
MH-3/3	Type "B" Precast Shallow MH	115+16.1	28.54 LT	201.47	196.65, 197.62	196.05	5.42	SD 22.0	See Detail, DWG No. DD-01
MH-1/4*	84" Dia Precast MH	121+96.2	31.08 LT	182.73	178.15	178.15	4.58	SD 21.4	See Detail, DWG No. DD-02
I-1/4	Type A-10 Precast Inlet 3.5' W	118+59.2	17.00 LT	188.91	184.32	184.15	4.76	SD 10.1	See Detail, DWG No. DD-01
I-2/4	Type A-10 Precast Inlet 3' W	118+60.4	19.00 RT	188.89	183.33	183.23	5.66	SD 10.1	See Detail, DWG No. DD-01
FC-1/4	18"x24"Reinforce Concrete Wye	118+76.1	20.82 RT		182.7, 182.63	182.57	-		See Detail, DWG No. DD-02
I-3A/4	Precast Type WR Inlet	119+18.9	96.86 LT	187.47	-	184.47	3.00	MD 374.21	See MD SHA Standard
I-3B/4	Yard Inlet	118+96.4	47.48 LT	187.26	184.06	183.96	3.30	SD 15.0	See Detail, DWG No. DD-01
I-4/4	Type A-20 Precast Inlet 7.5' W	120+28.8	17.00 LT	185.50	182.43	178.15	7.35	SD 10.1	See Detail, DWG No. DD-01
I-5/4	Type A-10 Precast Inlet 3' W	122+61.0	17.00 LT	182.02	177.87	177.87	4.15	SD 10.1	See Detail, DWG No. DD-01
I-6/4	Type A-10 Precast Inlet 3' W	122+61.3	16.00 RT	181.75	177.70, 179.17	177.70	4.05	SD 10.1	See Detail, DWG No. DD-01
MH-3/5	Type "B" Precast Shallow MH	127+53.6	19.04 LT	174.75	170.16, 170.54	170.16	4.59	SD 22.0	See Detail, DWG No. DD-01
I-1/5	Precast Type WR Inlet	123+28.5	34.70 LT	180.91	-	176.79	4.12	MD 374.21	See MD SHA Standard
I-2/5	Type E Inlet	123+54.8	39.38 LT	180.45	176.35	176.25	4.20	SD 16.0	See Detail, DWG No. DD-01
I-3/5	Type A-10 Precast Inlet 3' W	125+10.2	16.00 RT	178.55	174.98	172.92	5.63	SD 10.1	See Detail, DWG No. DD-01
I-4/5	Type A-10 Precast Inlet 3.5' W	125+10.7	17.00 LT	178.78	173.06, 175.51	173.01	5.77	SD 10.1	See Detail, DWG No. DD-01
I-5/5	Yard Inlet	125+11.8	27.61 LT	178.77	172.96	172.86	5.91	SD 15.0	See Detail, DWG No. DD-01
I-6/5	Precast Type WR Inlet	125+43.4	31.23 LT	177.37	172.69	172.59	4.78	MD 374.21	See MD SHA Standard
I-7/5	Type E Inlet	125+82.1	37.05 LT	177.37	172.33	171.89	5.48	SD 16.0	See Detail, DWG No. DD-01
I-8/5	Type A-10 Precast Inlet 3.5' W	126+60.6	16.00 RT	176.77	170.47	170.37	6.40	SD 10.1	See Detail, DWG No. DD-01
I-10/5	Yard Inlet	126+91.2	36.92 LT	176.35	171.24, 170.91	170.91	5.44	SD 15.0	See Detail, DWG No. DD-01
I-9A/5	Type E Inlet	127+16.9	38.41 LT	175.60	-	171.42	4.18	SD 16.0	See Detail, DWG No. DD-01
I-9/5	Type A-10 Precast Inlet 4.5' W	126+86.9	17.00 LT	176.32	170.59, 172.81	170.59	5.73	SD 10.1	See Detail, DWG No. DD-01
I-11/5	Type E Inlet	127+49.9	36.22 LT	175.07	-	170.61	4.46	SD 16.0	See Detail, DWG No. DD-01
MH-3/6**	Modified Type "B" Precast Shallow MH	132+51.3	49.49 RT	170.85	165.86	165.86	4.99	SD 22.0	See Detail, DWG No. DD-01
I-7/6	Type A-15 Precast Inlet 4.5' W	128+01.1	17.00 LT	174.75	169.87	169.87	4.88	SD 10.1	See Detail, DWG No. DD-01
MH-2/6	Type "B" Precast Shallow MH	128+01.0	18.78 RT	174.68	169.60, 169.70	169.60	5.08	SD 22.0	See Detail, DWG No. DD-01
I-1/6	Type A-10 Precast Inlet 4.5' W	128+56.9	16.00 RT	174.20	169.21	169.11	5.09	SD 10.1	See Detail, DWG No. DD-01
I-2/6	Type A-10 Precast Inlet 4.5' W	130+33.5	16.00 RT	172.83	167.73	167.67	5.16	SD 10.1	See Detail, DWG No. DD-01
I-5/6	Type A-10 Precast Inlet 3' W	129+90.4	17.00 LT	173.27	169.55	168.50	4.77	SD 10.1	See Detail, DWG No. DD-01
I-6/6	Type A-10 Precast Inlet 5' W	131+69.6	17.00 LT	172.51	167.53, 167.27	167.17	5.34	SD 10.1	See Detail, DWG No. DD-01
I-6A/6	Type A-10 Precast Inlet 3' W	131+21.1	17.00 LT	172.55	167.83	167.73	4.82	SD 10.1	See Detail, DWG No. DD-01
I-6B/6	Type A-10 Precast Inlet 3' W	130+32.9	17.00 LT	172.98	168.33	168.23	4.75	SD 10.1	See Detail, DWG No. DD-01
I-3/6	Type A-10 Inlet 6.5' W	131+71.7	16.00 RT	172.38	166.61, 166.71	166.61	5.77	SD 10.0	See Detail, DWG No. DD-02
I-6C/6	Type A-10 Precast Inlet 5' W	132+01.7	17.00 LT	172.47	167.81,168.40	167.71	4.76	SD 10.1	See Detail, DWG No. DD-01
I-4/6	Type A-10 Inlet 6.5' W	132+16.2	16.00 RT	172.29	166.36	166.36	5.93	SD 10.0	See Detail, DWG No. DD-02
MH-1/6	84" Dia Precast MH	132+50.5	19.84 RT	171.50	166.16	166.16	5.34	SD 21.4	See Detail, DWG No. DD-02
I-1/7A	Precast Type WR Inlet	132+63.8	32.90 LT	171.89	168.71	168.70	3.19	MD 374.21	See MD SHA Standard
R-1/7	Riser Structure	134+41.3	61.46 LT	175.33	169.00	168.75	6.58		See Detail, DWG No. SW-12
I-6/7	Modified Type "S" Inlet, Double Grate	133+24.0	32.42 LT	173.03	168.00	166.82	6.21		See Detail, DWG No. SW-07A
I-1/7	Type A-10 Precast Inlet 3.5' W	133+25.9	16.00 RT	172.44	166.58	166.49	5.95	SD 10.1	See Detail, DWG No. DD-01
I-5/7	Type K Inlet	136+01.2	70.84 LT	176.70	-	169.86	6.84	SD 17.0	See Detail, DWG No. DD-02
I-4/7	Type K Inlet	136+37.5	62.21 LT	174.13	169.67	169.33	4.80	SD 17.0	See Detail, DWG No. DD-02
MH-1/7	Type "B" Precast Shallow MH	136+45.0	18.95 RT	172.43	168.44	168.42	4.01	SD 22.0	See Detail, DWG No. DD-01
MH-3/8	Type "B" Precast Shallow MH	137+94.6	18.43 RT	171.67	167.72, 168.70	167.70	3.97	SD 22.0	See Detail, DWG No. DD-01
ES-1/8	24" RCP End Section	137+96.7	34.50 RT	-	167.63	167.60	-	SD 34.0	See Detail, DWG No. DD-01
I-3/8	COG 10' Curb Opening	138+19.6	16.00 RT	171.45	-	-	-	MD 374.68	See MD SHA Standard
I-5/8	Yard Inlet	138+76.6	30.11 LT	171.81	-	164.67	7.14	SD 15.0	See Detail, DWG No. DD-01
I-2/8	Type K Inlet Single Opening	138+94.1	50.76 RT	170.08	164.03	164.03	6.05	SD 17.0	See Detail, DWG No. DD-02
I-4/8	COG 5' Curb Opening	138+92.8	16.00 RT	170.82	-	-	-	MD 374.68	See MD SHA Standard

1. TOP OF CURB ELEVATIONS ARE PROVIDED FOR ALL STANDARD COG INLETS, STANDARD COS INLETS, MODIFIED COG INLETS, MODIFIED COS INLETS, AND OFFSET COG INLETS.
2. TOP OF GRATE ELEVATIONS ARE PROVIDED FOR ALL STANDARD WR INLETS, STANDARD TYPE S INLETS, STANDARD TYPE S COMBINATION INLETS, STD. YARD INLETS, AND TRENCH DRAINS.
3. TOP ELEVATIONS PROVIDED FOR ALL OTHER STRUCTURES ARE TOP OF STRUCTURE ELEVATIONS.
4. T.C. =TOP OF CURB T.G. = TOP OF GRATE T.S. =TOP OF STRUCTURE
5. CHANNEL IN COG INLET SHALL BE BRICK.

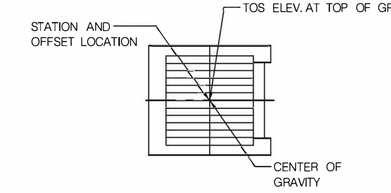
DRAINAGE STRUCTURE SCHEDULE

STRUCTURE NUMBER	STRUCTURE TYPE	STATION	OFFSET	T.G. / T.S. / T.C.	INV. IN	INV. OUT	STRUCTURE DEPTH	STANDARD NUMBER	REMARKS
I-6/8	Precast Single Type WR Inlet	140+13.8	36.21 LT	169.14	163.96	160.31	8.83	MD 374.23	See MD SHA Standard
I-7/8	Type A-10 Precast Inlet 3' W	140+11.3	19.00 RT	168.64	162.37, 160.07	160.06	8.58	SD 10.1	See Detail, DWG No. DD-01
I-8/8	Type K Inlet Single Opening	138+21.3	60.66 RT	170.08	-	165.50	4.58	SD 17.0	See Detail, DWG No. DD-02
MH-1/8	48" Dia Precast MH	139+98.4	21.17 RT	169.05	162.45	162.42	6.63	SD 21.1	See Detail, DWG No. DD-01
MH-2/8	48" Dia Precast MH	138+58.7	56.58 RT	170.08	165.00, 165.00	165.00	5.08	SD 21.1	See Detail, DWG No. DD-01
I-1/9	Type A-10 Precast Inlet 3' W	142+92.6	19.00 RT	159.73	155.12	155.02	4.71	SD 10.1	See Detail, DWG No. DD-01
MH-1/9	Type "B" Precast Shallow MH	144+88.0	31.65 LT	153.27	149.44	148.93	4.34	SD 22.0	See Detail, DWG No. DD-01
I-2/9	Precast Triple Type WR Inlet	142+90.9	16.00 LT	159.59	154.83	154.73	4.86	MD 374.26	See MD SHA Standard
I-3/9	Type A-20 Precast Inlet 3.5' W	144+38.6	16.00 LT	155.40	151.51	150.76	4.64	SD 10.1	See Detail, DWG No. DD-01
I-4/9	Type E Inlet	145+03.2	32.74 LT	153.07	149.57	149.57	3.50	SD 16.0	See Detail, DWG No. DD-01
I-7/10	Type A-10 Precast Inlet 3.5' W	146+04.5	16.00 LT	148.24	144.92	143.28	4.96	SD 10.1	See Detail, DWG No. DD-01
I-1/10	Type A-10 Precast Inlet 4.5' W	146+07.9	16.00 RT	148.33	142.04, 145.28	141.94	6.39	SD 10.1	See Detail, DWG No. DD-01
I-3/10	Type A-10 Precast Inlet 3' W	147+09.2	16.00 LT	143.30	-	139.10	4.20	SD 10.1	See Detail, DWG No. DD-01
I-2/10	Type A-10 Precast Inlet 4.5' W	147+06.9	16.00 RT	143.40	138.93, 138.93	138.83	4.57	SD 10.1	See Detail, DWG No. DD-01
I-6/10	Type K Inlet Double Opening	148+20.4	38.35 RT	137.78	132.63	132.53	5.25	SD 17.0	See Detail, DWG No. DD-02
MH-1/10	60" Dia Precast MH	148+66.8	18.93 RT	138.26	134.14, 131.55	131.17	7.09	SD 21.2	See Detail, DWG No. DD-02
MH-2/10	Type "B" Precast Shallow MH	147+92.9	18.83 RT	139.70	136.20	136.20, 136.20	3.47	SD 22.0	See Detail, DWG No. DD-01
I-5/10	COG 5' Curb Opening	148+79.0	16.00 RT	137.92	-	-	-	MD 374.68	See MD SHA Standard
EW-1/10	15" Storm Drain Endwall	148+01.4	47.15 RT	138.81	136.03	136.03	2.78	SD 30.0	See Detail, DWG No. DD-01
MH-1/11*	84" Dia Precast MH	155+28.0	29.64 RT	140.16	134.00	133.90	6.26	SD 22.0	See Detail, DWG No. DD-01
MH-2/11*	84" Dia Precast MH	155+35.7	21.74 LT	139.21	132.35	132.25	6.96	SD 22.0	See Detail, DWG No. DD-01
I-1/11	Type A-10 Precast Inlet 4.5' W	150+72.9	16.00 RT	135.23	129.47	129.33	5.90	SD 10.1	See Detail, DWG No. DD-01
I-2/11	Type A-10 Precast Inlet 3' W	151+93.2	16.00 RT	134.36	128.83, 130.55	128.73	5.63	SD 10.1	See Detail, DWG No. DD-01
I-3/11	Type A-10 Precast Inlet 3' W	151+89.8	16.00 LT	134.13	129.25	129.00	5.13	SD 10.1	See Detail, DWG No. DD-01
I-4/11	Type A-10 Precast Inlet 3' W	152+20.4	16.00 LT	134.27	-	129.35	4.92	SD 10.1	See Detail, DWG No. DD-01
I-5/11	Precast 10' COG Inlet	153+35.4	16.00 RT	135.55	-	130.29	5.26	MD 374.62	See MD SHA Standard
I-7/11	Type A-10 Precast Inlet 3' W	153+68.2	16.00 LT	135.82	130.51	130.41	5.41	SD 10.1	See Detail, DWG No. DD-01
I-8/11	Type A-10 Precast Inlet 3' W	154+96.9	16.00 LT	136.00	132.07, 132.95	131.45	6.55	SD 10.1	See Detail, DWG No. DD-01
I-9/11	Type E Inlet	155+11.1	31.58 RT	138.19	133.83	133.73	4.46	SD 16.0	See Detail, DWG No. DD-01
EW-1/12	18" Storm Drain Endwall	158+60.1	49.91 LT	141.73	-	140.00	1.73	SD 30.0	See Detail, DWG No. DD-01
ES-2/12	24" RCP End Section	157+79.4	39.42 LT	-	140.09	140.00	-	SD 34.0	See Detail, DWG No. DD-01
I-1/12	Type A-10 Inlet 5.5' W	156+60.1	16.00 LT	143.36	140.04	132.35	11.01	SD 10.0	See Detail, DWG No. DD-02
I-6/12	Precast 5' COG Inlet	156+57.7	21.97 RT	143.73	-	134.00	9.73	MD 374.62	See MD SHA Standard
I-2/12	Yard Inlet	157+77.9	41.15 RT	146.38	142.73, 143.00	141.72	4.66	SD 15.0	See Detail, DWG No. DD-01
I-7/12	Precast Type WR Inlet	158+87.6	38.01 RT	147.16	145.62	144.24	2.92	MD 374.21	See MD SHA Standard
MH-5/12	Type "B" Precast Shallow MH	157+78.4	30.78 RT	146.92	141.58	141.49	5.43	SD 22.0	See Detail, DWG No. DD-01
MH-4/12	Type "B" Precast Shallow MH	158+76.5	19.95 RT	147.66	144.15, 144.19	144.05	3.61	SD 22.0	See Detail, DWG No. DD-01
MH-3/12*	84" Dia Precast MH	159+09.6	22.70 LT	148.74	142.32	142.22	6.52	SD 22.0	See Detail, DWG No. DD-01
MH-2/12	Type "B" Precast Shallow MH	157+82.6	33.36 LT	144.01	140.25	140.15	3.86	SD 22.0	See Detail, DWG No. DD-01
I-3/12	Type K Inlet	158+31.0	51.97 RT	146.50	-	143.83	2.67	SD 17.0	See Detail, DWG No. DD-02
MH-1/12	48" Dia Precast MH	158+61.8	36.10 LT	146.31	140.47, 140.47	140.37	5.94	SD 21.1	See Detail, DWG No. DD-01
I-5/12	Type A-10 Precast Inlet 3' W	158+94.1	19.00 LT	148.38	142.15	142.05	6.33	SD 10.1	See Detail, DWG No. DD-01
I-4/12	Type A-10 Precast Inlet 3' W	159+11.0	16.00 RT	148.83	144.43	144.33	4.50	SD 10.1	See Detail, DWG No. DD-01
I-1/13	Type A-10 Inlet 6' W	160+61.0	19.00 LT	152.99	149.92	142.32	10.67	SD 10.0	See Detail, DWG No. DD-02
I-2/13	Type A-15 Precast Inlet 3' W	160+88.8	16.00 RT	154.43	-	148.55	5.88	SD 10.1	See Detail, DWG No. DD-01
I-5/13	Type CI/CIP Inlet	164+60.8	35.60 RT	165.40	-	160.33	5.07	SD 13.0	See Detail, DWG No. DD-02
I-4/13	Type E Inlet	164+67.3	35.07 LT	165.42	-	160.48	4.94	SD 16.0	See Detail, DWG No. DD-01
I-3/13	Type CI/CIP Inlet	164+91.9	36.57 LT	165.43	159.85	159.75	5.68	SD 13.0	See Detail, DWG No. DD-02
MH-1/13	Type "B" Precast Shallow MH	164+94.4	17.20 RT	164.28	159.49, 159.99	159.39	4.89	SD 22.0	See Detail, DWG No. DD-01
MH-3/14*	84" Dia Precast MH	168+42.1	18.06 RT	159.12	151.80, 152.10	151.70	7.42	SD 21.4	See Detail, DWG No. DD-02
I-5/14	Rotated 10' COG Inlet	165+37.0	16.00 RT	164.03	159.19	153.60	10.43	N/A	See Detail, DWG No. DD-01
I-1/14	Precast 10' COG Inlet	166+50.8	16.00 LT	161.76	158.20	152.30	9.46	MD 374.62	See MD SHA Standard
I-2/14*	Precast 10' COG Inlet	166+54.1	16.00 RT	162.01	153.60	152.10	9.91	MD 374.62	See MD SHA Standard
MH-4/14*	84" Dia Precast MH	168+36.6	20.22 LT	159.00	152.30	152.20	6.80	SD 21.4	See Detail, DWG No. DD-02
I-4/14	Type A-10 Precast Inlet 3' W	168+52.4	16.00 LT	158.59	152.06	151.96	6.63	SD 10.1	See Detail, DWG No. DD-01
I-3/14	Rotated 10' COG Inlet	168+83.2	16.00 RT	158.24	151.51	151.41	6.83	N/A	See Detail, DWG No. DD-01
I-1/15	Rotated 10' COG Inlet	171+59.5	16.45 RT	149.42	142.00	141.90	7.52	N/A	See Detail, DWG No. DD-01
I-3/15	Type A-10 Precast Inlet 3' W	172+60.0	21.36 RT	142.59	136.98	136.88	5.71	SD 10.1	See Detail, DWG No. DD-01
I-4/15	Precast Type WR Inlet	173+60.9	23.00 RT	133.72	131.01	130.91	2.81	MD 374.21	See MD SHA Standard
I-5/15	Type A-15 Precase Inlet 3' W	174+06.3	74.64 RT	133.92	129.90	129.80	4.12	SD 10.1	See Detail, DWG No. DD-01

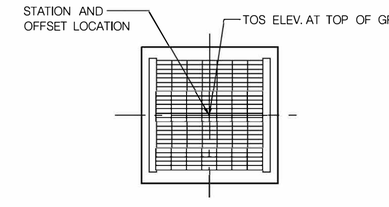
*STORMWATER MANAGEMENT CONTROL STRUCTURE SEE PLAN SW-13 FOR DETAILS.
** L=6', W=4', PROVIDE 60" x 6" OPENING ON SOUTHWEST WALL AT INV ELEV. 169.10
NOTE: CONTRACTOR SHALL INSTALL THE SLAB ON THE TOP OR AT BOTTOM OF THE MANHOLE TO ACCOMODATE STORM DRAIN PER THE RELATED STORM DRAIN PROFILE.



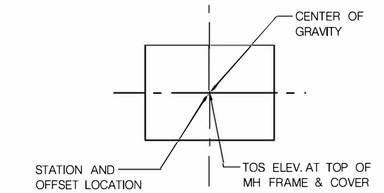
STATION AND OFFSET LOCATION FOR TYPE WR INLET



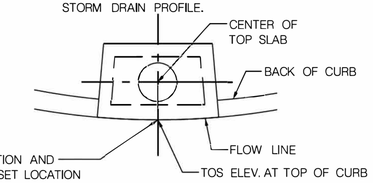
STATION AND OFFSET LOCATION FOR TYPE K INLET



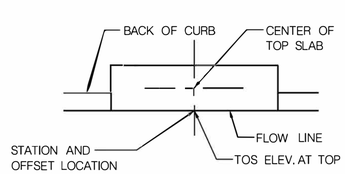
STATION AND OFFSET LOCATION FOR YARD INLET



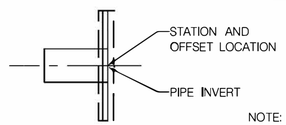
STATION AND OFFSET LOCATION FOR JUNCTION BOX



STATION AND OFFSET LOCATION FOR TYPE CI/CIP INLET

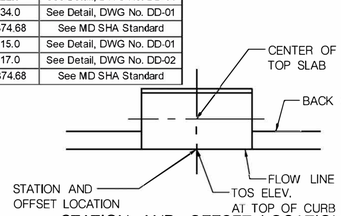


STATION AND OFFSET LOCATION FOR TYPE A (COS) INLET

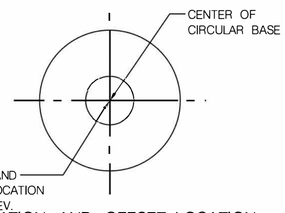


STATION AND OFFSET LOCATION FOR END WALL

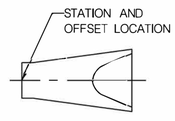
NOTE: IF THE CONTRACTOR ELECTS TO CAST IN PLACE ANY DRAINAGE STRUCTURES AS OUTLINED, MIX #3 SHALL BE USED REGARDLESS OF MIX AS INDICATED ON THE SHA STANDARD



STATION AND OFFSET LOCATION FOR CURB OPENING INLET



STATION AND OFFSET LOCATION FOR CIRCULAR MANHOLE



STATION AND OFFSET LOCATION FOR CONCRETE END SECTION

Mead & Hunt
MEAD & HUNT, INC.
7055 SAMUEL MORSE DRIVE
SUITE 100
COLUMBIA, MD 21046
(443) 741-3500

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

HIGHWAY HYDRAULICS DIVISION

MD 212A (POWDER MILL ROAD)
FROM PINE STREET TO
US 1 (BALTIMORE AVENUE)
URBAN RECONSTRUCTION PROJECT

REVISIONS

DRAINAGE STRUCTURES

SCALE N/A ADVERTISED DATE 02/11/2020 CONTRACT NO. PG1065184

DESIGNED BY FL
DRAWN BY LT
CHECKED BY SP
MDE/PRD 19-SF-0704 /17-PR-0087

COUNTY PRINCE GEORGE'S
LOGMILE
HORIZONTAL SCALE
VERTICAL SCALE

DRAWING NO. DS-01 OF 02 SHEET NO. 127 OF 238

BY: 02374 –

PLOTTED: 1/8/2020

PRICE PROPOSAL

9

FEE ESTIMATE

Based on the scope of the project provided in the RFP, meeting discussions with the Town staff and based on our knowledge of the permitting requirements with Prince George's County DPIE, M-NCPPC and Soil Conservation District, the overall project work can be divided into four major groups as follows:

1. School Lane and Wilson Lane Sidewalk and Drainage Improvements
2. Spring Branch Drive Rehabilitation and Resurfacing
3. Old Mill Road Improvements
4. Future Improvements for Planning Budget for Remainder of the Town Owned Streets (Approximately 1.5 miles total)

Following is the summary of fee estimate for each project group:

Project Group	Design Fee
1. School Lane and Wilson Lane Sidewalk and Drainage Improvements	$ 212,837.07
2. Spring Branch Drive Rehabilitation and Resurfacing	$ 5,114.93
3. Old Mill Road Improvements	$ 19,125.55
4. Future Improvements for Planning Budget for Remainder of the Town Owned Streets (Approximately 1.5 miles total)	$ 12,852.46
Total	**$ 249,930.00**

Please refer to the attached detail fee estimate sheets for each project group for an itemized fee estimate. The fee is estimated using hourly labor rate, payroll burden and overhead and 10% fee.

The above-mentioned design fee is not to exceed the amount for the scope work listed in the fee estimate sheets for each project group. Any services not included in the scope of services will be considered excluded from the scope of work. The permit fee is excluded.

FEE ESTIMATE

1. School Lane and Wilson Lane Sidewalk and Drainage Improvements

PRICE PROPOSAL SUMMARY

RFP# UM 2021-03 Roadway Engineering Survey & Design Firm - Town of Upper Marlboro

RFP No. UM 2021-03

Project: School Lane and Wilson Lane Sidewalk and Drainage Improvements

Consultant: Mead & Hunt, Inc.

	Item Description	No. of Sheets	Man-Hour Estimate									
			Project Manager	Project Surveyor	Survey CAD Tech	Survey Crew Chief	Survey Field Tech	SUE Tech	Professional Engineer	Design Engineer	Technician	Task Hourly Subtotals
	A. Kickpff, Topographic Survey and Base Mapping											
1	Project Kick-off meeting, site walk and data collection		4						4			8
2	Prepare and distribute meeting notes								2			2
3	Topographic survey and right-of-way mapping (See subconsultants Colliers Engineering's proposal)											0
4	Utility base mapping (See subconsultants, Colliers Engineering's proposal)											0
5	Perform site visit to verify the topogrpahic survey and existing conditions								4	4		8
	A1. Concept Development and Alternative Designs											0
1	Develop concept geometric and drainage design alternatives (up to two)	4	4						12	24		40
2	Meet and review concepts with Town		4						4			8
	Subtotal	**4**	**12**	**0**	**0**	**0**	**0**	**0**	**26**	**28**	**0**	**66**
	B. Preliminary Design - 30% Design											
	B1. Roadway / Sidewalk Geometric Design											0
1	Address Town's comments from the concept review and advance geometric design to preliminary design stage		1						4	8		13
2	Prepare typical sections								1	4		5
3	Prepare roadway center line horizontal and vertical alignments		1						8	16		25
4	Prepare roadway cross sections and proposed grading	10	1						8	16		25
5	Prepare drainge layout		1						4	8		13
6	Prepare inlet spacing and capacity calculations		1						4	16		21
7	Prepare pipe design calculations and hydraulic grade line (HGL) calculations		1						4	16		21
8	Prepare storm drain pipe profiles		1						4	16		21
9	Perform outfall investigations and design		1						4	8		13
	B2. Develop stormwater management (SWM) concept											0
1	Prepare draiange area, soils map and establish point of investigation	2	1						4	8		13
2	Prepare preliminary hydrology and hydraulics calculations		2						8	16		26
3	Sizing and layout of SWM Environmental Side Design (ESD)	4	2						8	16		26
4	Meet with Prince George's County DPIE to review SWM pre-concept		4						4			8
5	Prepare erosion and sediment control concept and sequence of construction	4	1						4	12		17
6	Complete SWM Concept application								1	8		9
7	Prepare SWM Concept report and submit application, calculations and plans		4						8	16		28
8	Address Prince George's County DPIE Review comments and acquire SWM Concept approval		4						10	20		34

PRICE PROPOSAL SUMMARY

RFP# UM 2021-03 Roadway Engineering Survey & Design Firm - Town of Upper Marlboro

RFP No. UM 2021-03

Project: School Lane and Wilson Lane Sidewalk and Drainage Improvements

Consultant: Mead & Hunt, Inc.

	Item Description	No. of Sheets	Man-Hour Estimate									
			Project Manager	Project Surveyor	Survey CAD Tech	Survey Crew Chief	Survey Field Tech	SUE Tech	Professional Engineer	Design Engineer	Technician	Task Hourly Subtotals
	B3. Preliminary Design Plans Submittal											0
1	Prepare maintenance of traffic (MOT) concept	2	1						2	6		9
2	Prepare title sheet, typical section and general notes	3							2	8		10
3	Prepare roadway plans and profile, cross sections and establish grading limits	4	4						12	24		40
4	Prepare storm drain details, sections and pipe and structure schedules	4	4						8	16		28
5	Perform quantiy take-off and cost estimate								4	8		12
6	Perform quality control and quality assurance (QCQA) and submit Preliminary design plans package		4						16	16		36
7	Prepare utility matrix to show utility contacts, identify conflicts and correspondence status								1	4		5
8	Submit plans to utility companies									2		2
9	Attend preliminary design review meeting with Town and all stakeholders		4						4	4		12
10	Prepare meeting notes and submit along with comments and draft responses		1						4	8		13
	Subtotal	**33**	**44**	**0**	**0**	**0**	**0**	**0**	**141**	**300**	**0**	**485**
	C. Semi-Final Design - 65% Design											
1	Update storm drain design, pipe profiles, sections/details and structures schedules		2						8	16		26
2	Advance roadway/sidewalk designs and plans		2						8	16		26
3	Prepare maintenance of traffic plans	2	1						6	12		19
	C1. Develop stormwater management (SWM) Site Development Review Pacakage											0
1	Update draiange area map, hydrologic and hydraulic calculations based on updated sidewalk/storm drain designs		1						4	12		17
2	Update sizing and layout of SWM Environmental Side Design (ESD)		4						16	24		44
3	Prepare erosion and sediment control design plans and sequence of construction		4						12	24		40
4	Complete SWM Site Development submission checklist								1	6		7
5	Prepare SWM Site Development report, permit application, calculations and plans		4						8	16		28
6	Address Prince George's County DPIE Review comments and acquire SWM development approval		4						8	16		28
7	Update utility matrix and and submit updated plans to Utility companies for clearance / concurrence								1	4		5
8	Utility coordination meeting to resolve utility conflits (virtual or onsite)		4						4			8
	Subtotal	**2**	**26**	**0**	**0**	**0**	**0**	**0**	**76**	**146**	**0**	**248**

PRICE PROPOSAL SUMMARY

RFP# UM 2021-03 Roadway Engineering Survey & Design Firm - Town of Upper Marlboro

RFP No. UM 2021-03

Project: School Lane and Wilson Lane Sidewalk and Drainage Improvements

Consultant: Mead & Hunt, Inc.

	Item Description	No. of Sheets	Man-Hour Estimate									
			Project Manager	Project Surveyor	Survey CAD Tech	Survey Crew Chief	Survey Field Tech	SUE Tech	Professional Engineer	Design Engineer	Technician	Task Hourly Subtotals
	D. Final Design - 100% Design											
1	Address semifinal design review comments & prepare 100% construction documents		4						12	24		40
2	Prepare pavement, curb and sidewalk stakeout plans (horizontal and vertical)								4	10		14
3	Update storm drain inlet and pipe calculations		1						4	8		13
4	Prpeapre final maintenance of traffic design (MOT) plans and details	2	1						8	16		25
5	Signing & pavement marking design	2	1						4	12		17
												0
	D1. Develop stormwater management (SWM) Final Review Pacakage											0
1	Address SWM Site development review comments and prepare responses		2						6	12		20
2	Submit SWM Final design plans and report		4						12	24		40
3	Prepare final erosion and sediment control design plans		1						8	16		25
4	Grading Permit application, address review comments and resubmit		4						12	24		40
5	Notice to Intent (NOI) Permit Application. This project will disturb over one acre of land therefore, NOI as part of NPDES permit will be required.								4	4		8
6	Update utility matrix and and submit updated plans to Utility companies for clearance / concurrence								1	4		5
7	Utility coordination meeting to resolve utility conflits (virtual or onsite)		2						2			4
8	Prepare quantities and cost Estimate		1						4	12		17
9	Prepare special provisions and bid forms								8	8		16
10	Quality Assurance/Quality Control and Submit 100% Design plans		4						12	12		28
11	Attend 100% Design review meeting and prepare responses		4						4	4		12
	Subtotal	**4**	**29**	**0**	**0**	**0**	**0**	**0**	**105**	**190**	**0**	**324**
	E. Plan Specifications and Cost Estimate											
1	Prepare responses to final review comments		2						4	4		10
2	Address final design review comments & prepare PS&E Package		8						16	16		40
3	Quality Assurance/Quality Control and Submit PS&E Package		4						8	8		20
												0
	Subtotal	**0**	**14**	**0**	**0**	**0**	**0**	**0**	**28**	**28**	**0**	**70**

PRICE PROPOSAL SUMMARY

RFP# UM 2021-03 Roadway Engineering Survey & Design Firm - Town of Upper Marlboro

RFP No. UM 2021-03

Project: School Lane and Wilson Lane Sidewalk and Drainage Improvements

Consultant: Mead & Hunt, Inc.

	Item Description	No. of Sheets	Man-Hour Estimate									
			Project Manager	Project Surveyor	Survey CAD Tech	Survey Crew Chief	Survey Field Tech	SUE Tech	Professional Engineer	Design Engineer	Technician	Task Hourly Subtotals
	F. Advertisement and Bidding Phase											
1	Attend Pre-bid meeting		4						4			8
2	Respond to bidders questions and prepare Addendem (assumed 1)								8	16		24
3	Review and tabulate bids and prepare a letter of recommendation for construction contract award		2						8	8		18
												0
	Subtotal	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**20**	**24**	**0**	**50**
	Total Hours / Sheets	**43**	**131**	**0**	**0**	**0**	**0**	**0**	**396**	**716**	**0**	**1243**
	Hourly Rate		$79.60	$0.00	$0.00	$0.00	$0.00	$0.00	$73.95	$38.81	$25.00	
	Labor Cost		$ 10,427.60	$ -	$ -	$ -	$ -	$ -	$ 29,284.20	$ 27,787.96	$ -	$ 67,499.76
	Overhead Cost @		140.00%									$ 94,499.66
	Sub-Total											$ 161,999.42
	Fee (10% of Total)		10.00%									$ 16,199.94
	Subtotal- Labor including Overhead and Fee											**$ 178,199.37**
	Direct Costs								Quantity	Unit	Rate	
	Mileage								500	mile	0.56	$ 280.00
	Printing Full Size Paper Plans (24"x36" or 22"x34") (10 sets x 25)								250	Each	2	$ 500.00
	Utility Test Holes Mobilization (Assumed none will be required)								0	LS	1000	$ -
	Perform Utility Test Holes (Assumed none will be required)								0	Each	800	$ -
	Others (Shipping, Mailing)								4	LS	25	$ 100.00
	SubTotal - Direct Costs											**$ 880.00**
	Total Cost - Mead & Hunt Design Fee including direct costs											**$ 179,079.37**
	Subconsultants Support Services											
	Colliers Engineering and Design - Topographic Survey, Right-of-way and Utility Mapping											$ 7,647.20
	DMY Engineering- Geotechnical Engineering											$ 20,510.50
	Zest, LLC - Peer Review and Permitting Support for SWM and E&SC											$ 5,600.00
	SubTotal - Subconsultants Support Services											**$ 33,757.70**
	Total Project Design Cost											**$ 212,837.07**

PRICE PROPOSAL SUMMARY

RFP# UM 2021-03 Roadway Engineering Survey & Design Firm - Town of Upper Marlboro

Project: School Lane & Wilson Lane - Roadway Improvements

SubConsultant: Colliers Engineering & Design

Item Description	Man-Hour Estimate									
	Project Manager	Project Surveyor	Survey CAD Tech	Survey Crew Chief	Survey Field Tech	SUE Tech	Professional Engineer	Project Engineer	Technician	Task Hourly Subtotals
A. Topographic Survey and Utility Base Mapping										
School Lane & Wilson Lane		2	14	16						32
Utility Mosaic & Miss Utility notification		1	6	4						11
										0
Subtotal	**0**	**3**	**20**	**20**	**0**	**0**	**0**	**0**	**0**	**43**
B. Right-of-Way										
School Lane & Wilson Lane		4	14	8						26
										0
Subtotal	**0**	**4**	**14**	**8**	**0**	**0**	**0**	**0**	**0**	**26**
Total Hours	**0**	**7**	**34**	**28**	**0**	**0**	**0**	**0**	**0**	**69**
Hourly Rate	$0.00	$78.00	$46.00	$37.50	$0.00	$125.00	$0.00	$0.00	$0.00	
Total Labor Cost	$ -	$ 546.00	$ 1,564.00	$ 1,050.00	$ -	$ -	$ -	$ -	$ -	$ 3,160.00
Overhead Cost @	120.00%									$ 3,792.00
Sub-Total										$ 6,952.00
Fee (10% of Total)	10.00%									$ 695.20
Direct Costs							Quantity	Unit	Rate	
								Each		$ -
Mileage								mile	0.56	$ -
Printing Full Size Paper Plans (24"x36")								Each	1.5	$ -
Others (Shipping, Mailing)								LS	500	$ -
Total Cost										**$ 7,647.20**

PRICE PROPOSAL SUMMARY

RFP# UM 2021-03 Roadway Engineering Survey & Design Firm - Town of Upper Marlboro

Project: School Lane and Wilson Lane Sidewalk and Drainage Improvements

SubConsultant: DMY

Item Description	Man-Hour Estimate									
	Project Manager	Project Surveyor	Survey CAD Tech	Survey Crew Chief	Survey Field Tech	SUE Tech	Professional Engineer	Project Engineer	Technician	Task Hourly Subtotals
A. Geotechnical Engineering Services										
Project management, site visits, miss utility coordination, drilling supersion, laboratory testing, pavement analysis, and preparation of geotechnical report with findings and recommendations	2							20	30	52
Subtotal	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**30**	**52**
Total Hours	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**30**	**52**
Hourly Rate	$70.61	$0.00	$0.00	$0.00	$0.00	$0.00	$48.08	$40.89	$32.81	
Total Labor Cost	$ 141.22	$ -	$ -	$ -	$ -	$ -	$ -	$ 817.80	$ 984.30	$ 1,943.32
Overhead Cost @	109.88%									$ 2,135.32
Sub-Total										$ 4,078.64
Fee (10% of Total)	10.00%									$ 407.86
Subtotal- Labor including Overhead and Fee										**$ 4,486.50**
Direct Costs							**Quantity**	**Unit**	**Rate**	
a Subsurface Investigation - Drill Rig Daily Rate							3	day	$ 2,000.00	$ 6,000.00
b Subsurface Investigation - Infiltration Test							8	each	$ 350.00	$ 2,800.00
c Subsurface Investigation - Traffic Control (lane closure or flagging without TMA)							3	day	$ 1,250.00	$ 3,750.00
d Laboratory Testing - Moisture Content							10	each	$ 12.00	$ 120.00
e Laboratory Testing - USCS Soil Classification (Atterberg + Sieve)							2	each	$ 170.00	$ 340.00
f Laboratory Testing - USDA Soil Classification (Atterberg + Sieve + Hyrdrometer)							8	each	$ 255.00	$ 2,040.00
g Laboratory Testing - CBR + Standar Proctor							2	each	$ 375.00	$ 750.00
										$ -
										$ -
Mileage							400	mile	0.56	$ 224.00
Printing Full Size Paper Plans (24"x36")								Each	1.5	$ -
Others (Shipping, Mailing)								LS	0	$ -
SubTotal - Direct Costs										**$ 16,024.00**
Total Cost - DMY Engineering Fee including direct costs										**$ 20,510.50**

PRICE PROPOSAL SUMMARY

RFP# UM 2021-03 Roadway Engineering Survey & Design Firm - Town of Upper Marlboro

Project: School Lane and Wilson Lane Sidewalk and Drainage Improvements

SubConsultant: Zest, LLC

Item Description	Man-Hour Estimate									
	Project Manager	Project Surveyor	Survey CAD Tech	Survey Crew Chief	Survey Field Tech	SUE Tech	Professional Engineer	Project Engineer	Technician	Task Hourly Subtotals
A. SWM and Permitting Support										
Review of SWM Concepts, Design Plans and Review and Permitting Support							40	0	0	40
Subtotal	**0**	**0**	**0**	**0**	**0**	**0**	**40**	**0**	**0**	**40**
Total Hours	**0**	**0**	**0**	**0**	**0**	**0**	**40**	**0**	**0**	**40**
Hourly Rate	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$63.00	$0.00	$0.00	
Total Labor Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,520.00	$ -	$ -	$ 2,520.00
Overhead Cost @	100.00%									$ 2,520.00
Sub-Total										$ 5,040.00
Fee (10% of Total)	10.00%									$ 504.00
Subtotal- Labor including Overhead and Fee										**$ 5,544.00**
Direct Costs							**Quantity**	**Unit**	**Rate**	
										$ -
Mileage							100	mile	0.56	$ 56.00
Printing Full Size Paper Plans (24"x36")								Each	1.5	$ -
Others (Shipping, Mailing)								LS	0	$ -
SubTotal - Direct Costs										**$ 56.00**
Total Cost - DMY Engineering Fee including direct costs										**$ 5,600.00**

FEE ESTIMATE

2. Spring Branch Drive Rehabilitation and Resurfacing

PRICE PROPOSAL SUMMARY

RFP# UM 2021-03 Roadway Engineering Survey & Design Firm - Town of Upper Marlboro

RFP No. UM 2021-03

Project: Spring Branch Drive Pavement Rehabilitation and Resufacing

Consultant: Mead & Hunt, Inc.

Item Description	Man-Hour Estimate									
	Project Manager	Project Surveyor	Survey CAD Tech	Survey Crew Chief	Survey Field Tech	SUE Tech	Professional Engineer	Design Engineer	Technician	Task Hourly Subtotals
A. Kickpff, Survey and Base Mapping										
1. Project Kick-off Meeting and Data Collection							1			1
2. Prepare preliminary base mapping and roadway center line using GIS data on 8.5"x11" sheets									4	4
3. Perform site visit and perform fleld measurements of roadwaysand observe drainage conditions								4	4	8
4. Update base mapping based on field measurements and label roadway widths									4	4
Subtotal	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**4**	**12**	**17**
B. Final Design - 100% Design										
1. Prepare roadway plans for grinding and resurfacing							1	3		4
2. Prpeare general notes and typical sections							1	3		4
3. Perform quantity take-off and cost estimate							2			2
4. Prepare special provisions and bid form							4			4
Subtotal	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**6**	**0**	**14**
C. Advertisement and Bidding Phase										
1. Attend Pre-bid meeting (Virtual)							1			1
2. Respond to bidders questions and prepare Addendem (assumed 1)							2			2
Subtotal	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**3**
Total Hours	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**10**	**12**	**34**
Hourly Rate	$79.60	$0.00	$0.00	$0.00	$0.00	$0.00	$73.95	$38.81	$25.00	
Labor Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ 887.40	$ 388.10	$ 300.00	$ 1,575.50
Overhead Cost @	140.00%									$ 2,205.70
Sub-Total										$ 3,781.20
Fee (10% of Total)	10.00%									$ 378.12
Subtotal- Labor including Overhead and Fee										**$ 4,159.32**
Direct Costs							Quantity	Unit	Rate	
Mileage							100	mile	0.56	$ 56.00
Printing Full Size Paper Plans (24"x36")							0	Each	1.5	$ -
Others (Shipping, Mailing)								LS	500	$ -
SubTotal - Direct Costs										**$ 56.00**
Total Cost - Mead & Hunt Design Fee including direct costs										**$ 4,215.32**
Subconsultants Support Services										
DMY Engineering- Geotechnical Engineering										$ 899.61
SubTotal - Subconsultants Support Services										**$ 899.61**
Total Project Design Cost										**$ 5,114.93**

PRICE PROPOSAL SUMMARY

RFP# UM 2021-03 Roadway Engineering Survey & Design Firm - Town of Upper Marlboro

Project: Spring Branch Drive Pavement Rehabilitation and Resufacing

SubConsultant: DMY

Item Description	Man-Hour Estimate									
	Project Manager	Project Surveyor	Survey CAD Tech	Survey Crew Chief	Survey Field Tech	SUE Tech	Professional Engineer	Project Engineer	Technician	Task Hourly Subtotals
A. Geotechnical Engineering Services										
Perform Ground Penetration Radar (GPR) at 2 locations on Spring Branch Drive to collect some pavement thickness information	1							4	4	9
										0
Subtotal	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**9**
Total Hours	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**9**
Hourly Rate	$70.61	$0.00	$0.00	$0.00	$0.00	$0.00	$48.08	$40.89	$32.81	
Total Labor Cost	$ 70.61	$ -	$ -	$ -	$ -	$ -	$ -	$ 163.56	$ 131.24	$ 365.41
Overhead Cost @	109.88%									$ 401.51
Sub-Total										$ 766.92
Fee (10% of Total)	10.00%									$ 76.69
Subtotal- Labor including Overhead and Fee										**$ 843.61**
Direct Costs							**Quantity**	**Unit**	**Rate**	
										$ -
Mileage							100	mile	0.56	$ 56.00
Printing Full Size Paper Plans (24"x36")								Each	1.5	$ -
Others (Shipping, Mailing)								LS	0	$ -
SubTotal - Direct Costs										**$ 56.00**
Total Cost - DMY Engineering Fee including direct costs										**$ 899.61**

FEE ESTIMATE

3. Old Mill Road Improvements

PRICE PROPOSAL SUMMARY

RFP# UM 2021-03 Roadway Engineering Survey & Design Firm - Town of Upper Marlboro

RFP No. UM 2021-03

Project: Old Mill Road - Roadway Improvements

Consultant: Mead & Hunt, Inc.

Item Description	Man-Hour Estimate									
	Project Manager	Project Surveyor	Survey CAD Tech	Survey Crew Chief	Survey Field Tech	SUE Tech	Professional Engineer	Design Engineer	Technician	Task Hourly Subtotals
A. Kickpff, Topographic Survey and Base Mapping										
Project Kick-off Meeting and Data Collection	4						4			8
Prepare and distribute meeting notes							2			2
Topographic survey and right-of-way mapping (See subconsultants Colliers Engineering's proposal)										0
Utility base mapping (See subconsultants, Colliers Engineering's proposal)										0
Perform site visit to very existing conditions							4	4		8
A1. Concept Development and Alternative Designs										0
Develop concept geometric design alternatives (up to two)	4						12	24		40
Identify permits requirements, project impacts, prepare concept cost estimate, study report, and provide recommendations	4						8	8		20
Meet and review concepts with Town	4						4			8
Prepare meeting notes							4			4
Subtotal	**16**	**0**	**0**	**0**	**0**	**0**	**38**	**36**	**0**	**90**
Total Hours	**16**	**0**	**0**	**0**	**0**	**0**	**38**	**36**	**0**	**90**
Hourly Rate	$79.60	$0.00	$0.00	$0.00	$0.00	$0.00	$73.95	$38.81	$25.00	
Labor Cost	$ 1,273.60	$ -	$ -	$ -	$ -	$ -	$ 2,810.10	$ 1,397.16	$ -	$ 5,480.86
Overhead Cost @	140.00%									$ 7,673.20
Sub-Total										$ 13,154.06
Fee (10% of Total)	10.00%									$ 1,315.41
Subtotal- Labor including Overhead and Fee										**$ 14,469.47**
Direct Costs							Quantity	Unit	Rate	
Mileage							0	mile	0.56	$ -
Printing Full Size Paper Plans (24"x36")							0	Each	1.5	$ -
Utility Test Holes Mobilization							0	LS	1000	$ -
Perform Utility Test Holes (assumed 3)							0	Each	800	$ -
Others (Shipping, Mailing)								LS	500	$ -
SubTotal - Direct Costs										**$ -**
Total Cost - Mead & Hunt Design Fee including direct costs										**$ 14,469.47**
Subconsultants Support Services										
Colliers Engineering and Design - Topographic Survey, Right-of-way and Utility Mapping										$ 4,656.08
SubTotal - Subconsultants Support Services										**$ 4,656.08**
Total Project Design Cost										**$ 19,125.55**

PRICE PROPOSAL SUMMARY

RFP# UM 2021-03 Roadway Engineering Survey & Design Firm - Town of Upper Marlboro

Project : Old Mill Road - Roadway Improvements

SubConsultant: Colliers Engineering & Design

Item Description	Man-Hour Estimate									
	Project Manager	Project Surveyor	Survey CAD Tech	Survey Crew Chief	Survey Field Tech	SUE Tech	Professional Engineer	Project Engineer	Technician	Task Hourly Subtotals
A. Topographic Survey and Concept Design Development										
										0
Old Mill Road		1	8	6						15
Utility Mosaic & Miss Utility notification		1	4	2						7
										0
Subtotal	**0**	**2**	**12**	**8**	**0**	**0**	**0**	**0**	**0**	**22**
D. Right-of-Way										
										0
Old Mill Road		2	10	8						20
										0
Subtotal	**0**	**2**	**10**	**8**	**0**	**0**	**0**	**0**	**0**	**20**
Total Hours	**0**	**4**	**22**	**16**	**0**	**0**	**0**	**0**	**0**	**42**
Hourly Rate	$0.00	$78.00	$46.00	$37.50	$0.00	$125.00	$0.00	$0.00	$0.00	
Total Labor Cost	$ -	$ 312.00	$ 1,012.00	$ 600.00	$ -	$ -	$ -	$ -	$ -	$ 1,924.00
Overhead Cost @	120.00%									$ 2,308.80
Sub-Total										$ 4,232.80
Fee (10% of Total)	10.00%									$ 423.28
Direct Costs							Quantity	Unit	Rate	
								Each		$ -
Mileage								mile	0.56	$ -
Printing Full Size Paper Plans (24"x36")								Each	1.5	$ -
Others (Shipping, Mailing)								LS	500	$ -
Total Cost										**$ 4,656.08**

FEE ESTIMATE

4. Future Improvements for Planning Budget for Remainder of the Town Owned Streets (Approximately 1.5 miles total)

PRICE PROPOSAL SUMMARY

RFP# UM 2021-03 Roadway Engineering Survey & Design Firm - Town of Upper Marlboro

RFP No. UM 2021-03

Project: Future Improvements for Planning Budget for Remainder of the Town Owned Streets (Approximately 1.5 miles total)

1) CEMETERY LA - 0.130 mile, 2) CHURCH ST - 0.210 mile, 3) ELM STREET - 0.15 mile (Reengineered and resurfaced in 2017), 4) — MARLBOROUGH DR - 0.140 mile (Resurfaced in 2012), 5) OLD MARLBORO PIKE - 0.030 mile, 6) PRATT ST - 0.090 mile, 7) RECTORY LA - 0.370 mile, 8) SERVICE LA - 0.130 mile, 10) TRINITY LA - 0.030 mile, 11) VALLEY LA - 0.070 mile, 12) ST #1 - 0.050 mile, 13) UNNAMED STREETS 0.050 mile

Consultant: Mead & Hunt, Inc.

Item Description	Man-Hour Estimate									
	Project Manager	Project Surveyor	Survey CAD Tech	Survey Crew Chief	Survey Field Tech	SUE Tech	Professional Engineer	Design Engineer	Technician	Task Hourly Subtotals
A. Roadway/Street Evaluation for Planning Budget (Approx. 1.5 miles of roadway):										
1. Project Kick-off Meeting and Data Collection (virtual)	2						2			4
2. Prepare and distribute meeting notes							2			2
3. Prepare preliminary base mapping and roadway center line using GIS data on 8.5"x11" sheets (16 sheets for 11 streets)							1		16	17
4. Perform site visit of above listed streets and review for pavement conditions, draiange issues and ADA complaince for sidewalk								8	8	16
5. Update base mapping based on field measurements, label roadway widths and label issues on plans								2	8	10
6. Perform quanity take-off of proposed improvements needed for each street and prepare plannign level cost estimate							4	12		16
7. Prepare two-three page summary report of improvements needed and submit along with concept plans and cost estimate	2						4	12		18
Subtotal	**4**	**0**	**0**	**0**	**0**	**0**	**13**	**34**	**32**	**83**
Total Hours	**4**	**0**	**0**	**0**	**0**	**0**	**13**	**34**	**32**	**83**
Hourly Rate	$79.60	$0.00	$0.00	$0.00	$0.00	$0.00	$73.95	$38.81	$25.00	
Labor Cost	$ 318.40	$ -	$ -	$ -	$ -	$ -	$ 961.35	$ 1,319.54	$ 800.00	$ 3,399.29
Overhead Cost @	140.00%									$ 4,759.01
Sub-Total										$ 8,158.30
Fee (10% of Total)	10.00%									$ 815.83
Subtotal- Labor including Overhead and Fee										**$ 8,974.13**
Direct Costs							Quantity	Unit	Rate	
Mileage							100	mile	0.56	$ 56.00
Printing Full Size Paper Plans (24"x36")							0	Each	1.5	$ -
Utility Test Holes Mobilization							0	LS	1000	$ -
Perform Utility Test Holes (assumed 3)							0	Each	800	$ -
Others (Shipping, Mailing)								LS	500	$ -
SubTotal - Direct Costs										**$ 56.00**
Total Cost - Mead & Hunt Design Fee including direct costs										**$ 9,030.13**
Subconsultants Support Services										
DMY Engineering- Geotechnical Engineering										$ 3,822.33
SubTotal - Subconsultants Support Services										**$ 3,822.33**
Total Project Design Cost										**$ 12,852.46**

PRICE PROPOSAL SUMMARY

RFP# UM 2021-03 Roadway Engineering Survey & Design Firm - Town of Upper Marlboro

Project: Future Improvements for Planning Budget for Remainder of the Town Owned Streets (Approximately 1.5 miles total)

SubConsultant: DMY

Item Description	Man-Hour Estimate									
	Project Manager	Project Surveyor	Survey CAD Tech	Survey Crew Chief	Survey Field Tech	SUE Tech	Professional Engineer	Project Engineer	Technician	Task Hourly Subtotals
A. Geotechnical Engineering Services										
Perform Ground Penetration Radar (GPR) to randomly select some locations on the 11 roadways to collect some pavement thickness information								18	18	36
Prepare 2-3 page existing pavement condition report	2							4		6
										0
										0
										0
Subtotal	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**18**	**42**
Total Hours	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**18**	**42**
Hourly Rate	$70.61	$0.00	$0.00	$0.00	$0.00	$0.00	$48.08	$40.89	$32.81	
Total Labor Cost	$ 141.22	$ -	$ -	$ -	$ -	$ -	$ -	$ 899.58	$ 590.58	$ 1,631.38
Overhead Cost @	109.88%									$ 1,792.56
Sub-Total										$ 3,423.94
Fee (10% of Total)	10.00%									$ 342.39
Subtotal- Labor including Overhead and Fee										**$ 3,766.33**
Direct Costs							**Quantity**	**Unit**	**Rate**	
Mileage							100	mile	0.56	$ 56.00
Printing Full Size Paper Plans (24"x36")								Each	1.5	$ -
Others (Shipping, Mailing)								LS	0	$ -
SubTotal - Direct Costs										**$ 56.00**
Total Cost - DMY Engineering Fee including direct costs										**$ 3,822.33**

BIDDERS INSURANCE INFORMATION

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ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 10/20/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Allie Darling
Holmes Murphy Associates/CSDZ,LLC 225 South Sixth Street STE 1900 Minneapolis MN 55402	PHONE (A/C, No, Ext): 612-322-6041 FAX (A/C, No): E-MAIL ADDRESS: adarling@csdz.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Travelers Indemnity Company	25658
INSURER B : Charter Oak Fire Insurance Company	25615
INSURER C : Travelers Property Casualty Co. America	25674
INSURER D : XL Specialty Insurance	37885
INSURER E :	
INSURER F :	

INSURED	MEAHUNPC
Mead & Hunt, Inc. 2440 Deming Way Middleton, WI 53562	

COVERAGES **CERTIFICATE NUMBER:** 1497781550 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE [X] OCCUR X Cont Liab Per X Policy Form/XCU GEN'L AGGREGATE LIMIT APPLIES PER: POLICY [X] PRO-JECT [X] LOC OTHER:			P6305C656013TIA20	12/1/2020	12/1/2021	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG |	$ 1,000,000 $ 300,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
B	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY			8101L2755752043G	12/1/2020	12/1/2021	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) |	$ 1,000,000 $ $ $ $
C	X **UMBRELLA LIAB** [X] OCCUR **EXCESS LIAB** CLAIMS-MADE DED [X] RETENTION $ 0			CUP0K3011012043	12/1/2020	12/1/2021	EACH OCCURRENCE AGGREGATE |	$ 9,000,000 $ 9,000,000 $
C A A	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [N] N / A **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below			B8J3002332043G UB8J2154322043E UB8J3173932043V	12/1/2020 12/1/2020 12/1/2020	12/1/2021 12/1/2021 12/1/2021	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
A D	Property Professional/Pollution Liability			P6305C656013TIA20 DPR9984620	12/1/2020 10/25/2021	12/1/2021 10/25/2022	Bldg/BPP: $12,825,012 Per Claim: Per Aggregate:	BI: $10,000,000 $5,000,000 $10,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

Master Certificate

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Paula A Sexton

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REFERENCES

REFERENCES

Mead & Hunt is proud of our working relationship with our clients and much of our success during the years is directly related to our commitment to perform high-quality, timely services. We invite you to contact our clients and talk to them about our work history, quality of service, and if they would again select us for similar services.

REFERENCE 1	
PROJECT NAME & NATURE OF WORK PERFORMED	A. 48th Avenue Sidewalk Improvements – from Riverdale Road to Longfellow Street to provide pedestrian connectivity between the residential neighborhood and the Town Center of Riverdale Park: Studied alternative design concepts, Traffic engineering and safety evaluation, Public Meetings, Drainage and SWM Evaluation, Final Design, Permits, MHT documentations, Cost Estimates, Right-of-Entry Plats, Cost Estimate and Bid Documents. B. Urgent Need Task - 5006 Somerset Road Sinkhole Evaluation – Performed field investigation and prepared findings and recommendations report for mitigation C. Riverdale Park Trolly Trail- Prepared base and Photometric analysis and conceptual design for lighting along the ¾ long Trolly Trail
CLIENT NAME	Town of Riverdale Park
REFERENCE NAME & TITLE	Ivy A. Lewis, AICP/Director of Public Works
ADDRESS	5008 Queensbury Road, Riverdale Park, MD 20737
TELEPHONE NUMBER	301-927-6381
EMAIL	llewis@RiverdaleParkMD.Gov
REFERENCE 2	
PROJECT NAME & NATURE OF WORK PERFORMED	100% Design and Construction Documents for Capital Crescent Trail Crossing Improvements: • New and relocated Sidewalk Design • Stormwater design and permitting approvals • New and relocated trail • Traffic calming design
CLIENT NAME	Montgomery County Department of Parks - Parks Development Division
REFERENCE NAME & TITLE	Andrew Tsai, PE/Project Manager
ADDRESS	2425 Reedie Drive, Park Development Division, 11th Floor
TELEPHONE NUMBER	301-495-2508
EMAIL	Andrew.Tsai@montgomeryparks.org
REFERENCE 3	
PROJECT NAME & NATURE OF WORK PERFORMED	On-Call Transportation Contract - Surveying and Engineering: Project work included local, arterial and interstate roadway design, intersection improvements, roadway widening, resurfacing, ADA compliance sidewalks, new and retrofit bike lanes, roadways rehabilitation, drainage improvements, roadway safety and spot improvements, stormwater management and erosion and sediment control permits, Pavement marking and signage, utility coordination.
CLIENT NAME	MDOT SHA District 3
REFERENCE NAME & TITLE	Claudine Myers/Chief Engineering Systems Team
ADDRESS	9300 Kenilworth Avenue, Greenbelt, MD 20770
TELEPHONE NUMBER	301-513-7467
EMAIL	cmyers1@sha.state.md.us

Prepared Especially for the

Town of Upper Marlboro

Response to RFP UM-2021-03

By CB3 Consulting Services

November 19, 2021

CB3 Consulting Services, inc.

LSC No. 21675

November 5, 2021

Kyle Snyder
Town of Upper Marlboro
14211 School Lane
Upper Marlboro, MD, 20772
(301) 627-6905
info@uppermarlboromd.gov

RE: Roadway Engineering Survey & Design Firm
RFP: UM 2021-03

To Whom This May Concern,

We are pleased to present our proposal for engineering and surveying services on the above referenced property in the Town of Upper Marlboro, Maryland. CB3 Consulting Services, a Prince George's County based women and minority owned business, and RDA have enjoyed a good working relationship with the Town for decades dating back to Ms. Ford on the Main Street Sidewalk improvements and several survey projects. Recent successful projects also include a productive completion of the new Town Hall, Elm Street improvements, and the improvements to the Maintenance Building off Judges Drive. The requested Scope of Services and estimated fees will be as follows. Please be aware that additional services may be requested by County or State Government Agencies as requirements for approvals or permits. These additional services, or additional services requested by you, will be performed on an hourly basis unless a subsequent proposal is authorized.

SCOPE OF SERVICES	**ESTIMATED FEE**
1) Meet with Town staff and elected officials on several occasions to review the needs and goals of the project, the consultant will conduct a detailed survey of all existing Town roadways. Meetings must be virtual due to COVID and health concerns. CB3 has extensive records on the Town from its association with RDA. *$150.00 per meeting estimated at 20 meetings for budget purposes.*	*$3,000.00*

2) Survey all 2.3 miles of Town roadways and create a comprehensive road replacement schedule and budgeting plan for the Town. *$28,500.00*

3) Draft construction plans and other bid documents for the Town for:
   a. School Lane $65,000.00
   b. Church Street *$55,000.00*
   c. Spring Branch Drive *$45,000.00*
   d. Old Mill Road *$50,000.00*

   The Town plans to place this project out to bid for construction to begin in Spring 2022

4) Survey, inspect, and provide repaving estimates for the travel lanes of Marlborough Circle, Marlboro Terrace, Marlborough Court, and Marlborough Grove. These roadways are currently owned by an HOA, with plans to have them turned over to the Town *$35,000.00*

Notes:

- ***County and State Agency Fees and Bonding to be paid directly by you to the agency.***
- ***Bid documents to be legally enhanced and polished by attorney.***

REAL ESTATE SURVEYING CONSTRUCTION
MANAGEMENT & PERMIT EXPEDITING SERVICES
Woman & Minority Owned ~ MBE|DBE|SBE
Prince Georges County Based Business

9500 Medical Center Drive| Suite 480 | Largo 20774 | Phone: 301-952-8200

EXCLUSIONS – IF REQUIRED

The following additional services may be needed on specific sites. Those site specific services may be discovered during plan preparation process or as a result of various County agency reviews. If needed these services will be provided as per the attached Hourly Rate Schedule. Estimated fees for the needed items will be furnished upon request by subsequent proposal.

* Other Services
Traffic engineering
Construction management
Inspections construction stakeout
Off site road improvements and utility extensions
Underground utility locations
Geotechnical services
Stakeout or Construction Services
Property ALTA surveys and stakeout of markers
Easement sketches and descriptions
Attorney legal work
Permit Assistance
Health Department Site Plan
Sewage Pump Station Design
Special services related to Planning Board requirement
Meetings with client and Site Plan Revisions
Resolution of Right of Way Legality Package
Road improvement waiver request
Building Permit Services
Permit Issuance and Bonding assistance

If this proposal meets with your requirements, please sign on the space provided and return the original to us. This proposal may be withdrawn by us if not accepted within 120 days. The signed proposal, retainer payment, along with our Standard Terms and Conditions will form our agreement. The property deed owner(s) are also required to sign. Please identify any options that you desire. Should you have any questions, please feel free to contact me.

Sincerely,

Christina Issar

Christina Issar, President

ACCEPTED: _____ DATE:_____

PRINTED NAME AND ADDRESS: _____

TITLE: _____

Your signature above acknowledges acceptance of the attached Standard Terms and Conditions and HOURLY RATES SCHEDULE. Your signature above acknowledges that you are the party responsible for payment, or an authorized representative of the party responsible for payment.

REAL ESTATE SURVEYING CONSTRUCTION
MANAGEMENT & PERMIT EXPEDITING SERVICES
Woman & Minority Owned ~ MBE|DBE|SBE
Prince Georges County Based Business

9500 Medical Center Drive| Suite 480 | Largo 20774 | Phone: 301-952-8200

For legal assistance or other services not covered by this proposal, the attached hourly rate schedule will apply:

For hourly services or services requested and not covered by this or subsequent proposals, the following hourly rate schedule will apply, including surveying for horizontal or vertical control including preparation and downloading, if required, will be billed as per the following hourly rate schedule.

Revisions and processing fees - if requested - hourly as per the following schedule:

2021 HOURLY RATE SCHEDULE

Personnel Task Category	Per Hour Rate
Principal	$210.00
Professional Engineer	$160.00
Registered Land Surveyor	$160.00
Registered Landscape Architect	$160.00
Land Planner	$185.00
Land Planner (Expert Rate)	$300.00
Engineer	$140.00
Project Computer Design Engineer	$120.00
Environmental Qualified Professional	$145.00
Surveyor/Computer	$110.00
Project Manager	$110.00
Computer Design Draftsman	$100.00
Permit Expeditor	$80.00
Administrative Processor	$70.00
Technician	$60.00
Survey Field Crew (1-3 man)	$160.00
GPS Crew	$170.00
Blueprints (in house)	$5.00 each

NOTES:

These prices are valid for one (1) year from date of proposal and may be subject to change at that time as labor costs and inflation increases. The above listed rates are also subject to change within +$50 as economic factors such as national emergencies cause labor and materials costs to fluctuate. Site materials will be billed at cost plus 15% for reimbursement.

CB3 STANDARD TERMS AND CONDITIONS OF AGREEMENT

1. WARRANTY OF AUTHORITY TO SIGN

The person signing this agreement warrants he has the authority to sign as, or on behalf of, the client for whom or for whose benefit CB3's services are rendered. If such person does not have such authority, he agrees that he is personally liable for all breaches of this agreement and that in any action against him for breach of such warranty a reasonable attorney's fee shall be included in any judgment rendered.

2. EXCLUSIVE AGREEMENT

This instrument contains the entire and only agreement between the parties for the services described and supersedes all pre-existing agreements between them concerning these services. Any representation, promise or condition in connection with this agreement, not incorporated specifically, shall not be binding upon the parties. Subsequent or additional agreements may later supersede or provide authorization for additional services.

3. TERMINATION OR SUSPENSION OF THE AGREEMENT

This agreement may be terminated by either party upon written notice. In the event of termination, CB3 shall be paid for services performed to the termination notice date plus reasonable termination expenses including costs of completing or reporting services performed. If CB3's services are suspended for more than three (3) months prior to the completion of the services described, the client agrees to pay any additional costs associated with re-activating the work. The client agrees that re-activated work will be invoiced at CB3's prevailing rates at the time work starts again.

4. ASSIGNS

CB3 may subcontract to other specialized subcontractors, such as but not limited to Aerial Topography, Soils Engineering, Wetlands, Forestry, Traffic, Noise, archeology and other such consultants who are responsible for their own work. Otherwise, neither the client nor CB3 may delegate, assign, sublet or transfer his duties or interest in this agreement without the written consent of the other party. CB3 shall be only responsible to the contracting party of this agreement.

5. STANDARD OF CARE

Services performed by CB3 under the agreement will be conducted in a manner consistent with the minimum standards of practice exercised by members of the profession currently practicing under similar conditions. No other warranty, expressed or implied, is made. It must be recognized that certain site conditions may be unknown to CB3 and that the data, interpretations, and recommendations of CB3 are based solely on the information available to them. Time estimates given are based on historical data but cannot be warranted as they are subject to agency review time and other unknown factors. CB3 will be responsible for the data that it produces, but shall not be responsible for the interpretations or approvals by others of the information developed. Sketch plans, sales plats, plot plans, preliminary plans and other such planning drawings prepared from site data assembled from various outside sources may not be based on accurate information and should not be relied on as such. It must be further understood that Boundary disputes and other land surveying matters may only be resolved in a court of law and that CB3 does not warrant the outcome of court decisions. Further, CB3 does not provide warranty, implied or otherwise, against delay or damages caused by government moratoriums, changes in law, code, or other Federal, State and Local regulations.

6. LIMITATION OF LIABILITY

The client recognizes and assumes the inherent risks connected with construction and development. For its part, CB3 will do its best to perform its services in accordance with generally accepted surveying and engineering principles and minimum standards of practice. The liability of CB3 for damages due to professional negligence, breach of contract, or fiduciary responsibility, negligent misrepresentation, fraud or any other actions of law will be limited to an amount of total aggregate liability not to exceed $50,000.00 (Fifty Thousand Dollars) or the CB3 fee for the related item or items performed on that project only, whichever is less. No employee or agent of CB3 shall have any individual liability to the client in addition to, or in excess of, the CB3 liability under these standard terms and conditions. CB3 is not liable for the work done by subcontracted specialists such as, those mentioned in paragraph 4 above. In the event that a dispute should arise relating to the performance of the services to be provided under the agreement and should that dispute result in litigation, it is agreed that CB3 shall be entitled to recover all reasonable costs incurred in the defense or prosecution of the claim, including staff time, court costs, attorney's fees, and other claim-related expenses.

7. OWNERSHIP OF DOCUMENTS AND RESTRICTIONS ON USE OF REPORTS

The parties agree that any and all original plans, drawings, survey field notes, research notes computer files, and electronic data, as instruments of service, shall remain the property of and in the possession of CB3 unless otherwise specified. No copies of documents or plans shall be released until any outstanding invoice balance is paid in full or until compliance with the agreed payment schedule is made. It is also understood that documents or maps rendered under this agreement will be prepared in accordance with the agreed scope and will pertain only to the subject project. Use of the documents and maps and data contained therein for other purposes or beyond their expiration is at the sole risk and responsibility of the user.

8. RIGHT OF ENTRY

The client will provide rights of entry and access for CB3 and necessary permits and permissions in order for CB3 to complete its services. While CB3 will take all reasonable precautions to minimize any damage to the property, it is understood that in the normal course of work some damage may occur to foliage and other obstructions to the survey path, the correction, replacement or repairs of which is not part of the agreement.

9. FIELD WORK

A four hour minimum is required for all construction stakeout orders performed for cost of time spent. All fees based upon hourly rates, including office preparation, will be billed subject to this minimum. Cut sheets to communicate elevations and grades will be provided on request within 48 hours, with the cost for the time spent in their preparation also billed in accordance with the Hourly Rate Schedule. Fees for stakeout services are quoted for one time stakeout only - restakeouts shall be billed again at their additional cost. Single lots left between two separated lot stakeout orders will also be billed for upon the completion of the surrounding lots. Costs incurred for site preparation, including clearing of obstructions or removal of water from footings for bricknails will be billed over and above any lump sum fees quoted. Hubs which may be questioned must remain in place for resolution of any disputes.

10. OFFICE WORK

Unless specifically stated, all services, including research, preparation and processing of plans and other work will be billed for the cost of time spent in accordance with the Hourly Rate Schedule. Lump sum fees if given shall cover the actual preparation of the plans and their submittal if applicable. However time spent for processing of plans, changing plans to meet agency review comments and other such processing services will be billed for the cost of the time spent. The cost of agency review fees and/or application fees are not included in either quoted lump sum fees or hourly rates and will be paid directly by you. It shall be understood that CB3 has no control over the length of review time approvals required by the government agencies and does not warrant their approval.

11. INVOICES AND PAYMENT

CB3 will submit invoices at agreed intervals as work progresses. Invoices will show charges for each category of personnel and expense classification where applicable; a more detailed separation of charges and backup data can be provided at the client's request. Payment of invoices shall not be linked to agency approval as CB3 has no control over their decisions. Work shall be considered incomplete until the account for that project is paid current.

Payment is due upon receipt of invoice and is past due thirty (30) days from the invoice date. Services may be stopped if payment on the account is not current. The client agrees to pay a service charge of 1% per month (12% per annum) or fraction thereof on amounts 90 days past due under this agreement. It is further agreed that if a lien is filed or suit instituted to collect any amount due CB3 under the agreement, client will be liable for and will reimburse CB3 for all court costs and a reasonable attorney's fee in addition to accrued service charges. "Backcharges" for disputed work is not permitted practice under this Agreement.

12. SERVICES AND FEES

Additional services and/or time of performance may be required to complete certain kinds of work because of factors beyond the control of CB3, including but not limited to County or State administration approval, deed research, weather or site restrictions or similar items. Work beyond the scope of services described or unanticipated work required to complete the services described, may be provided at the current Hourly Rate Schedule, which may be increased for inflationary costs after one year at the discretion of CB3. Administrative, filing and permit fees will be paid by the client. The client will reimburse CB3 at cost plus 15% for the expenditures related to fees charged by others for services provided for the client, agency fees, blueprints, copies for special reproduction of reproducible copies which the client requests; and for the delivery cost of special deliveries which the client requests or requires.

13. CLAIMS

In the matter of interpretation, enforcement, and performance of this agreement, the law of the State of Maryland shall apply. Any claims or disputes made during design, construction, or post-construction between you and CB3 must be submitted to non-binding mediation, prior to any litigation claim filings. The cost of mediation shall be shared equally by the parties hereto. In the event mediation is unsuccessful, any claims arising out of this Agreement shall be brought in the Circuit Court of Prince George's County, MD. Client and CB3 hereby waive their rights to a trial by jury. You will make no claim for professional negligence, either directly or in a third party claim, against CB3, unless you have first provided CB3 with a written certification executed by an independent design professional currently practicing in the same discipline as CB3 who is a principal of a bona fide firm, and is licensed in the State of the project site, 30 days prior. In no event shall either Client or CB3 be liable for consequential damages, including, without limitation, loss of opportunity, loss of use, or loss of profits, incurred by one another or their subsidiaries or successors, regardless of whether such damages are caused by breach of contract, willful misconduct, negligent act or omission, or other wrongful act of either of them.

CB3 Consulting Services, inc.

Thinking outside the Box

Company Overview

CB3 Consulting Services Inc is a licensed surveying company firm, blending a unique array of surveying, engineering, construction management and real estate experience. Our distinctive multi-disciplinary approach allows us to offer above average market insight and inteligence to our clients. Centrally located in Upper Marlboro, our strategic partnerships and alliances allow us to better control our costs while still maintaining the high work quality and timeliness that our clients expect over the entire Washington Area.

CB3 specializes in providing high quality professional land surveying services, including but not limited to:

- ☐ **Land Survey**
- ☐ **Lot/Boundary Survey**
- ☐ **Construction Layout**
- ☐ **Topographic, Wetland, Tree, GPS Survey**
- ☐ **FEMA (Elevation Certificates & LOMA)**
- ☐ **ALTA/ASCM Land Title Survey**
- ☐ **Legal Description, Lot Split/Combination**
- ☐ **Subdivision Plats; Easement Documents**
- ☐ **Environmental Consulting**
- ☐ **Real Estate Consulting**

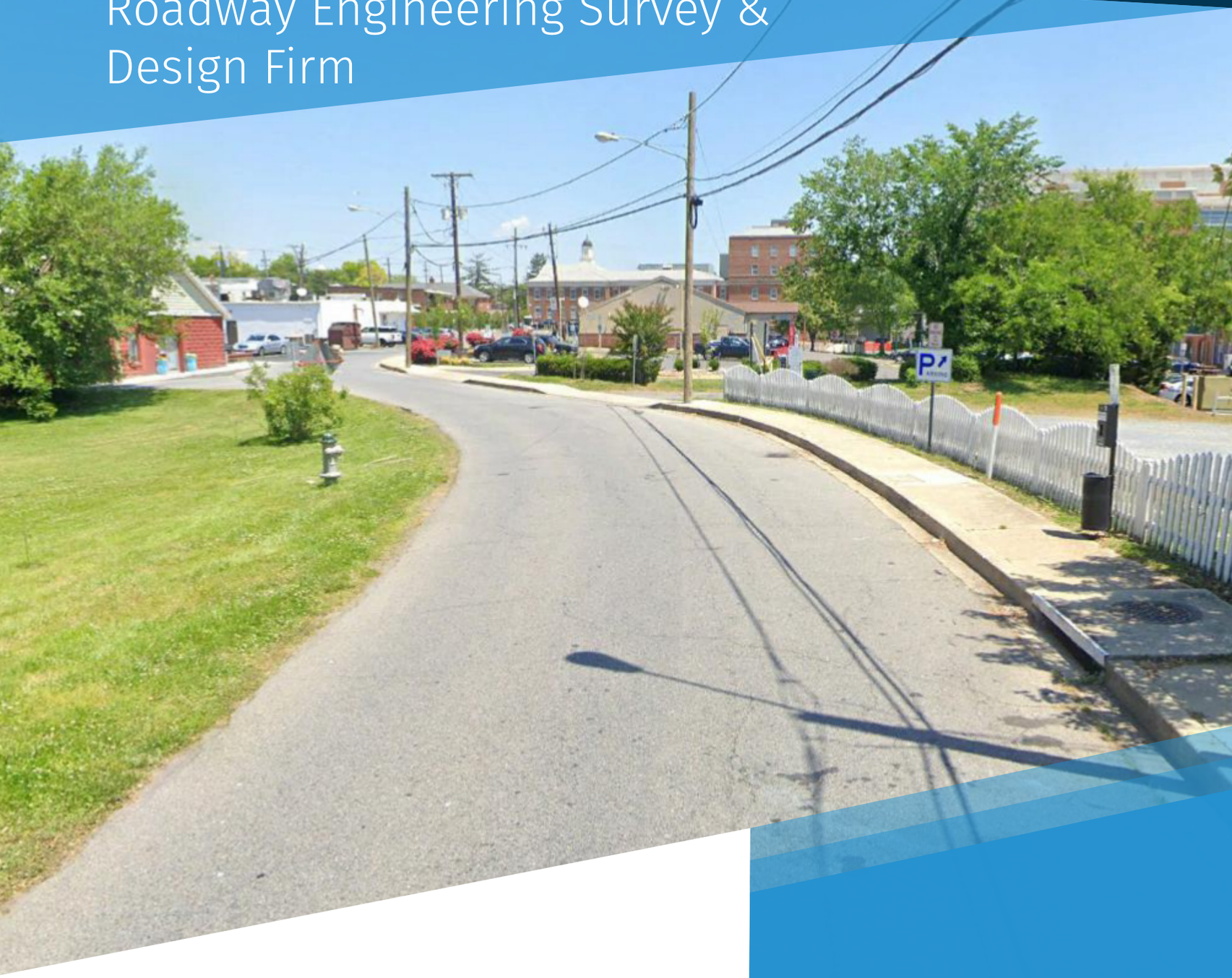
CB3 owns and operates the latest technologies including Robotic GPS (Global Positioning System) RTK Keystone Network to provide cost-effective solutions for our clients to maximize their profitsOur lead surveyor has 35+ years of "hands on" experience in land planning, surveying and civil engineering. His industry knowledge & experience in addition to his commitment to constant the growth and improvement of our services, has allowed our clients to gain a unique competitive advantage by benefiting from advanced value-added, cost effective & creative project solutions.

With a large part of our business coming to us on a referral basis, we bring value to the natural and built environment through a variety of projects. We have provided a variety of surveying services, including wetland delineation, boundary, as-built, tree and topographic surveys, staking of roadway and drainage projects, and providing finished floor elevation certificates for real estate closings. We have been contracted by engineering, architectural and residential design firms to provide surveying services for the development of both residential and commercial properties. From feasibility analyses through planning, surveying, design, permitting, and construction phases, our firm is well qualified and equipped to handle your project from start to finish.

Town of Upper Marlboro
Request for Proposals

KIM ENGINEERING

Roadway Engineering Survey & Design Firm



RFP# UM 2021-03

Due: November 19, 2021 at 5 PM

Kim Engineering, Inc,
5901 Ammendale Rd,
Suite-F,
Beltsville, MD 20705
(240) 542-4238

www.KimEngineering.com

Table of Contents

Letter of Interest

Town of Upper Marlboro
Town Hall
14211 School Lane
Upper Marlboro, MD 20772

Subject: **Roadway Engineering Survey & Design Firm**
RFP #Consulting Engineering Services

Dear Mr. Kyle Snyder,

Kim Engineering, Inc. (KIM) is submitting this proposal as our committed interest for the above referenced RFP. We are certified Prince George's County Based Small Business (CBSB), incorporated in the State of Maryland and we're headquartered at 5901 Ammendale Road, Suite-F, Beltsville, MD 20705.

KIM is a multi-disciplinary engineering firm that has been serving Maryland for over 28 years. We provide in-house civil and geotechnical engineering, landscape architecture and surveying services. We are comprised of approximately 80 employees across 4 offices.

For this contract, our Project Manager will be Peggy White, PE. Vice President of Civil Engineering. You can contact her by phone at (240) 614-7678 or by email at peggywhite@kimengineering.com. Peggy will oversee all aspects of this contract and will be the single point of contact for the Town. She will coordinate all tasks within the team.

We would like to thank the Town for providing a local Prince George's County based business the opportunity to provide a proposal and we look forward to working with you.

Sincerely,
Kim Engineering, Inc.

Sunny Kim
President

Understanding of the Scope of Work

Kim Engineering understands the Town of Upper Marlboro (The Town) needs an assessment of all the town's roadways to create a road replacement schedule and budgeting plan. In addition, the town requires construction drawing plans for the roadway improvements of a few town roads, and repaving estimates of certain HOA roads. The Town plans to begin construction in the Spring of 2022.

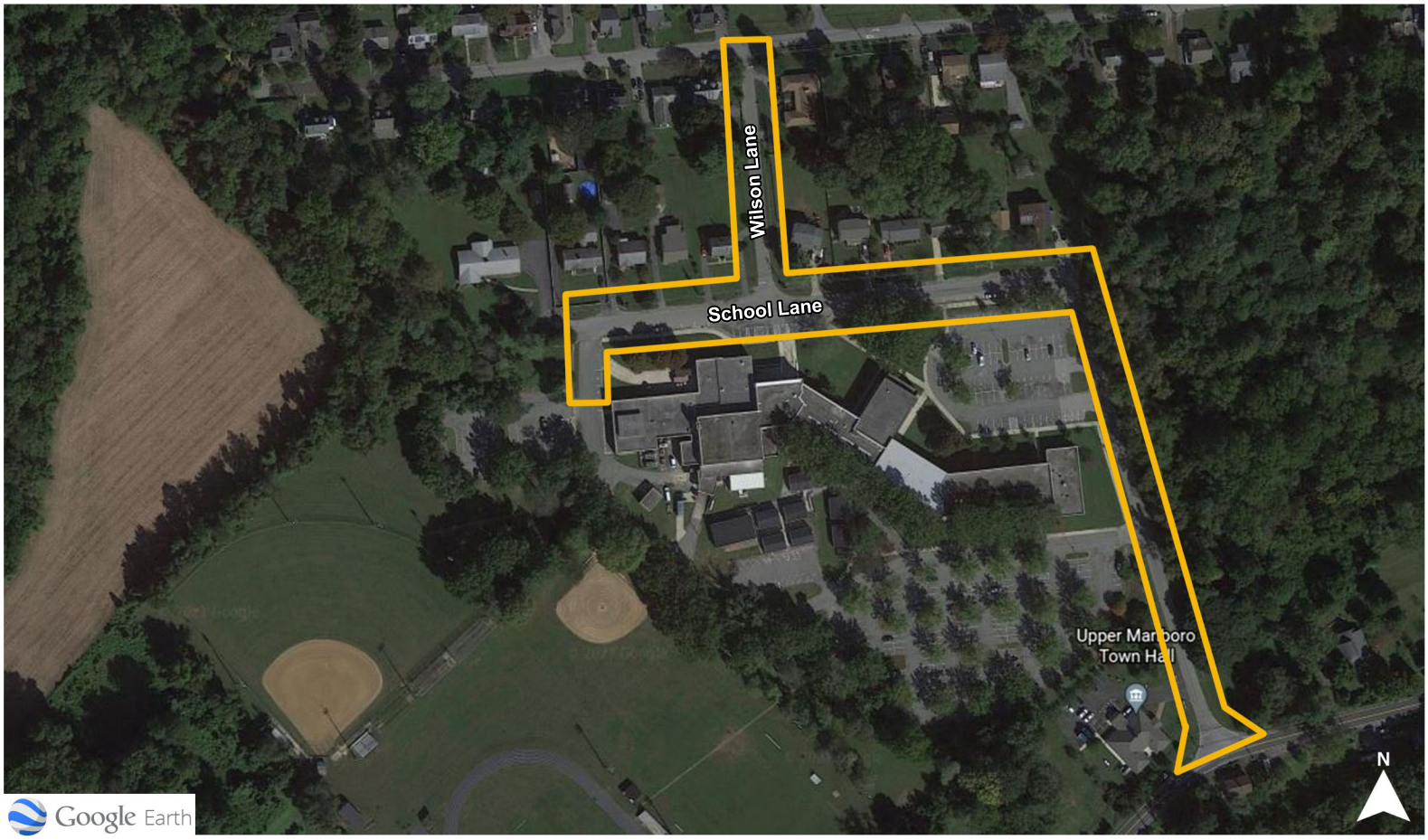
Once the project has been awarded, we will meet with town staff and elected officials to review the needs and goals of the project. We recommend walking the project site with the town staff so they can point out the problem areas. It is our understanding the roadway improvements and stormwater management upgrades involve installing curb and gutter to direct runoff from the roads away from residential front yards to existing roadway inlets. We will assess the entire 2.3 miles of town owned roadway and the HOA owned streets (Marlborough Lane, Marlborough Circle, Marlborough Terrace, Marlborough Court, and Marlborough Grove). We will then conduct topographic survey of the streets that require construction drawing plans: School Lane, Wilson Lane, Church Street, Spring Branch Drive, and Old Mill Road.

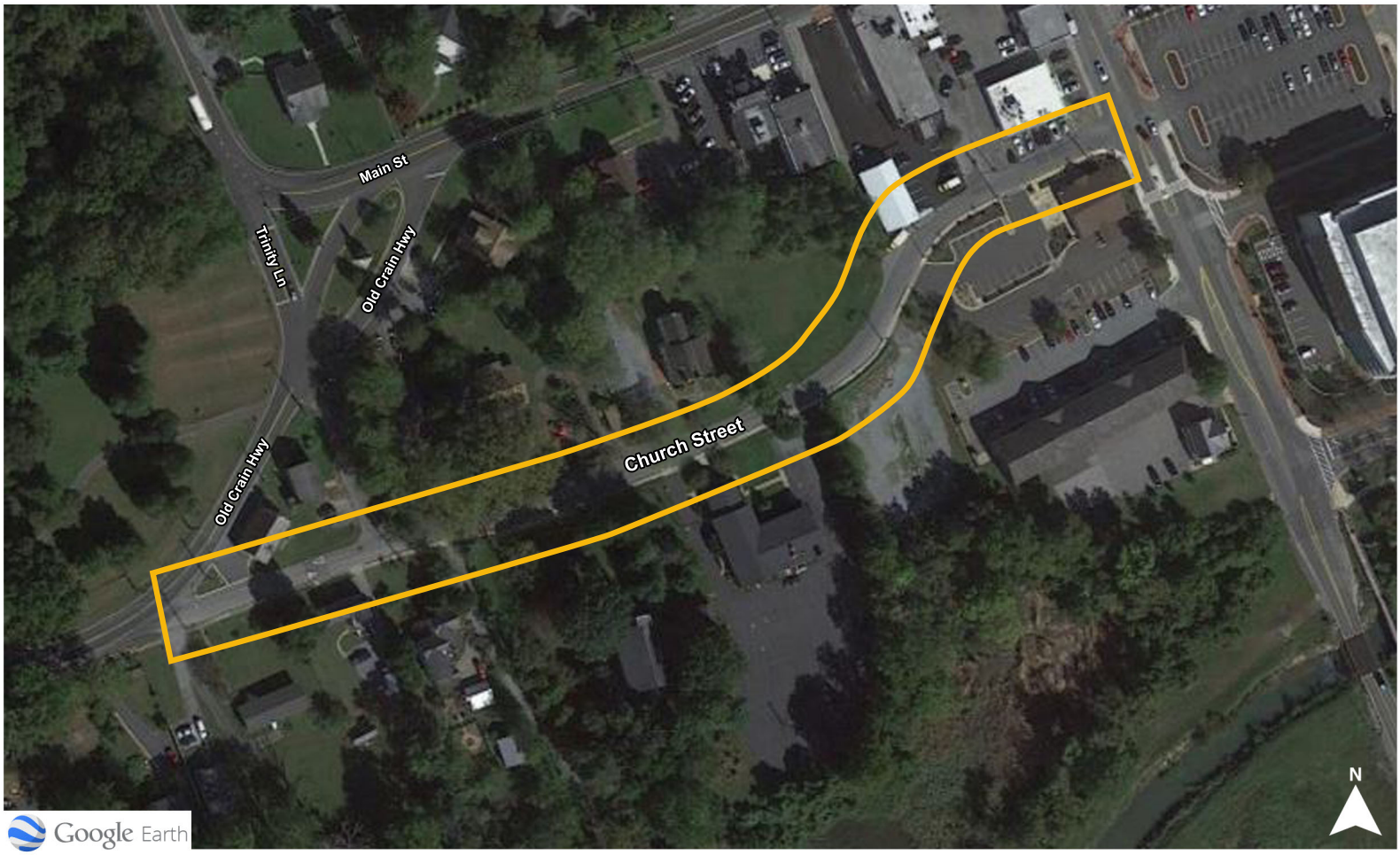
Once we have gathered the topographic information, we will prepare the 50% construction drawings for review by The Town and meet again to go over the comments before preparing the Final construction drawings prior to submitting to Prince George's County for review and approval by the Department of Permitting, Inspections and Enforcement (DPIE). We will divide the project up by road into multiple plan sets so as not to create a disturbance greater than 5,000 square feet which would trigger the requirements to provide sediment control and stormwater management plans. Concurrent with the County review process, we will prepare the road replacement schedule, budgeting plan, and repaving estimates for the HOA roads so that once the county approves the construction drawing plans, we will forward all plans and documents to The Town for their use.

To provide a proposal under the not to exceed budget of $40,000, Kim Engineering assumed the following:

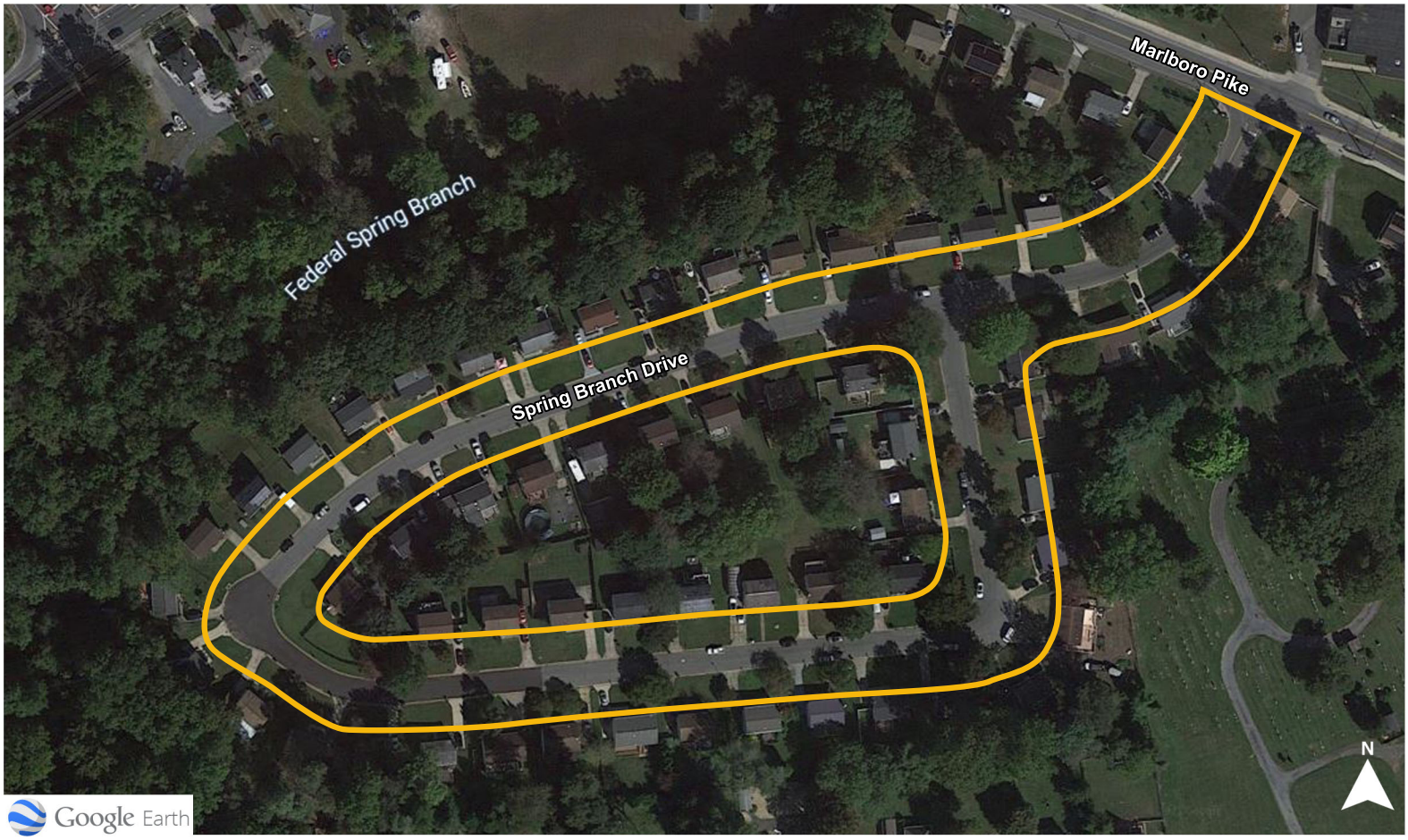
- Topographic survey will be limited to the streets that require construction drawings: School Lane, Wilson Lane, Church Street, Spring Branch Drive, and Old Mill Road as shown in attached images.
- Geotechnical services will not be required, we will utilize standard county pavement sections
- Repaving and the installation of curb and gutter will be classified as maintenance work (not new disturbance) and the project will be divided into plan sets by each road so the disturbance by the installation of sidewalks will be less than 5,000 square feet per road so as not to trigger the state and county requirement for sediment control or stormwater management plans and permits
- Installation of sidewalk and curb and gutter will not require utility relocation
- The existing storm drain infrastructure is sufficient
  - No storm drain analysis is required for existing storm drain system
  - No new storm drainage structures or pipes are required

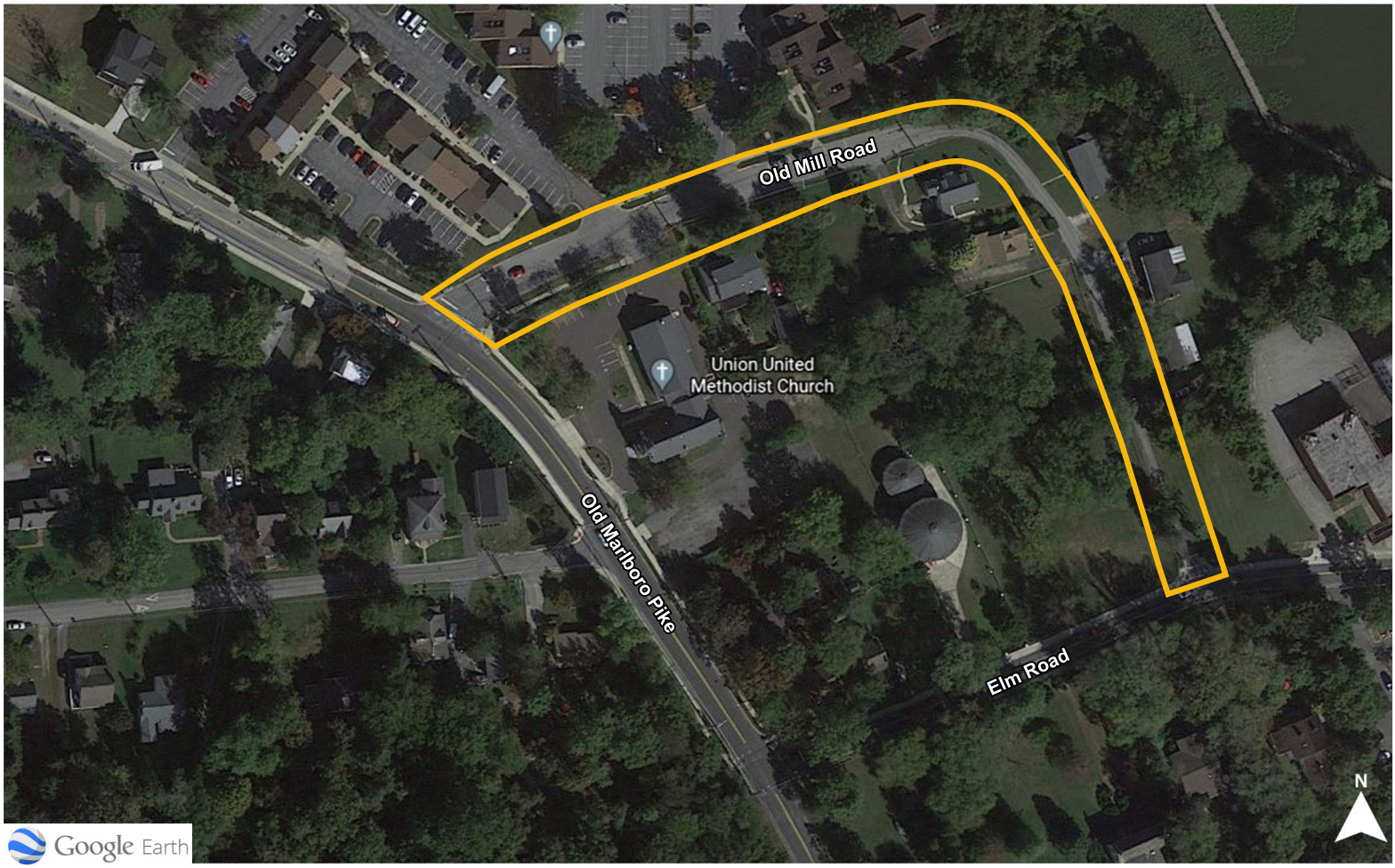
KIM ENGINEERING





KIM ENGINEERING





Key Personnel

Below is our team staff organizational chart

Peggy White, P.E.

Project Manager

Ms. White manages all phases of land development design. She has over 33 years' experience in the areas of Land Planning, Civil Engineering Design, Project Engineering and Project Management and has been involved in a wide variety of commercial, industrial, residential projects, and mixed-use projects in Howard, Prince George's, Anne Arundel, Baltimore, Baltimore City, Montgomery, Carroll, Harford, Frederick and Queen Anne's Counties in Maryland, as well as in Virginia, Delaware, Pennsylvania, New Jersey Washington DC, West Virginia and Ohio. Her experience includes conceptual site design and feasibility studies, planning, engineering design and preparation of construction drawings, project scheduling, coordination, and management.

Firm

Kim Engineering, Inc.

Education

University of Maryland
BS Civil Engineering

Registrations

PE / MD / 17253 / 1990
PE / VA / 0402 036647 / 2001
PE / PA / PE060798 / 2001
PE / DE / 12531 / 2001
PE / DC / PE905670 / 2010
LEED AP
NAHB Certified Green Professional (CGP)

Years of Experience

Total: 36 With Firm: <1

Representative Projects

Longwood Residential Subdivision for Potomac Capital Investment Corporation, Laurel Maryland, Prince George's County, MD
Project Manager for development of 391 single family and 75 townhouse lots. Management of project from preliminary plan through construction including site planning, engineering, and agency approvals. Construction Management services were provided including scheduling, permitting, bid packages, estimating for budgets, and field services as needed. The scope of work included design of 22 public roads totaling 20,000 LF or 3.8 miles of closed section roadways including street tree and lighting. Additionally, required offsite road improvements included widening and reconstructing Muirkirk Road across the front of the subdivision. The project was bisected by the right-of-way in reservation for the future Intercounty connector (ICC). The scope included multiple elevation studies including the pretense of the ICC.

Kenwood Village for Augustine Land and Development, Inc., Prince George's County, MD
Director of Design for full scope services from Land Planning, and Surveying leading to Site Planning, Engineering Services including Floodplain Study, Stormwater Management, and Utility Design for a 62.8-acre 100 lot residential subdivision in Prince George's County, MD. The scope of work included widening and reconstruction of White House Road, a narrow winding road running closely along the edge of the bank of the southwest branch, requiring reconstruction of a 5-pipe culvert crossing, 2,615 LF of public road design and multiple elevation studies for the master-planned Harry S. Truman Drive, south of White House Road.

Dorsey Run Road Extension for Trammell Crow Company, Howard County, MD Director of Design for a Capital Improvement Project for Dorsey Run Road. Project scope included engineering design through permitting for 1.5 miles of new public roadway and infrastructure from Montevideo Road across the entire frontage of the Dorsey Run Road Industrial Center.

Collington Station for Beazer Homes, Prince George's County, MD
Project Manager for the design of 1000+ residential unit subdivision. Work included multiple SWM facilities, public water and sewer and public road design for 24 public roads totaling 22,000 LF or 4.2 miles of roadway.

Snowden Woods Residential Subdivision for Potomac Capital Investment Corporation, Laurel, Prince George's County, MD
Project Manager for development of 90 single-family homes. Management of project from preliminary plan through construction including site planning, engineering, and agency approvals. The scope of work included design of 11 public roads totaling 10,750 LF or 2.0 miles of roadway. Construction Management services were provided including scheduling, permitting, bid packages, estimating for budgets, and field services as needed.

Collington Manor for Beazer Homes, Prince George's County, MD
Project Manager for the design of 100+ residential unit subdivision. Work included multiple SWM facilities, public water, sewer, and road design for 11 public roads totaling 10,750 LF or 2.0 miles.

Castanea/Chestnut Ridge for Cignal Corp Luxury Home Subdivision
Lutherville, Baltimore County, MD
Practice Leader for Land planning, site design and infrastructure engineering of a multi-builder residential single-family subdivision in Lutherville, the Greenspring Valley area of Baltimore County. The site was the former Chestnut Ridge Country Club, comprising about 230 acres of land along Falls Road into an estate lot residential community of 40 homes. The project presented some very unique design challenges related to, sensitivity to the forest conservation, stream buffers, numerous specimen trees, concerns with regard to the surrounding neighborhood and, lastly, Environmental Site Design (ESD). This project surrounds the watershed for Dipping Pond Run, which is the last Use-III Trout Stream in the Baltimore Metropolitan Area. Multiple tributaries of the stream run through the development. The property includes numerous springs which feed the cold-water stream environment. Each of these had substantial recorded Forest Buffer Easements and Forest Conservation Easements surrounding them, with copious amounts of Specimen Trees both inside the buffer and outside. To provide the amount of ESD facilities and targeted management of specific impervious areas (roofs, driveways and roads), we had to develop an intricate system of storm drain outfalls to ensure that water from specific areas went to specific facilities for treatment. Stormwater management for this site required not only ESD, but also 100-year flood control because it is within the Jones Falls interjurisdictional watershed. Furthermore, the design needed to include elements consistent with protecting the Dipping Pond Run watershed and its biological life.

Brandon J. Fritz, P.E.

Civil Engineer

Mr. Fritz is a licensed professional engineer with over 20 years of experience in all aspects of project development, including planning, design, permitting, and construction of land development infrastructure projects. He has designed and managed a broad range of projects that include feasibility studies, conceptual and entitlement plans, and final engineering plans for roadway design, utility design, sediment control, and stormwater management. For over a decade, he has provided leadership, management, and oversight in land development as a Project Manager in various Maryland market sectors: federal, municipal, institutional, commercial, residential, and mixed use. His breadth of experience provides him a comprehensive perspective in handling the unique challenges that often arise in development projects.

Firm

Kim Engineering, Inc.

Education

University of Notre Dame
B.S. Civil Engineering

Registrations

Professional Engineer:
MD #26286

Years of Experience

Total: 20 With Firm: 1

Representative Projects

Greenbelt Road, MD 193, Prince George's County, MD Lead Engineer. Designed a new signalized intersection with Greenbelt Station Parkway, the addition of an acceleration lane, a deceleration lane, a left turn lane, and shoulder improvements. Coordinated with SHA and utility owners to prepare construction drawings for approval through SHA.

Smith Home Farm, Prince George's County, Maryland. Lead Engineer. Designed the Grade Establishment Plans, Storm Drain and Paving Plans, Street Tree and Lighting Plans, and Traffic Control Plans of Central Park Drive and Rock Spring Drive, main collector roads of the development.

Dorsey Mill Road Bridge, Germantown, MD. Project Manager. Managed the design for $20 million new road and bridge construction over I-270 as a condition of the adjacent development. The new 4 lane divided road will provide a link from the new development to the west of I-270 with the existing development to the east. This new road will also be a crossing for the future Corridor Cities Transitway.

Moore Property, Prince George's County, Maryland. Lead Engineer. Designed the Grade Establishment Plans, Storm Drain and Paving Plans, and Stormwater Management Plans for the development. In addition, designed the road widening improvements along Presidential Parkway (Extended).

Muncaster Mill Road Roadway Improvements, Rockville, MD. Project Manager. Managed and designed the offsite roadway improvements associated with the proposed adjacent residential development. The improvements included the addition of an acceleration lane, a deceleration lane, a bypass lane, and shoulder improvements. Designed stormwater management facilities under the new ESD requirements. Coordinated with MCDPS, SHA, MCDOT, WSSC, and MDE to receive approvals of the erosion & sediment control/stormwater management plans, access permit, street light plans, SEP, and NPDES permit, respectively. Coordinated with Washington Gas, Columbia Gas, and Williams Gas to widen the road over the transcontinental gas pipeline.

Century Boulevard, Germantown, MD. Project Manager. Managed the construction administration of the $7.5-million extension of Century Boulevard, a 4-lane divided road from the end of the existing Century Boulevard north a half mile under Father Hurley Boulevard and over an existing stream using a steel arch culvert. Served as the professional consultant to MCDOT for this CIP project that provided a vital economic and transportation link in Germantown, MD.

Stringtown Road, Clarksburg, MD. Lead Engineer. Managed the construction administration of the extension of Stringtown Road, a four-lane divided roadway, from its terminus at Frederick Road (MD 355) to the east side of the I-270 Clarksburg Road interchange (2,735 feet). The project included severing the existing Clarksburg Rd (MD 121) connection to the interchange at I-270 and converting it into a cul-de-sac just west of the Gateway Center Drive intersection.

Norbourne Property, Prince George's County, Maryland. Lead Engineer. Designed the Grade Establishment Plans, Storm Drain and Paving Plans, and Stormwater Management Plans for the development. In addition, designed the road widening improvements along Woodyard Road, MD 223 for site access.

Karen Carpenter, RLA

Landscape Architect

Ms. Carpenter has over 35 years' experience providing services for Land Development projects. Ms. Carpenter's responsibilities include the management of land development projects that have ranged from single building commercial sites to 600 single-family unit subdivisions and numerous mixed-use planned communities. Her specific responsibilities require Ms. Carpenter to manage the preparation, approval and permitting of all development plans from site feasibility stage through construction. Ms. Carpenter also has extensive experience in the preparation of Rezoning Requests, Project Feasibility Reports and Natural Resource Inventory/Forest Stand Delineation Plans and Reports. She has been successful in presenting projects to numerous government agencies and has been qualified as an Expert Witness.

Firm

Kim Engineering, Inc.

Education

West Virginia University
B.S. Landscape Architecture

Registrations

Registered Landscape Architect, MD No. 527

Certified by the State of Maryland to prepare Forest Stand Delineations and Forest Conservation Plans

Years of Experience

Total: 35 With Firm: 7

Representative Projects

Fields Road

Project Manager for the expansion and rebuilding of one mile of Fields Rd, in Gaithersburg, Maryland. This project involved coordination with engineers for the proposed Crown Farm project along the property frontage.

Maryland Route 27

Served as the Senior Project Manager on the preparation of road improvement plans for 3.5 miles of Maryland Route 27, a state road, in Clarksburg, Maryland. This project involved coordination with the engineers for the Clarksburg development and the numerous individual property owners along the road frontage.

Collingbrook, Bowie, Maryland

Project manager for the design and approval of this 92 lot residential project. Management of the project from Preliminary Plan through construction documents. The project included design for over 2.1 miles of open section residential streets, including storm drain and utility design. The project also included design tie into Church Road, a rural roadway along the property frontage.

Lonergan/Rodenhauser, Bowie, Maryland

Project manager for the design and approval of this 61 lot residential project from Preliminary Plan through construction documents. The project included design for over 1 mile of open section residential streets, including storm drain and utility design. The project also included design tie into Church Road, a rural roadway along the property frontage.

Firm
Kim Engineering, Inc.

Education
1981-1982 University of Houston
Major: Architecture

1982-1985 University of Oregon
Majors: Political Science & English

Registrations
Maryland Professional Land Surveyor No. 21237

Delaware Professional Land Surveyor No. S6-0000813

Pennsylvania Professional Land Surveyor No. SU075514

District of Columbia Professional Land Surveyor No. LS2002046

Virginia Land Surveyor No. 0403003486

Years of Experience
Total: 33 With Firm: 2

James A Fleming, LS

Professional Land Surveyor

Mr. Fleming is Vice President at Kim Engineering, Inc. and is responsible for managing their corporate surveying operations. He has more than 30 years of experience in the execution and management of surveying projects in the Washington DC/Baltimore region involving public works facilities, transportation, municipal improvements, land development, and school facility improvements. Projects have involved centerline/baseline stakeout of roads, pipelines and utilities, cross section surveys of streams and roadways, detailed topographic surveys, easement sketch and legal description preparation, preparation of subdivision record plats, construction stakeout, property line and boundary surveys, and as-built surveys. Mr. Fleming was the Survey and Subsurface Utility Engineering subject matter expert for the 2017 revision of the DC DOT Design Manual

Representative Projects

National Park Seminary, Silver Spring, MD Project Surveyor for firm providing professional surveying, engineering and landscape architectural services related to the redevelopment of the 32 acres National Park Seminary section of the Walter Reed Army Medical Center. Surveying services included control, boundary and topographic surveys, preparation of easement sketches and legal descriptions, ALTA/ACSM Land Title Survey, subdivision record plats, and supervision of construction stakeout.

Municipal Boundary Survey, Thurmont Maryland Project Surveyor for the compilation of the municipal boundary of the Town of Thurmont. Tasks included land records research to compile all individual lot annexations over a forty-year period, plotting of all annexations and combining into one survey datum, and preparing a revised map and metes and bounds description of the current corporate boundaries.

UMD East Campus Redevelopment, College Park, MD - Project Surveyor for firm providing professional surveying and civil engineering services in conjunction with the redevelopment of all UMD property east of Route 1. Surveying services included control, boundary and topographic surveys, and ALTA/ACSM Land Title Surveys

Dumbarton Oaks Utility Upgrades, Washington, DC: Project Manager for boundary & utility survey associated with waterline upgrades at Dumbarton Oaks . Surveying services included survey control network and topographic and utility survey of project area to include detailed survey of landscape and hardscape areas

KIM ENGINEERING

Proposal Fee Schedule

RFP # UM 2021-03

Fee Items **11/18/2021**

		Project Manager	Civil Engineer	Designer/ Cad Tech	Survey Crew	Survey Cad Tech	Total	% of total
Scope	**Rate**	**$ 130.00**	**$ 95.00**	**$ 80.00**	**$ 150.00**	**$ 80.00**		
Kick-off meeting	Hours	**3**	**3**	**0**	**0**	**0**	**6**	
(assumed 3 hours max.)	Fee	**$390.00**	**$285.00**	**$0.00**	**$0.00**	**$0.00**	**$675.00**	2%
Site Visit	Hours	**8**	**0**	**0**	**0**	**0**	**8**	
	Fee	**$1,040.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$1,040.00**	3%
Topographic Survey	**Hours**	**0**	**0**	**0**	**48**	**16**	**64**	
	Fee	**$0.00**	**$0.00**	**$0.00**	**$7,200.00**	**$1,280.00**	**$8,480.00**	**23%**
50% Construction Drawings	**Hours**	**32**	**80**	**56**	**0**	**0**	**168**	
	Fee	**$4,160.00**	**$7,600.00**	**$4,480.00**	**$0.00**	**$0.00**	**$16,240.00**	**43%**
School Lane	Hours	5	10	10	0	0	25	
(approx. 1,500')	Fee	$650.00	$950.00	$800.00	$0.00	$0.00	$2,400.00	6%
Wilson Lane	Hours	3	6	6	0	0	15	
(approx. 400')	Fee	$390.00	$570.00	$480.00	$0.00	$0.00	$1,440.00	4%
Church Street	Hours	5	10	10	0	0	25	
(approx. 1,100')	Fee	$650.00	$950.00	$800.00	$0.00	$0.00	$2,400.00	6%
Spring Branch Drive	Hours	10	20	20	0	0	50	
(approx. 2,300')	Fee	$1,300.00	$1,900.00	$1,600.00	$0.00	$0.00	$4,800.00	13%
Old Mill Road	Hours	5	10	10	0	0	25	
(approx. 1,050')	Fee	$650.00	$950.00	$800.00	$0.00	$0.00	$2,400.00	6%
Comprehensive Road Replacement Schedule/	Hours	4	24	0	0	0	28	
budgeting plan/ repaving estimate	Fee	$520.00	$2,280.00	$0.00	$0.00	$0.00	$2,800.00	7%
Comment meeting	Hours	**3**	**3**	**0**	**0**	**0**	**6**	
(assumed 3 hours max.)	Fee	**$390.00**	**$285.00**	**$0.00**	**$0.00**	**$0.00**	**$675.00**	2%
Final Construction Drawings	**Hours**	**20**	**54**	**34**	**0**	**0**	**108**	
	Fee	**$2,600.00**	**$5,130.00**	**$2,720.00**	**$0.00**	**$0.00**	**$10,450.00**	**28%**
School Lane	Hours	3	6	6	0	0	15	
(approx. 1,500')	Fee	$390.00	$570.00	$480.00	$0.00	$0.00	$1,440.00	4%
Wilson Lane	Hours	2	4	4	0	0	10	
(approx. 400')	Fee	$260.00	$380.00	$320.00	$0.00	$0.00	$960.00	3%
Church Street	Hours	3	6	6	0	0	15	
(approx. 1,100')	Fee	$390.00	$570.00	$480.00	$0.00	$0.00	$1,440.00	4%
Spring Branch Drive	Hours	6	12	12	0	0	30	
(approx. 2,300')	Fee	$780.00	$1,140.00	$960.00	$0.00	$0.00	$2,880.00	8%
Old Mill Road	Hours	3	6	6	0	0	15	
(approx. 1,050')	Fee	$390.00	$570.00	$480.00	$0.00	$0.00	$1,440.00	4%
Comprehensive Road Replacement Schedule/	Hours	3	20	0	0	0	23	
budgeting plan/ repaving estimate	Fee	$390.00	$1,900.00	$0.00	$0.00	$0.00	$2,290.00	6%
Total	**Hours**	**66**	**140**	**90**	**48**	**16**	**360**	
	Fee	**$8,580.00**	**$13,300.00**	**$7,200.00**	**$7,200.00**	**$1,280.00**	**$37,560.00**	
								100%

TOTAL PROJECT FEES **$37,560.00**