

**Response and Development**  
**Work Plan Addendum**  
*Interim Remedy for Phased Occupancy and Use*  
*& Proposed Rail Track Cross Section*

**Area B: Sub-Parcel B5-1**  
**Tradepoint Atlantic**  
**Sparrows Point, Maryland**

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Revision 1  
February 19, 2018

ARM Project 160443M-10

Respectfully Submitted,



Taylor R. Smith  
Project Engineer



T. Neil Peters, P.E.  
Senior Vice President

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## 1.0 INTRODUCTION

### 1.1. BACKGROUND

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), has prepared this Response and Development Work Plan (RADWP) Addendum to facilitate the interim occupancy and use of a portion of Sub-Parcel B5-1 (the Site) designated as the Phase 1 development area. This interim use is proposed prior to full implementation of the agency-approved RADWP for Sub-Parcel B5-1. The use of the Phase 1 area must be approved by the Maryland Department of the Environment (MDE) and the United States Environmental Protection Agency (USEPA) if the Site is to be occupied prior to the completion of all required cleanup and redevelopment activities. The proposed full redevelopment plan for Sub-Parcel B5-1 is described in detail in the agency-approved Sub-Parcel B5-1 RADWP (Revision 3) dated September 27, 2017. A previous submission of this RADWP (Revision 1) dated June 29, 2017 was approved for implementation by the MDE on July 19, 2017. The RADWP was later updated based on agency guidance, and the most recent version (Revision 3) was approved by the USEPA on October 12, 2017.

As described in the approved Sub-Parcel B5-1 RADWP, Parcel B5 is comprised of approximately 305 acres of the approximately 3,100-acre former plant property located as shown on **Figure 1**. The redevelopment area (Sub-Parcel B5-1) consists of approximately 124 acres, the majority of which is within the southern portion of Parcel B5 (approximately 80.7 acres) with a corridor through Parcel B13 in the Ore Yard Material Handling Area. The Site is slated for redevelopment with six bulk material storage buildings and an associated truck scale, along with lighting improvements and a marine access road (**Figure 2a/2b**). Development activities will generally include grading, construction of slab on-grade bulk material storage buildings (including three 200,000 square foot buildings and three 150,000 square foot buildings), hot mix asphalt (HMA) paving surrounding the bulk storage buildings totaling 1,050,000 square feet, connections to existing stormwater systems, lighting improvements, and a marine access road totaling approximately 376,000 square feet. Subsequent site-use will involve industrial workers in the bulk storage buildings and truck drivers entering and leaving the Site.

In addition to the redevelopment plan outlined in the approved Sub-Parcel B5-1 RADWP, a new rail spur is proposed to connect to an existing rail track located to the east of the Site. Since the development area containing the bulk material storage buildings requires a capping remedy (discussed in greater detail below), the track itself must act as a cap to prevent potential exposures to the underlying existing soils. A proposed rail track cross section specification is provided herein for approval to be incorporated into the overall redevelopment plan.

The approved RADWP provides a Site description and history; summary of environmental conditions identified by the Phase I Environmental Site Assessment (ESA); summary of environmental conditions identified by subsequent Phase II Investigations including work

associated with the Parcel B5 Phase II Investigation, the Parcel B13 Phase II Investigation, and the Area B Groundwater Investigation; a human health Screening Level Risk Assessment (SLRA) conducted for the identified conditions; and engineering and institutional controls which were designed to facilitate the planned Sub-Parcel B5-1 redevelopment and address the impacts and potential human health exposures. The engineering and institutional controls outlined in the Sub-Parcel B5-1 RADWP include work practices and applicable protocols that were submitted for approval to support the redevelopment and use of the Site.

The focus of this RADWP Addendum is the risk assessment and associated requirements to address the redevelopment project and facilitate interim use of the Site. In addition, this RADWP Addendum provides a proposed rail track cross section to be installed through one of the bulk material storage buildings, which was not previously included in the Sub-Parcel B5-1 RADWP.

## **1.2. HUMAN HEALTH SCREENING LEVEL RISK ASSESSMENT (SLRA)**

A human health SLRA was performed for the soils in Sub-Parcel B5-1 to determine potential future risks to Composite Workers and Construction Workers. The complete SLRA for the Site is described in the approved Sub-Parcel B5-1 RADWP (Revision 3) dated September 27, 2017, and a summary of the Composite Worker assessment is provided below.

The SLRA was conducted for soils to further evaluate the Site conditions in support of the design of necessary response measures. The Site was divided into three defined exposure units (EUs) for evaluation of the future Composite Worker scenario, identified as B5 Road (21.5 acres), B5 Building (59.2 acres), and B13 Road (41.3 acres). The southernmost Composite Worker EU (B13 Road) excludes roughly 2 acres of the sub-parcel because this area is occupied by the Finger Pier which extends into the Patapsco River. The Finger Pier is constructed of concrete, and does not contain any soil which could be considered to be a potential exposure risk. The actual limit of disturbance (LOD) for the marine road and lighting improvements is relatively narrow so the EUs have been extended laterally to capture data from soil boring locations near the proposed road corridor, as defined by the Composite Worker EUs (shown on **Figure 3**).

Compounds that are present in soil at concentrations at or above the USEPA Regional Screening Levels (RSLs) set at a target cancer risk of 1E-6 or target non-cancer Hazard Quotient (HQ) of 0.1 were identified as constituents of potential concern (COPCs) to be included in the SLRA. Exposure point concentrations (EPCs) were calculated for each COPC soil dataset (i.e., surface, subsurface, and pooled surface/subsurface) in each EU using the ProUCL software (version 5.0) developed by the USEPA. The EPCs were used to generate risk ratios for the potential future Composite Worker. The results of the Composite Worker SLRA are summarized below:

Worker Scenario	Exposure Unit	Medium	Hazard Index (>1)	Total Cancer Risk
Composite Worker	B5 Road (21.5 acres)	Surface Soil	none	6E-6
		Subsurface Soil	none	2E-6
		Surface & Subsurface Soil	none	5E-6
	B5 Building (59.2 acres)	Surface Soil	none	2E-5*
		Subsurface Soil	none	8E-6
		Surface & Subsurface Soil	none	2E-5*
	B13 Road (41.3 acres)	Surface Soil	none	4E-6
		Subsurface Soil	none	7E-6
		Surface & Subsurface Soil	none	5E-6

\*Exceeds the allowable limit for no further action specified by the agencies.

Based on the results of the SLRA, the B5 Road and B13 Road EUs of Sub-Parcel B5-1 are suitable for use by future Composite Workers without any further action. No capping is required or proposed in these two EUs. The B5 Building EU requires mitigation of the estimated cancer risks associated with surface (and pooled) soil via a capping remedy with institutional controls and long term maintenance requirements. A capping remedy has been designed for the entire B5 Building EU, with the exception of a small (approximately 1 acre) utility corridor which will be trenched for lighting installations. This utility corridor will be backfilled with MDE-approved materials and thus will not represent an exposure risk. **Figure 4a/4b** shows the extent of the capping remedy required for the B5 Building EU. The six bulk materials buildings will not cover the entire B5 Building EU, and asphalt paving will ultimately cap the ground surface in the areas between the buildings.

The Construction Worker exposure scenario was more realistically modeled with the use of a single EU for the proposed construction work. Intrusive construction work will be conducted simultaneously throughout the development LOD. The SLRA results for the site-wide 105-day exposure scenario are summarized as follows:

Worker Scenario	Exposure Unit	Medium	Hazard Index (>1)	Total Cancer Risk
Construction Worker (105 days)	Site-Wide (70.4 acres)	Surface Soil	none	8E-7
		Subsurface Soil	none	6E-7
		Surface & Subsurface Soil	none	8E-7

Using the 105-day site-wide exposure scenario, the carcinogenic risks for surface, subsurface, and pooled soils were all computed to be less than 1E-5, the acceptable carcinogenic risk level

for no further action. In addition, none of the non-carcinogens caused a cumulative HI to exceed 1 for any target organ system for surface, subsurface, or pooled soils using the 105-day exposure duration for the site-wide EU. This assessment indicates that site-specific health and safety protocols or further action would be required for the proposed construction only if intrusive activities exceed 105 work days. Additional worker protective measures beyond standard level D protection are not necessary for the intrusive construction work planned for Sub-Parcel B5-1 if this exposure duration is not exceeded by an individual worker. If the total duration of site-wide intrusive work would exceed the specified limit of 105-days, the work would need to be completed by a separate crew, or additional health and safety protections would be required.

All intrusive work associated with the proposed interim remedy will be performed within the same schedule as the construction and paving installation work. Thus, no unacceptable risk or hazard will result from the completion of the proposed interim remedy.

## 2.0 RADWP ADDENDUM

### 2.1. OBJECTIVES

The approved RADWP specified that if occupancy and use of the Site was proposed prior to full implementation of the capping remedy for the B5 Building EU, a detailed RADWP Addendum must be submitted to the agencies and approved prior to use. The RADWP stated that the Addendum would need to include details of the proposed interim remedy including locations and protocols for the installation and maintenance of the proposed interim measures. The *primary objective* of this document is to satisfy this agency requirement to allow interim occupancy and use of the central portion of the Site (Phase 1 area) prior to full implementation of the required capping remedy. A *secondary objective* of this document is to obtain agency approval of a proposed rail track cross section which should satisfy the pavement thickness requirements to function as a cap.

### 2.2. PHASED IMPLEMENTATION OF CAPPING REMEDY

The final capping remedy for the B5 Building EU is proposed to be installed using a phased approach over approximately 3 years. The first pair of buildings to be substantially constructed (Phase 1) will be the two buildings located in the center of the B5 Building EU. Tradepoint Atlantic would like to allow occupancy and use of those portions of the Site where the capping remedy has been completed during the interim period prior to full implementation of the required remedy for the entire B5 Building EU. An interim remedy will be installed during the proposed use period to restrict potential exposures to those portions of the B5 Building EU where the capping remedy has not yet been completed. Under the interim remedy, the Composite Worker would be prevented from contacting potentially impacted soils in the B5 Building EU via interim measures while industrial activities are being conducted on (completed) paved portions of this EU. The proposed interim measures for the Site will include access restrictions via both the installation of perimeter fencing and a capping remedy consisting of crushed concrete. Any recycled concrete must be approved as “clean” with a pile designation and sampling results provided to the MDE for review.

### 2.3. RAIL TRACK CROSS SECTION

A rail spur is proposed to connect one of the central bulk material buildings to an existing rail track located to the east of the Site. The alignment of the proposed rail spur is indicated on the modified development plan drawing given in **Appendix A**. The proposed cross section consists of a countersunk rail within a 7-inch thick layer of asphalt. The 7-inch layer of asphalt is sufficient to act as the required capping remedy to prevent potential Composite Worker exposures to the underlying soil for the B5 Building EU. Therefore, the proposed track should be acceptable to be constructed in place of the asphalt cap which is already proposed. The SLRA

presented in the Sub-Parcel B5-1 RADPW indicated that an exposure duration of 105 days did not result in any potentially unacceptable risk or hazard. Because the rail spur construction will occur within the same time period as the building and paving construction, no additional risk or hazard result from the addition of the proposed interim remedy.



### 3.0 IMPLEMENTATION PROTOCOLS

#### 3.1. INSTALLATION OF INTERIM REMEDY

The interim remedy for Sub-Parcel B5-1 will consist of both 1) the installation of perimeter fencing around uncapped areas of the Site and 2) a capping remedy consisting of crushed concrete to be placed over the undeveloped areas of the Site. The first pair of buildings to be substantially constructed (Phase 1) will be the two bulk material buildings located in the center of the B5 Building EU, and potential exposures to the remaining areas of this EU must be addressed to allow interim use. The building layout and interim remedies are shown on the modified development plan drawing given in **Appendix A**. As shown in **Appendix A**, a fence is proposed for the undeveloped area to the north of the Phase 1 development area, while a crushed concrete remedy is proposed for the undeveloped area to the south. The layouts of the two proposed remedies address the potential exposure risks to uncapped portions of the Site. Therefore, the installation of both interim remedies would satisfy the agency requirement to address potential exposures for a Composite Worker performing duties in the Phase 1 area.

A perimeter fence will be installed along the alignments given in **Appendix A**. In this case, non-ground intrusive chain link temporary storm fencing will be used. A sample photograph of the temporary fencing which has previously been approved for use on the Tradepoint Atlantic property is included as **Appendix B**. Crushed concrete will be installed throughout the areas identified in **Appendix A**. In this case, recycled crushed concrete sourced from the Tradepoint Atlantic property (which has been used by MCM Construction Inc. for various redevelopment projects on the property) will be placed in a 4-inch thick layer in all applicable areas.

Construction oversight by an environmental professional (EP) will ensure and document that the interim remedy is built as designed and appropriate environmental and safety protocols are followed. Upon completion, the EP will certify that the project is constructed in accordance with this RADWP Addendum. All construction activities, including the installation of the interim remedy, remain subject to the requirements given in the Sub-Parcel B5-1 RADWP (Revision 3) dated September 27, 2017. The EP shall provide records to document:

- Daily observations of construction activities during remedy installation
- Proper remedy construction, including alignment and thickness (if applicable)
- Other encountered conditions covered by the RADWP, as applicable

#### 3.2. INTERIM REMEDY INSPECTION AND MAINTENANCE REQUIREMENTS

Regular inspections will be required to verify that there are no potential exposure risks for Composite Workers performing duties on completed portions of the B5 Building EU. Inspections of the interim remedy will be completed at a minimum frequency of monthly. The

responsible party will perform cap maintenance inspections, perform maintenance of the cap, and retain cap inspection records. If the responsible party determines that an exposure risk is present (e.g., missing or damaged sections of fence; exposed areas of soil or missing crushed concrete cap), the MDE must be notified within 48 hours of the deficiency, and corrective action must be taken within 15 business days. If a corrective action is required, the MDE notification will include documentation of the observed conditions and the location of any repairs. These schedules and timeframes for inspections, notifications, and repairs are the same for the permanent caps which will be installed throughout the B5 Building EU, as specified in the approved RADWP.

### **3.3. RAIL TRACK CROSS SECTION**

As shown on the development drawing provided in **Appendix A**, a rail spur is proposed to connect one of the central bulk material buildings to an existing rail track located to the east of the Site. The proposed rail track cross section is provided in **Appendix C**. As shown in this drawing, the proposed cross section consists of a countersunk rail within a 7-inch thick layer of asphalt. A 10-inch thick layer of ballast will be installed below the asphalt layer, interbedded with 7-inch wood crossties. The 7-inch layer of asphalt is sufficient to act as the required capping remedy to prevent potential Composite Worker exposures to the underlying soil for the B5 Building EU. Therefore, the use of the proposed rail track cross section should meet the approved requirements for paved caps installed at the Site.

#### 4.0 REPORTING AND IMPLEMENTATION SCHEDULE

A Completion Notification Letter summarizing the interim remedy installation activities will be prepared following implementation. The Completion Notification Letter will include the schedule of construction and appropriate documentation from the EP to certify that the interim remedy has been installed as designed.

As specified in the preceding section, if the results of the monthly inspections indicate that an exposure risk is present, the MDE must be notified within 48 hours of the deficiency, and corrective action must be taken within 15 business days. However, if no deficiencies are apparent and the interim remedy does not require any substantial maintenance, the results of the inspections may be reported to the MDE and USEPA on an annual basis. Any such routine annual reporting may be combined into one of the Sub-Parcel B5-1 Quarterly Development Status Updates; the approved Sub-Parcel B5-1 RADWP specified that progress reports would be submitted on a quarterly basis, as had previously been requested by the agencies.

In addition, the MDE and USEPA will be provided with a written notice at least 30 days prior to any planned removal or modification to the proposed interim remedy once it has been installed.

The proposed implementation schedule is shown below.

<b><u>Task</u></b>	<b><u>Proposed Completion Date</u></b>
Anticipated RADWP Addendum Approval	February 23, 2018
Building Construction and Paving Installation (Phase 1) – Center Buildings, Main Utility Services, and Rail Spur	February 28, 2018
Interim Remedy Installation – Crushed Concrete Placement or Perimeter Fence	February 28, 2018
Submittal of Completion Notification Letter	February 28, 2018
Submittal of Inspection/Maintenance Results	As Required Following Interim Remedy Installation (See Guidance Above)

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## **FIGURES**

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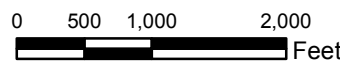


Site Boundary  
 Parcel Boundaries  
 Private Property

Tradeport Atlantic  
Area A and Area B Parcels


July 25, 2017

Figure  
**1**

  <b>ARM Group Inc.</b> Earth Resource Engineers and Consultants	Tradeport Atlantic
	Baltimore County, MD
	EnviroAnalytics Group
	Area A: Project 150298M Area B: Project 150300M Development: Project 160443M
 0 500 1,000 2,000 Feet	



<p>Figure <b>2a</b></p>	<p>drawing title <b>SUB-PARCEL B5-1 SITE DEVELOPMENT PLAN</b></p>		<p>designed JMA scale 1" = 200'</p>
	<p>project title <b>SPARROWS POINT AREA B ENVIROANALYTICS GROUP</b></p>		<p>checked TNP date 3/31/2017</p>
<p>SPARROWS POINT BALTIMORE COUNTY, MARYLAND</p>		<p>drawn JMA project no. 160443M</p>	<p>0 200 400 SCALE IN FEET</p>



**ARM Group Inc.**  
Earth Resource Engineers  
and Consultants  
[www.armgroup.net](http://www.armgroup.net)



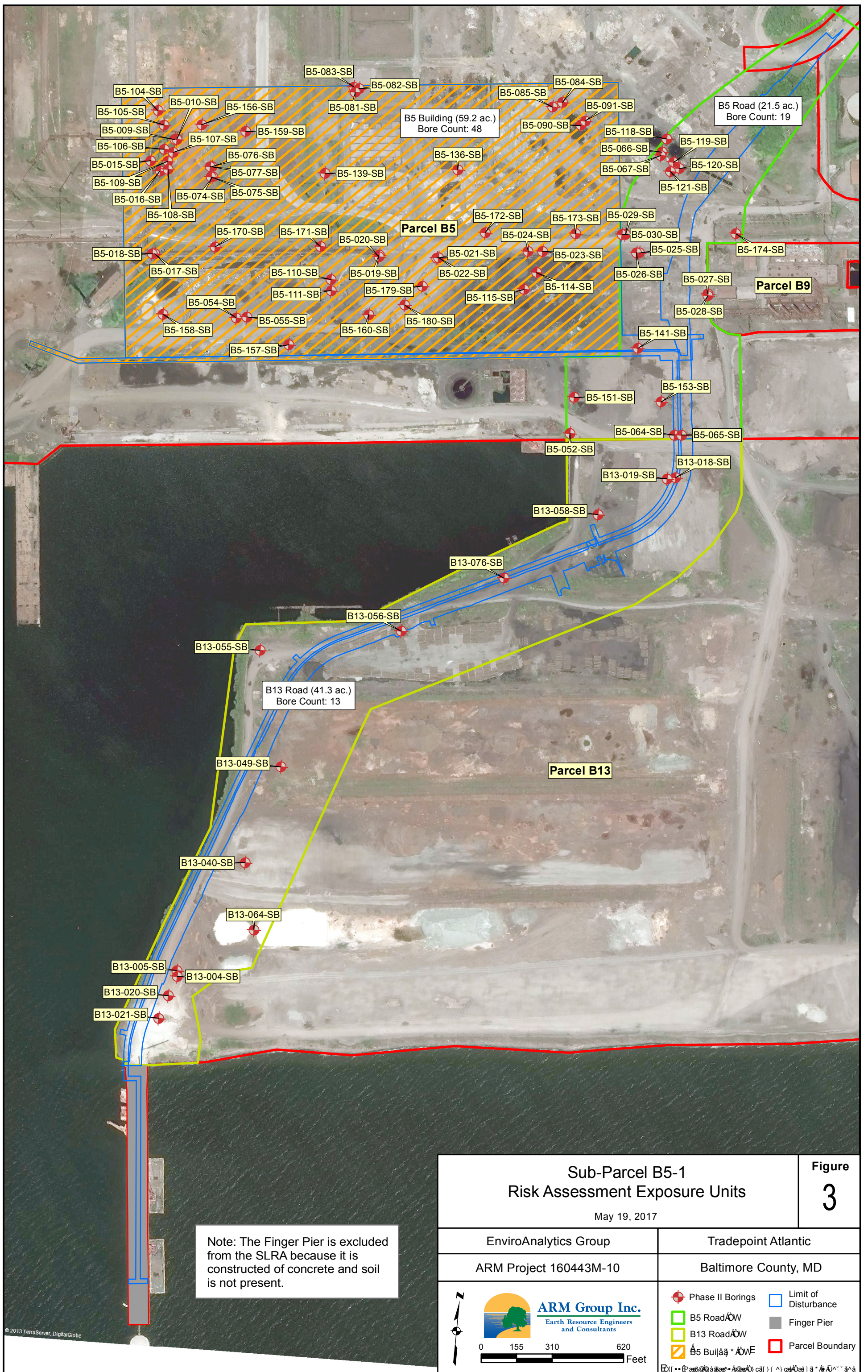
Figure  
2b

drawing title	SUB-PARCEL B5-1 SITE DEVELOPMENT PLAN	
project title	SPARROWS POINT AREA B	SPARROWS POINT
	ENVIROANALYTICS GROUP	BALTIMORE COUNTY, MARYLAND

designed	JMA	scale	1" = 500'
checked	TNP	date	3/31/2017
drawn	JMA	project no.	160443M

0 500 1000  
SCALE IN FEET

**ARM Group Inc.**  
Earth Resource Engineers  
and Consultants  
[www.armgroup.net](http://www.armgroup.net)



**Sub-Parcel B5-1  
Risk Assessment Exposure Units**

May 19, 2017

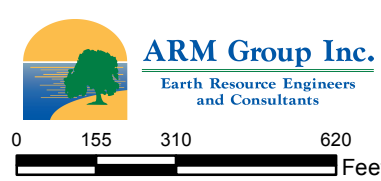
**Figure  
3**

EnviroAnalytics Group

Tradepoint Atlantic

ARM Project 160443M-10

Baltimore County, MD



- Phase II Borings
- Limit of Disturbance
- B5 Road AOW
- B13 Road AOW
- B5 Building AOW
- Finger Pier
- Parcel Boundary

Note: The Finger Pier is excluded from the SLRA because it is constructed of concrete and soil is not present.



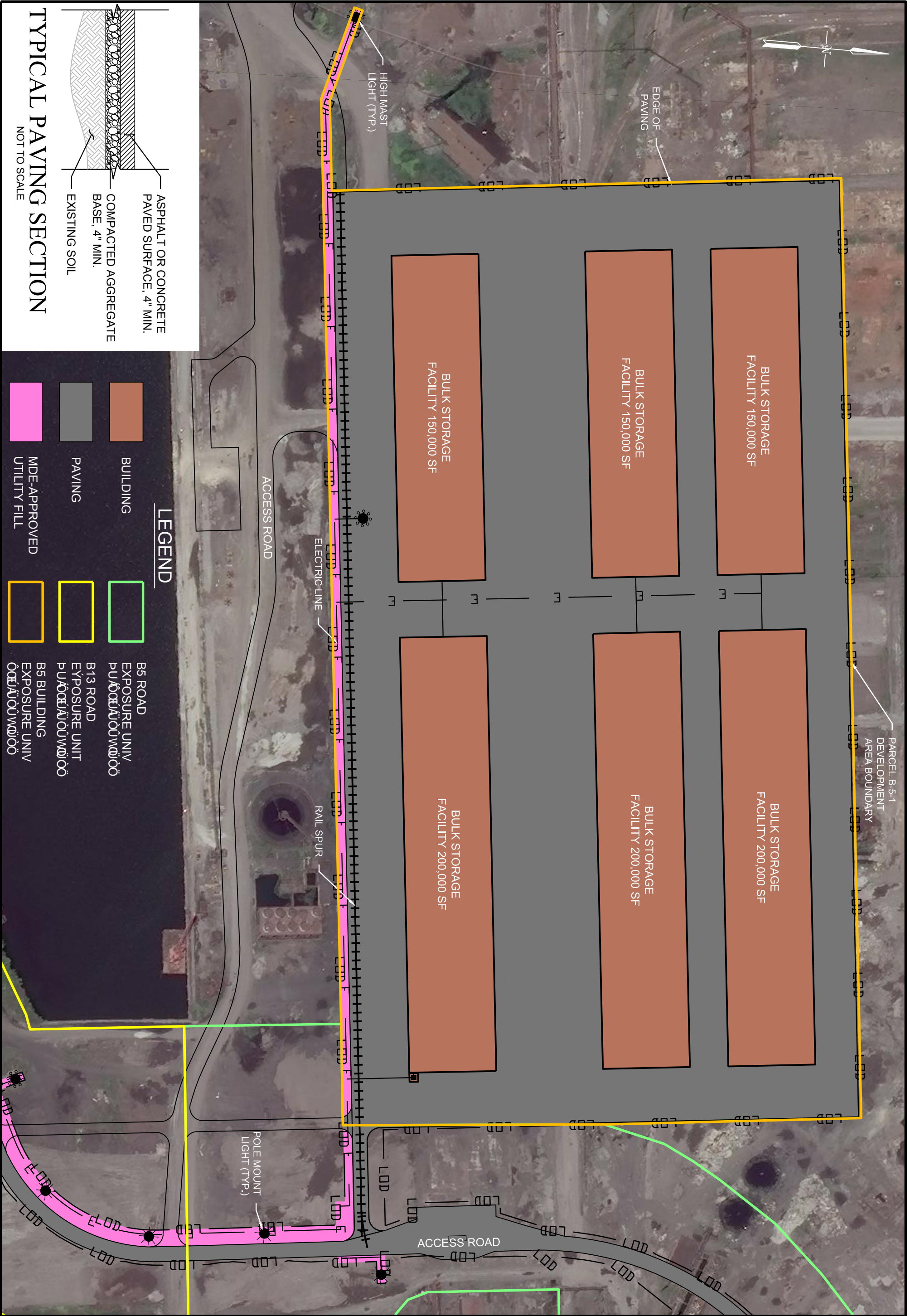


Figure 1

drawing title  
**SUB-PARCEL B5-1 ENVIRONMENTAL CAPPING PLAN**

project title  
 SPARROWS POINT AREA B  
 ENVIROANALYTICS GROUP

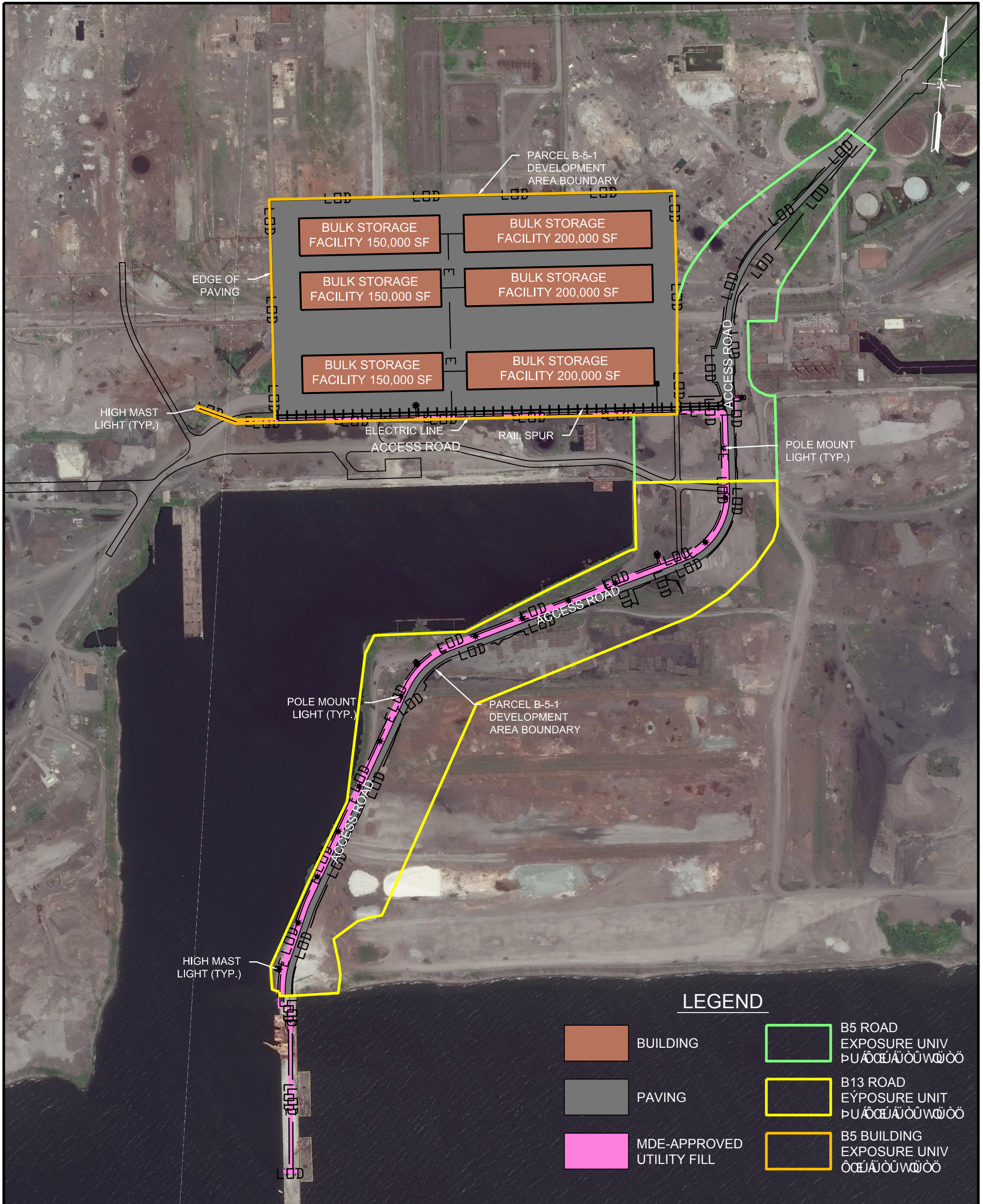
SPARROWS POINT  
 BALTIMORE COUNTY, MARYLAND

designed	JMA	scale	1" = 200'
checked	TNP	date	6/20/2017
drawn	JMA	project no.	160443M

0 200 400  
 SCALE IN FEET

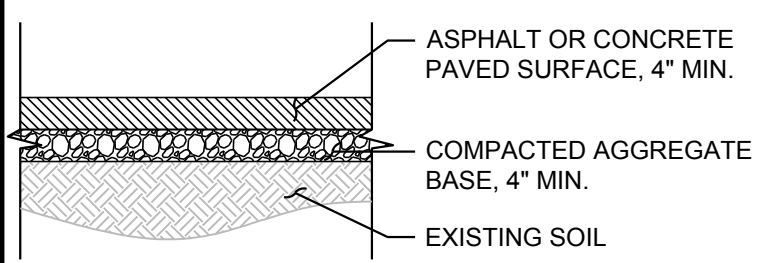


**ARM Group Inc.**  
 Earth Resource Engineers  
 and Consultants  
[www.armgroup.net](http://www.armgroup.net)



**LEGEND**

- BUILDING
- B5 ROAD EXPOSURE UNIT
- PAVING
- B13 ROAD EXPOSURE UNIT
- MDE-APPROVED UTILITY FILL
- B5 BUILDING EXPOSURE UNIT



**TYPICAL PAVING SECTION**  
NOT TO SCALE

Figure 1a	drawing title <b>SUB-PARCEL B5-1 ENVIRONMENTAL CAPPING PLAN</b>	designed JMA	scale 1" = 500'
	project title SPARROWS POINT AREA B ENVIROANALYTICS GROUP	checked TNP	date 6/20/2017
	SPARROWS POINT BALTIMORE COUNTY, MARYLAND	drawn JMA	project no. 160443M

SCALE IN FEET

**ARM Group Inc.**  
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and Consultants  
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## APPENDIX A

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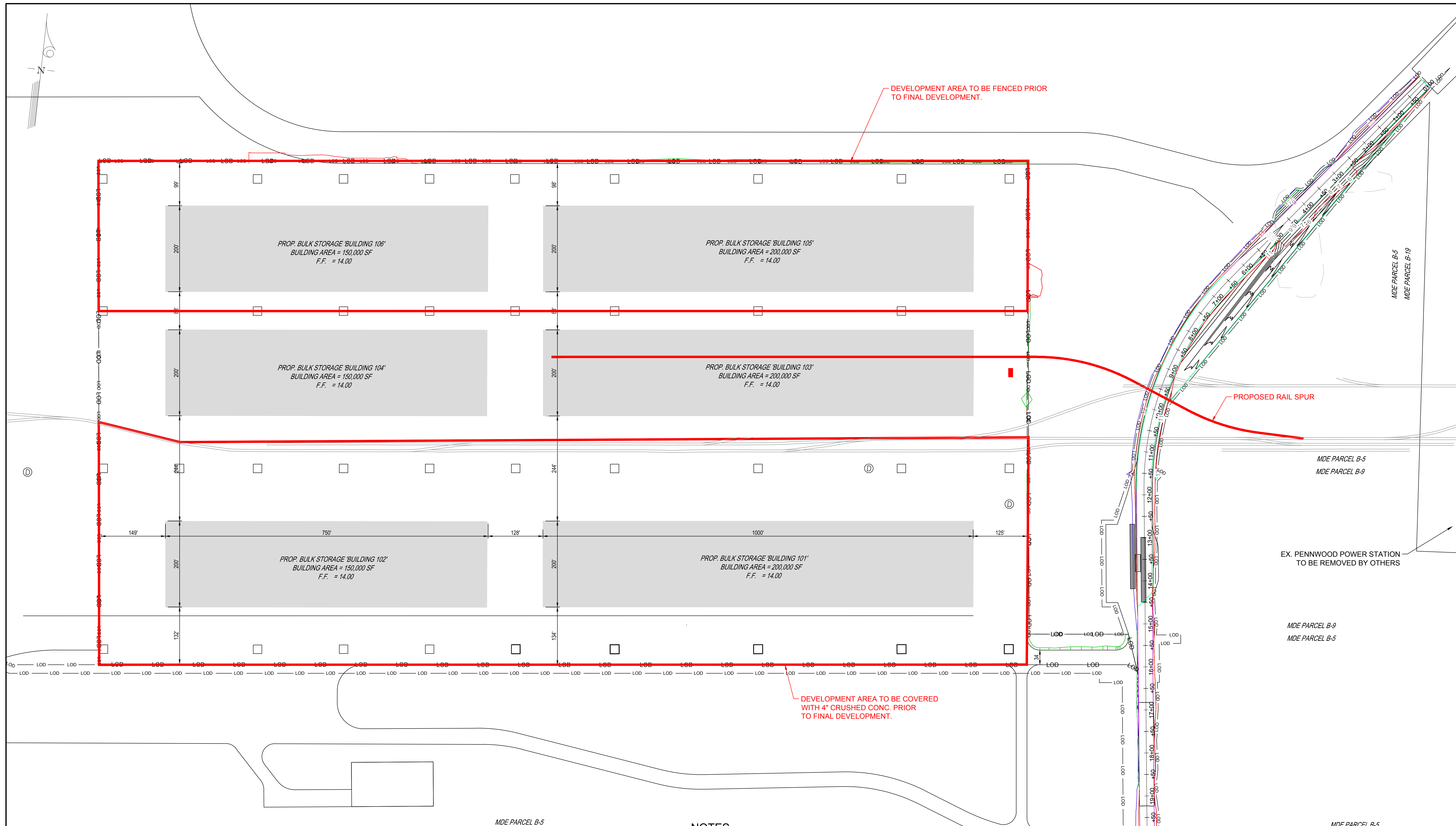
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**LEGEND**

- |                            |                     |                         |
|----------------------------|---------------------|-------------------------|
| CONC. BUILDING PAD         | EXISTING CONTOUR    | EXISTING ELECTRIC       |
| 5" HMA PAVING              | PROPOSED CONTOUR    | PROPOSED ELECTRIC       |
| POLE MOUNT LIGHT (PHASE I) | EXISTING STORMDRAIN | EXISTING SANITARY SEWER |
| HIGH MAST LIGHT (PHASE I)  | PROPOSED STORMDRAIN | PROPOSED SANITARY SEWER |
|                            | EXISTING WATER      | PROPOSED WATER          |

**NOTES**

- PROPOSED WORK SHOWN OUTSIDE THE MDE PARCEL B-5 BOUNDARY IS SHOWN FOR MASTER PLANNING PURPOSES.
- APPROXIMATE CUT= 23,075.28 CY  
APPROXIMATE FILL= 152,199.28 CY
- EXCAVATED MATERIAL TO BE REUSED ON MDE B-5 IF DEEMED SUITABLE FOR REUSE.



REVISIONS				DATE
NO.	DATE	DESCRIPTION	BY	
				03/21/17
				SCALE
				1"=100'
				DESIGNED BY
				JM
				DRAWN BY
				KD

**MDE PARCEL B-5-1  
ADDENDUM**

DRAWING NO.  
**SITE PLAN**  
SHEET 1 OF 2

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## APPENDIX B

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**Non-Ground Intrusive Chain Link Temporary Storm Fencing**

**Sample Photograph**

Provided by Tradepoint Atlantic on January 5, 2018

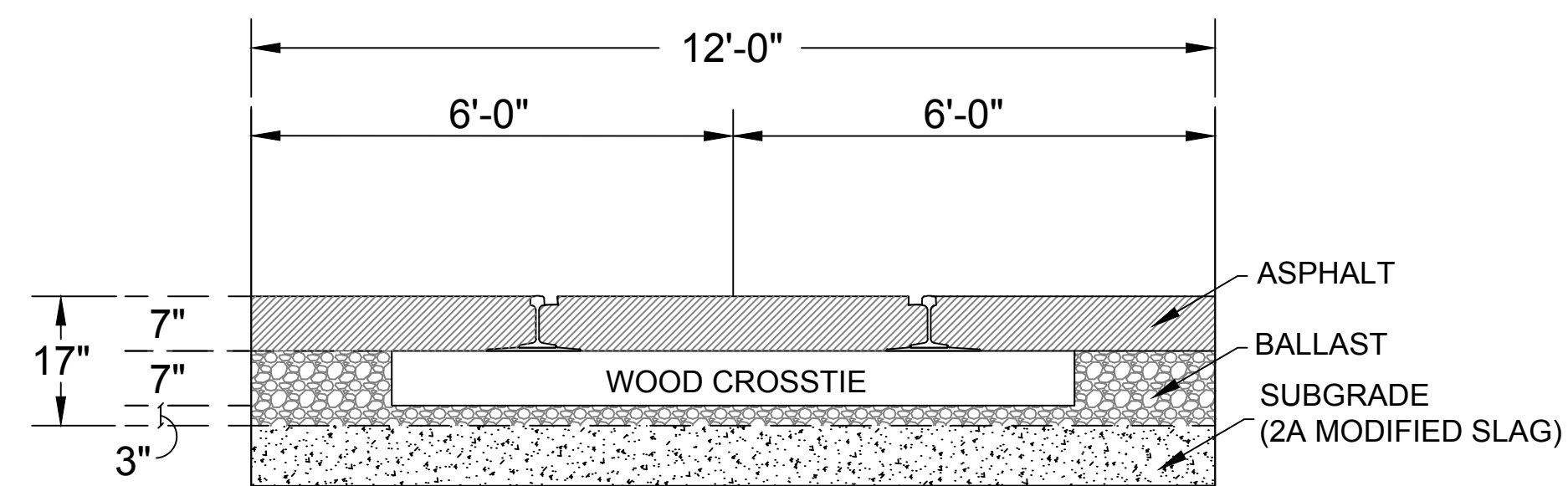
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## **APPENDIX C**

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**TRACK SECTION - PAVED AREA &  
INTERNAL BUILDING**



REVISIONS				DATE
NO.	DATE	DESCRIPTION	BY	
				12/06/17
				SCALE
				N.T.S.
				DESIGNED BY
				JM
				DRAWN BY
				KD

**MDE PARCEL B-5-1  
ADDENDUM**

DRAWING NO.  
**GENERAL  
NOTES &  
DETAILS**