

DARMOFALSKI ENGINEERING ASSOCIATES, INC.

CIVIL ENGINEERS

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March 19, 2015

Mayor Jonathan Dunleavy
Bloomingdale Council
Borough of Bloomingdale
101 Hamburg Turnpike
Bloomingdale, NJ 07403-1236

Re: Tilcon – Meer Property Quarry Use

**Presenter: Tilcon New York
625 Mt. Hope Road, Wharton, NJ 07885**

**Project Location: Bordered by Tilcon Quarry/Pequannock River/
Van Dam Street/Union Avenue
Borough of Bloomingdale, Passaic County, New Jersey**

Dear Mayor Dunleavy and Members of the Bloomingdale Council:

As you've requested, we have reviewed the proposed Quarry Use of Meer Property as outlined in Tilcon's presentation material with respect to its effects on the existing stormwater runoff conditions. We are in receipt and have obtained of the following documents/materials in support of the above-referenced matter to present our findings:

1. Borough of Bloomingdale Application for Preliminary and Final Site Plan Approval of The Grande at Bloomingdale, prepared by Schoor DePalma last revised on May 19, 2008.
2. Tilcon's Presentation to the Borough of Bloomingdale of the proposed purchase and use of a portion of the Meer Property.
3. Conceptual Drainage Master Plan Pompton Lakes Quarry Tilcon, Inc., prepared by E&LP dated February 22, 2007.
4. 5 Year Mining Plan prepared by Wayne J. Ingram, P.E. of Engineering & Land Planning Associates, Inc. dated 11/21/14.
5. Quarry Reclamation Plan prepared by Wayne J. Ingram, P.E. of Engineering & Land Planning Associates, Inc. dated 11/21/14.
6. Soil Erosion & Sediment Control Plan & Details prepared by Wayne J. Ingram, P.E. of Engineering & Land Planning Associates, Inc. not signed or sealed dated 5/1/13.
7. USDA Web Soil Survey
8. Google Earth Aerial Mapping – imagery dated June 17, 2010.

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Summary of Existing Conditions

The total Meer Property is indicated to be 180 acres of with 35 acres are set aside for the Affordable Housing Development. A portion of the remaining Meer Property will be used to expand Tilcon's existing quarry operations. The property is bordered by the existing Tilcon Quarry, the Pequannock River and residential properties along Van Dam and Union Avenues.

The Meer Site Plans indicate the proposed Affordable Housing Development location, the existing topography, the NJDEP Freshwater Wetland area, the 150' and 300' wetland transition areas and a stream encroachment line. Additionally, Open Space Conservation Easement Areas are designated.

A proposed temporary construction truck haul drive is shown from the Meer Property Development Area to the existing Tilcon Quarry property. It was anticipated that mining operations would take place to construct the proposed Affordable Housing Development. The haul drive is included within the permanent proposed open space conservation easement area.

An existing stream is shown and labeled in the middle of the Meer Property along a low area and it flows in a north to south direction to the Pequannock River.

A review of the USDA Soil survey revealed Rock Outcrop, Rockaway, Ridgebury and Hibernia soil types were delineated within the proposed subject quarry area. The present surface condition in the area was observed to be tree/vegetative covered as shown from Google Earth aerial mapping.

Presently, stormwater runoff on the Meer Property flows overland to the low area of the property and collects within the existing stream. This stream appears to begin in the existing wetland area located on the northern portion of the property and travels south across an existing dam (to be removed) and then through two ponding areas before discharging into the Pequannock River. A Stream Encroachment Line was established by the NJDEP and it surrounds this stream corridor area starting in the northern wetland area and travels to and is connected to the Pequannock River.

Stormwater runoff on the Tilcon Quarry property is directed into the center of the quarry excavation area where an existing stormwater pond exists which has a depth of approximately 50 feet of water. Other areas outside the quarry pit flow to the existing railroad or underpass at Route 287. There is no direct gravity discharge from the pit/pond area to the Pequannock River. As the stormwater within the pit/pond rises the quarry personal manually turn on pumps to lower the water. The water is pumped into a series of collection pipes and then it travels in a southerly direction and discharge to open swales. The swales travel in an easterly direction, discharge into a series of pipes which travel under Route 287, discharge into three water quality collection ponds connected in series and then it is discharge to the Pequannock. The collection ponds are monitored by the NJDEP under a Stormwater Discharge Permit and are shown on the attached Plan.

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Summary of Proposed Conditions

Tilcon is proposing to purchase the 180 acre Meer Property and deed restrict 35 acres for the approved Affordable Housing Development. Tilcon would then expand its current quarry operation's western limits along the dividing property line into the Meer property. A current natural ridge line exists in the vicinity of the property's shared property line. The proposed quarrying progression plan indicates 70, 90 and 110-year anticipated mining limits on the Meer Property. Typical cross sections through the Meer and Tilcon's Quarry property were provided to indicate the material areas to be removed during the different progression plans.

Technical Comments

Tilcon is proposing to purchase the Meer property and expand its current quarry operations west into the Meer Property. Tilcon has outlined their proposed quarry 70, 90 and 110-year progression limit lines as provided in their presentation materials. These limit lines were then transferred onto the approved Meer Property Affordable Housing Site Plans (copy attached) to review their impacts with the existing conditions. The area of the 70-year line on the Meer property is estimated to be 15 acres, the 90-year line is an additional 13 acres and the 110-year line is 17 acres in addition to the 90-year area. The 70-year progression line appears to be outside the approved NJDEP 150' and 300' freshwater wetland transition areas. However, both the 90 and 110-year progression lines traverse through both delineated freshwater wetland and wetland transition areas. Approval from the NJDEP would be required to encroach into these wetland and transition areas to proceed up to these proposed 90 and 110-year progression limits.

A natural ridge line exists in the vicinity of the dividing property lines of the present Tilcon quarry and the Meer Property. In the proposed quarrying area, any stormwater runoff that presently falls on these properties either flows overland to the quarry pit/pond area or the Meer Property wetland area. Tilcon's purchase of the Meer property and expansion of the present quarry and will change the existing natural ridge line. As the quarry expands westerly the ridge line will also change and move in a westerly direction thus changing the current runoff overland flow rates for both properties. The Meer property wetland area will then begin to receive less stormwater runoff and the quarry pit/pond area will begin to receive an increase in runoff. However, the method of which site land clearing Tilcon uses may also change the rate of stormwater runoff to the Meer property. Below is a description of two potential methods of land clearing and their impacts to stormwater runoff.

Method A

As previously stated the majority of the soil types within the 70-year quarry progression area is Rock Outcrop as delineated on the USDA Soil Maps. This area is also currently in a vegetated and/or tree covered condition as viewed on the aerial images dated June 17, 2010. Stormwater runoff coefficients are influenced by land surface cover and a tree/vegetated land cover has a lower runoff coefficient than does a natural Rock Outcrop. Natural Rock Outcrop land cover is more or less an impervious surface condition. If Tilcon decides to clear cut the entire 15 acres of land at the start of the quarrying operation's expansion, there would be a significant increase in stormwater runoff to the wetland area and the Pequannock River due to the changes in runoff coefficient (vegetated to impervious). Stormwater detention basins would need to be constructed to offset this increase in stormwater flow rate and then release it to match the Pre-Development conditions. We have estimated a stormwater detention basin would be required to have a capacity of 109,000 cubic feet or a size of 100 feet by 200 feet by six feet deep to accommodate the increase for the 70-year progression area and the 100-year storm event change.

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Depending upon its location, environmental conditions including the location of the existing ground water, the size of the detention basin may need to be increased or there may need to be several detention basins to reduce the stormwater runoff conditions. The proposed quarrying operations and methods will need to be reviewed and analyzed to control the stormwater runoff and measures put in place to assure there are no impacts to the existing stormwater runoff conditions.

Method B

This Method would involve maintaining the existing Meer Property vegetated surface conditions of the proposed quarrying area and only remove the existing vegetation as necessary to perform the quarrying operations. Stormwater runoff would continue to fall on the existing vegetated condition as it currently does and flow overland to the wetland area at its current rate. There may be a slight increase to the wetland area based on the vegetation removed and this increase will be analyzed and methods established to reduce the rate of flow to the Pre-Development condition. The modified stormwater runoff falling on the quarrying area would then be directed to the pit/pond area and managed as necessary by Tilcon's operations personal. Tilcon's current and expanded pumping and stormwater discharge through the existing ponding areas to the Pequannock River will continue to need authorization and oversight by the NJDEP.

Conclusion

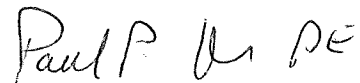
The purchase of the Meer Property by Tilcon for expanded quarrying operations will change the landscape of the existing conditions of the property including stormwater runoff. Modifications to the rate of stormwater runoff can be offset by designing and installing measures to reduce the flow to the Pre-Development conditions for flow directed to the Meer Property wetlands and the Pequannock River to not exacerbate flooding conditions. Increased stormwater runoff to the quarry pit/pond area will be maintained by the Tilcon's personal and the discharge point to the Pequannock River will require continued oversight and authorization by the NJDEP so that negative impacts do not occur to the downstream river conditions.

I reserve the right to amend and/or supplement this report should information not known to me at this time becomes known to me.

Please contact me if you have any questions.

Very truly yours,

Darmofalski Engineering Associates, Inc.

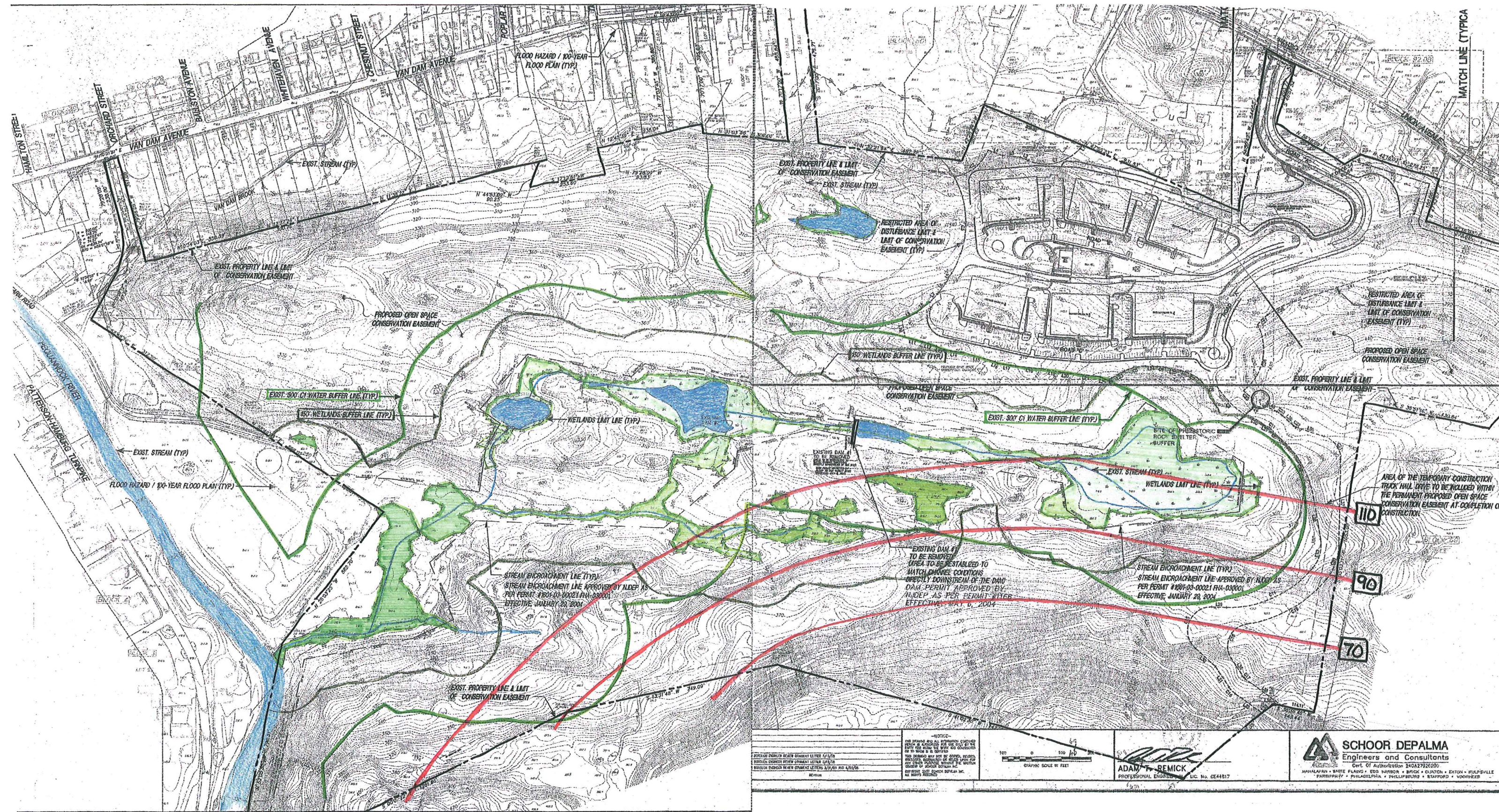


Paul Darmofalski, P.E.

cc:

enclosures





MATCH LINE (TYPICAL)

110

90

70

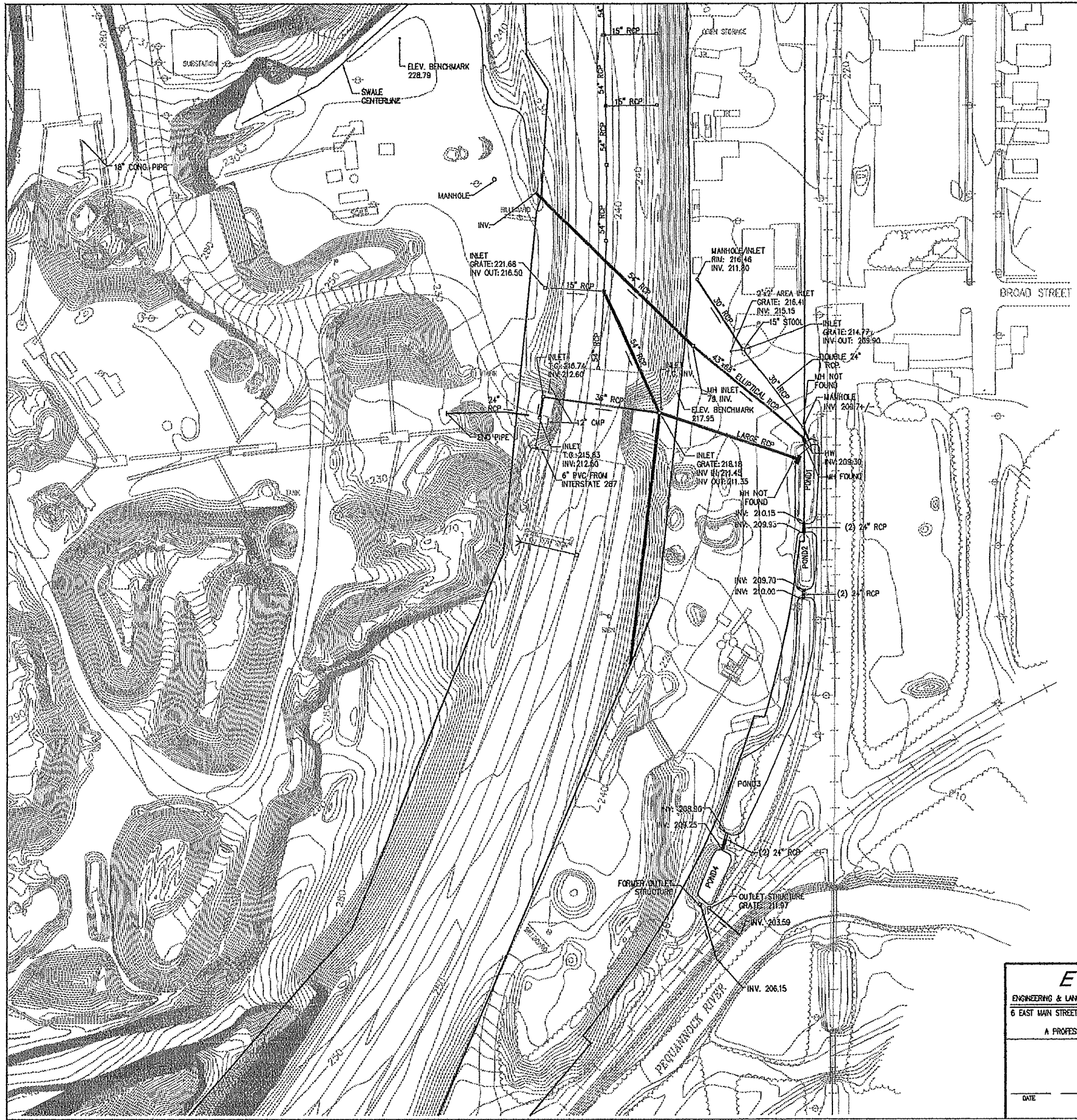
STREAM ENCROACHMENT LINE (TYP)
 STREAM ENCROACHMENT LINE APPROVED BY ALDEP AS
 PER PERMIT #1801-03-00021 FIA-030001
 EFFECTIVE JANUARY 29, 2004

EXISTING DAM #1
 TO BE REMOVED
 AREA TO BE REESTABLISHED TO
 MATCH CHANNEL CONDITIONS
 UPSTREAM OF THE DAM
 DAM PERMIT APPROVED BY
 ALDEP AS PER PERMIT #1801-
 EFFECTIVE MAY 6, 2004

STREAM ENCROACHMENT LINE (TYP)
 STREAM ENCROACHMENT LINE APPROVED BY ALDEP AS
 PER PERMIT #1801-03-00021 FIA-030001
 EFFECTIVE JANUARY 29, 2004

AREA OF THE TEMPORARY CONSTRUCTION
 TRUCK HILL DRIVE TO BE ROLLED WITHIN
 THE PERMANENT PROPOSED OPEN SPACE
 CONSERVATION EASEMENT AT COMPLETION OF
 CONSTRUCTION

<p>NOTICE: THE STATE AND ALL APPLICANTS ADVISED THAT THE STATE AND ALL APPLICANTS ADVISED THAT THE STATE AND ALL APPLICANTS ADVISED THAT THE STATE AND ALL APPLICANTS ADVISED THAT THE STATE AND ALL APPLICANTS ADVISED</p>	<p>GRAPHIC SCALE IN FEET 0 100 200</p>	<p>ADAM T. REMICK PROFESSIONAL ENGINEER LIC. NO. 0244817</p>	<p>SCHOOR DEPALMA Engineers and Consultants Cert. of Authorization 240A2792200 HANOVER • BRIDGE PLAINS • EGG HARBOR • BRICK • GUNTON • EXTON • HULKSVILLE TOWNSHIP • PHILADELPHIA • PHILADELPHIA • STAFFORD • VORNHEES</p>
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<p>E&LP ENGINEERING & LAND PLANNING ASSOCIATES, INC. 6 EAST MAIN STREET CLINTON, NJ 08809 A PROFESSIONAL ASSOCIATION</p>		<p>PROJECT: CONCEPTUAL DRAINAGE MASTER PLAN POMPTON LAKES QUARRY TILCON, NY, INC.</p>	
		<p>TITLE:</p>	
<p>DATE: _____</p>		<p>JOB NO.: 7018 DESIGNED: WJT CHECKED: JJC PLANNED: _____</p>	
<p>DATE: _____ JAMES J. CHIESEK, JR. PROFESSIONAL ENGINEER N.J. P.E. NO. 44783</p>		<p>NO. _____ REVISION _____ BY _____ DATE: 2/22/07 SCALE: 1"=50'</p>	