
FINAL REPORT
Feasibility Study for the Reopening of a
Pedestrian Passageway under Metro North
Tarrytown, New York



Prepared for: Village of Tarrytown
One Depot Plaza
Tarrytown, New York 10591

Prepared by: Dennis Noskin Architect, PC
100 White Plains Road
Tarrytown, New York 10591

23 December 2016

This document was prepared for the New York State Department of State with fund provided under Title 11 of the Environmental Protection Fund.

EXECUTIVE SUMMARY

Complete Draft Feasibility Study (Task 7 – from NYS DOT Agreement with Village)

Dennis Noskin Architect, PC (DNA) and its consultants shall develop a draft feasibility study in narrative form. The feasibility study shall include the following elements:

- A. Development of existing conditions / structural assessment of the passageway including mechanical, plumbing and electrical systems
- B. Conduction of engineering, structural (including borings and soil testings) and environmental tests
- C. Analysis and interpretation of the results of testings and identification of required remedial work.
- D. Surface assessment in and around locations on the east and west sides of the railroad tracks where the access points to the passageway will be constructed
- E. Work with steering committee (Village Board of Trustees) in the development of design goals and approach for reopening of the passageway
- F. Conduct a New York State Compliance Review
- G. Site Engineering Assessment including storm water options
- H. Preparation of preliminary design schematics for the entrances to the passageway and preliminary cost estimates for all work associated with the project
- I. Analysis of the existing Americans with Disabilities Act (ADA) compliant railroads crossing and vicinity and determine the necessity of passageway to ADA compliance based upon other crossings.
- J. Analysis of all federal, state, local and Metro North Railroad (MNRR) requirements including required permits and approvals to reopen passageway
- K. Estimate utilization of passageway
- L. Develop implementation and phasing plan for the reopening of the passageway.

Appropriate graphics (maps, tables/charts, site plans, elevations and perspective drawings, renderings) shall be included. Maps and other graphics shall be reproducible and prepared at an appropriate scale.

Feasibility Study for the Reopening of a Pedestrian Passageway under Metro North

- A. Development of existing conditions / structural assessment of the passageway including mechanical, plumbing and electrical systems

Architectural Assessment

The structure is a closed pedestrian passageway under Metro North Railroad tracks that is being evaluated to determine whether it can be reopened as a connection between the west side and east side of the railroad tracks. This tunnel is approximately 90'-0" long, 8'-0" wide and 8'-1" deep. We were only able to inspect a portion of the tunnel, as the presence of obstructions on the west side made it impossible to inspect the rest of the structure.

Our site investigations of August 29, 2016 and September 14, 2016 revealed a substantial length of the pedestrian tunnel. Minimal excavation showed the stairs on the east side of the tracks to be in fair condition with a number of the treads and nosings needing repair. Handrails at the east side were missing with the exception of one which was dangling from a fastening point.

The tunnel underneath the tracks was in good condition. The floor had trench drains along the wall pitching to the west side of the tunnel. There were a few structural cracks along the wall and continued along the arched ceiling. Water could penetrate through this crack which varied in size from a ¼" to ¾". These cracks are addressed below in the heading "Structural Assessment".

The tunnel's west end was blocked with backfill and miscellaneous debris mostly consisting of soil and wood. It appeared that the blockage was where the stairs would rise to the surface similar to the east side's arrangement. Unfortunately, the blockage limited our ability to investigate the stairs to where it terminated at grade. From the surface we could not find any entrance to the former stair and suspect it has been buried adjacent to the approach to the "H" Bridge from Green Street to the northbound ramp. See Attachment C -- survey for the extent of our findings.

Structural Assessment

Transversal cracks were noticed that extend through the whole cross section of the structure. These cracks are approximately 30'-0" on center. Additionally, the presence of concrete efflorescence. Efflorescence is the migration of a salt to the surface of the concrete where it forms a coating of salt.

After reviewing the site conditions present at the time of the inspection, it is our professional judgment that the cracks in this tunnel are occurring from thermal loading

and shrinkage. Our opinion is that the current conditions do not pose a threat to the stability of the structure and the tunnel could be repaired and reopened.

The opinions and judgments presented herein are based on limited visual inspection of a portion of the tunnel. No attempt was made during this inspection to remove finishes or to open probe holes to examine concealed structural elements. It is possible that other structural issues exist but was not seen due to the limited nature of the inspection. See Attachment G.

Mechanical Assessment

Existing tunnel has no mechanical ventilation system. Ventilation in the tunnel will be natural ventilation similar to the Irvington Train Station tunnel. (see example pictures attached)

Natural ventilation, also called passive ventilation, uses natural outside air movement and pressure differences to both passively cool and ventilate the tunnel. Natural ventilation is important because it can provide and move fresh air without fans. This saves a considerable amount of energy and is considered a sustainable design practice.

Plumbing Assessment

At our investigation of September 14, 2016, the existing tunnel had about five (5) feet of water or up to the first landing at the east end entrance. After it was pumped out we noticed the far end (toward Hudson River) had about 4 – 6 inches of water with wood debris. No sump pump was observed for discharging the water. (see example picture attached) Tunnel will have French drains sloped toward new sump pump pit. New sump pump will be powered from the new electric service.

Electrical Assessment

Existing tunnel has no lighting or electric service to provide power for the tunnel. New electric service will be obtained from existing *Con Edison* power pole. New utility (*Con Edison*) transformer will be pole mounted to step the voltage down to 120/208 volt and serve a new 120/208 volt, 3 phase, 4 wire panel. New electric panel and CT cabinet will be located in a NEMA 4X enclosure. (see pictures attached of a similar installation at the Irvington Train Station) The new electric panel will serve all tunnel lighting, sump pump and any other miscellaneous equipment that requires electric power. All electrical conduits will be run at the ceiling level of the tunnel. Any exposed steel and new electric service will be grounded in accordance with the National Electric Code (NEC).

- B. Conduction of engineering, structural (including borings and soil testings) and environmental tests

Metro North Railroad (MNR) severely restricted our use of any invasive investigation within their property lines. Borings and soil testings could not be obtained due to the close proximity of active rail lines and our limited access to the abandoned pedestrian tunnel.

- C. Analysis and interpretation of the results of testings and identification of required remedial work.

As mentioned in B above, active rail lines and limited access borings and soil testings could not be obtained. Thus, there was no interpretation of the results.

- D. Surface assessment in and around locations on the east and west sides of the railroad tracks where the access points to the passageway will be constructed

The east side stair encroaches on the existing pedestrian side walk from the railroad station to the "H" Bridge. Installing concrete half walls around the stair and a roof structure to inhibit adverse weather conditions would likely require a reconfiguration of the pedestrian sidewalk near the intersection of the southeast ramp and Cortlandt Street / Depot Plaza and Main Street. The reconfiguration of the side walk will affect an existing catch basin (storm drainage) and may impinge on the southeast ramp of the "H" Bridge. See Attachment C -- Survey of existing conditions.

The west side stair is buried by debris in and around the southwest ramp of the "H" Bridge. The surveying information of the location of the most westerly track shows there is an area just west of the property line where the stair and structure could be located. Like the east side stair, the west side stair location and roof structure would render a narrow strip of sidewalk leading to the ramp of the "H" Bridge. See Attachment C - Survey (for proposed area of the western stair).

- E. Work with steering committee in the development of design goals and approach for reopening of the passageway

Dennis Noskin Architects (DNA) has worked with the Steering Committee on this project.

- F. Conduct a New York State Compliance Review

This Feasibility Study reviewed compliance with the applicable code requirements for reopening of the tunnel in accordance with the 2015

International Building Code as adopted by New York State in effect on 10/3/16 and *2015 International Energy Conservation Code*. See Attachment H.

G. Site Engineering Assessment including storm water options

An examination of the pedestrian tunnel reveals the underground pathway is bordered on each side with a concrete channel drain. The pathway slopes downward from the Depot Plaza entrance to the Green Street entrance. Due to debris covering the Green Street stairs, *Hudson Engineering & Consulting, P.C.* (HEC) the engineering firm working with DNA, could not determine the discharge release point of the existing channel drains.

However, examination of a similar tunnel in the Village of Irvington shows the discharge of the drains under a concrete stair landing and into an enclosed structure. It is assumed that the Tarrytown pedestrian tunnel is similar in construction and operation to the pedestrian tunnel in the Village of Irvington, the Village just south of Tarrytown and based thereon, a pump system is within that enclosed structure and that it conveys runoff to the municipal drainage system. A similar structure likely exists under the landing of the Green Street entrance to the tunnel in Tarrytown. *HEC* logically assumes that there is/was a pump system installed at this location. During construction when the tunnel is cleared of all debris an inspection can be made and a pump system designed to convey the runoff to the municipal drainage system.

If during the examination it is determined that no pump chamber exists, *HEC* can design a concrete pump chamber to be installed subsurface adjacent to the tunnel with drain piping that collects the trench drain runoff. A pumping system installed in said chamber and would convey the runoff to the municipal drainage system.

H. Preparation of preliminary design schematics for the entrances to the passageway and preliminary cost estimates for all work associated with the project

DNA with the assistance of *Ward Carpenter Surveyors* and *Hudson Engineering Consulting* has developed a preliminary design schematic. See Attachment C -- Proposed Plan.

Preliminary Costs for this project have been developed based on the Preliminary Design Schematic. Please see Attachment B – Preliminary Cost Estimate

I. Analysis of the existing Americans with Disabilities Act (ADA) compliant railroads crossing and vicinity and determine the necessity of passageway to ADA compliance based upon other crossings.

Americans with Disabilities Act Title II Regulations -- Part 35 Nondiscrimination on the Basis of Disability in State and Local Government Services
(as amended by the final rule published on September 15, 2010) states:

“Existing Facility”

The 1991 title II regulation provided definitions for “new construction” at § 35.151(a) and “alterations” at § 35.151(b). In contrast, the term “existing facility” was not explicitly defined, although it is used in the statute and regulations for title II. See 42 U.S.C. 12134(b); 28 CFR 35.150. *<Text shown below>* It has been the Department of Justice’s view that newly constructed or altered facilities are also existing facilities with continuing program access obligations, and that view is made explicit in this rule.

The classification of facilities under the ADA is neither static nor mutually exclusive. Newly constructed or altered facilities are also existing facilities. A newly constructed facility remains subject to the accessibility standards in effect at the time of design and construction, with respect to those elements for which, at that time, there were applicable ADA Standards. And at some point, the facility may undergo alterations, which are subject to the alterations requirements in effect at the time. See § 35.151(b)–(c). The fact that the facility is also an existing facility does not relieve the public entity of its obligations under the new construction and alterations requirements in this part.

For example, a facility constructed or altered after the effective date of the original title II regulations but prior to the effective date of the revised title II regulation and Standards, must have been built or altered in compliance with the Standards (or UFAS) in effect at that time, in order to be in compliance with the ADA. In addition, a “newly constructed” facility or “altered” facility is also an “existing facility” for purposes of application of the title II program accessibility requirements. Once the 2010 Standards take effect, they will become the new reference point for determining the program accessibility obligations of all existing facilities. This is because the ADA contemplates that as our knowledge and understanding of accessibility advances and evolves, this knowledge will be incorporated into and result in increased accessibility in the built environment. Under title II, this goal is accomplished through the statute’s program access framework. While newly constructed or altered facilities must meet the accessibility standards in effect at the time, the fact that these facilities are also existing facilities ensures that the determination of whether a program is accessible is not frozen at the time of construction or alteration. Program access may require consideration of potential barriers to access that were not recognized as such at the time of construction or alteration, including, but not limited to, the elements that are first covered in the 2010 Standards, as that term is defined in § 35.104. Adoption of the 2010 Standards establishes a new reference point for title

II entities that choose to make structural changes to existing facilities to meet their program access requirements.

The NPRM (Notice of Proposed Rulemaking) included the following proposed definition of "existing facility." "A facility that has been constructed and remains in existence on any given date." 73 FR 34466, 34504 (June 17, 2008). The (Justice) Department received a number of comments on this issue. The commenters urged the Department to clarify that all buildings remain subject to the standards in effect at the time of their construction, that is, that a facility designed and constructed for first occupancy between January 26, 1992, and the effective date of the final rule is still considered "new construction" and that alterations occurring between January 26, 1992, and the effective date of the final rule are still considered "alterations."

The final rule includes clarifying language to ensure that the Department's interpretation is accurately reflected. As established by this rule, existing facility means a facility in existence on any given date, without regard to whether the facility may also be considered newly constructed or altered under this part. Thus, this definition reflects the Department's interpretation that public entities have program access requirements that are independent of, but may coexist with, requirements imposed by new construction or alteration requirements in those same facilities.

§ 35.150 Existing facilities

(a) General. A public entity shall operate each service, program, or activity so that the service, program, or activity, when viewed in its entirety, is readily accessible to and usable by individuals with disabilities. This paragraph does not—

(1) Necessarily require a public entity to make each of its existing facilities accessible to and usable by individuals with disabilities;

(2) Require a public entity to take any action that would threaten or destroy the historic significance of an historic property; or

(3) Require a public entity to take any action that it can demonstrate would result in a fundamental alteration in the nature of a service, program, or activity or in undue financial and administrative burdens. In those circumstances where personnel of the public entity believe that the proposed action would fundamentally alter the service, program, or activity or would result in undue financial and administrative burdens, a public entity has the burden of proving that compliance with §35.150(a) of this part would result in such alteration or burdens. The decision that compliance would result in such alteration or burdens must be made by the head of a public entity or his or her designee after considering all resources available for use in the funding and operation of the service, program, or activity, and must be accompanied by a written statement of the reasons for reaching that conclusion. If an action would result in such an

alteration or such burdens, a public entity shall take any other action that would not result in such an alteration or such burdens but would nevertheless ensure that individuals with disabilities receive the benefits or services provided by the public entity.

(b) Methods.

(1) General. A public entity may comply with the requirements of this section through such means as redesign or acquisition of equipment, reassignment of services to accessible buildings, assignment of aides to beneficiaries, home visits, delivery of services at alternate accessible sites, alteration of existing facilities and construction of new facilities, use of accessible rolling stock or other conveyances, or any other methods that result in making its services, programs, or activities readily accessible to and usable by individuals with disabilities. A public entity is not required to make structural changes in existing facilities where other methods are effective in achieving compliance with this section. A public entity, in making alterations to existing buildings, shall meet the accessibility requirements of § 35.151. In choosing among available methods for meeting the requirements of this section, a public entity shall give priority to those methods that offer services, programs, and activities to qualified individuals with disabilities in the most integrated setting appropriate.

§ 35.151 New construction and alterations

(a) Design and construction.

(1) Each facility or part of a facility constructed by, on behalf of, or for the use of a public entity shall be designed and constructed in such manner that the facility or part of the facility is readily accessible to and usable by individuals with disabilities, if the construction was commenced after January 26, 1992.

(2) Exception for structural impracticability.

(i) Full compliance with the requirements of this section is not required where a public entity can demonstrate that it is structurally impracticable to meet the requirements. Full compliance will be considered structurally impracticable only in those rare circumstances when the unique characteristics of terrain prevent the incorporation of accessibility features.

(ii) If full compliance with this section would be structurally impracticable, compliance with this section is required to the extent that it is not structurally impracticable. In that case, any portion of the facility that can be made accessible shall be made accessible to the extent that it is not structurally impracticable.

(iii) If providing accessibility in conformance with this section to individuals with certain disabilities (e.g., those who use wheelchairs) would be structurally impracticable, accessibility shall nonetheless be ensured to persons with other types of disabilities, (e.g., those who use crutches or who have sight, hearing, or mental impairments) in accordance with this section.

In summary, given the confinement of the area required for stairs leading to the passageway and the intentions of using the abandoned the existing passageway, the restricted area (street, sidewalk and stairs) does not permit an elevator (for the physically disabled) location on both sides of the tracks. The addition of the elevators would be structurally impractical given the area and existing conditions.

To the south of the passageways there are two (2) *Metro North* overpasses and one (1) is fully ADA compliant (elevators on both side of the track for the physically disabled) albeit not part of this project. See Attachment A for location of *Metro North's* north overpass in relation to the abandoned pedestrian tunnel.

J. Analysis of all federal, state, local and Metro North Railroad (MNRR) requirements including required permits and approvals to reopen passageway

Due to the close proximity of both stairs to *MNRR*, *MNRR* would require a work permit to proceed with any construction. *Metro North* would scrutinize the design and its impact to the rail system and its operation. Our investigation required the eastern stair to be excavated which required *MNRR's* consent and a work permit even though the work did not occur on *MNRR* property. The *Metropolitan Transportation Authority* (MTA) does have a process in granting permission, via a permit, though the office of:

Real Estate Department
Metropolitan Transportation Authority
2 Broadway, 4th floor
New York, New York 10004
Telephone: (212) 878-7049
Email MTARE@mtahq.org

Additionally, the *MTA* has a Standard Format for Architectural Drawing Submissions – see link: http://web.mta.info/mta/realestate/PDF/sf_arch_dwg.pdf

K. Estimate utilization of passageway

There are a number of variables that will affect the future utilization of the passageway and since they cannot be quantified at this time, any estimates provided will be underestimates of the actual utilization. These variables include:

National Resources has been developing *Hudson Harbor* on the west side of the Metro North Railroad track. Its amenities include a lodge and restaurants. To date there are 183 units constructed with 181 units sold, another 43 units presently in construction and 12 units remaining for future construction. The increased dwelling units will have an increased impact on the passageway. In addition, there are two Village parks in close proximity to Hudson Harbor and thus to the passageway; *Riverwalk Park* and *Pierson Park*.

A new Parks and Recreation facility has been erected on the west side of the tracks. Its installation was part of the *Hudson Harbor's* development agreement and includes Departmental Offices, fitness center, exercise studio and a swimming pool. The fitness center opened for operation on September 27, 2016 and the swimming pool is scheduled for the 2017 swimming season. Both will likely bear pedestrian traffic from east side of the tracks from large housing projects in close proximity to the pedestrian passageway; Franklin Courts and Franklin Towers and Asbury Terrace. Additionally, there is dense housing area located adjacent to the downtown area (Windle Park, South Washington Street, John Street, Baylis Court and Cottage Place) that are a 5 minute walk to the eastern stair. See Attachment A for locations.

Ballfields and recreation areas at *Pierson Park* and *Losee Park* are located on the west side of the tracks. Much of the planned 51 mile *Hudson River RiverWalk* is completed in the Village of Tarrytown. Its continuation to the other river towns such as Irvington and Sleepy Hollow will create additional pedestrian demands on the passageways that cannot be quantified.

Our best estimates were by observation of pedestrian traffic over the “H” Bridge and observation of a similar underpass of the same vintage in nearby Irvington. However, Irvington’s usage of the passage is for commuters needing access to the other side of the tracks which is similar in use to the two (2) MNRR overpasses in Tarrytown immediately adjacent to the train station. Recreation and pedestrian traffic would be the greatest from April through October when the weather conditions permit and encourage pedestrian traffic. Peak demand would likely be during the summer months when the Village pool and ballfields would be in regular use. Weekend would have greater demand than weekdays. See Attachment D – Projected Utilization.

L. Develop implementation and phasing plan for the reopening of the passageway.

DNA and its consultants are only involved with completing a feasibility study which results in this report showing a plausible plans with project costs and addressing other concerns. Subsequent phases and timing are as follows:

Village Approval Process	3 to 6 months
Design Development / Contract Documents	6 to 8 months
Metro North Approvals	3 to 6 months
(License or easement <u>and</u> approval of contract documents for a permit)	
Bidding / Contract Award	1 to 2 months
Construction	6 to 10 months
Total	19 to 32 mos.

Consultants:

Architect: Dennis Noskin Architect, PC
100 White Plains Road
Tarrytown, New York 10591
(914) 631-2345 (914) 631-8776 fax

Mechanical, Electrical & Plumbing Engin'g: C&F Consulting Engineering PC
420 North Broadway
White Plains, NY 10603
(914) 683-7355 (914) 683-7344 fax

Structural: Grossfield Macri Consulting Engineers, PC
75 Smith Ave, Mount Kisco, NY 10549
(914) 747-4145 / (203) 431-7700

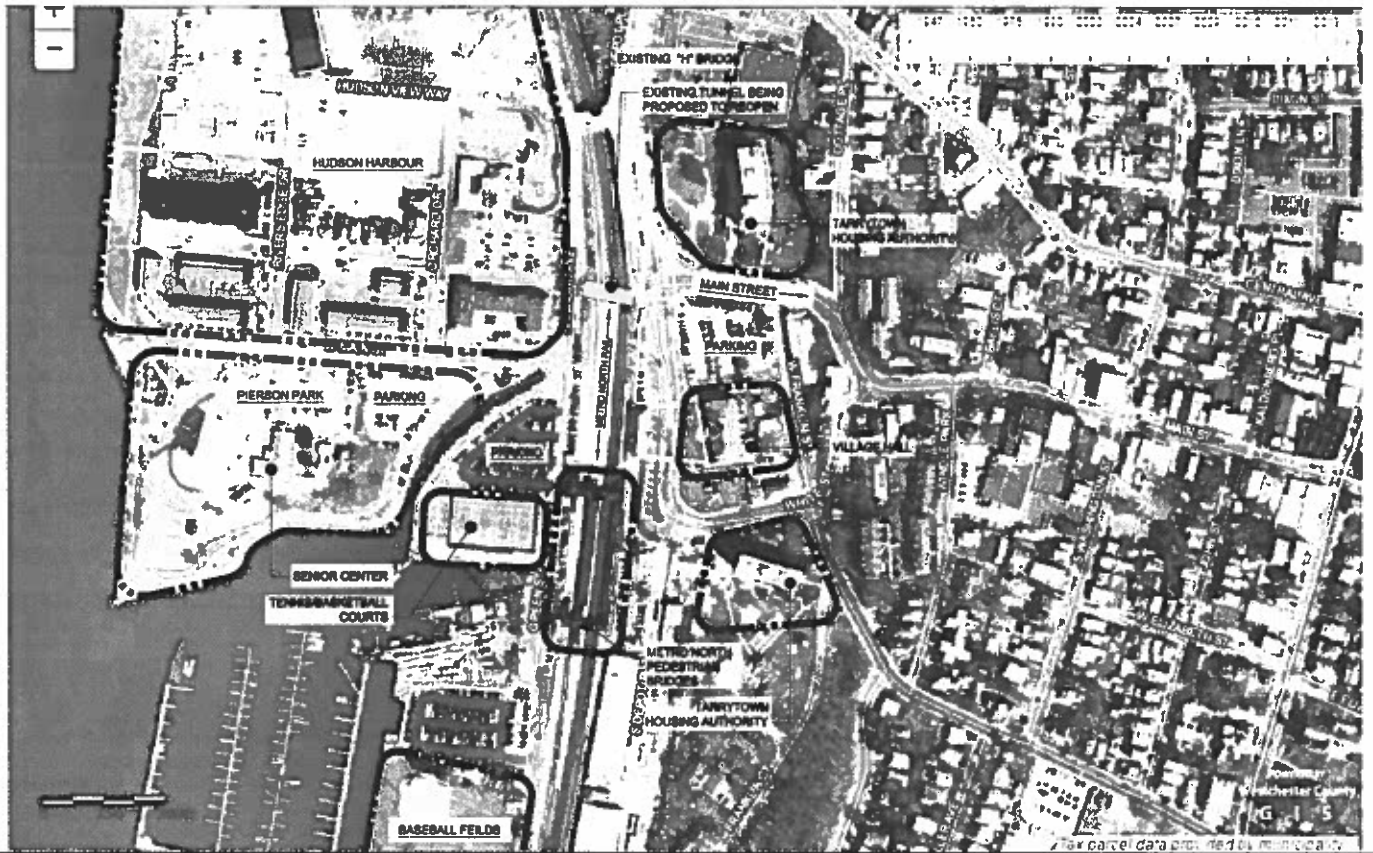
\Civil Engineering: Hudson Engineering & Consulting, P.C.
45 Knollwood Road - Suite 201
Elmsford, New York 10523
(914) 909-0420 (914) 560-2086 fax

Surveyor: Ward Carpenter Engineers, Inc.
76 Mamaroneck Avenue, Suite 1
White Plains, New York 10601
(914) 949-6000 (914) 949-1655 fax

Construction Cost Consultant: Lasberg Construction Associates, Inc.
200 Business Park Drive
Armonk, New York 10504
(914) 273-4266 (914) 273-4731 fax

Attachments:

- A: Vicinity Map
- B: Preliminary Cost Estimate (Lasberg Construction, dated 12/2/16)
- C: Survey showing Existing and Proposed (Ward Carpenter and Hudson Engineering)
- D. Projected Utilization
- E: Conceptual Elevations
- F: Irvington Railroad Station Photos
- G. Structural Engineer Letter (GMCE, dated 9/26/16)
- H. Code Compliance
- I. Existing Conditions Photos of Tarrytown Pedestrian Tunnel (9/14/16)



Tarrytown Pedestrian Tunnel

Depot Plaza & Main Street Intersection
Tarrytown, NY 10591

JOB TITLE: Tarrytown Pedestrian Tunnel

DOC. TITLE: Attachment A: Vicinity Map

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JOB No.: 14223

SCALE: NOT TO SCALE

ISSUE DATE: 11/1/2018

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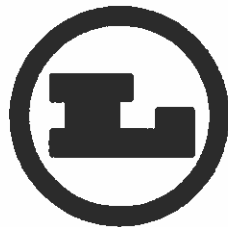


PRECONSTRUCTION ANALYSIS

PEDESTRIAN PASSAGEWAY TARRYTOWN, NEW YORK

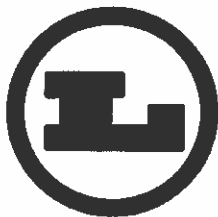


PREPARED BY



LASBERG CONSTRUCTION ASSOCIATES, INC.

DECEMBER 2, 2016



**LASBERG CONSTRUCTION
ASSOCIATES, INC.**

December 2, 2016

Mr. Dennis Noskin
Dennis Noskin Architect, PC
100 White Plains Road
Tarrytown, New York 1059

**RE: PEDESTRIAN PASSAGWAY
PRECONSTRUCTION ANALYSIS**

Dear Mr. Noskin:

Thanks very much for inviting Lasberg Construction Associates, Inc. to provide you with the attached Preconstruction Analysis.

The Preconstruction Analysis includes the following items:

1. Order of Magnitude Budget
2. Preliminary Schedule
3. Qualifications & Exclusions
4. Risk Summary
5. Site Logistic Plan
6. Drawing/Document Log

The information in this report was developed from the documents listed on the Drawing Log, site visits, and consultation with select members of the Subcontractor community.

As you know, the documents and drawings provided are very preliminary in nature and require that many assumptions be made regarding the scope of work. Accordingly the information and budgets contained in the Preconstruction Analysis are preliminary and subject to change as the design and engineering documents evolve.

In accordance with your instructions, the Sump Pump and all associated work has been priced as an Alternate Add.

I look forward to meeting with you at your convenience to review any questions or comments you may have regarding this analysis.

Yours truly,
LASBERG CONSTRUCTION ASSOCIATES, INC.



Lee M. Lasberg

**PEDESTRIAN PASSAGEWAY
PRECONSTRUCTION ANALYSIS**

INDEX

1. Order of Magnitude Budget
2. Preliminary Schedule
3. Qualifications & Exclusions
4. Risk Summary
5. Site Logistics Plan
6. Drawing/Document Log





LASBERG CONSTRUCTION
ASSOCIATES, INC.

SUMMARY SHEET

PEDESTRIAN PASSAGEWAY

TARRYTOWN, N.Y.

ORDER OF MAGNITUDE BUDGET

DECEMBER 2, 2016

Trade

02-205 - GENERAL SITE MAINTENANCE	\$	135,500
02-200 - SITE PREPARATION & PROTECTION	\$	17,000
02-300 - EARTHWORK	\$	162,250
02-800 - LANDSCAPING	\$	5,000
03-050 - CONCRETE	\$	78,000
04-060 - MASONRY	\$	49,000
05-500 - MISC METALS	\$	39,250
06-100 - CARPENTRY	\$	147,920
07-500 - ROOFING AND WATERPROOFING	\$	54,500
09-990- PAINTING	\$	5,500
16-050 - ELECTRIC	\$	64,000
	SUBTOTAL	\$ 757,920
SUB-TOTAL	\$	757,920
GENERAL CONDITIONS	\$	150,000
INSURANCE	\$	27,238
FEE	\$	93,516
BOND	\$	20,573
TOTAL	\$	1,049,246

ALTERNATE ADDS:

ADD ALTERNATE #1 FURNISH AND INSTALL PUMP AT GREEN ST. ENTRY	ADD	\$	92,915
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LASBERG CONSTRUCTION
ASSOCIATES, INC.

ORDER OF MAGNITUDE BUDGET
PEDESTRIAN PASSAGEWAY

TARRYTOWN, N.Y.

DECEMBER 2, 2016

	TAKEOFF	UNIT	UNIT COST	TOTAL	NOTES
02-205 - GENERAL SITE MAINTENANCE					
Precon Survey	1	ls	\$ 5,000	\$ 5,000	
Barriers at Green St. and Depot St. Entries	1	\$ 10,000	\$ 10,000		
General Labor	1	ls	\$ 60,000	\$ 60,000	
Debris Carting and Removal	1	ls	\$ 10,000	\$ 10,000	
Surveying and final as built drawings	1	ls	\$ 10,000	\$ 30,000	
Site Protection and fence maintenance	1	ls	\$ 10,000	\$ 10,000	
Temp power and water	7	m	\$ 1,500	\$ 10,500	
				SUBTOTAL: \$	135,500
02-200 - SITE PREPARATION & PROTECTION					
Temporary protection	1	ls	\$ 8,000	\$ 8,000	
Site Fence 400 lf at Green St. and Depot St. Entries	1	ls	\$ 4,000	\$ 4,000	
OSHA Site Protection	1	ls	\$ 5,000	\$ 5,000	
				SUBTOTAL: \$	17,000
02-300 - EARTHWORK					
Sitework					
clear and grub ground cover small trees on Green St.	1	ls	\$ 7,500.00	\$ 7,500	
Demolition of roadways walks and curbs as needed for the work Green St and Depot St.	1	ls	\$ 12,000.00	\$ 12,000	
Silt fence and Erosion control measures at Green St. and Depot St.	1	ls	\$ 8,000.00	\$ 8,000	
Excavate Fill from tunnel at Green St. Entry Stair	150	cy	\$ 100.00	\$ 15,000	
Export fill and debris at Green St. Entry	1	ls	\$ 10,000.00	\$ 10,000	
Foundation Excavation for retaining wall and stairs at Green St.	30	cy	\$ 400.00	\$ 12,000	

Import backfill at Green St. Entry	40	cy	\$	137.50	\$	5,500
Subbase Sidewalk repair at Green St. and Depot St.	10	cy	\$	250.00	\$	2,500
Install 8" Item 4 Base Under Roadway at Green St. and Depot St.	10	cy	\$	250.00	\$	2,500
3" Heavy Duty Top & 2" Light Duty Asphalt Binder at Green St. and Depot St.	300	sf	\$	50.00	\$	15,000
New Granite curbing at sidewalks at Green St. and Depot St.	150	lf	\$	75.00	\$	11,250
Relocate sidewalks and catch basin around new construction at Green St. and Depot St.	1	ls	\$	20,000	\$	20,000
Traffic control, implement MPT Plan, roadway flagmen	1	ls	\$	30,000	\$	30,000
Restore Metro North Fencing	1	ls	\$	8,000	\$	8,000
Signage	10	ea	\$	300	\$	3,000
SUBTOTAL:						\$ 162,250

02-800 - LANDSCAPING

Site Restoration	1	ls	\$	5,000	\$	5,000
SUBTOTAL:						\$ 5,000

03-050 - CONCRETE

Cast In Place Concrete						
New Concrete Stairs and Landing at Green St Entry	1	ls	\$	12,000	\$	12,000
New Concrete Retaining walls with footings, below grade walls and 4' above grade walls for New Entry Structure 50 lf x 14' h 31 cy at Green St	1	ls	\$	32,000	\$	32,000
New Concrete above grade walls for New Entry Structure 60 lf x 4' h 10 cy at Depot St. (walls to be set on existing foundations)	1	ls	\$	10,000	\$	10,000
Pin and Dowel 4' above grade walls on existing foundations at Depot St. Entry	1	ls	\$	3,000	\$	3,000
Repair Existing Stairs at Green St. Entry	1	ls	\$	5,000	\$	5,000
Repair Existing Stairs at Depot St. Entry	1	ls	\$	10,000	\$	10,000
New 4' Concrete sidewalks at Green St. and Depot St. 1100 sf	1	ls	\$	6,000	\$	6,000
SUBTOTAL:						\$ 78,000

04-060 - MASONRY

Stone Veneer at Green St. 4' above grade on exterior walls 50 lf x 4 h	200	sf	\$	75.00	\$	15,000
Stone Veneer at Depot St. 4' above grade on exterior walls 48 lf x 4 h	192	sf	\$	75	\$	14,400

Stone Coping on stone veneer walls at Green St Structure	50	lf	\$	200	\$	10,000
Stone Coping on stone veneer walls at Depot St Structure	48	lf	\$	200	\$	9,600
SUBTOTAL:						\$ 49,000

05-500-MISC. METALS

New galvanized stair railings at Green St. and Depot St.	100	lf	\$	125	\$	12,500
New metal stair nosings at Green St. and Depot St.	47	ea	\$	250	\$	11,750
Steel anchors to concrete at timber structures	10	ea	\$	1,500	\$	15,000
SUBTOTAL:						\$ 39,250

06-100 - CARPENTRY

Furnish and Install (2) 12 x 24 Heavy Timber Structures over existing foundation tunnel entrances at Green St. and Depot St.	2	ea	\$	56,510	\$	113,020
Furnish and Install T&G 2" x 6" douglas fir decking for exposed underside of roof	2,000	lf	\$	8	\$	16,000
Furnish and Install 2" assembly SIP panel on T&G decking 30 sheets	30	shls	\$	367	\$	11,000
Furnish and Install Facia Rim Board 2" x 8" and Trim board 2" x 4"	288	lf	\$	28	\$	7,900
SUBTOTAL:						\$ 147,920

07-000 - THERMAL AND MOISTURE

Powerwash tunnel interior surfaces	1	ls	\$	8,000	\$	8,000
Patching interior of tunnel w/ hydraulic cement	1,000	sf	\$	15.00	\$	15,000
Architectural Shingle Roof Assembly with ice and water shield	820	sf	\$	29.27	\$	24,000
Aluminum Gutters and Downspouts	1	ls	\$	4,500.00	\$	4,500
Caulking	1	ls	\$	3,000.00	\$	3,000
SUBTOTAL:						\$ 54,500

09-990- PAINTING

Painting fascia and trims only Green St. and Depot St.	1	ls	\$	5,500	\$	5,500
SUBTOTAL:						\$ 5,500

16-050 - ELECTRIC

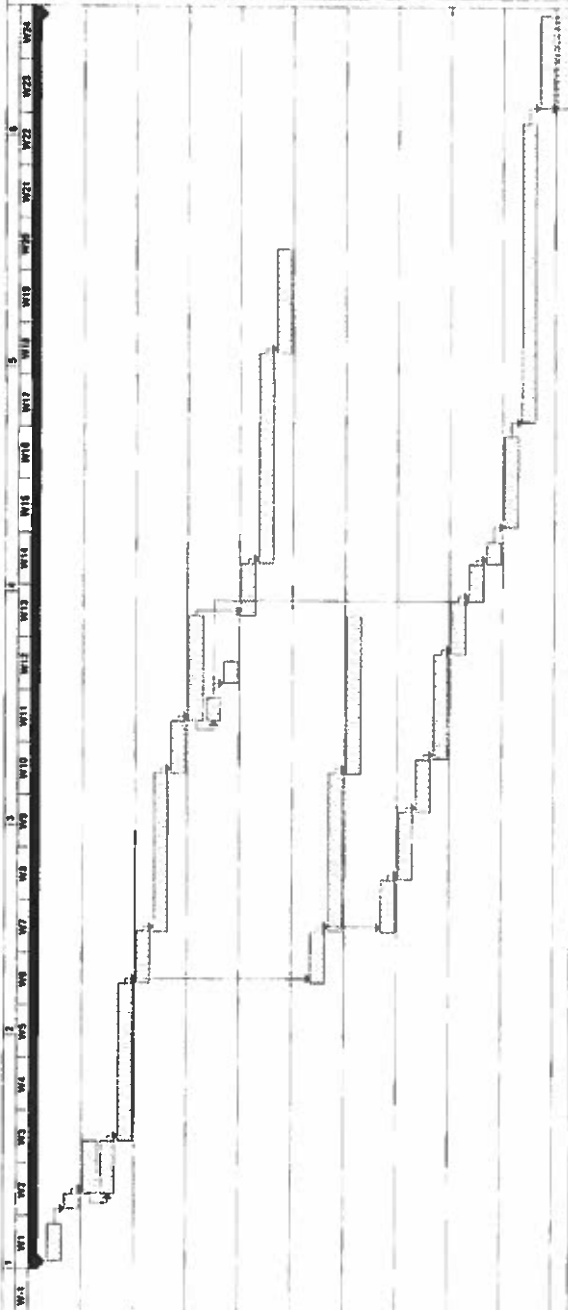
Electrical		\$	64,000
New Service with a new utility pole, Stainless Steel enclosure, 200 amp 120/205 watt power panel electrical service and meter pan	1	ls	\$ -
Temporary Services for construction	1	ls	\$ -
Raceways, conductors and wiring	1	ls	\$ -
Lighting Fixtures vandal resistant 6 lights for the tunnel and 8 lights for the timber structures with photo cell override	1	ls	\$ -
		SUBTOTAL:	\$ 64,000

JOB TOTAL \$ 757,920

ALTERNATE # 1 FURNISH AND INSTALL SUMP PUMP

Excavate and Backfill, install pump chamber and line to Green St.	1	ls	\$20,000	\$20,000.00
Sump Pump, trench drains and associated piping and controls by Plumber	1	ls	\$40,000	\$40,000.00
Wiring for sump pump and controls by Electrician	1	ls	\$7,000	\$7,000.00
		SUBTOTAL:	\$67,000	
		GENERAL CONDITIONS		\$13,400
		INSURANCE		\$2,412
		FEE		\$8,281
		BOND		\$1,822
		TOTAL COST OF ALTERNATE #1		\$92,915

PEDESTRIAN PASSAGEWAY TARRYTOWN N.Y. DECEMBER 2, 2016



ID	Task Name	Duration
1	PEDESTRIAN PASSAGEWAY	18 days
2	Mobilization Crews Street	6 days
3	Site Fencing, Barriers, Erosion Control	2 days
4	Demolition of sidewalks, street curb and temporary barriers	6 days
5	Clear and grade excavation area	6 days
6	Excavate stairs and tunnel	15 days
7	Formwork for retaining walls	8 days
8	Form retaining wall footings and walls	15 days
9	Export and backfill for stairs base and backfill	5 days
10	Form stairs and pour	10 days
11	Subbase preparation for new sidewalks and repair street	3 days
12	Pour new sidewalks, curb and pave street curb	3 days
13	Install new railings at stairs	5 days
14	Install new timber structure	20 days
15	Install electric lights to timber structure and at stairs	16 days
16	Survey finished after vehicle removal	6 days
17	Start Tunnel Repair Power wash and clean entire tunnel area	15 days
18	Hydraulic Crack repairs and patching as required with waterproof cement	18 days
19	Mobilization Depot Road	5 days
20	Site Fencing, Barriers, Erosion Control	7 days
21	Demolition of sidewalks, street curb and temporary barriers	8 days
22	Repair stairs as needed	10 days
23	Install new railings at stairs	6 days
24	Subbase preparation for new sidewalks and repair street	3 days
25	Pour new sidewalks, curb and pave street curb	3 days
26	Install 4' above grade walls on top of concrete for new timber structure	10 days
27	Install new timber structure and rails	20 days
28	Install electric lights to timber structure and at stairs	10 days
29	Clear up and restore site	10 days

Project: Pedestrian Tunnel Rehabilitation
 Date: Thu 12/17/16

Task: []
 Milestone: []

Summary: []
 Project Summary: []

Calendar Tools: []
 External Resource: []

Page 1



**LASBERG CONSTRUCTION
ASSOCIATES, INC.**

QUALIFICATIONS AND EXCLUSIONS

PEDESTRIAN PASSAGEWAY

TARRYTOWN, N.Y.

December 2, 2016

1. Asbestos, lead, or other hazardous materials abatement, removal or remediation is excluded
2. All permit fees including but not limited to DOT, DOB, Metro North Railroad are excluded
3. All Testing is by the Owner
4. Seismic Monitoring is excluded
5. All Metro North Railroad requirements, easements and associated expenses are excluded, including but not limited to Flagmen, MNRR supervision and Monitoring
6. Sales Tax excluded. Owner to provide a tax exempt certificate
7. Off hours and off hours manned security is excluded
8. Builders Risk Insurance by Owner
9. Winter Conditions and Temporary Heat is excluded
10. Utility Company Charges by the Owner
11. Design and Engineering Fees excluded
12. Design Contingency is excluded
13. Rock and ledge excavation is excluded
14. Dewatering is excluded
15. Shoring and Underpinning is excluded
16. Relocation of underground utilities or drainage systems is excluded
17. Cost Escalation is excluded
18. Estimate is based on use of existing foundations to install Timber Frame Structures
19. Structures include:
 - A. Specification on timber frame materials is non-fire rated
 - B. Structures include "1 or better Douglas Fir Timbers non-fire rated
 - C. Timbers are mortise and tenon with hardwood pegs
 - D. All shop drawings, shop fabrication, Erection, Structural Calculations and P.E. Stamp is included
 - E. Checking, minor waning and blemishes on heavy timber structures are normal and to be expected



**LASBERG CONSTRUCTION
ASSOCIATES, INC.**

RISK SUMMARY

PEDESTRIAN PASSAGEWAY

TARRYTOWN, N.Y.

December 2, 2016

In the course of conducting the Preconstruction Analysis, LCA has identified a number of risk factors that could potentially have a negative impact on the project schedule and budget. The items listed below represent our present concerns based on the limited information available. As more information becomes available, some of these risks may be mitigated and additional risks may be identified. The following is a summary of the risks we are aware of at this time:

1. **ROCK:**

The potential exists for rock to be encountered during excavation activities. In the absence of a Geo-technical Report or any subsurface investigation, the budget pricing assumes there is no rock present.

2. **UNSUITABLE SOILS:**

Our past experience working near or adjacent to railroads informs us there are often compromised soil conditions. Potential risk factors include the presence of soil that cannot meet compaction requirements, contains urban fill and/or contamination. In the absence of a Geo-technical Report or any subsurface investigation, the budget pricing assumes the soil is suitable and not compromised in any way.

3. **DEWATERING:**

Due to the proximity of the site to the Hudson River, there is the potential for groundwater to be encountered due to a high water table or a tide influenced water condition. This could create substantial difficulties during excavation activities that may require some type of dewatering system. In the absence of a Geo-technical Report or any subsurface investigation, the budget pricing assumes dewatering will not be required.

4. **PUMP LOCATION:**

Alternate Number 1 includes installation of the pump and associated work. Following consultation with the Architect, it's our recommendation the pump location be moved approximately 10-12 feet in a Southerly direction, so it's not located adjacent to the existing

RISK ANALYSIS

Continued

tunnel. The current pump location could potentially involve undermining of the tunnel substrate and create the need for underpinning. The revised location should eliminate those risk factors.

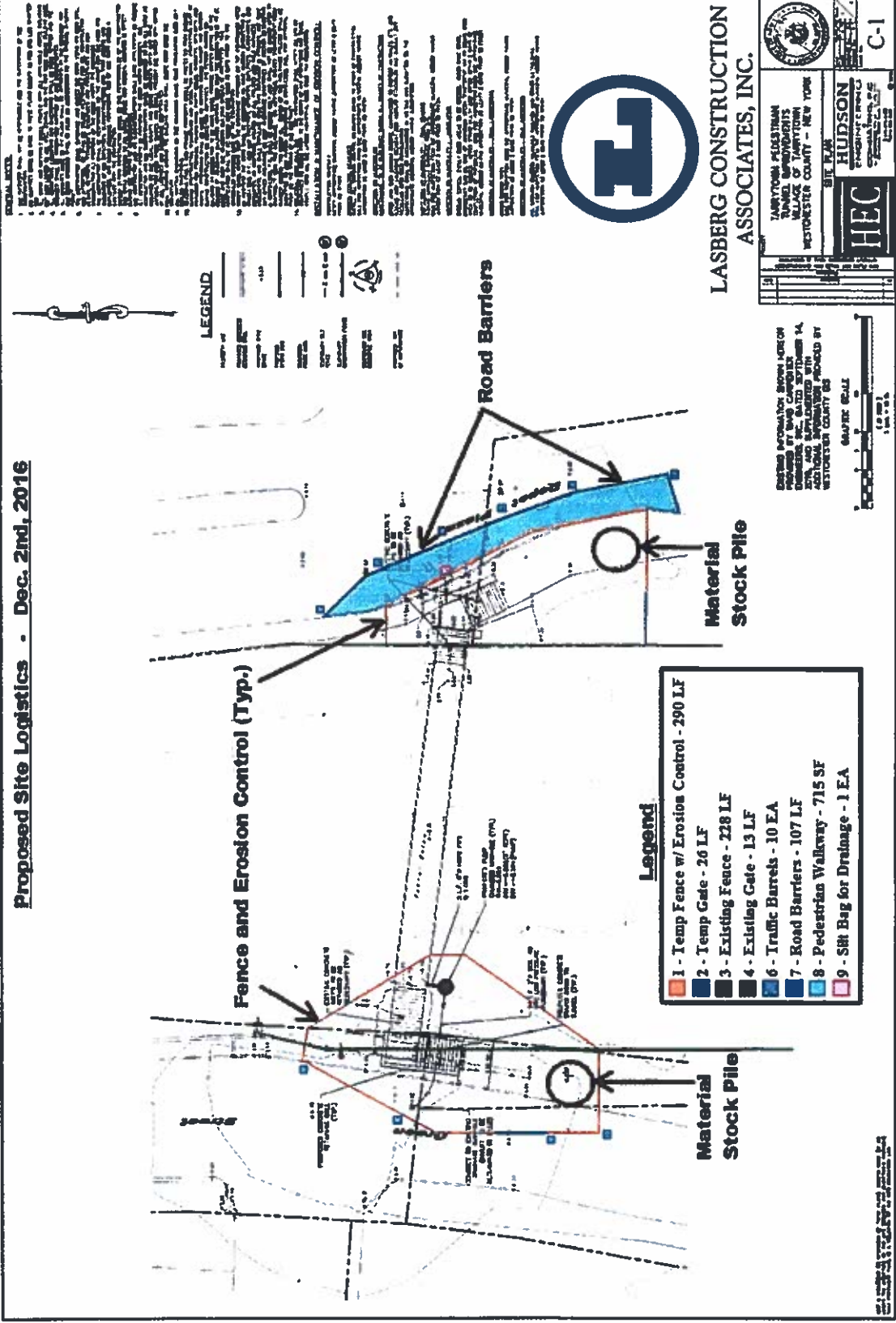
5. METRO NORTH RAILROAD:

- A. MNRR could potentially require construction monitoring, coordination and other type of oversight. Those requirements are unknown at this time and no provision has been included in the budget.
- B. The Preliminary Site Logistic Plans indicates work and staging on MNRR property. An easement will be required to conduct the work and no provision has been included for those expenses. Should an easement not be forthcoming, additional construction expense could be incurred.

RISK MITIGATION RECCOMENDATIONS:

- 1. Enlist the services of a qualified Geotechnical Engineering firm the conduct borings and subsurface investigations to evaluate existing soil characteristics and ground water conditions.
- 2. Engage MNRR to discuss work easements and construction monitoring requirements.

Proposed Site Logistics - Dec. 2nd, 2016



SPECIAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NEW YORK STATE AND FEDERAL REGULATIONS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.
3. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AND PUBLIC UTILITIES AT ALL TIMES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND STRUCTURES.
5. THE CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE AND EROSION CONTROL MEASURES THROUGHOUT THE CONSTRUCTION PROCESS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL ENVIRONMENTAL SENSITIVE AREAS.
7. THE CONTRACTOR SHALL MAINTAIN ADEQUATE SAFETY MEASURES AND TRAFFIC CONTROL THROUGHOUT THE CONSTRUCTION PROCESS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL HISTORIC AND CULTURAL RESOURCES.
9. THE CONTRACTOR SHALL MAINTAIN ADEQUATE RECORDS AND DOCUMENTATION OF ALL CONSTRUCTION ACTIVITIES.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL NEIGHBORHOODS AND COMMUNITIES AFFECTED BY THE CONSTRUCTION.
11. THE CONTRACTOR SHALL MAINTAIN ADEQUATE COMMUNICATIONS AND REPORTING MECHANISMS THROUGHOUT THE CONSTRUCTION PROCESS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL PUBLIC SAFETY AND SECURITY CONCERNS.
13. THE CONTRACTOR SHALL MAINTAIN ADEQUATE RECORDS AND DOCUMENTATION OF ALL CONSTRUCTION ACTIVITIES.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL NEIGHBORHOODS AND COMMUNITIES AFFECTED BY THE CONSTRUCTION.
15. THE CONTRACTOR SHALL MAINTAIN ADEQUATE COMMUNICATIONS AND REPORTING MECHANISMS THROUGHOUT THE CONSTRUCTION PROCESS.

LEGEND

TEMPORARY FENCE	1:100
EXISTING FENCE	1:100
TRAFFIC BARRIERS	1:100
ROAD BARRIERS	1:100
PEDESTRIAN WALKWAY	1:100
SILT BAGS	1:100
STOCK PILE	1:100



LASBERG CONSTRUCTION ASSOCIATES, INC.

HEC

HUDSON ENGINEERING CONSULTANTS

SITE PLAN

TAMMINGTON FERRISMAN
TAMMINGTON FERRISMAN
VILLAGE OF TAMMINGTON
WESTCHESTER COUNTY - NEW YORK

C-1

DATE: 12/02/16
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 SCALE: 1" = 100'

Legend

1 - Temp Fence w/ Erosion Control - 290 LF
2 - Temp Gate - 26 LF
3 - Existing Fence - 228 LF
4 - Existing Gate - 13 LF
6 - Traffic Barrels - 10 EA
7 - Road Barriers - 107 LF
8 - Pedestrian Walkway - 715 SF
9 - Silty Bag for Drainage - 1 EA

Fence and Erosion Control (Typ.)

Road Barriers

Material Stock Pile

Material Stock Pile

SCALE: 1" = 100'

DRAWING/DOCUMENT LOG

PEDESTRIAN PASSAGEWAY

TARRYTOWN, N.Y.

DECEMBER 2, 2016

1. Attachment A: "Vicinity Map" by Dennis Noskin Architects dated 11-1-16
2. Drawing C-1: "Site Plan" by Hudson Engineering and Consulting, PC dated 10-14-16
3. Drawing C-1A: "Overall Site Plan" by Hudson Engineering and Consulting, PC dated 10-24-16
4. Attachment E: "Conceptual Elevation" by Dennis Noskin Architects dated 11-14-16
5. Opinion Letter by Grossfield Macri Consulting Engineers, PC dated 9-26-16
6. Draft Feasibility Study by Dennis Noskin Architects dated 11-1-16