nationalgrid

**Patrick J. Van Rossem**
Project Manager
Site Investigation and Remediation

August 10, 2016

Mr. Henry T. Willems
New York State Department of Environmental Conservation
Division of Environmental Remediation, Remedial Bureau C
625 Broadway, 11th Floor
Albany, New York 12233-7014

Re: 90% Remedial Design
Former Citizens Gas Works Manufactured Gas Plant Site
Carroll Gardens/Public Place
Borough of Brooklyn, Kings County, New York
Site No. C224012

Dear Mr. Willems:

As a follow-up to our July 21, 2016 meeting, please find enclosed the 90% Remedial Design (RD) for the former Citizens Gas Works manufactured gas plant (MGP) site (the "Site") located in Brooklyn, New York. This RD has been prepared in accordance with the April 23, 2007 Voluntary Cleanup Program Decision Document (New York State Department of Environmental Conservation [NYSDEC], April 2007) and the October 3, 2008 Brownfield Site Cleanup Agreement. This 90% RD updates the 50% RD based on the *Barrier Wall Pilot Test Program Report* (GEI Consultants, Inc., August 2015), the results of the supplemental design investigation (SDI; Arcadis of New York, Inc. [Arcadis], June 2016), several meetings and discussions with NYSDEC regarding the Site remedy, and the results of additional engineering evaluations.

In particular, the 2013/2014 barrier wall pilot test program in conjunction the 2015/2016 SDI provided information to support additional analysis of key design elements. The following is a summary of the design updates since the 50% RD and some of the other key design aspects that are still being evaluated.

## I. BULKHEAD BARRIER WALL

### A. Bulkhead/Barrier Wall Design Updates:

1. The barrier wall pilot test program and SDI (including the associated reaction pile pilot program) confirmed that a combination of a tieback anchor wall and a combination (king pile) wall will support upland loads and accommodate the Gowanus Canal dredge remedy. This combination of wall construction methods will provide significant construction schedule

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benefits and minimize construction risks since the design works around the existing 72-inch diameter sewer line without the need to relocate it. At this time the tieback anchor wall is anticipated to be used primarily on Parcel III and the combination wall is planned for Parcel II.

2. The 2013/2014 barrier wall pilot test program confirmed the effectiveness of a joint sealant system (such as the Adeka joint sealant) to be used in conjunction with mechanical interlocks to further reduce the permeability of the wall adjacent to the Gowanus Canal. The sealant system design is continuing to be evaluated as part of the RD and will be included in a future RD submittal.

3. The Site groundwater model was updated based on the results of the 2015/2016 SDI and as part of the on-going development of the RD. The predictive simulations evaluated as part of this effort indicated that, compared to current (calibration) conditions, groundwater mounding will occur along the barrier wall at the Site, but that groundwater levels will not reach the ground surface under the anticipated post-remediation conditions. This is different from the initial groundwater model (GEI Consultants, Inc., September 2011) which predicted groundwater would pond or overflow to surface drainage. The 2011 modeling results provided the basis for proposing a liner system across the Site in the 50% RD. However, based on the results of the updated model by Arcadis along with other considerations (e.g., impacts the liner system could have on future Site development, challenges arising from maintenance of existing utilities, etc.), the 90% RD does not include installation of a liner system across the Site.

4. Wing Wall(s): Based on a review of Site data and our current bulkhead design evaluation, wing walls are not required to address non-aqueous phase liquid (NAPL) migration. As a result, wing walls have not been included in the 90% RD. We will continue to review this analysis as the design progresses to the extent that other design parameters or conditions may change.

B. Bulkhead/Barrier Wall Future RD Submittal Considerations:

In addition to refining the primary elements of the bulkhead design in this 90% RD submittal, Arcadis continues to evaluate other aspects of the bulkhead design and construction that may be required for the 100% RD/Bidding Documents including the following:

1. Remnant Piles: Review of historic drawings, photographs, and other information indicates that numerous remnant timber piles are likely present outboard of the current bulkhead and may interfere with the proposed alignment of the new bulkhead system. If present along the proposed alignment, these piles will require removal or displacement in order to facilitate installation of the new bulkhead system. Historic information is being incorporated into the RD for a future submittal.

2. Demolition of Existing Fender System: The northern portion of the bulkhead appears to include a fender system outboard of the timber cribbing. Evaluation of the configuration of the fender system to the cribbing is continuing along with excavation support systems that

may be employed to support soil and allow the partial demolition of the fender/cribbing system. This evaluation and the historic information is being incorporated into the RD for a future submittal.

3. Future Groundwater Mounding Consideration: Approaches for addressing future increases in groundwater mounding are continuing to be evaluated. There is a potential for groundwater mounding to increase over time as a result of the implementation of the Gowanus Canal remedy, on-going City of New York initiatives to reduce storm water run-off (by encouraging infiltration of storm water), and predictions of rising sea levels. Given the uncertainties of potential future groundwater mounding and the need to control mounding behind the wall in a manner that avoids groundwater expression in the upland, the bulkhead design will require some type of hydraulic relief system. We are continuing to consider and evaluate potential gravity relief systems as part of the on-going RD efforts.

4. Construction Monitoring: We are still evaluating structural and geotechnical monitoring requirements during construction for various existing facilities such as natural gas mains located on- and off-Site, the gas tunnel that is located under the Gowanus Canal, and the 72-inch diameter sewer line. The monitoring requirements (as appropriate) will be a part of the final RD. A Community Air Monitoring Plan (CAMP) will also be developed as part of a future submittal of the RD.

5. Gas Tunnel Integration: The details for integrating the gas tunnel into the bulkhead wall system (i.e., methods for terminating the wall system at the tunnel drop shaft) continue to be developed in conjunction with meetings with National Grid's gas department. These details will be included in a future submittal of the RD.

6. Corrosion Protection: The final design will include the plans for corrosion protection to enhance the longevity of the bulkhead. Specific protection systems and approaches continue to be evaluated, and a system will be presented in a future submittal of the RD.

## II. REMEDIAL EXCAVATION AREAS

This 90% RD provides additional details for the remedial excavation areas on Parcels I and III. As part of the 90% RD, the excavation limits were updated based on the results of the SDI, previous investigations, historic information, and discussions with NYSDEC. In addition, the geotechnical data collected during the SDI and other Site information was used to design the excavation support systems as outlined below:

### A. Parcel I Remedial Excavation Areas:

The 90% RD provides details regarding the excavation shoring and bracing system for the deep excavation work in the vicinity of former Holder Nos. 2 and 3 to the limits shown down to the top of the existing foundation slabs. The support system includes steel sheet piling along with internal bracing, coupled with excavation sequencing to allow the excavations to be completed safely. For former Holder No. 5, the existing holder foundation wall was evaluated to support the removal of the holder contents within the structure. Based on this evaluation, the 90% RD

includes the installation of a controlled low-strength material (CLSM) gravity wall inside the holder wall to provide additional support that will be needed to remove the material inside of the holder.

As discussed during our meeting on July 21, 2016, NYSDEC has requested that a NAPL collection program be included to the east of the Parcel I remedial excavation area before the start of the overall remedial construction in this area. We are planning to address this in the following manner. The existing wells in this area will be gauged as a first step when the concrete plant owner removes the obstructions in this area to provide access. Depending on the results of the gauging of these existing wells, we will discuss with NYSDEC the number of wells that may be needed and their location to supplement the existing wells. All of this will be dependent on obtaining access following the concrete plant demobilization.

B. Parcel III Remedial Excavation Areas:

The 90% RD provides details regarding the excavation shoring and bracing system including the steel sheet piling and internal bracing. As discussed with NYSDEC, MGP-impacted soils that are encountered during future Site redevelopment will be remediated per the Decision Document and managed in accordance with a NYSDEC-approved Site Management Plan.

## III. SHALLOW IMPACTED SOILS

The Decision Document includes requirements for removal of "contaminated soils…to a depth of approximately 8 feet below grade." The 8-foot depth was further clarified in a September 23, 2009 letter, which indicated that the removal would "extend to (nominally) "8-feet" below street grade". Since the issuance of the Decision Document, a number of investigations have been performed and the scope of deep removal areas has been further refined based on all of the Site data including the results of the SDI. Based on this analysis, most of the areas of shallow soil impacts will be removed as part of the deeper source area excavations at the Site. As discussed with NYSDEC, other areas of shallow MGP-impacted soil within 8 feet below street grade that are encountered during future Site redevelopment will be remediated per the Decision Document and managed in accordance with a NYSDEC-approved Site Management Plan.

## IV. NAPL RECOVERY PROGRAM

We are evaluating the scope and locations of the on-going NAPL recovery program. The post-remediation NAPL recovery program well locations and scope will consider the location of the barrier wall support system (e.g., tiebacks, etc.) and well locations where high volumes of NAPL continue to be recovered. A future submittal of the RD will include details regarding the NAPL recovery system components.

The enclosed 90% RD was developed with the understanding that the concrete plant will be demobilized from the Site by September 30, 2016 and that as part of their departure they will remove all of their existing facilities. We are planning to submit a 95% RD as the next submittal for NYSDEC's review. The 95% RD will advance the above items (including adding language to the up-front project summary to address requirements related to future Site redevelopment and

Site management) and incorporate input from NYSDEC on this 90% RD. It should be noted that finalization of the design and submittal of the future 100% RD is dependent on the departure of the concrete plant from the Site.

As we further advance the design, we will discuss concepts with the NYSDEC to streamline review efforts and support timely advancement of the RD. Please call me at (516) 545-2578, or contact me by e-mail at patrick.vanrossem@nationalgrid.com, if you have any questions or require any additional information

Sincerely,

Patrick J. Van Rossem /MJB

Patrick J. Van Rossem
Project Manager
Site Investigation & Remediation

Enclosure

cc: Gardiner Cross, NYSDEC
Ted Leissing, National Grid
Katherine Vater, PE, National Grid
Chris Young, de maximis
Terry Young, PE, Arcadis
Michael Benoit, PE, Arcadis

*DRAFT*

*NOT FOR CONSTRUCTION*

ARCADIS Design & Consultancy for natural and built assets

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# 90% REMEDIAL DESIGN

Site Remediation

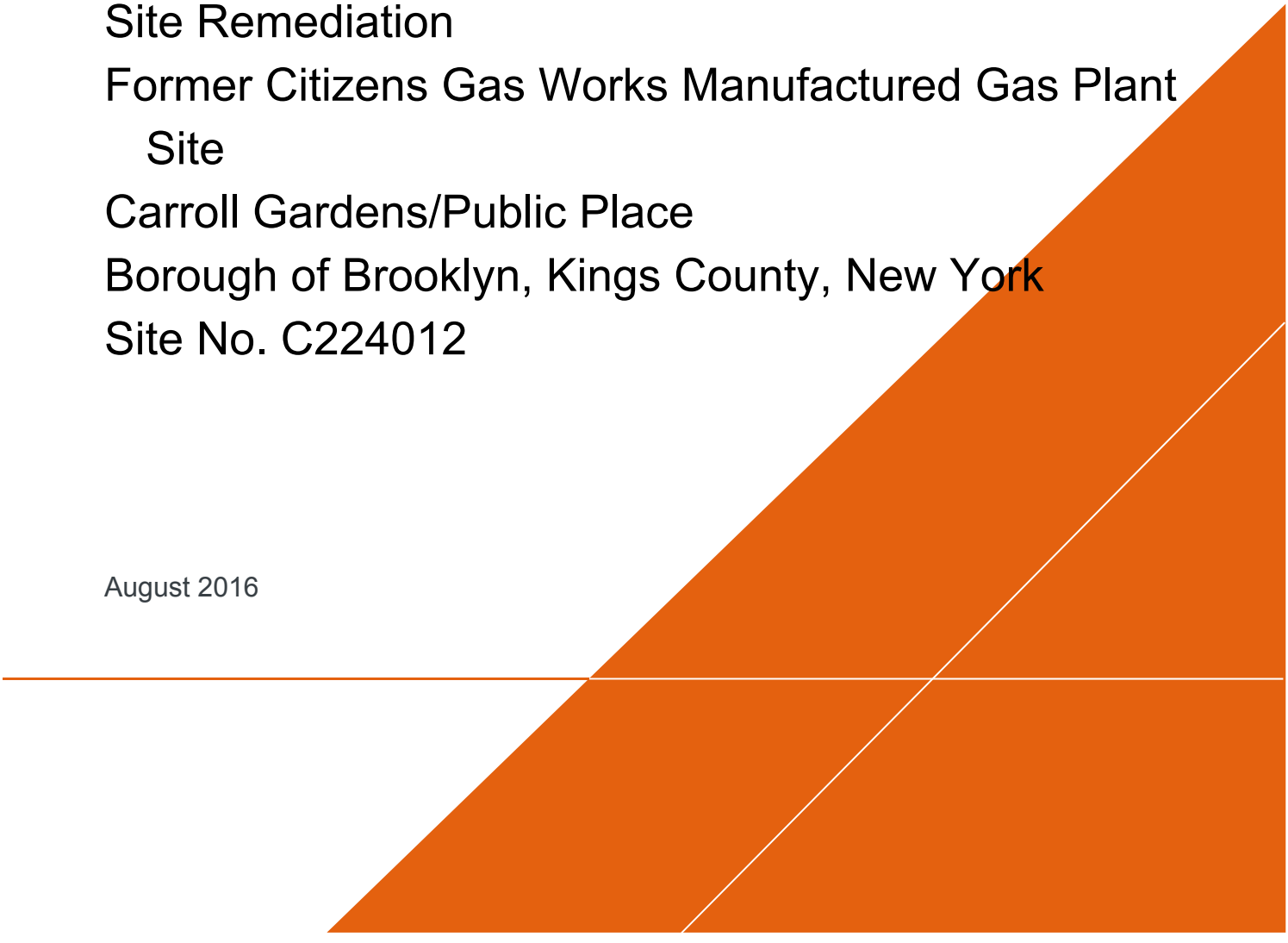
Former Citizens Gas Works Manufactured Gas Plant Site

Carroll Gardens/Public Place

Borough of Brooklyn, Kings County, New York

Site No. C224012

August 2016



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***DRAFT***

***NOT FOR CONSTRUCTION***

I, Terry W. Young, certify that I am currently a New York State-registered Professional Engineer and that this design was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

Terry W. Young, PE Date

Vice President

# 90% REMEDIAL DESIGN

Site Remediation

Former Citizens Gas Works Manufactured Gas Plant Site

Carroll Gardens/Public Place

Borough of Brooklyn, Kings County, New York

Site No. C224012


Owner:

National Grid USA

175 East Old Country Road

Hicksville, New York 11801

Engineer:

Arcadis of New York, Inc.

6723 Towpath Road

PO Box 66

Syracuse

New York 13214-0066

Tel 315 446 9120

Fax 315 449 0017


Our Ref.:

B0036728.0001.00003

Date:

August 2016

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# SPECIFICATIONS

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## Procurement and Contracting Requirements

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[Note to NYSDEC: YELLOW HIGHLIGHTING denotes drawings anticipated to be included in 95% RD submittal.]

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[Note to NYSDEC: YELLOW HIGHLIGHTING denotes drawings anticipated to be included in 95% RD submittal.]

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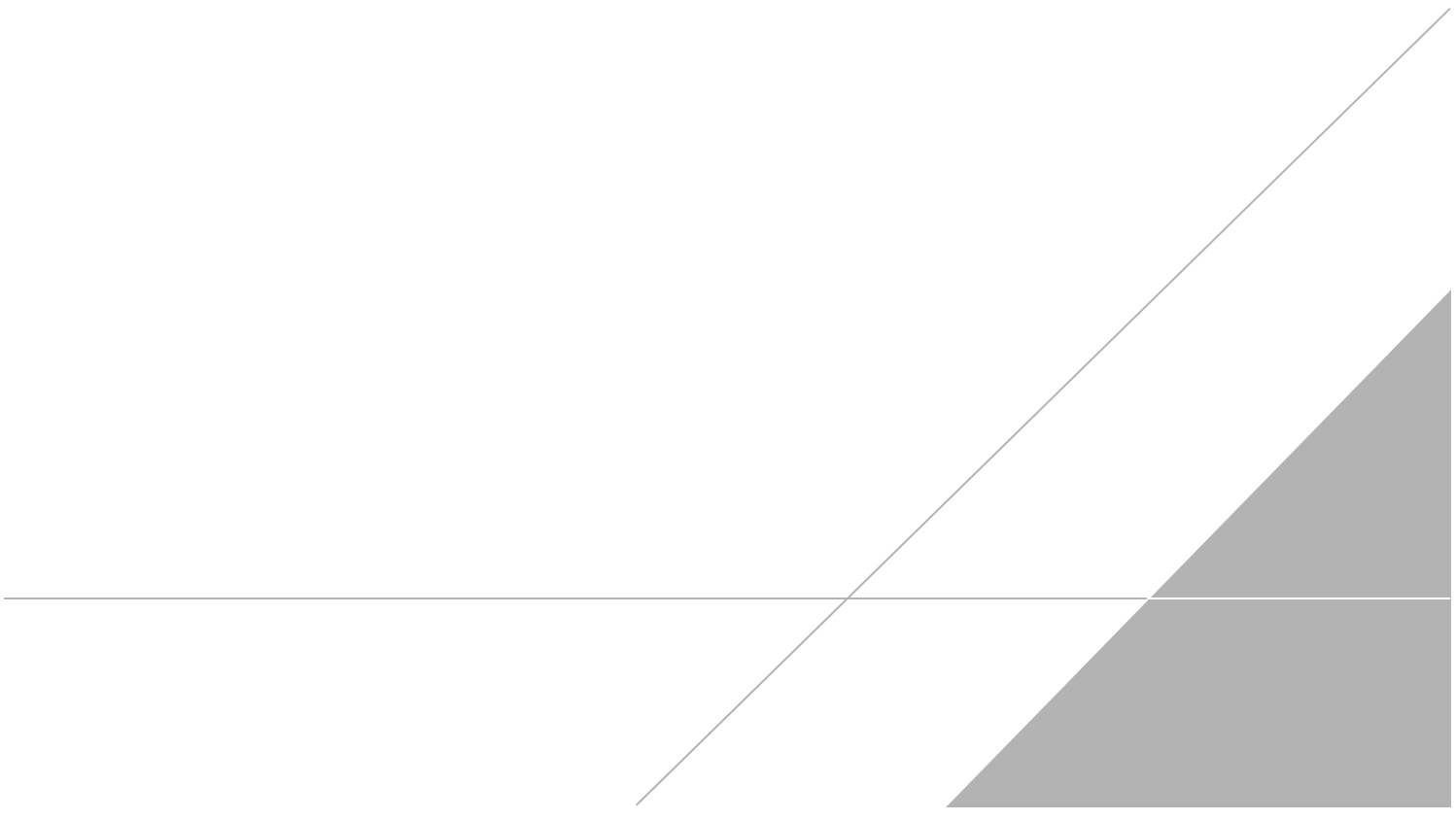
# DIVISION 01

## General Requirements



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# SECTION 01 11 00

# SUMMARY OF WORK

## PART 1 – GENERAL

### 1.01 LOCATION AND DESCRIPTION OF THE WORK

A. The Work is located at the site of a former manufactured gas plant (MGP) at the intersection of Smith and Fifth Streets in the Carroll Gardens neighborhood of the Borough of Brooklyn, Kings County, New York. The Site is generally bounded by Fifth Street, Hoyt Street, and privately-owned commercial properties to the north, Smith Street to the west, Huntington Street to the southwest, and the Gowanus Canal to the south and east. The area surrounding the Site is densely-populated and includes a mix of commercial, industrial, and residential land uses.

B. The Site comprises three privately-owned contiguous properties (commonly referred to as "Parcel I" [Block 471, Lot 1], "Parcel II" [Block 471, Lot 100], and "Parcel III" [Block 471, Lot 200]) and approximately 9.6 acres. Parcels I and II are owned by the City of New York and were formerly occupied by Ferrara Brothers Building Materials Corporation, which operated a concrete plant on Parcel II. Parcel I is largely vacant and was used by Ferrara Brothers Building Materials Corporation for employee parking, equipment staging, and material storage. Parcel III is owned by Vichar, Inc. and is largely vacant. The Site is enclosed by fencing and is generally secure from public access.

C. The Work to be performed under this Contract includes, but is not limited to, the following:
   1. Site clearing and preparation.
   2. Selective demolition and removal of certain surface structures and facilities.
   3. Excavation of approximately 26,000 in-situ cubic yards of MGP-impacted soil in Parcel I to depths ranging from approximately 15 to 26 feet below existing grade.
   4. Excavation of approximately 15,000 in-situ cubic yards of MGP-impacted soil in Parcel III to depths ranging from approximately 20 to 22 feet below existing grade.
   5. Demolition of former building foundations, Underground Facilities, and former MGP structures located within the remedial excavation limits in Parcels I and III.
   6. Backfilling remedial excavation areas in Parcels I and III.
   7. Construction of approximately 885 linear feet of steel bulkhead barrier wall along Parcels II and III.
   8. Installation of passive dense non-aqueous phase liquid recovery wells.
   9. Removal of demolition, excavation, and construction waste from the Site and disposal at appropriate, Owner-approved facilities in accordance with Laws and Regulations.
   10. Removal of construction wastewater from the Site and disposal at appropriate, Owner-approved facilities in accordance with Laws and Regulations.
   11. Restoration of the Site.

D. Contracting Method: The Project shall be performed under one prime contract.

E. Contaminants: Work related to Manufactured Gas Plant Waste, described in reports referenced in the Supplementary Conditions, is included in the Work.

## 1.02 CONTRACTOR'S USE OF THE SITE

A. Use of Premises:
   1. Confine construction operations to the work areas shown or indicated. Do not disturb portions of the Site beyond areas of the Work.
   2. Confine storage of materials and equipment, and locations of temporary facilities to the areas shown or indicated. Move stored materials and equipment that interfere with operations of Owner, Third-Party Property Owner, other contractors, and others performing work for Owner or Third-Party Property Owner.
   3. Authorities having jurisdiction at the Site and others performing work for Owner or Third-Party Property Owner shall, for all purposes that may be required by their contracts, have access to the Site and the premises used by Contractor, and Contractor shall provide safe and proper access.

B. Access to the Site, Access Roads, and Parking Areas: Comply with Section 01 55 13 (Temporary Access Roads and Parking Areas).

C. Promptly repair damage to premises caused by construction operations. Upon completion of the Work, restore premises to condition specified in the Contract Documents. If condition is not specified, restore to pre-construction condition.

## 1.03 EASEMENTS AND RIGHTS-OF-WAY

A. General:
   1. Confine construction operations within public rights-of-way and the limits shown or indicated.
   2. Use care in placing construction tools, equipment, excavated materials, and materials and equipment to be incorporated into the Work to avoid damaging property and interfering with traffic.
   3. Do not enter private property outside the construction limits without permission from the owner of the property.

B. On Private Property:
   1. Limits of Contractor's operations on private property are shown on the Drawings.

C. Within Highway and Railroad Rights-of-Way:
   1. Work performed and Contractor's operations within limits of highway and railroad rights-of-way shall comply with requirements of highway or railroad owner and applicable work permits, or authority having jurisdiction over right-of-way.
   2. Comply with Section 01 14 33 (Work in Highway Rights-of-Way).

D. Within Waterway:
   1. Work performed and Contractor's operations within limits of waterway shall comply with applicable work permits and authority having jurisdiction over waterway.

## 1.04 NOTICES TO OWNERS AND AUTHORITIES OF PROPERTIES ADJACENT TO THE WORK

A. Notify Owner and Construction Manager when prosecution of the Work may affect adjacent properties or use of adjacent properties. Owner or Construction Manager will notify owners of adjacent property; do not contact owners of adjacent property directly unless authorized by Owner to do so.

B. When it is necessary to temporarily obstruct access to property, or when utility service connection will be interrupted, provide notices sufficiently in advance to enable affected persons to provide for their needs. Such notifications shall comply with Laws and Regulations and, whether delivered orally or in writing, shall include appropriate information concerning the interruption and instructions on how to limit inconvenience caused thereby.

C. Notify utility owners and other concerned entities not less than two working days, but not greater than 10 working days, prior to cutting or closing streets or other traffic areas or excavating near Underground Facilities or exposed utilities.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

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# SECTION 01 14 33

# WORK IN HIGHWAY RIGHTS-OF-WAY

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall obtain necessary permits, arrange and pay for inspections required by the highway owner, and pay all fees for the Work in the associated highway right-of-way.
   2. Comply with applicable rules and regulations of highway owner.
   3. Obtain required permits prior to commencing work in the associated highway right-of-way.

B. Highway owners having jurisdiction over the Work include:
   a. New York City Department of Transportation:
      1) Smith Street: Maintain one lane of traffic during the Work.
      2) Fifth Street: Maintain one lane of traffic during the Work.
      3) Hoyt Street: Maintain one lane of traffic in each direction during the Work.

C. Related Sections:
   1. Section 01 55 26, Maintenance and Protection of Traffic.

### 1.02 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
      a. 34 RCNY 2, Highway Rules.
      b. 34 RCNY 4, Traffic Rules.
   2. Comply with applicable provisions and recommendations of the following:
      a. NYCDOT Standard Highway Specifications and Standard Details of Construction.

### 1.03 SUBMITTALS

A. Informational Submittals:
   1. Permits: Submit copies of work permits obtained from owner of each right-of way.

## PART 2 – PRODUCTS

### 2.01 MATERIALS

A. Materials shall comply with requirements of highway owner and the Contract Documents.

## PART 3 – EXECUTION

### 3.01 PREPARATION AND PROTECTION

A. Contractor shall implement means necessary to prevent accidents caused or influenced by the Work. Provide flagmen, temporary barricades, temporary lights, temporary signs, and other precautions to provide safe conditions during the Work. Comply with Section 01 55 26.

### 3.02 INSTALLATION

A. Work shall be located as shown on the Drawings. Provide materials, equipment, piping, and appurtenances required for crossings of existing Underground Facilities and above-ground utilities and structures. Furnish and maintain at the Site a supply of pipe fittings, adapters, and short lengths of pipe to expedite utility crossings required.

B. Pavement:
   1. When fill is stabilized in accordance with requirements of highway owner and the Contract Documents, replace highway subbase material and pavement with pavement of similar type and equal thickness to the pavement in place prior to start of the Work.
   2. Pavement installation shall comply with requirements of highway owner and the Contract Documents.

END OF SECTION

# SECTION 01 15 00

# CONTRACTOR'S PROJECT OPERATIONS PLAN

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes requirements for Contractor's Project Operations Plan (POP).
   2. Contractor's POP submittal shall clearly describe Contractor's proposed means, methods, and sequence of construction operations in compliance with the Contract Documents.

### 1.02 SUBMITTALS

A. Informational Submittals:
   1. Contractor's POP: Submit in accordance with Article 1.03 of this Section.

### 1.03 POP SUBMITTAL

A. Timing of Submittal: Submit POP to Engineer the sooner of: seven days prior to pre-construction conference, or 30 days prior to Contractor's scheduled mobilization to the Site.

B. POP Content: Contractor's POP shall address and include, at a minimum, the following:
   1. Contractor's Organizational Structure: Specific chain of command and overall responsibilities of Contractor personnel. Include the following:
      a. Name, experience, and general functions and responsibilities of the following:
         1) Project manager.
         2) Safety representative, if safety representative is an employee of Contractor.
         3) Site superintendent.
         4) Foreman/foremen.
         5) Equipment operators and laborers.
         6) Others as appropriate.
      b. Designation of Contractor personnel that will reside at the Site for the duration of the Project.
   2. Work Schedule: Proposed work days and work hours. Include copy of Contractor's initial Progress Schedule, prepared in accordance with Paragraph 2.06 of the General Conditions and Section 01 32 16 (Construction Progress Schedule).
   3. List of major construction equipment. Include make, model, and size or rating of each, and whether equipment is owned or will be leased.
   4. List of major Subcontractors and Suppliers. Include name, role, and contact information for the following:
      a. Safety representative, if safety representative is a Subcontractor.
      b. Surveyor.
      c. Suppliers and sources of off-site fill, aggregates, and topsoil.
      d. Treatment, disposal, and recycling facilities.
      e. Others as appropriate.
   5. Site Utilization Plan: Drawing(s) showing proposed locations and layout of temporary construction facilities and support areas. If proposed locations or layout of temporary construction facilities and support areas will change during the Project, submit separate drawing for each phase of construction. Include, at a minimum, the following:
      a. Temporary utilities.

b. Field offices and sheds, sanitary facilities, and first-aid facilities.
c. Temporary access roads and parking areas.
d. Equipment storage and fueling area(s).
e. Temporary decontamination area(s). Clearly identify location and size of each.
f. Temporary containment area(s). Clearly identify location and size of each.

6. Comprehensive Work Plan: Written description of the general sequence and scope of the following:
   a. Mobilization and Site preparation.
   b. Site access controls and security.
   c. Utility clearance, mark-out, and verification.
   d. Erosion and sediment control.
   e. Odor, vapor, and dust control.
   f. Clearing and grubbing.
   g. Excavation, including material handling and staging approach.
   h. Dewatering.
   i. Selective demolition.
   j. Bulkhead installation.
   k. Backfilling and grading.
   l. Site restoration.
   m. Waste management.
   n. Demobilization.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

# SECTION 01 25 00

# SUBSTITUTION PROCEDURES

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes:
      a. Administrative and procedural requirements for selecting materials and equipment for the Project.
      b. Procedural requirements for substitutions of materials and equipment.
      c. Procedural requirements for substitute construction methods or procedures, when construction methods or procedures are specified.

B. A proposed substitute will not be accepted for review if:
   1. Approval would require changes in design concept or a substantial revision of the Contract Documents.
   2. Approval would delay completion of the Work or the work of other contractors.
   3. Substitution request is indicated or implied on a Shop Drawing or other submittal, or on a request for interpretation or clarification, and is not accompanied by Contractor's formal and complete request for substitution.

C. If proposed substitute is not approved, Contractor shall provide the specified materials, equipment, method, or procedure, as applicable.

D. Approval of a substitute does not relieve Contractor from requirement for submitting Shop Drawings and other submittals in accordance with the Contract Documents.

E. Owner and Engineer have the right to rely upon the completeness and accuracy of the information included in Contractor's request for approval of a substitute, and Contractor accepts full responsibility for the completeness and accuracy thereof.

F. When approved substitute is defective or fails to perform in accordance with the Contract Documents, responsibility for remedying the defect or failure resides solely with Contractor and Supplier.

### 1.02 SUBSTITUTE MATERIALS AND EQUIPMENT

A. Requests for approval of substitute materials or equipment items will be considered within a period of 90 days after the Effective Date of the Agreement. After the end of specified period, substitution requests will be considered only in case of unavailability of a specified material or equipment item or other conditions beyond Contractor's control.

B. Procedure:
   1. Submit to Construction Manager and Engineer one copy of each substitution request in accordance with the requirements for furnishing submittals, as indicated in Section 01 33 00 (Submittal Procedures).
   2. Submit separate request for each proposed substitute.
   3. Engineer will provide timely review of substitution requests. Allow sufficient time for review and response.

4. Construction Manager will maintain a log of all substitution requests. A copy of the log will be provided upon request.
5. Engineer will provide written response to each substitution request. One copy of Engineer's response will be distributed to:
   a. Contractor.
   b. Owner.
   c. Construction Manager.
   d. Engineer.
6. If Engineer requests additional information to make an interpretation, provide information requested within ten days, unless Engineer allows additional time, via correspondence referring to substitution request number.

C. Preparation of Substitution Request:
1. Prepare each substitution request using the form included with this Section, or other form acceptable to Engineer.
2. Number each substitution request using a two-digit sequential number. First substitution request will be "01".
3. Complete all information requested on the form, and enclose with the form supplementary information as required. In addition to the requirements of the General Conditions and information required on the substitution request form, include with each substitution request the following:
   a. Identification of the material or equipment item (as applicable), including manufacturer's name and address.
   b. Manufacturer's literature with description of the material or equipment item, performance and test data, and reference standards with which material or equipment item complies.
   c. Samples, when appropriate.
   d. Name and address of similar projects on which the material or equipment item was used, and date of installation.

1.03 SUBSTITUTE CONSTRUCTION METHODS OR PROCEDURES

A. Where construction methods or procedures are specified, for a period of 90 days after the Effective Date of the Agreement, Engineer will consider Contractor's written requests for substitute construction methods or procedures specified.

B. The provisions of the General Conditions, as may be modified by the Supplementary Conditions, regarding substitute materials and equipment items are hereby extended to apply to substitute construction methods or procedures.

C. Procedure:
1. Submit to Construction Manager and Engineer one copy of each substitution request in accordance with the requirements for furnishing submittals, as indicated in Section 01 33 00 (Submittal Procedures).
2. Submit separate request for each proposed substitute.
3. Engineer will provide timely review of substitution requests. Allow sufficient time for review and response.
4. Construction Manager will maintain a log of all substitution requests. A copy of the log will be provided upon request.
5. Engineer will provide written response to each substitution request. One copy of Engineer's response will be distributed to:
   a. Contractor.
   b. Owner.
   c. Construction Manager.

d. Engineer.

6. If Engineer requests additional information to make an interpretation, provide information requested within ten days, unless Engineer allows additional time, via correspondence referring to request for substitution number.

D. Preparation of Substitution Request:
   1. Prepare each substitution request using the form included with this Section, or other form acceptable to Engineer.
   2. Number each substitution request using a two-digit sequential number. First substitution request will be "01".
   3. Complete all information requested on the form, and enclose with the form supplementary information as required. In addition to the requirements of the General Conditions and information required on the substitution request form, include with each substitution request the following:
      a. Detailed description of proposed method or procedure.
      b. Itemized comparison of the proposed substitution with the specified method or procedure.
      c. Drawings illustrating method or procedure.
      d. Other data required by Engineer to establish that proposed substitution is equivalent to specified method or procedure.

1.04 CONTRACTOR'S REPRESENTATIONS

A. In submitting substitution request, Contractor represents that:
   1. Contractor has read and fully understands the provisions regarding substitutes as indicated in the General Conditions, as may be modified by the Supplementary Conditions.
   2. Substitution request is complete and includes all information required by the Contract Documents.
   3. Contractor certifications required by the General Conditions, as may be modified by the Supplementary Conditions, are valid and made with Contractor's full knowledge, information, and belief.
   4. Contractor will provide the same or better guarantees or warranties for proposed substitute as for the specified materials, equipment, methods, or procedures, as applicable.
   5. Contractor waives all Claims for additional costs or extension of time related to proposed substitute that subsequently may become apparent.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 ATTACHMENTS

A. The attachments listed below, which follow after the "End of Section" designation, are part of this Section:
   1. Attachment A: Substitution request form (four pages).

END OF SECTION

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# SUBSTITUTION REQUEST

Substitution Request No.: _____ Date: _____

Reference: _____ _____ _____
Specifications Section Page Article / Paragraph

---

Proposed Substitute: _____

_____

Manufacturer: _____

Address: _____ Telephone No.: _____

Trade Name: _____ Model No.: _____

Installer: _____

Address: _____ Telephone No.: _____

History: ☐ New Product ☐ 1 to 4 Years Old ☐ 5 to 10 Years Old ☐ More than 10 Years Old

Differences between proposed substitute and specified item: _____

_____

_____

☐ Point-by-Point Comparative Data Attached

---

Reason for not providing specified item: _____

_____

Similar Installation:

Project: _____ Date Installed: _____

Address: _____

Owner: _____ Engineer: _____

Proposed substitute affects other parts of Work: ☐ No ☐ Yes; explain _____

_____

---

Savings to Owner for accepting substitute: _____ ($_____)
*(attach detailed, itemized estimate)*

Proposed substitute changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] _____ days.
*(clarify whether change is to Substantial Completion, Milestone, or time for readiness for final payment)*

---

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports

---

☐ Substitute product, method, or procedure is subject to payment of licensing fee or royalty
*(check if "yes" and attach information)*

☐ Substitute product, method, or procedure is patented or copyrighted
*(check if "yes" and attach information)*

---

The Undersigned certifies:

- Representations in the General Conditions and in Section 01 25 00 (Substitution Procedures) regarding substitutions are valid.
- Same or better warranty and guarantee will be furnished for proposed substitute as for specified item.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitute will have no adverse effect on other trades and will not affect or delay Progress Schedule.
- Cost data as stated above is complete. Claims for additional costs or time related to accepted substitution which may subsequently become apparent are waived.
- Proposed substitute does not affect dimensions and functional clearances.
- Payment will be made for Engineer's review and changes, if any, to the design and Contract Documents, and construction costs caused by the substitute.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

---

Submitted By: _____

Firm: _____

Address: _____

_____

Signature: _____ Date: _____

Attachments: _____

ENGINEER'S REVIEW AND ACCEPTANCE (OR NON-ACCEPTANCE) WILL BE DOCUMENTED IN A FIELD ORDER OR CHANGE ORDER, AS APPROPRIATE.

Additional Comments:

☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ Engineer ☐ Other: _____

Adapted from CSI Form No. 13.0B, 2004 edition.

END OF SUBSTITUTION REQUEST

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# SECTION 01 26 00

# CONTRACT MODIFICATION PROCEDURES

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section expands upon the provisions of the General Conditions, as may be modified by the Supplementary Conditions, and includes general administrative and procedural requirements for the following:
      a. Requests for interpretation.
      b. Written clarifications.
      c. Minor changes in the Work and Field Orders.
      d. Work Change Directives.
      e. Proposal requests.
      f. Change Proposals.
      g. Change Orders.

B. Submit Contract modification documents to Construction Manager.

C. Retain at Contractor's office and at the Site a complete copy of each Contract modification document and related documents, and Construction Manager's response.

### 1.02 REQUESTS FOR INTERPRETATION

A. General:
   1. Submit written requests for interpretation to obtain clarifications or interpretations of the Contract Documents. Report conflicts, errors, ambiguities, and discrepancies in the Contract Documents by requesting interpretation.
   2. Do not submit request for interpretation when other form of communication is appropriate, such as Contractor's submittals, requests for approvals of substitutes, notices, ordinary correspondence, or other form of communication. Improperly prepared or inappropriate requests for interpretation will be returned without response or action by Construction Manager.
   3. Do not submit request for interpretation or clarification when:
      a. answer may be obtained by observations at the Site; or
      b. required information is clearly indicated in the Contract Documents; or
      c. required information is included in industry standards referenced in the Contract Documents or Supplier's instructions that are consistent with the Contract Documents; or
      d. are reasonably inferable from any of the foregoing.
   4. Contractor shall have sole financial responsibility for requests for interpretations or clarifications that are submitted late, out of sequence, or that are unnecessary.
   5. Submit written requests for interpretation to Construction Manager. Contractor and Owner may submit requests for interpretation.
   6. Construction Manager will maintain a log of all requests for interpretation. Upon request, copy of log will be transmitted to Owner, Contractor, or Engineer.

B. Procedure:
   1. Submit one original and one copy of each request for interpretation to Construction Manager. Submit each request for interpretation with separate letter of transmittal.

2. Construction Manager will provide timely review of requests for interpretation, and will engage Engineer on requests for interpretation involving the Specifications and Drawings. Allow sufficient time for review and response.
3. Construction Manager will provide written response to each request for interpretation. One copy of Construction Manager's response will be distributed to:
   a. Contractor.
   b. Owner.
   c. Construction Manager.
   d. Engineer.
4. If Construction Manager requests additional information to make an interpretation, entity requesting the interpretation shall transmit the information requested within ten days, unless Construction Manager allows additional time, via correspondence referring to request for interpretation number.
5. Interpretations that One or Both Parties Believes Entails a Change to the Contract:
   a. If Contractor or Owner believes that a change in the Contract Price or Contract Times or other change to the Contract is required as a result of Construction Manager's interpretation, so advise Construction Manager in writing before proceeding with the Work associated with the request for interpretation.
   b. If, after this initial communication, either Owner or Contractor believes that a change in the Contract Price, Contract Times, both, or other relief with respect to the terms of the Contract is necessary, recourse shall be in accordance with the Contract Documents.

C. Preparation of Request for Interpretation:
   1. Prepare each request for interpretation using the form included with this Section, or other form acceptable to Construction Manager.
   2. Number each request for interpretation using a two-digit sequential number. First request for interpretation will be "01".
   3. In space provided on request for interpretation form, describe the interpretation requested. Provide additional sheets as necessary. Include text and sketches as required in sufficient detail to describe the need for an interpretation.
   4. When applicable, request for interpretation shall include Contractor's recommended resolution.

## 1.03 WRITTEN CLARIFICATIONS

A. General:
   1. Written clarifications provide clarification or interpretation of conflicts, errors, ambiguities, and discrepancies in the Contract Documents that are identified by Construction Manager or Engineer.
   2. Written clarifications do not change the Contract Price or Contract Times, and do not alter the Contract Documents.
   3. Written clarifications, when required, will be initiated and issued by Construction Manager as correspondence or using a clarification notice form, with additional information as required.

B. Procedure:
   1. Construction Manager will distribute one copy of each written clarification to:
      a. Contractor.
      b. Owner.
      c. Construction Manager.
      d. Engineer.

2. Written Clarifications that One or Both Parties Believes Entails a Change to the Contract:
   a. If Contractor or Owner believes that a change in the Contract Price or Contract Times or other change to the Contract is required as a result of Construction Manager's written clarification, so advise Construction Manager in writing before proceeding with the Work associated with the written clarification.
   b. If, after this initial communication, either Owner or Contractor believes that a change in the Contract Price, Contract Times, both, or other relief with respect to the terms of the Contract is necessary, recourse shall be in accordance with the Contract Documents.
3. If Construction Manager's written clarification is unclear, submit request for interpretation.

1.04 MINOR CHANGES IN THE WORK AND FIELD ORDERS

A. General:
   1. Field Orders authorize minor variations in the Work, but do not change the Contract Price or Contract Times.
   2. Field Orders, when required, will be initiated and issued by Construction Manager.
   3. Field Orders will be in the form of EJCDC® C-942, "Field Order", or other form acceptable to Construction Manager.
   4. Construction Manager will maintain a log of all Field Orders issued.

B. Procedure:
   1. Construction Manager will distribute one copy of each Field Order to:
      a. Contractor.
      b. Owner.
      c. Construction Manager.
      d. Engineer.
   2. Field Orders that One or Both Parties Believes Entails a Change to the Contract:
      a. If Contractor or Owner believes that a change in the Contract Price or Contract Times or other change to the Contract is required as a result of a Field Order, so advise Construction Manager in writing before proceeding with the Work associated with the Field Order.
      b. If, after this initial communication, Contractor or Owner believes that a change in the Contract Price, Contract Times, both, or other relief with respect to the terms of the Contract is necessary, recourse shall be in accordance with the Contract Documents.
   3. If Field Order is unclear, submit request for interpretation.

1.05 WORK CHANGE DIRECTIVES

A. General:
   1. Work Change Directives, when required, order additions, deletions, or revisions to the Work.
   2. Work Change Directives do not change the Contract Price or Contract Times, but are evidence that the parties to the Contract expect that the change ordered or documented by the Work Change Directive will be included in a subsequently issued Change Order following agreement by the parties as to the Work Change Directive's effect, if any, on the Contract Price or Contract Times.
   3. Work Change Directives, when required, will be initiated and issued by Construction Manager.
   4. Work Change Directives will be in the form of EJCDC® C-940, "Work Change Directive", or other form acceptable to Construction Manager.
   5. Construction Manager will maintain a log of all Work Change Directives issued.

B. Procedure:
   1. Construction Manager will furnish to Contractor four originals of each Work Change Directive signed by Owner and Construction Manager.
   2. Promptly sign each original Work Change Directive and, within five days of receipt, return all originals to Construction Manager.
   3. Construction Manager will distribute original, signed Work Change Directives as follows:
      a. Contractor: One original.
      b. Owner: Two originals.
      c. Construction Manager: One original.
   4. Construction Manager will distribute one copy of each Work Change Directive to Engineer.
   5. Documentation of Costs:
      a. When required by Construction Manager, document the Work performed under each separate Work Change Directive.
      b. For each day, document the following in a format acceptable to Construction Manager:
         1) Number and labor classifications of workers employed and hours worked.
         2) Construction equipment used, including manufacturer, model, and year of manufacture, and number of hours such equipment was on-site and used for the Work under the Work Change Directive.
         3) Consumables and similar materials used.
         4) Receipts, bills, or invoices for and descriptions of materials and equipment incorporated into the Work.
         5) Invoices and labor and equipment breakdowns for Subcontractors and Suppliers.
         6) Other information required by Owner or Construction Manager.
      c. Submit documentation to Construction Manager as a Change Proposal.

## 1.06 PROPOSAL REQUESTS

A. General:
   1. Proposal requests are for requesting details on the effect on the Contract Price, and Contract Times, and other information relative to contemplated changes in the Work.
   2. Proposal requests do not authorize changes or variations in the Work, and do not change the Contract Price or Contract Times, or terms of the Contract.
   3. Proposal requests may be initiated by Construction Manager or Owner.
   4. Proposal requests will be in a form acceptable to Owner or Construction Manager.
   5. Construction Manager will maintain a log of all proposal requests issued.

B. Procedure:
   1. Construction Manager will transmit one copy of each signed proposal request to Contractor, with one copy each distributed to Owner, Construction Manager, and Engineer.
   2. Submit request for interpretation to clarify conflicts, errors, ambiguities, and discrepancies in proposal request.
   3. Upon receipt of proposal request, Contractor shall prepare and submit to Construction Manager a Change Proposal, in accordance with the Contract Documents, for the proposed Work described in the proposal request.

## 1.07 CHANGE PROPOSALS

A. General:
   1. Submit written Change Proposal to Construction Manager:
      a. in response to each proposal request; or

b. when Contractor believes a change in the Contract Price or Contract Times, or other change to the terms of the Contract is required; or
c. to appeal an initial decision by Construction Manager concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; or
d. contest a set-off against payment due; or
e. seek other relief under the Contract.

2. Construction Manager will maintain a log of all Change Proposals.

B. Procedure:
1. Prepare and transmit Change Proposals within time limits indicated in the General Conditions, as may be modified by the Supplementary Conditions.
2. Submit one original and one copy of each Change Proposal to Construction Manager. Include with each Change Proposal all required supporting documentation and a separate letter of transmittal.
3. Construction Manager's Review and Requests for Additional Information:
   a. Construction Manager will review and act on each Change Proposal in accordance with, and within the time limits indicated in, the General Conditions, as may be modified by the Supplementary Conditions.
   b. When Construction Manager requests additional information to render a decision, submit required information within five days of receipt of Construction Manager's request, unless Construction Manager allows more time. Submit the required information via correspondence that identifies the specific Change Proposal number.
   c. Owner shall transmit to Construction Manager such comments, if any, that Owner has on the Change Proposal, within 10 days of Owner's receipt of the Change Proposal.
   d. Construction Manager will render a written decision on the Change Proposal.
4. Upon completing review, one copy of Construction Manager's written response will be distributed to:
   a. Contractor.
   b. Owner.
   c. Construction Manager.
   d. Engineer.
5. If Change proposal is recommended for approval by Construction Manager and is approved by Owner, a Change Order will be issued or, when applicable, an appropriate use of contingency allowance will be authorized by Owner.
6. If parties do not agree on terms for the change, Owner or Contractor may file a Claim against the other, in accordance with the General Conditions, as may be modified by the Supplementary Conditions.

C. Preparation of Change Proposals:
1. Prepare each Change Proposal using the form included with this Section, or other form acceptable to Owner and Construction Manager.
2. Number each Change Proposal using a two-digit sequential number. First Change Proposal will be "01".
3. In space provided on Change Proposal form:
   a. Describe the scope of each proposed change. Include text and sketches on additional sheets as required to provide detail sufficient for Construction Manager's review and response. If a change item is submitted in response to a proposal request, write in as scope, "In accordance with proposal request number" followed by the proposal request number. Submit written clarifications, if any, to scope of change.

   b. Submit justification for each proposed change. If a change item is submitted in response to a proposal request, write in as justification, "In accordance with proposal request number" followed by the proposal request number.
   c. List the total change in the Contract Price and Contract Times for each separate change item included in the Change Proposal.
4. Unless otherwise directed by Construction Manager, attach to the Change Proposal detailed breakdowns of pricing (Cost of the Work and Contractor's fee), including:
   a. List of Work tasks to accomplish the change.
   b. For each task, labor cost breakdown including labor classification, total hours per labor classification, and hourly cost rate for each labor classification.
   c. Construction equipment and machinery to be used, including manufacturer, model, and year of manufacture, and number of hours for each.
   d. Detailed breakdown of cost of materials and equipment to be incorporated into the Work, including quantities, unit costs, and total cost, with Supplier's written quotations.
   e. Breakdowns of the Cost of the Work and fee for Subcontractors, including labor, construction equipment and machinery, and materials and equipment incorporated into the Work, other costs, and Subcontractor fees (e.g., overhead and profit).
   f. Breakdown of other costs eligible, in accordance with the General Conditions, as may be modified by the Supplementary Conditions, under "Cost of the Work" provisions.
   g. Other information required by Construction Manager.
   h. Contractor's fees applied to eligible Contractor costs and eligible Subcontractor costs.

1.08 CHANGE ORDERS

A. General:
   1. Change Orders will be recommended by Construction Manager (when required by the Contract Documents), and will be signed by Owner and Contractor, to authorize additions, deletions, or revisions to the Work, or changes to the Contract Price or Contract Times.
   2. Change Orders will be in the form of EJCDC® C-941, "Change Order", or other form acceptable to Owner.
   3. Construction Manager will maintain a log of all Change Orders issued.

B. Procedure:
   1. Construction Manager will furnish to Contractor four originals of each Change Order will be furnished to Contractor.
   2. Promptly sign each original Change Order and, within five days of receipt, return all originals to Construction Manager.
   3. Construction Manager will sign each original Change Order and forward them to Owner.
   4. After approval and signature by Owner, Construction Manager will distributed original, signed Change Orders as follows:
      a. Contractor: One original.
      b. Owner: Two originals.
      c. Construction Manager: One original.
   5. Construction Manager will distribute one copy of each Change Order to Engineer.

PART 2 – PRODUCTS (NOT USED)

## PART 3 – EXECUTION

### 3.01 ATTACHMENTS

A. The attachments listed below, which follow after the “End of Section” designation, are part of this Section:
   1. Attachment A: Request for interpretation form (two pages).
   2. Attachment B: Change Proposal form (two pages).

END OF SECTION

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# REQUEST FOR INTERPRETATION

Request for Interpretation No.: _____

Contractor: _____ Purchase Order No.: _____

Date Transmitted: _____ Date Received: _____

Date Response Requested: _____ Date Response Transmitted: _____

Subject: _____

Reference(s): _____ _____
Specifications Section(s) Drawing(s) / Note(s) / Detail(s)

---

Interpretation Requested:

Signature: _____ Date: _____

---

Construction Manager's Response:

Signature: _____ Date: _____

END OF REQUEST FOR INTERPRETATION

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# CHANGE PROPOSAL

Change Proposal No.: _____ Date: _____

Contractor: _____ Purchase Order No.: _____

Submitted in Response to Proposal Request No.: _____

Subject: _____

---

## Scope of Work:

*Attach and list supporting information as required.*

---

## Justification:

---

Changes in Contract Price and Contract Times:

*For Contract Price, attach detailed cost breakdowns for Contractor and Subcontractors, Supplier quotations, and other information required. For the Contract Times, state increase, decrease, or no change to Contract Times for Substantial Completion, readiness for final payment, and Milestones, if any. If increase or decrease, state specific number of days for changes to the Contract Times.*

The following changes are proposed to the Contract Price and Contract Times:

| Description | Contract Price (dollars) | Contract Times (days) | |
|---|---|---|---|
| | | Substantial | Final |
| 1. | $ | | |
| 2. | $ | | |
| **Total This Change Proposal:** | **$** | | |

Changes to Milestones (if any): _____

Contractor represents that supporting data attached to this Change Proposal are accurate and complete. The requested time or price adjustment indicated in this Change Proposal is the entire adjustment to which Contractor believes it is entitled as a result of the proposed change(s) indicated herein.

---

Change Proposal By: _____

Signature of Proposer: _____ Date: _____

END OF CHANGE PROPOSAL

SECTION 01 29 76

PROGRESS PAYMENT PROCEDURES

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes general administrative and procedural requirements for Contractor's requests for progress payments.
   2. Contractor's requests for payment shall be in accordance with the Agreement, General Conditions and Supplementary Conditions, and Specifications.
   3. Applications for Payment shall be in the form of EJCDC® C-620, "Contractor's Application for Payment" (2013 edition or later).

### 1.02 PROGRESS PAYMENTS

A. Procedure:
   1. Review with Construction Manager and Resident Project Representative the quantities and the Work proposed for inclusion in each progress payment. Application for Payment shall cover only the quantities and Work recommended by Construction Manager.
   2. Submit to Construction Manager four printed originals, each with Contractor's original signature, of each complete Application for Payment and other documents to accompany the Application for Payment.
   3. Construction Manager will act on request for payment in accordance with the General Conditions.

B. Each request for progress payment shall include:
   1. Completed Application for Payment form, including summary/signature page, progress estimate sheets, and stored materials summary. Progress estimate sheets shall have the same level of detail as the Schedule of Values.
   2. Construction Manager- or Engineer-approved quantity survey sheets, sketches, receipts, or other appropriate supporting documentation to substantiate proposed quantities and Work.
   3. Documentation for Stored Materials and Equipment:
      a. For materials and equipment not incorporated in the Work but suitably stored, submit documentation in accordance with the General Conditions and Supplementary Conditions.
      b. Legibly indicate on invoice or bill of sale the specific materials or equipment included in the payment request and corresponding bid/payment item number for each.
   4. Allowance Work:
      a. For payment requests that include payment for Work under an allowance, include with the progress payment request copy of Owner's authorization of the associated allowance Work.
   5. Partial Release or Reduction of Retainage:
      a. For each Application for Payment where Contractor requests partial release or reduction of retainage in any amount (other than request for final payment), submit with associated progress payment request consent of surety to partial release or reduction of retainage, duly completed by Contractor and surety.
      b. Acceptable form includes AIA® G707ATM, "Consent of Surety to Reduction in or Partial Release of Retainage" (1994 or later edition), or other form acceptable to Owner.

c. For payment requests that include reduction in or payment of retainage in an amount greater than that required by the Contract Documents, obtain Owner's concurrence for partial release or reduction in retainage prior to submitting such Application for Payment.

C. Final Payment:
1. Requirements for request for final payment are in the General Conditions, as may be modified by the Supplementary Conditions, and Section 01 77 19 (Closeout Requirements).

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

# SECTION 01 31 13

# PROJECT COORDINATION

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes general requirements for coordinating construction operations on the Project.

### 1.02 COORDINATION

A. Contractor shall coordinate the Work, including testing agencies, whether hired by Contractor, Owner, or others, Subcontractors, Suppliers, and others with whom coordination is necessary, in accordance with the General Conditions, Supplementary Conditions, and this Section, to perform the Work within the Contract Times and in accordance with the Contract Documents.

B. In accordance with the General Conditions, as may be modified by the Supplementary Conditions, Contractor shall cooperate with and coordinate the Work with other contractors, utility owners, utility service companies, Owner's employees working at the Site, and other entities working at the Site, in accordance with Section 01 11 00 (Summary of Work).

C. Attend and participate in all project coordination and progress meetings, and report on the progress of the Work and compliance with the Progress Schedule.

D. Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
   1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
   2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.

E. Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
   1. Preparation of Contractor's Progress Schedule.
   2. Installation and removal of temporary utilities, facilities, and controls.
   3. Delivery and processing of submittals.
   4. Progress meetings.
   5. Startup and adjustment of systems.
   6. Project closeout activities.

F. Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

G. Maintain sufficient competent personnel, drafting and computer-aided drafting/design (CADD) equipment, software, systems, and supplies at the Site or at Contractor's office for preparing layout drawings, coordination drawings, and record documents. With the Contract Documents and Shop Drawings, use such coordination drawings as tools for coordinating the Work of various trades. Where such coordination drawings are to be prepared by Subcontractors, ensure that each Subcontractor maintains required personnel and facilities at the Site or at Subcontractor's office.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 31 19.13

PRE-CONSTRUCTION CONFERENCE

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. A pre-construction conference will be held for the Project.
   2. Contractor shall attend the conference prepared to discuss all items on the pre-construction conference agenda.
   3. Construction Manager will distribute an agenda, preside at conference, and prepare and distribute minutes to all conference participants and others as requested.

B. Purpose of Pre-Construction Conference:
   1. Purpose of conference is to designate responsible personnel, establish working relationships, discuss preliminary schedules submitted by Contractor, and review administrative and procedural requirements for the Project.
   2. Matters requiring coordination will be discussed and procedures for handling such matters will be established.
   3. Unless otherwise indicated in the Contract Documents or otherwise agreed to by the entities involved, Site mobilization meeting will be part of the pre-construction conference.

### 1.02 PREPARATION FOR PRE-CONSTRUCTION CONFERENCE

A. Date, Time, and Location:
   1. Conference will be held after execution of the Contract and before Work starts at the Site.
   2. Construction Manager will establish the date, time, and location of conference and will notify the interested and involved entities.

B. Submittals Required Prior to Pre-Construction Conference:
   1. Not less than three days prior to pre-construction conference, submit the following preliminary schedules in accordance with the General Conditions and other requirements of the Contract Documents:
      a. Progress Schedule.
      b. Schedule of Submittals.
      c. Listing of identity and general scope of Work or supply (as applicable) of planned Subcontractors and Suppliers. Indicate extent of each Subcontract proposed and overall percentage of Contract Price to be subcontracted.

C. Contractor shall provide information required and contribute appropriate items for discussion at the pre-construction conference.

D. Handouts for Pre-Construction Conference:
   1. Contractor shall bring to the conference the following, with sufficient number of copies for each attendee:
      a. Preliminary Progress Schedule.
      b. Preliminary Schedule of Submittals.
      c. Listing of identity and general scope of Work or supply of planned Subcontractors and Suppliers.
      d. List of emergency contact information, in accordance with Article 1.05 of Section 01 35 23 (Safety Requirements).

1.03 REQUIRED ATTENDEES

A. Representatives present for each entity shall be qualified and authorized to act on that entity's behalf.

B. Contractor Attendance: Conference shall be attended by Contractor's:
   1. Project manager.
   2. Site superintendent.
   3. Safety representative.
   4. Project managers for major Subcontractors, and major equipment Suppliers as Contractor deems appropriate.

C. Other attendees will be representatives of:
   1. Owner.
   2. Construction Manager.
   3. Engineer.
   4. Air Monitoring Contractor.
   5. NYSDEC, NYSDOH, and other authorities having jurisdiction over the Work, if available.
   6. Others as requested by Owner, Contractor, Construction Manager, or Engineer.

1.04 AGENDA

A. Preliminary Agenda: Be prepared to discuss in detail the topics indicated below. Revisions, if any, to the agenda below will be furnished to required attendees prior to the pre-construction conference.
   1. Procedural and Administrative:
      a. Personnel and Teams:
         1) Designation of roles and responsible personnel.
         2) Limitations of authority of personnel, including personnel who will sign Contract modifications and make binding decisions.
         3) Subcontractors and Suppliers in attendance.
         4) Authorities having jurisdiction.
      b. Procedures for communication and correspondence, including electronic communication protocols.
      c. Community relations and interaction during the Project.
      d. Copies of Contract Documents and availability.
      e. Subcontractors and Suppliers:
         1) List of proposed Subcontractors and Suppliers.
      f. The Work and Scheduling:
         1) General scope of the Work.
         2) Contract Times, including Milestones (if any).
         3) Phasing and sequencing.
         4) Preliminary Progress Schedule.
         5) Critical-path activities.
         6) Working hours.
      g. Safety:
         1) Responsibility for safety.
         2) Contractor's safety representative.
         3) Emergency procedures and accident reporting.
         4) Emergency contact information.
         5) Hazardous materials communication program.
         6) Impact of Project on public safety.
      h. Permits, approvals, and access agreements.
      i. Review of insurance requirements and insurance claims.

j. Coordination:
   1) Project coordination, and coordination among contractors.
   2) Progress meetings.
   3) Preliminary Schedule of Submittals.
   4) Procedures for furnishing and processing submittals.
   5) Product options, “or equals”, and substitutions.
   6) Construction photographic documentation.
k. Contract Modification Procedures:
   1) Requests for interpretation.
   2) Written clarifications.
   3) Field Orders.
   4) Work Change Directives.
   5) Proposal requests.
   6) Change Order requests.
   7) Change Orders.
l. Payment:
   1) Procedures for measuring for payment.
   2) Progress payment procedures.
   3) Taxes.
   4) Retainage.
m. Testing and inspections.
n. Record documents.
o. Preliminary Discussion of Contract Closeout:
   1) Procedures for Substantial Completion.
   2) Contract closeout requirements.
   3) Correction period.
   4) Duration of bonds and insurance.

2. Site Mobilization:
   a. Field offices, trailers and sheds, and staging areas.
   b. Temporary facilities and utilities.
   c. Access to Site, access roads, and parking.
   d. Maintenance and protection of traffic.
   e. Use of Site and premises.
   f. Protection of property.
   g. Security.
   h. Temporary Controls:
      1) Erosion and sediment control.
      2) Storm water control.
      3) Odor, vapor, and dust control.
      4) Noise control.
      5) Pollution control.
   i. Site barriers and temporary fencing.
   j. Storage of materials and equipment.
   k. Reference points and benchmarks; surveys and layouts.
   l. Site maintenance and housekeeping during the Project, including cleaning and removal of trash and debris.
   m. Restoration.
3. General discussion and questions.
4. Next meeting.
5. Site visit, if required

## PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 31 19.23

PROGRESS MEETINGS

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Progress meetings will be held on a regular basis throughout the Project. Contractor shall attend each progress meeting prepared to discuss in detail all items on the agenda.
   2. Construction Manager will preside at progress meetings and will prepare and distribute minutes of progress meetings to all meeting participants and others as requested.

B. Date and Time:
   1. Regular Meetings: Every week on a day and time agreeable to Owner, Construction Manager, Engineer, and Contractor.
   2. Other Meetings: As required.

C. Location:
   1. Contractor's field office at the Site or other location mutually agreed upon by Owner, Construction Manager, Engineer, and Contractor.

D. Handouts:
   1. Contractor shall bring to each progress meeting not less than 10 copies of each of the following:
      a. List of Work accomplished since the previous progress meeting.
      b. Up-to-date Progress Schedule.
      c. Up-to-date Schedule of Submittals.
      d. Detailed "look-ahead" schedule of Work planned for the next two weeks, with specific starting and ending dates for each activity, including shutdowns, deliveries of important materials and equipment, Milestones (if any), and important activities affecting Owner, the Project, and the Site.

### 1.02 ATTENDANCE

A. Representatives present for each entity shall be qualified and authorized to act on that entity's behalf.

B. Attendance:
   1. Contractor:
      a. Project manager.
      b. Site superintendent.
      c. Safety representative.
      d. Representatives of other Subcontractors and Suppliers when needed for the discussion of a particular agenda item.
   2. Owner.
   3. Construction Manager.
   4. Engineer.
   5. Air Monitoring Contractor.
   6. NYSDEC, NYSDOH, and other authorities having jurisdiction over the Work, if available.
   7. Others, as appropriate.

## 1.03 AGENDA

A. Preliminary Agenda: Be prepared to discuss in detail the topics indicated below. Revisions, if any, to the agenda below will be furnished to Contractor prior to the first progress meeting. Progress meeting agenda may be modified by Construction Manager during the Project as required.
   1. Review, comment, and amendment (if required) of minutes of previous progress meeting.
   2. Safety and safe work practices.
   3. Community relations and interactions.
   4. Results of community air monitoring performed since previous progress meeting.
   5. Review of progress since previous progress meeting.
   6. Planned progress through next progress meeting.
   7. Review of Progress Schedule:
      a. Contract Times, including Milestones (if any).
      b. Critical path.
      c. Schedules for fabrication and delivery of materials and equipment.
      d. Issues potentially affecting the Contract Times, including Milestones (if any).
      e. Corrective measures, if required, to achieve Contract Times, including Milestones (if any).
   8. Submittals:
      a. Status of critical submittals.
      b. Review of Schedule of Submittals and Engineer's submittal log.
   9. Field observations, problems, and conflicts.
   10. Quality standards, testing, and inspections.
   11. Coordination between parties.
   12. Site management issues, including access, security, temporary controls, maintenance and protection of traffic, and housekeeping.
   13. Permits.
   14. Punch list status, as applicable.
   15. Agency comments and concerns.
   16. Other business.

## PART 2 – PRODUCTS (NOT USED)

## PART 3 – EXECUTION (NOT USED)

END OF SECTION

# SECTION 01 32 16

# CONSTRUCTION PROGRESS SCHEDULE

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall prepare, submit, maintain, and update Progress Schedule in accordance with the General Conditions and this Section, unless otherwise accepted by Owner.
   2. Owner's acceptance of the Progress Schedule, and comments or opinions concerning the activities in the Progress Schedule shall not control Contractor's independent judgment relative to the means, methods, techniques, sequences, and procedures of construction. Contractor is solely responsible for complying with the Contract Times.
   3. If the Progress Schedule reflects completion date(s) different than the Contract Times, the Contract Times are not thereby voided, nullified, or affected. The Contract Times govern. Where the Progress Schedule reflects completion date(s) that are earlier than the Contract Times, Owner may accept such Progress Schedule with Contractor to specifically understand that no Claim for additional Contract Times or additions to the Contract Price shall be brought against Owner resulting from Contractor's failure to complete the Work by the earlier date(s) indicated on the accepted Progress Schedule.

B. Factors Affecting the Progress Schedule:
   1. In preparing the Progress Schedule, take into consideration submittal requirements and submittal review times, time for fabricating and delivering materials and equipment, Work by Subcontractors, availability and abilities of workers, availability of construction equipment, weather conditions, restrictions in operations at the Site and coordination with Owner's operations, if any, and other factors that have the potential to affect completion of the Work within the Contract Times.
   2. Comply with sequencing requirements, if any, indicated in the Contract Documents.

### 1.02 SUBMITTALS

A. Informational Submittals:
   1. Preliminary Progress Schedule: Submit in accordance with Paragraph 2.04 of the General Conditions.
   2. Initial Progress Schedule: After making revisions in accordance with Owner's comments on the preliminary Progress Schedule, submit initial Progress Schedule in accordance with Paragraph 2.06 of the General Conditions.
   3. Progress Schedule Updates:
      a. Submit updated Progress Schedule at each progress meeting. Bring to meeting the minimum number of copies specified in Section 01 31 19.23 (Progress Meetings).
      b. Submit each updated Progress Schedule with letter of transmittal complying with requirements of Section 01 33 00 (Submittal Procedures) and specifically indicating the following:
         1) Listing of activities and dates that have changed since the previous Progress Schedule submittal.
         2) Discussion of problems causing delays, anticipated duration of delays, and proposed countermeasures.
         3) Completed activities, if any, and the anticipated and actual durations of each.
      c. If the Progress Schedule remains unchanged from one progress meeting to the next, submit written statement to that effect.

4. Look-Ahead Schedules: Submit two-week look-ahead schedule at each progress meeting. Bring to meeting the minimum number of copies specified in Section 01 31 19.23.
5. Recovery Schedules: Submit in accordance with Article 1.04 of this Section.

## 1.03 PROGRESS SCHEDULE

A. Format:
   1. Type: Gantt chart prepared using Microsoft Project 2007 or later edition, Oracle Primavera P6, or similar scheduling software.
   2. Sheet Size: 11 inches by 17 inches, unless otherwise accepted by Owner.
   3. Time Scale: Indicate first date of each work week.
   4. Organization:
      a. Group deliveries of materials and equipment into a separate sub-schedule that is part of the Progress Schedule.
      b. Group construction into a separate sub-schedule (that is part of the Progress Schedule) by activity.
      c. Group Work by Subcontractors into a separate sub-schedule (that is part of the Progress Schedule) by activity.
      d. Group critical activities that dictate the rate of progress (the “critical path”) into a separate sub-schedule that is part of the Progress Schedule. Clearly indicate the critical path on the Progress Schedule.
      e. Organize each sub-schedule by Specifications Section or payment item number.
   5. Activity Designations: Indicate title and related Specifications Section or payment item number.

B. Content: Progress Schedule shall indicate the following:
   1. Dates for shop-testing.
   2. Delivery dates for materials and equipment to be incorporated into the Work.
   3. Dates for beginning and completing each phase of the Work by activity and by trade.
   4. Dates for start-up and check-out, field-testing, and instruction of operations and maintenance personnel.
   5. Dates corresponding to the Contract Times, and planned completion date associated with each Milestone (if any), Substantial Completion, and readiness for final payment.

C. Progress Schedule Updates: Update Progress Schedule on a weekly basis and to reflect changes to the Contract Times, if any, made by Change Order.

## 1.04 RECOVERY SCHEDULES

A. General:
   1. When updated Progress Schedule indicates that the ability to comply with the Contract Times falls two or more weeks behind schedule, the delay is within the control of Contractor, and there is no corresponding Change Order or Work Change Directive to support an extension of the Contract Times, Contractor shall prepare and submit a Progress Schedule demonstrating Contractor’s plan to accelerate the Work to achieve compliance with the Contract Times (“recovery schedule”) for Owner’s acceptance.
   2. Submit recovery schedule within three days after submittal of updated Progress Schedule where need for recovery schedule is indicated.

B. Implementation of Recovery Schedule:
   1. At no additional cost to Owner, do one or more of the following: furnish additional resources (additional workers, additional construction equipment, increased work hours or additional shifts, and other resources), provide suitable materials, expedite procurement of materials and equipment to be incorporated into the Work, and other measures necessary to complete the Work within the Contract Times.
   2. Upon acceptance of recovery schedule by Owner, incorporate recovery schedule into the next Progress Schedule update.

C. Lack of Action: Contractor's refusal, failure, or neglect to take appropriate recovery action, or to submit a recovery schedule, shall constitute reasonable evidence that Contractor is not prosecuting the Work or separable part thereof with the diligence that will ensure completion within the Contract Times. Such lack of action shall constitute sufficient basis for Owner to exercise remedies available to Owner under the Contract Documents.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 32 26

CONSTRUCTION PROGRESS REPORTING

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall prepare and submit construction progress reports in accordance with this Section.
   2. Construction progress reports include:
      a. Daily construction reports.
      b. Field condition reports.

### 1.02 SUBMITTALS

A. Informational Submittals:
   1. Daily Construction Reports: Submit in accordance with Article 1.03 of this Section.
   2. Field Condition Reports: Submit in accordance with Article 1.04 of this Section.

### 1.03 DAILY CONSTRUCTION REPORTS

A. Prepare daily construction reports throughout the Project. Include in each report, at a minimum, the following:
   1. Contractor's name.
   2. Owner's name.
   3. Project name.
   4. Site name and location.
   5. Date and day of the week.
   6. High and low temperatures and general weather conditions.
   7. Number of Contractor employees at the Site.
   8. Number of employees at the Site for each Subcontractor.
   9. Copy of daily security log, in accordance with Section 01 57 33 (Security).
   10. Copy of daily inspection log, in accordance with Section 31 23 00 (Excavation and Fill).
   11. Breakdown of employees by trades.
   12. Major construction equipment used.
   13. Material and equipment deliveries.
   14. Waste shipments.
   15. Meter readings and similar recordings.
   16. Work performed, including field quality control measures and testing, and representative photographs, if available.
   17. Location of areas in which construction was performed.
   18. Major equipment and materials installed as part of the Work.
   19. Services connected and disconnected.
   20. Equipment or system tests and startups.
   21. Stoppages, delays, shortages, and losses.
   22. Accidents. Comply with accident reporting requirements of Section 01 35 29 (Contractor's Health and Safety Plan).
   23. Emergency procedures.
   24. Meetings and significant decisions.
   25. Orders and requests of authorities having jurisdiction.
   26. Change Orders received and implemented.

27. Work Change Directives received and implemented.
28. Field Orders received and implemented.
29. Other instructions received from Owner, Construction Manager, or Engineer.

B. Submit daily construction reports to Construction Manager and Engineer by 9:00 a.m. the next working day after the day covered in the associated report. Daily report shall be signed by responsible member of Contractor's staff, such as Contractor's project manager or superintendent, or foreman designated by Contractor as having authority to sign daily reports.

1.04 FIELD CONDITION REPORTS

A. Immediately upon discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

B. Submit field condition reports to Construction Manager and Engineer with request for interpretation, prepared in accordance with Section 01 26 00 (Contract Modification Procedures).

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

# SECTION 01 32 33

# PHOTOGRAPHIC DOCUMENTATION

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall provide photographic documentation of the following:
      a. Pre-construction Site conditions.
      b. Construction progress.
      c. Final (post-construction) Site conditions.

B. Image Quality:
   1. Photographic documentation shall be in color.
   2. Photographic images shall be suitably staged and set up ("framed"), focused, and shall have adequate lighting.
   3. For still photographs, use camera with minimum 8.0-megapixel resolution.

### 1.02 SUBMITTALS

A. Informational Submittals:
   1. Pre-Construction Photographic Documentation: Submit acceptable pre-construction photographic documentation prior to mobilizing to and disturbing the Site. Provide pre-construction photographic documentation no later than first Application for Payment, unless other schedule is accepted by Engineer.
   2. Construction Progress Photographic Documentation: Submit acceptable construction progress photographic documentation weekly.

B. Closeout Submittals:
   1. Final Photographic Documentation: Submit acceptable final photographic documentation prior to submitting final Application for Payment.

### 1.03 PHOTOGRAPHIC DOCUMENTATION

A. General:
   1. For each photograph taken, furnish high-quality digital image in "JPG" file format compatible with Microsoft Windows 7 and higher operating systems.
   2. Image resolution shall be sufficient for clear, high-resolution prints. Minimum resolution shall be 300 dots per inch. Minimum size of digital images shall be 5 inches by 7 inches.
   3. Imprint date in each image. Do not imprint time.
   4. Digital image filename shall consist of the date and sequential number of the photograph. Do not submit filenames automatically created by digital camera.
      a. First part of filename shall be the date that the photograph was taken, represented as an eight-digit number (i.e., YYYYMMDD), followed by a hyphen.
      b. Second part of filename shall be a three-digit number (from 001 to 999) representing the sequential number of the photograph.
      c. Typical filename for the fifth photograph taken on June 1, 2017 would be "20170601-005.jpg".
   5. Submitting Digital Image Files: Upload digital image files to the Project Internet website.

B. Pre-Construction Photographs:
   1. Take at least 50 photographs to record Site conditions prior to construction. Pre-construction photographs are not part of construction progress photographs required under Paragraph 1.03.C of this Section.
   2. If disagreement arises on condition of the Site and insufficient pre-construction photographic documentation was submitted prior to the disagreement, restore the grounds or area in question to extent directed by Engineer and to complete satisfaction of Engineer.

C. Progress Photographs:
   1. Take at least 25 photographs per week.
   2. Maximum number of progress photographs required will be 2,600, based on the Contract Times and scope of Project on date Contract Times commence running. Proportionately modify amount of photographic documentation if scope of Project or Contract Times are modified.
   3. Provide interior and exterior photographic documentation of each structure as directed by Engineer at the time photographic documentation is taken.

D. Final Photographs:
   1. Take photographs at time and day acceptable to Engineer. Do not take final photographs prior to Substantial Completion. Work documented in final photographs shall be generally complete, including painting and finishing, furnishings, landscaping, and other visible Work.
   2. Take at least 50 final photographs, based on scope of the Project at the time Contract Times commence running. Proportionately modify the number of final photographs if scope of Project is modified. Final photographs are not part of construction progress photographs required under Paragraph 1.03.C of this Section.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

# SECTION 01 33 00

# SUBMITTAL PROCEDURES

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall prepare and furnish submittals in accordance with the General Conditions, as may be modified by the Supplementary Conditions, and this Section.
   2. Provide submittals within the timeframes specified in the respective Specifications Sections (when such timeframes are specified) and well in advance of the need for the material, equipment, or procedure (as applicable) in the Work and with ample time required for delivery of materials and equipment and to implement procedures following Engineer's review or acceptance of the associated submittal. Work covered by a submittal will not be included in progress payments until review or acceptance of related submittals has been obtained in accordance with the Contract Documents.
   3. Contractor is responsible for dimensions to be confirmed and corrected at the Site; quantities; information pertaining solely to fabrication processes; means, methods, sequences, procedures, and techniques of construction; safety precautions and programs incident thereto; and for coordinating the work of all trades.
   4. Contractor's signature of submittal's stamp and letter of transmittal shall be Contractor's representation that Contractor has complied with its obligations under the Contract Documents relative to that submittal. Owner and Engineer shall be entitled to rely on such representations by Contractor.
   5. Provisions of the General Conditions, as may be modified by the Supplementary Conditions, apply to all Contractor-furnished submittals required by the Contract Documents, regardless of whether such submittals are other than Shop Drawings or Samples.

B. Samples:
   1. Submittal of Samples shall comply with the General Conditions, as may be modified by the Supplementary Conditions, this Section, and the Specifications Section in which the Sample is specified.
   2. Furnish at the same time those Samples and submittals that are related to the same element of the Work or Specifications Section. Engineer will not review submittals without associated Samples, and will not review Samples without associated submittals.
   3. Samples shall clearly illustrate functional characteristics of materials, all related parts and attachments, and full range of color, texture, pattern, and materials.

### 1.02 TYPES OF SUBMITTALS

A. Submittals are classified as Action Submittals, Informational Submittals, Closeout Submittals, and Maintenance Material Submittals. The type of each required submittal is designated in the respective Specifications Sections. When type of submittal is not designated in the associated Specifications Section, submittal will be classified as follows:
   1. Action Submittals include:
      a. Shop Drawings.
      b. Product data.

c. Delegated design submittals, which include documents prepared, sealed, and signed by a design professional retained by Contractor, Subcontractor, or Supplier for materials and equipment to be incorporated into the completed Work. Delegated design submittals do not include submittals related to temporary construction unless specified otherwise in the related Specifications Section. Delegated design submittals include design drawings, design data including calculations, specifications, certifications, and other submittals prepared by such design professional.
d. Samples.
e. Testing plans, procedures, and testing limitations.

2. Informational Submittals include:
   a. Certificates.
   b. Design data not sealed and signed by a design professional retained by Contractor, Subcontractor, or Supplier.
   c. Pre-construction test and evaluation reports, such as reports on pilot testing, subsurface investigations, testing for potential Contaminants, and similar reports.
   d. Supplier instructions, including installation data, and instructions for handling, starting-up, and troubleshooting.
   e. Source quality control submittals (other than testing plans, procedures, and testing limitations), including results of shop testing.
   f. Field quality control submittals (other than testing plans, procedures, and testing limitations), including results of operating and acceptability tests at the Site.
   g. Supplier reports.
   h. Sustainable design submittals (other than sustainable design closeout documentation).
   i. Special procedure submittals, including plans for shut-downs and tie-ins, and other procedural submittals.
   j. Qualifications statements.
   k. Administrative submittals, including:
      1) Progress Schedules.
      2) Progress reports.
      3) Schedules of Submittals.
      4) Schedules of Values.
      5) Photographic documentation.
      6) Coordination drawings, when submittal of such is required.
      7) Copies of permits obtained by Contractor.
      8) Survey data and similar information.
3. Closeout Submittals include:
   a. Maintenance contracts.
   b. Operations and maintenance data.
   c. Bonds, such as special maintenance bonds and bonds for a specific material, equipment item, or system.
   d. Warranty documentation.
   e. Record documentation.
   f. Sustainable design closeout documentation.
   g. Software.
   h. Keying.
4. Maintenance Material Submittals include:
   a. Spare parts.
   b. Extra stock materials.
   c. Tools.
5. When type of submittal is not specified and is not included in the list above, submit request for interpretation in accordance with Section 01 26 00 (Contract Modification Procedures).

B. Not Included in this Section: Administrative and procedural requirements for the following are covered elsewhere in the Contract Documents:
   1. Requests for interpretations of the Contract Documents.
   2. Field Orders, Work Change Directives, and Change Orders.
   3. Applications for Payment.
   4. Reports, documentation, and permit applications required to be furnished by Contractor to authorities having jurisdiction.

1.03 SUBMITTALS REQUIRED IN THIS SECTION

A. Informational Submittals:
   1. Schedule of Submittals:
      a. Timing:
         1) Furnish submittal within time frames indicated in the Contract Documents.
         2) Submit updated Schedule of Submittals with each submittal of the updated Progress Schedule.
      b. Content: In accordance with the General Conditions, as may be modified by the Supplementary Conditions, and this Section. Requirements for content of preliminary Schedule of Submittals and subsequent submittals of the Schedule of Submittals are identical. Identify on Schedule of Submittals all submittals required in the Contract Documents. Updates of Schedule of Submittals shall show scheduled dates and actual dates for completed tasks. Indicate submittals that are on the Project's critical path. Indicate the following for each submittal:
         1) Date by which submittal will be received by Engineer.
         2) Whether submittal will be for a substitution or "or-equal". Procedures for requesting approval of substitutes and "or-equals" are specified in the General Conditions, as may be modified by the Supplementary Conditions, and Sections 01 25 00 (Substitution Procedures) and 01 62 00 (Product Options).
         3) Date by which Engineer's response is required. Not less than 14 days shall be allowed for Engineer's review, starting upon Engineer's actual receipt of each submittal. Allow increased time, upwards of 28 days, for large or complex submittals.
         4) For submittals for materials or equipment, date by which material or equipment must be at the Site to avoid delaying the Work and to avoid delaying the work of other contractors, if any.
      c. Prepare Schedule of Submittals using same software, and in same format, specified for Progress Schedules in Section 01 32 16 (Construction Progress Schedule).
      d. Coordinate Schedule of Submittals with the Progress Schedule.
      e. Schedule of Submittals that is not compatible with the Progress Schedule, or that does not indicate submittals on the Project's critical path, or that that places extraordinary demands on Engineer for time and resources, is unacceptable. Do not include submittals not required by the Contract Documents.
      f. In preparing Schedule of Submittals:
         1) Considering the nature and complexity of each submittal, allow sufficient time for review and revision.
         2) Reasonable time shall be allowed for Engineer's review and processing of submittals, for submittals to be revised and resubmitted, and for returning submittals to Contractor.
         3) Identify and accordingly schedule submittals that are expected to have long anticipated review times and submittals that may be subject to review by authorities having jurisdiction.

## 1.04 PROCEDURE FOR SUBMITTALS

A. Submittal Identification System: Use the following submittal identification system, consisting of submittal number and review cycle number.
   1. Submittal number shall be separate and unique number correlating to each individual submittal required. Contractor shall assign submittal number as follows:
      a. First part of submittal number shall be the applicable Specification Section number, followed by a hyphen.
      b. Second part of submittal number shall be a three-digit number (sequentially numbered from 001 through 999) assigned to each separate and unique submittal furnished under the associated Specifications Section.
      c. Typical submittal number for the third submittal furnished for Section 31 23 00 (Excavation and Fill) would be “31 23 00-003”.
   2. Review cycle number shall be a letter designation indicating the initial submittal or re-submittal associated with each submittal number:
      a. “A” = Initial (first) submittal.
      b. “B” = Second submittal (i.e., first re-submittal).
      c. “C” = Third submittal (i.e., second re-submittal).
   3. Typical submittal identification for the second submission (first re-submission) of the third submittal provided for Section 31 23 00 (Excavation and Fill) would be “31 23 00-003-B”.

B. Letter of Transmittal for Submittals:
   1. Furnish separate letter of transmittal with each submittal.
   2. Each letter of transmittal shall contain the following:
      a. Contractor’s name.
      b. Owner’s name.
      c. Project name.
      d. Contract or Purchase Order number.
      e. Transmittal number.
      f. Submittal number and review cycle number.
      g. Submittal date and dates of any previous submissions.
      h. Reference to appropriate Specifications Section number, page, and paragraph(s).
      i. Reference to appropriate Drawing sheet(s) and detail(s).
      j. Clear space at least three inches by three inches in size for affixing Engineer’s review stamp.
      k. Clear space suitably sized for affixing Contractor’s stamp.
   3. For submittals with proposed deviations from the requirements of the Contract Documents, letter of transmittal shall specifically describe each proposed variation.

C. Contractor’s Review and Stamp:
   1. Contractor’s Review: Before transmitting submittals to Engineer, review submittals to:
      a. Ensure proper coordination of the Work.
      b. Determine that each submittal is in accordance with Contractor’s desires.
      c. Verify that submittal contains sufficient information for Engineer to determine compliance with the Contract Documents.
   2. Incomplete or inadequate submittals will be returned without review.
   3. Contractor’s Stamp and Signature:
      a. Each submittal furnished shall bear Contractor’s stamp of approval and signature, as evidence that submittal has been reviewed by Contractor and verified as complete and in accordance with the Contract Documents.
      b. Submittals without Contractor’s stamp and signature will be returned without review.
      c. Contractor’s stamp shall contain the following certification statement:

"By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers, and similar data, and I have checked and coordinated each item with other applicable Shop Drawings and all Project requirements."

D. Submittal Marking and Organization:
   1. Mark each page of submittal, and each individual component submitted, with submittal number and applicable Specifications paragraph.
   2. Arrange submittal information in same order as requirements are written in the associated Specifications Section.
   3. Each Shop Drawing sheet shall have title block with complete identifying information satisfactory to Engineer.
   4. Package together submittals for the same Specifications Section. Do not furnish required information piecemeal.

E. Format of Submittals:
   1. Action Submittals and Informational Submittals: Submit electronic copies, except that submittals of Samples shall be as specified in Paragraph 1.04.E.2 of this Section.
   2. Samples:
      a. Securely label or tag Samples with submittal identification number. Label or tag shall include clear space at least three inches by three inches in size for affixing Engineer's review stamp. Label or tag shall not cover, conceal, or alter appearance or features of Sample. Label or tag shall not be separated from the Sample.
      b. Submit quantity of Samples required in Specifications. If quantity of Samples is not specified in the associated Specifications Section, furnish not less than three identical Samples of each item required for Engineer's review. Samples will not be returned to Contractor. If Contractor requires Sample(s) for Contractor's use, notify Engineer in writing and furnish additional Sample(s). Contractor is responsible for furnishing, shipping, and transporting additional Samples.
      c. Deliver one Sample to Engineer's field office at the Site. Deliver balance of Samples to Engineer's office, unless otherwise directed by Engineer.
   3. Closeout Submittals:
      a. Submit electronic copies of the following Closeout Submittals:
         1) Maintenance contracts.
         2) Operations and maintenance data.
         3) Bonds for specific products or systems.
         4) Warranty documentation.
         5) Sustainable design closeout documentation.
      b. Record Documentation: Submit in accordance with Section 01 78 39 (Project Record Documents).
      c. Software: Submit number of copies required in Specifications Section where the software is specified. If number of copies is not specified, furnish two copies on compact disc in addition to software loaded on to Owner's computer(s) or microprocessor(s).
   4. Maintenance Material Submittals: For spare parts, extra stock materials, and tools, furnish quantity of items specified in associated Specifications Section.

F. Electronic Submittals:
   1. Format: Electronic files shall be in Portable Document Format (PDF). Files shall be electronically searchable.
   2. Organization and Content:
      a. Each electronic submittal shall be one file; do not divide individual submittals into multiple files each.

b. When submittal is large or contains multiple parts, furnish PDF file with bookmark for each section of submittal.
c. Content shall be identical to printed submittal. First page of electronic submittal shall be Contractor's letter of transmittal.

3. Quality and Legibility: Electronic submittal files shall be made from the original and shall be clear and legible. Do not provide scans of faxed copies. Electronic file shall be full size of original, printed documents. Properly orient all pages for reading on a computer screen.
4. Provide sufficient Internet service and e-mail capability for Contractor's use in transferring electronic submittals, receiving responses to electronic submittals, and associated electronic correspondence. Check not less than once per day for distribution of electronic submittals, responses to electronic submittals, and electronic correspondence related to submittals.
5. Submitting Electronic Files: Upload electronic copies of submittals to the Project Internet website.

G. Distribution:
1. Engineer will upload electronic copy of each reviewed or accepted submittal requiring Engineer's written response to the Project Internet website.
2. Contractor shall distribute hard copy reproductions of reviewed or accepted submittals, where required, to the job site file and elsewhere, as directed by Engineer. Number of hard copies shall be as directed by Engineer, but will not exceed six.

H. Resubmittals: Refer to the General Conditions, as may be modified by the Supplementary Conditions, for resubmittal requirements.

I. Engineer's Submittal Log:
1. Engineer will maintain a log of required submittals using the form included with this Section. Updated submittal log will be provided to Contractor upon request.
2. Review submittal log and status of each submittal with Engineer on a weekly or more frequent basis.
3. Coordinate updates to Schedule of Submittals with Engineer's updates to submittal log.

## 1.05 ENGINEER'S REVIEW

A. Timing: Engineer's review will conform to timing indicated in the Schedule of Submittals accepted by Engineer.

B. Submittals not required by the Contract Documents will not be reviewed by Engineer and will not be recorded in Engineer's submittal log. Hard copies, if any, of such submittals will be returned to Contractor.

C. Results of Engineer's Review:
1. Action Submittals: Each submittal will be given one of the following dispositions by Engineer:
a. Reviewed: Upon return of submittal marked "Reviewed", order, ship, or fabricate materials and equipment included in the submittal (pending Engineer's review or acceptance, as applicable, of source quality control submittals) or otherwise proceed with the Work in accordance with the submittal and the Contract Documents.

b. Reviewed and Noted: Upon return of submittal marked "Reviewed and Noted", order, ship, or fabricate materials and equipment included in the submittal (pending Engineer's review or acceptance, as applicable, of source quality control submittals) or otherwise proceed with the Work in accordance with the submittal and the Contract Documents, and in accordance with corrections indicated in Engineer's submittal response.
c. Revise and Resubmit: Upon return of submittal marked "Revise and Resubmit", make the corrections indicated and re-submit to Engineer for review.
d. Rejected: This disposition indicates that submittal includes material or equipment that cannot be reviewed. Upon return of submittal marked "Rejected", repeat initial submittal procedure utilizing reviewable material or equipment. Number resubmittal with appropriate review cycle number

2. Informational Submittals:
   a. Each submittal will be given one of the following dispositions:
      1) Accepted: Information included in submittal complies with the applicable requirements of the Contract Documents, and is acceptable. No further action by Contractor is required relative to this submittal, and the Work covered by the submittal may proceed, and materials and equipment with submittals with this disposition may be shipped or operated, as applicable.
      2) Not Accepted: Submittal does not indicate compliance with the applicable requirements of the Contract Documents and is not acceptable. Revise submittal and re-submit to indicate acceptability and compliance with the Contract Documents.
   b. The following types of Informational Submittals, when acceptable to Engineer, will not receive a written response from Engineer. Disposition as "Accepted" will be recorded in Engineer's submittal log. When submittals of the following are not acceptable, Engineer will provide written response to Contractor:
      1) Safety data sheets.
      2) Manifests and other shipping documents.
      3) Delivery tickets.
      4) Compaction testing reports.
      5) Concrete testing reports.
      6) Manufacturer's instructions.
3. Closeout Submittals: Dispositions and meanings are the same as specified for Informational Submittals. When acceptable, Closeout Submittals will not receive a written response from Engineer. Disposition as "Accepted" will be recorded in Engineer's submittal log. When Closeout Submittal is not acceptable, Engineer will provide written response to Contractor.
4. Maintenance Material Submittals: Dispositions and meanings are the same as specified for Informational Submittals. When acceptable, Maintenance Material Submittals will not receive a written response from Engineer. Disposition as "Accepted" will be recorded in Engineer's submittal log. When Maintenance Material Submittal is not acceptable, Engineer will provide written response to Contractor, and Contractor is responsible for costs associated with transporting and handling of maintenance materials until compliance with the Contract Documents is achieved.

## PART 2 – PRODUCTS (NOT USED)

## PART 3 – EXECUTION

### 3.01 ATTACHMENTS

A. The attachments listed below, which follow after the "End of Section" designation, are part of this Section:
   1. Attachment A: Engineer's submittal log form [TO BE INCLUDED IN 95% RD].

END OF SECTION

# SECTION 01 35 23

# SAFETY REQUIREMENTS

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section expands upon the requirements elsewhere in the Contract Documents regarding Contractor's responsibilities for safety and protection, and includes requirements for Contractor's safety representative and other safety requirements applicable to the Project.
   2. Contractor shall provide all labor, materials, tools, equipment, training, certifications, protective measures, and incidentals shown, specified, and required to comply with Contractor's obligations under the Contract for safety and protection of personnel and property.
   3. Owner's safety programs that are applicable to the Work are identified in the Supplementary Conditions.

B. Related Sections:
   1. Section 01 35 29, Contractor's Health and Safety Plan.
   2. Section 01 35 43.13, Environmental Procedures for Hazardous Materials.
   3. Section 01 41 28, Confined Space Entry Permit.
   4. Section 01 52 16, First-Aid Facilities.
   5. Section 01 71 33, Protection of the Work and Property.

### 1.02 QUALITY ASSURANCE

A. Qualifications:
   1. Contractor's Safety Representative:
      a. Employ or retain the services, as needed, of a full-time safety industry professional to manage, oversee, and enforce Contractor's health and safety program at the Site, and ensure throughout the Project compliance with Contractor's Site-specific health and safety plan (HASP), Owner's safety programs applicable to the Work, and applicable Laws and Regulations.
      b. Contractor's safety representative shall possess not less than five years of experience serving as the safety representative on projects similar to or larger in size than this Contract, and for type(s) of construction similar in nature to the Work.
      c. Contractor's safety representative shall be experienced in the types of Work to be performed under the Contract and shall be experienced with safety precautions, procedures, and equipment appropriate for the safe performance of the Work.
      d. Prior to the Effective Date of the Contract, safety representative shall have successfully completed, at a minimum, a 30-hour OSHA construction safety and health training course, a 40-hour OSHA Hazardous Waste operations and emergency response (HAZWOPER) training course, training for confined space entry, and other training required by Laws and Regulations.
      e. Contractor's safety representative shall be completely experienced with and knowledgeable of all applicable health and safety Laws and Regulations and with good safety practices, and shall ensure compliance with such Laws and Regulations and practices at the Site.
      f. Minimum responsibilities of Contractor's safety representative are indicated in Article 1.04 of this Section.

g. If more than one safety representative will be assigned to the Project (e.g., due to multiple work shifts, etc.), each safety representative shall be qualified in accordance with this Paragraph 1.02.A.1 and shall comply with the requirements of this Section. Submit separate qualifications statement for and obtain Engineer's acceptance of each safety representative.
h. Engineer's acceptance of Contractor's safety representative's qualifications does not in any way mitigate or relieve Contractor of Contractor's safety obligations under the Contract Documents.
i. Contractor's safety representative may not change during the Project unless prior written approval is obtained from Owner. Contractor is solely responsible for any costs incurred or delays if Contractor's safety representative is not available and an acceptable substitute has not been approved by Owner.

B. Regulatory Requirements:
1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
a. 29 CFR 1904, Recording and Reporting Occupational Injuries and Illnesses.
b. 29 CFR 1910, Occupational Safety and Health Standards.
c. 29 CFR 1926, Safety and Health Regulations for Construction.
d. 40 CFR 261.3, 264, and 265, Resource Conservation and Recovery Act (RCRA).
e. 49 CFR 171.8, Transportation, Definitions and Abbreviations.
f. 6 NYCRR 371, Identification and Listing of Hazardous Wastes.
g. 6 NYCRR 375, Environmental Remediation Programs.
h. 12 NYCRR 23, Protection in Construction, Demolition, and Excavation Operations.
i. 16 NYCRR 753, Protection of Underground Facilities.
j. 17 NYCRR 32, Oil Spill Prevention and Control – Actions to be Taken in Case of Discharge.

## 1.03 SUBMITTALS

A. Informational Submittals:
1. Qualifications Statements: Submit name and qualifications of safety representative, including summary of experience, training received, and copy of valid certifications applicable to the Project.
2. Emergency Contact Information: Submit in accordance with Article 1.05 of this Section.
3. Citations: Submit copies of safety citations from authorities having jurisdiction and insurance companies within 24 hours of Contractor's receipt of such citations.
4. Reports:
a. Accident Reports: Submit in accordance with Article 1.07 of this Section.
b. Daily Health and Safety Field Reports: Submit in accordance with Article 1.08 of this Section.

## 1.04 MINIMUM RESPONSIBILITIES OF SAFETY REPRESENTATIVE

A. General:
1. Contractor's safety representative shall be at the Site full-time when Work is in progress. When Contractor employs multiple shifts, furnish more than one safety representative as necessary. Each safety representative shall be qualified in accordance with Paragraph 1.02.A.1 of this Section.
2. Contractor's safety representative shall have no other duties on the Project except those directly related to safety. Safety representative shall not be Contractor's project manager, superintendent, or other supervisory personnel working on the Project.

3. Contractor's safety representative shall have appropriate space at the Site to maintain and keep available safety records, up-to-date copies of pertinent safety Laws and Regulations, safety data sheets, Contractor's HASP, copies of Owner's safety programs with which Contractor shall comply, and emergency contact information as required in Article 1.05 of this Section.

B. Contractor's safety representative's responsibilities include, but are not necessarily limited to, the following:
   1. Duties and responsibilities in accordance with the General Conditions.
   2. Supervising the implementation of Contractor's HASP throughout the Project.
   3. Coordinating with Contractor's "competent person" required under Laws and Regulations.
   4. Attending pre-construction conference, progress meetings, and other Project meetings in accordance with the Contract Documents.
   5. Scheduling and conducting safety meetings and safety training programs as required by Laws and Regulations, Contractor's HASP, and good safety practices. Advise Construction Manager, Engineer, and Air Monitoring Contractor prior to the time and place of such meetings. Instruct Contractor's employees (and Subcontractors, Suppliers with personnel at the Site, and others for whom Contractor is responsible) on recognition of hazards, observance of precautions, of the contents of the HASP and other safety programs with which Contractor shall comply, and use of personal protective equipment (PPE) and safety equipment.
   6. Determining that operators of specific construction equipment (and permanent equipment used for construction operations) are qualified by training and experience before such personnel are allowed to operate such equipment.
   7. Developing and implementing emergency response procedures, including names, locations, and contact telephone numbers for emergency services and medical assistance as indicated in requirements for the emergency contact list in Article 1.05 of this Section.
   8. Posting appropriate notices regarding health and safety Laws and Regulations at locations at the Site and Contractor's field office that afford maximum exposure to personnel.
   9. Posting appropriate instructions and warning signs in regard to all hazardous areas and hazardous conditions that cannot be eliminated. Identification of such areas shall be based on experience, site surveillance, and severity of the associated hazard. Signage shall not be used in place of appropriate workplace controls.
   10. Ascertaining via personal inspection that safety Laws and Regulations and safety program requirements are enforced. Make inspections not less than once per work shift to ensure that machines, tools, and equipment are in a safe operating condition; and that all work areas are free of hazards to the extent practicable. Implement necessary and timely corrective actions to eliminate unsafe acts and unsafe conditions, and submit to Engineer daily copy of findings resulting from inspection, using inspection checklist forms established in Contractor's HASP.
   11. Submitting to Owner, Construction Manager, and Engineer copies of safety citations from authorities having jurisdiction and insurance companies within 24 hours of Contractor's receipt of such citations.
   12. Providing appropriate orientation to employees, visitors, Subcontractors, and Supplier personnel at the Site.
   13. Preparing and submitting accident reports in accordance with Article 1.07 of this Section.
   14. Leading accident investigations on Contractor's behalf.
   15. Preparing and submitting daily health and safety field reports in accordance with Article 1.08 of this Section.
   16. Preparing and maintaining health and safety records and statistics in accordance with Article 1.09 of this Section.

17. Performing all related tasks necessary to achieve the highest degree of safety that the nature of the Work allows.
18. Attending all safety inspections conducted by Owner.

## 1.05 EMERGENCY CONTACT INFORMATION

A. Contractor shall submit list of emergency contact information for 24-hour use throughout the Project. Emergency contact information shall be updated and kept current throughout the Project. If personnel or contact information change, furnish updated emergency contact information list at the next progress meeting.

B. Contractor's list of emergency contact information shall include, at a minimum, the following:
   1. Contractor:
      a. Project manager's office, field office, and cellular telephone numbers.
      b. Site superintendent's office, field office, and cellular telephone numbers.
      c. Foreman's field office and cellular telephone numbers.
      d. Safety representative's field office and cellular telephone numbers.
      e. Major Subcontractors' and Suppliers' office and cellular telephone numbers of project manager and foreman (when applicable).
   2. Owner:
      a. Project manager's office and cellular telephone numbers.
      b. Assistant project manager's office and cellular telephone numbers.
   3. Construction Manager's office, field office, and cellular telephone numbers.
   4. Engineer:
      a. Engineer of record's office and cellular telephone numbers.
      b. Project manager's office and cellular telephone numbers.
      c. Assistant project manager's office and cellular telephone numbers.
   5. Resident Project Representative's office, field office, and cellular telephone numbers.
   6. Air Monitoring Contractor:
      a. Project manager's office and cellular telephone numbers.
      b. Air monitoring technician's office, field office, and cellular telephone numbers.
   7. Utility companies' 24-hour contact telephone number(s), including gas, electric, water, sewer, telecommunications, and other companies having utilities in the vicinity of the Work.
   8. Highway and street owners' 24-hour telephone number(s).
   9. Emergency telephone numbers for the hospital, ambulance service, police department, and fire department nearest to the Site. Furnish names of each of these institutions.
   10. Authorities having jurisdiction.
   11. Other involved entities as applicable.

C. Include with list of emergency contact information an 8.5-inch by 11-inch map showing route from the Site to the nearest hospital.

## 1.06 SAFETY EQUIPMENT

A. General:
   1. Contractor shall provide proper safety and rescue equipment, adequately maintained and readily available, for any foreseeable contingency.
   2. Such equipment shall include items such as safety ropes and harnesses, fall-prevention devices, stretchers, water safety devices, oxygen breathing apparatus, resuscitators, gas detectors, oxygen deficiency indicators, combustible gas detectors, fire extinguishers, and first-aid equipment in accordance with the Division 01 Specifications, and similar equipment.

3. Keep safety equipment in protected areas. Check safety equipment at scheduled intervals.
4. Temporary First-Aid Facilities: Comply with Section 01 52 16 (First-Aid Facilities).

B. Safety Equipment Log:
1. Maintain a log indicating the person who checked the equipment, when equipment was checked, and that equipment was acceptable.
2. Update equipment log not less-often than monthly.
3. Include in safety representative's on-site records copies of equipment calibration records.

C. Provide replacement safety equipment when primary safety equipment is unavailable due to use or when undergoing maintenance.

D. Personal Protective Equipment (PPE):
1. All persons entering the work areas shall wear appropriate PPE required for the particular area and task.
2. Remove from the Site any person failing to comply with this or any other safety requirement.
3. Continuously provide all necessary PPE for Owner's, Construction Manager's, and Engineer's employees; Resident Project Representative; and visitors to the Site. Construction Manager and Engineer will each furnish for its respective employees protective helmets (hard hats), safety eyewear, reflective vests, and hearing protection. Contractor shall furnish other PPE required.

## 1.07 ACCIDENT REPORTING AND INVESTIGATION

A. Immediately notify Owner, Construction Manager, and Engineer of all accidents that:
1. Result in bodily injury, illness, or property damage.
2. Affect the environment.
3. Involve the public.

B. Submit accident report to Owner, Construction Manager, and Engineer within 24 hours after accident occurs. Include in each report the following:
1. Date, time, and location of accident.
2. Names of all Site personnel involved in or affected by accident.
3. Description of accident and activities being performed when accident occurred.
4. Medical treatment administered, if any.
5. Nature and seriousness of injury or damage.
6. Other information requested by Owner to complete Owner's incident analysis.

C. Comply with 29 CFR 1904.29, including using OSHA Forms 300, 300A, and 301 (or equivalent) to document all accidents that result in bodily injury.

D. Based upon results of accident investigation, modify HASP as required by changing tasks or procedures to prevent reoccurrence of accident.

E. Post current copy of Contractor's OSHA Form 300A at conspicuous place at the Site during period of February 1 through April 30 of each year.

## 1.08 DAILY HEALTH AND SAFETY FIELD REPORTS

A. Prepare daily health and safety field reports throughout the Project. Include in each report, at a minimum, the following:
   1. Contractor's name.
   2. Owner's name.
   3. Project name.
   4. Site name and location.
   5. Date and day of the week.
   6. Weather conditions.
   7. Delays encountered in construction.
   8. Copy of daily job safety briefing form.
   9. Acknowledgment of deficiencies noted along with corrective actions taken on current and previous deficiencies.
   10. Daily health and safety exposure monitoring results.
   11. Documentation of instrument calibrations performed.
   12. New hazards encountered.
   13. PPE utilized.
   14. Description of problems, real or anticipated, encountered during the Work that should be brought to the attention of Owner, Construction Manager, and Engineer.
   15. Deviations from planned Work described in previously-submitted daily health and safety field report(s).

B. Submit daily health and safety field reports to Construction Manager and Engineer by 9:00 a.m. the next working day after the day covered in the associated report. Daily reports shall be signed by Contractor's safety representative.

## 1.09 HEALTH AND SAFETY RECORDS

A. Retain at the Site complete and accurate health and safety records for all Contractor and Subcontractor employees assigned to the Project. Records shall include, at a minimum, the following:
   1. Valid training certificates for the following:
      a. Initial 40-hour HAZWOPER training.
      b. Initial 24-hour HAZWOPER training.
      c. Eight-hour HAZWOPER supervisor training.
      d. Annual eight-hour HAZWOPER refresher training.
      e. Ten-hour construction safety training.
      f. First-aid/cardiopulmonary resuscitation training.
      g. Other training required by Contractor's HASP.
   2. Valid medical clearance certificates.
   3. Valid respirator fit test certificates.
   4. Accident reports, prepared in accordance with Article 1.07 of this Section.
   5. Daily health and safety field reports, prepared in accordance with Article 1.08 of this Section.
   6. Other records required by Owner or Laws and Regulations.

B. Keep records up-to-date throughout the Project.

C. Contractor's safety representative shall meet at least monthly with Owner, Construction Manager, and Engineer to review Contractor's health and safety records and verify compliance with this Section.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

END OF SECTION

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# SECTION 01 35 29

# CONTRACTOR'S HEALTH AND SAFETY PLAN

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall prepare and maintain a written, Site-specific Health and Safety Plan (HASP), and conduct all construction activities in a safe manner that avoids:
      a. injuries to employees, Subcontractors, and other persons with an interest at or near the Site;
      b. employee exposures to health hazards above occupational limits established by Laws or Regulations, the American Conference of Governmental Industrial Hygienists, and the Nuclear Regulatory Commission (NRC), as applicable;
      c. exposure of the public and Owner's employees to air contaminants above levels established for public exposure by USEPA, NRC, NYSDEC, NYSDOH, NYCDEP, and other authorities having jurisdiction at the Site;
      d. significant increases in concentrations of contaminants in soil, water, or sediment near the Site; or
      e. violations of OSHA Regulations, or other Laws or Regulations.

B. Related Sections:
   1. Section 01 35 23, Safety Requirements.
   2. Section 01 35 43.13, Environmental Procedures for Hazardous Materials.
   3. Section 01 41 28, Confined Space Entry Permit.

### 1.02 QUALITY ASSURANCE

A. Qualifications:
   1. HASP Preparer:
      a. Engage a certified industrial hygienist, accredited by the American Board of Industrial Hygiene, or certified safety professional certified by the Board of Certified Safety Professionals, to prepare or supervise preparation of Contractor's HASP.
      b. HASP preparer shall be thoroughly familiar with the following:
         1) Laws and Regulations and industry standards of safety and protection relating to health and safety pertaining to the Work.
         2) The requirements of the Contract Documents relative to health, safety, and protection.
         3) Health and safety hazards associated with the Work and appropriate protections therefor.
         4) Contractor's and Owner's safety programs.
      c. HASP preparer shall have previously prepared site-specific health and safety plans for not less than five construction projects similar in nature, scope, and complexity to the Work.
      d. Submit HASP preparer's qualifications with HASP.

B. Regulatory Requirements:
   1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
      a. 29 CFR 1904, Recording and Reporting Occupational Injuries and Illnesses.
      b. 29 CFR 1910, Occupational Safety and Health Standards.

c. 29 CFR 1926, Safety and Health Regulations for Construction.
d. 40 CFR 261.3, 264, and 265, Resource Conservation and Recovery Act (RCRA).
e. 49 CFR 171.8, Transportation, Definitions and Abbreviations.
f. 6 NYCRR 371, Identification and Listing of Hazardous Wastes.
g. 6 NYCRR 375, Environmental Remediation Programs.
h. 12 NYCRR 23, Protection in Construction, Demolition, and Excavation Operations.
i. 16 NYCRR 753, Protection of Underground Facilities.
j. 17 NYCRR 32, Oil Spill Prevention and Control – Actions to be Taken in Case of Discharge.

1.03 SUBMITTALS

A. Informational Submittals:
1. Contractor's HASP: Submit in accordance with Article 1.04 of this Section.
2. Qualifications Statements: Submit name and qualifications of HASP preparer, including summary of experience and copy of valid certifications.

1.04 HASP SUBMITTAL

A. General:
1. The Site is classified as a Hazardous Waste site. Presence of Contaminants, where known to Owner and Engineer, are indicated in the reports and drawings (if any) of such Contaminants listed in the Supplementary Conditions.
2. Each employer working at the Site shall develop and implement a written HASP for its employees and other individuals for whom such employer is responsible. HASP shall include procedures that will be used to ensure the safe handling of Contaminants during excavating, loading, and transporting activities.
3. HASP shall comply with 29 CFR 1904, 29 CFR 1910, 29 CFR 1926, and other Laws and Regulations.
4. Include in HASP requirements for complying with Owner's safety programs that are applicable to the Work, as identified in the Supplementary Conditions, and Owner's Site-specific hazard/emergency response plans, if any.
5. HASP shall be kept at the Site, shall address safety and health hazards of each phase of operations at the Site, and shall include requirements and procedures for employee protection.

B. HASP Contents: HASP shall address and include the following:
1. Organizational Structure:
a. Specific chain of command and overall responsibilities of supervisors and employees. Include the following:
1) Name and contact information for Contractor's safety representative.
2) Name and contact information for Contractor's "competent person(s)" for various work-related activities.
3) Designation of general supervisor who has responsibility and authority to direct all Hazardous Waste operations.
4) Other personnel required for Hazardous Waste operations at the Site and emergency response, and general functions and responsibilities of each.
5) Lines of authority, responsibility, and communication.
b. Review and update organizational structure as necessary to reflect current status of work activities on the Project and status of personnel.
2. Site description, background, and scope of Work.
3. Safety and health risk or hazard analysis, and planned hazard controls, for each task and operation required to complete the Project.

4. Site control measures, including procedures for:
   a. Preventing trespassing.
   b. Preventing unqualified or unprotected workers from entering restricted areas.
   c. Preventing the “tracking” of Contaminants out of the Site.
   d. Maintaining a log of employees at the Site and visitors to the Site.
   e. Ensuring safe handling of Contaminants during the Work, including excavating, handling, loading, and transporting activities. Include procedures for ensuring safety when working in or in proximity to Contaminants.
   f. Delineating exclusion, contamination reduction, and support zones.
   g. Locating personnel and equipment decontamination zones.
   h. Communicating routes of escape and gathering points.
5. Training Program:
   a. Initial training requirements for Site workers and supervisors.
   b. Exceptions to initial training requirements.
   c. Site briefings for visitors and workers.
   d. Refresher training requirements.
   e. Certification of training for all Contractor and Subcontractor employees assigned to the Project.
6. Medical Surveillance Program:
   a. Provisions of the Site medical surveillance program.
   b. Communication protocols between the Site, physicians, and workers.
   c. Medical recordkeeping procedures.
   d. Certification of medical clearance for all Contractor and Subcontractor employees assigned to the Project.
7. Personal Protective Equipment (PPE):
   a. PPE selection criteria.
   b. Site- and task-specific PPE ensembles.
   c. Training in the use of PPE.
   d. Respiratory protection.
   e. Hearing conservation.
   f. PPE maintenance and storage.
8. Exposure Monitoring Program:
   a. Monitoring procedures to detect the presence of hazardous substances.
   b. Monitoring procedures to determine worker exposures to hazardous substances and physical hazards.
   c. Action levels and required responses for known and expected hazardous substances and physical hazards.
   d. Calibration and maintenance procedures for monitoring equipment.
9. Heat and cold stress prevention programs.
10. Spill containment program. Comply with Section 01 35 43.13.
11. Decontamination Program:
   a. Location and type of temporary decontamination facilities.
   b. General and specific decontamination procedures for personnel and PPE.
   c. General and specific decontamination procedures for equipment and vehicles.
   d. Disposal of residual waste from decontamination.
   e. Decontamination equipment and materials.
   f. Monitoring procedures used to evaluate the effectiveness of decontamination.
12. Emergency Response Plan:
   a. Potential emergencies that may occur at the Site.
   b. Pre-emergency planning.
   c. On-site emergency response equipment, materials, and PPE.
   d. Emergency Maps: Evacuation routes, gathering points, and route to nearest hospital.
   e. Emergency roles and responsibilities.
   f. Emergency alerting and evacuation procedures for Site personnel.

g. Procedures for notifying, and list of emergency contact information for:
   1) Emergency responders, including fire officials, ambulance service, poison control, police, and local hospitals.
   2) Authorities having jurisdiction.
   3) Owner, Construction Manager, Engineer, and Air Monitoring Contractor.
   4) Contractor's project manager, Site superintendent, safety representative, and foreman.
   5) Other entities, as required.

h. Emergency response procedures.
i. Emergency decontamination, medical treatment, and first-aid.
j. Emergency response training.

13. Confined space entry program. Comply with Section 01 41 28.
14. Other standard operating procedures applicable to the Work.

C. Submittal Procedure:
   1. Submit HASP to Engineer the sooner of: seven days prior to pre-construction conference, or 30 days prior to Contractor's scheduled mobilization to the Site.
   2. Do not perform Work at the Site until written HASP has been accepted by Engineer.
   3. Notwithstanding other provisions of the Contract Documents, changes in the Contract Price or Contract Times will not be authorized due to delay by Contractor in developing, submitting, revising, or obtaining acceptance of HASP.

D. Limitations of Engineer's Review of HASP:
   1. Engineer's review and acceptance of HASP will be only to determine if the topics covered in HASP comply with the Contract Documents and specific requirements of safety documents referenced therein (such as Owner's safety programs, if any).
   2. Engineer's review and acceptance will not extend to safety measures, means, methods, techniques, procedures of construction, or whether representations made in the HASP comply with Laws and Regulations, or standards of good practice.
   3. Contractor's responsibility for safety and protection at the Site shall be as indicated in the Contract Documents. Nothing associated with Engineer's review or acceptance of HASP will create or imply any obligation by Engineer to oversee or become, in any way, responsible for Contractor's safety obligations under the Contract Documents.

E. Location:
   1. Retain at the Site a copy of complete HASP and related information. Comply with Section 01 35 23.
   2. Retain copy of HASP and related information at Contractor's field office.
   3. Throughout the Project, update as necessary all copies of HASP and related information.
   4. Copies of HASP and other related information shall be made available to Contractor's employees, Subcontractors, Suppliers, Owner, Construction Manager, and Engineer immediately upon request.

## PART 2 – PRODUCTS (NOT USED)

## PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 35 43.13

ENVIRONMENTAL PROCEDURES FOR HAZARDOUS MATERIALS

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall provide all labor, materials, equipment, tools, and incidentals necessary to comply with environmental procedures for Hazardous Materials.
   2. Contractor shall develop, implement, and maintain throughout the Project a Hazardous Materials management program (HMMP) in accordance with Laws and Regulations.
      a. Hazardous Materials Brought to the Site by Contractor: Transport, handle, store, label, use, and dispose of in accordance with this Section, and Laws and Regulations.
      b. Hazardous Materials Generated by Contractor:
         1) Hazardous Material shall be properly handled, stored, labeled, transported, and disposed of by Contractor in accordance with Laws and Regulations, and this Section.
         2) If Contractor will generate or has generated Hazardous Material at the Site, obtain Owner's USEPA identification number listing Owner's name and address of the Site as generator of the Hazardous Material.
         3) Contractor shall be responsible for identifying, characterizing, profiling, transporting, and disposing of Hazardous Material generated by Contractor.
      c. Fines or civil penalties levied against Owner for violations committed at the Site by Contractor, and costs to Owner (if any) associated with cleanup of Hazardous Materials brought to the Site or generated by Contractor shall be paid by Contractor.

B. Enforcement of Laws and Regulations:
   1. Interests of Owner are that accidental spills and emissions, Site contamination, and injury of personnel at and near the Site are to be avoided.
   2. When Owner is aware of suspected violations, Owner will notify Contractor, and authorities having jurisdiction if Owner reasonably concludes that doing so is required by Laws or Regulations.
   3. Responsibilities regarding Laws and Regulations shall be in accordance with the General Conditions, as may be modified by the Supplementary Conditions.

C. Related Sections:
   1. Section 01 35 29, Contractor's Health and Safety Plan.

### 1.02 DEFINITIONS

A. The following terms are defined for this Section and supplement the terms defined in the General Conditions:
   1. Hazardous Material: Material, whether solid, semi-solid, liquid, or gas, that, if not stored or used properly, may cause harm or injury to persons through inhalation, ingestion, absorption or injection, or that may negatively impact the environment through use or discharge of the material on the ground, in water (including groundwater), or to the air. Hazardous Material includes, but is not limited to, chemicals, Asbestos, Hazardous Waste, PCBs, Petroleum, Radioactive Material, and which is or becomes listed, regulated, or addressed pursuant to the following:

a. Comprehensive Environmental Response, Compensation, and Liability Act, 42 United States Code (USC) §§9601 et seq. ("CERCLA").
b. Hazardous Materials Transportation Act, 49 USC §§1801 et seq.
c. Resource Conservation and Recovery Act, 42 USC §§6901 et seq. ("RCRA").
d. Toxic Substances Control Act, 15 USC §§2601 et seq.
e. Clean Water Act, 33 USC §§1251 et seq.
f. Clean Air Act, 42 USC §§7401 et seq.
g. Any other Law or Regulation regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

## 1.03 QUALITY ASSURANCE

A. Regulatory Requirements:
1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
a. 29 CFR 1910, Occupational Safety and Health Standards.
b. 29 CFR 1926, Safety and Health Regulations for Construction.
c. 40 CFR 261.3, 264, and 265, Resource Conservation and Recovery Act (RCRA).
d. 49 CFR 171.8, Transportation, Definitions and Abbreviations.
e. 6 NYCRR 364, Waste Transporter Permits.
f. 6 NYCRR 371, Identification and Listing of Hazardous Wastes.
g. 6 NYCRR 372, Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities.
h. 6 NYCRR 375, Environmental Remediation Programs.
i. 6 NYCRR 596, Hazardous Substance Bulk Storage Regulations.
j. 6 NYCRR 597, List of Hazardous Substances.
k. 6 NYCRR 598, Handling and Storage of Hazardous Substances.
l. 6 NYCRR 613, Handling and Storage of Petroleum.
m. 17 NYCRR 32, Oil Spill Prevention and Control – Actions to be Taken in Case of Discharge.
2. Comply with applicable provisions and recommendations of the following:
a. NYSDEC Spill Guidance Manual.

## 1.04 SUBMITTALS

A. Informational Submittals:
1. Hazardous Materials (including Chemicals) Proposed for Use at the Site:
a. Submit the following information for each Hazardous Material proposed for use at the Site:
1) Current (dated within the past two years) safety data sheet (SDS) in accordance with 29 CFR 1910.1200 (OSHA Hazard Communication Standard).
2) Manufacturer.
3) Supplier (if different than manufacturer).
4) Container size(s) and number of containers proposed to be at the Site.
5) Minimum and maximum volume of material intended to be stored at the Site.
6) Description of process or procedures in which Hazardous Material will be used.
b. Furnish such information in sufficient time to obtain Owner's acceptance not later than three days before bringing Hazardous Material to the Site.
2. Hazardous Materials Generated at the Site:
a. Submit the following information for each Hazardous Material generated at the Site:
1) Identification number.
2) Analysis results.
3) Number and size of storage containers at the Site.

b. Furnish such information not later than three days after Contractor's receipt of analytical results.

3. Permits: Submit copies of permits for storing, handling, using, transporting, and disposing of Hazardous Materials, obtained from authorities having jurisdiction.
4. Hazardous Materials Communication Plan: Submit in accordance with Article 1.05 of this Section.
5. Emergency/Spill Response Plan: Submit in accordance with Article 1.06 of this Section.

## 1.05 HAZARDOUS MATERIALS COMMUNICATION PLAN

A. Develop and implement a Hazardous Materials communication plan. At a minimum, maintain at the Site two notebooks containing the following:
   1. Inventory of Hazardous Materials, including all chemicals.
   2. Current (dated within the past two years) SDSs for all materials being used to accomplish the Work, whether or not defined as Hazardous Material in this Section. Keep one notebook in Contractor's field office at the Site; keep second notebook at location acceptable to Owner and Engineer. Keep notebooks up-to-date as materials are brought to and removed from the Site.

## 1.06 EMERGENCY/SPILL RESPONSE PLAN

A. Develop, implement, and maintain an emergency/spill response plan, for each Hazardous Material or each class/group of Hazardous Materials as applicable. Response plan shall include, at a minimum, the following:
   1. Description of equipment and materials available at the Site to contain a spill of, or respond to an emergency related to, the material.
   2. Procedures for notifying, and list of emergency contact information for the following:
      a. Authorities having jurisdiction.
      b. Emergency responders.
      c. Contractor's project manager, Site superintendent, safety representative, and foreman.
      d. Owner, Construction Manager, Engineer, and Air Monitoring Contractor.
      e. Other entities as required.
   3. Response coordination procedures between Contractor, Owner, and others as appropriate.
   4. Site plan showing proposed location of Hazardous Materials storage area, location of spill containment/response equipment and materials, and location of storm water drainage inlets and drainage routes, including storm sewers, ditches and swales, and surface waters.
   5. Description of Hazardous Material handling and spill response training provided to Contractor's and Subcontractors' employees, in accordance with 29 CFR 1926.21(b) and other Laws and Regulations.

B. Emergency/spill response plan shall be incorporated into Contractor's Site-specific health and safety plan in accordance with Section 01 35 29.

## 1.07 HAZARDOUS MATERIALS MANAGEMENT

A. Obtain Owner's acceptance before bringing each Hazardous Material to the Site.

B. Storage of Hazardous Materials and Non-Hazardous Materials:
   1. Vessels containing Hazardous Materials shall bear applicable hazard diamond(s).

2. Container Labeling:
   a. Properly label each container of consumable materials, whether or not classified as Hazardous Materials under this Section.
   b. Stencil Contractor's name and, as applicable, Subcontractor's name, on each vessel containing Hazardous Material and, for non-Hazardous Materials, on each container over five-gallon capacity. Containers shall bear securely-attached label clearly identifying contents. Label containers that are filled from larger containers.
   c. If Owner becomes aware of unlabeled containers at the Site, Owner will notify Contractor. Properly label container(s) within one hour of receipt of such notification from Owner or remove container from the Site.
3. To greatest extent possible, store Hazardous Materials off-site until required for use in the Work.

C. Hazardous Materials Storage Area:
   1. Maintain designated storage area for Hazardous Materials. Storage area shall include secondary containment to prevent release of spilled or leaking substances, barriers to prevent vehicles from colliding with storage containers, and protection from environmental factors such as weather.
   2. Provide signage in accordance with Laws and Regulations, clearly identifying the Hazardous Materials storage area.

D. Not less than monthly, Contractor's safety representative shall meet with Owner, Construction Manager, and Engineer to review Contractor's HMMP documents and procedures, and inspect storage areas and the Site in general, to verify compliance with this Section.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

# SECTION 01 41 26

# STORM WATER POLLUTION PREVENTION PLAN AND PERMIT

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes requirements for compliance with storm water pollution prevention plans (SWPPP) and permit(s) applicable to the Project.
   2. Contractor shall comply with the Project's SWPPP and the substantive requirements of the most current version of NYSDEC's SPDES General Permit for Storm Water Discharges from Construction Activity (hereinafter, the "SPDES General Permit"). Contractor is responsible for providing necessary materials and taking appropriate measures to comply with requirements of the SPDES General Permit and minimize pollutants in storm water run-off from the Site.
   3. Controls – General:
      a. Prevent discharge of sediment to and erosion from the Site to surface waters, drainage routes, public streets and rights-of-way, and private property, including dewatering operations.
      b. Prevent trash and demolition and construction debris from leaving the Site via storm water runoff.
      c. Provide berms, dikes, and other acceptable methods of directing storm water around work areas to drainage routes.
      d. Prior to starting the Work associated with such discharge, construction-related discharges to publicly-owned conveyance or treatment systems shall be approved by owner of system to which the discharge will be directed.
   4. Water Quality:
      a. Do not cause or contribute to a violation of water quality standards, Laws, or Regulations.
      b. Provide and implement measures to control pollutants in storm water run-off from the Site to prevent:
         1) Turbidity increases that will cause a substantial visible contrast to natural conditions.
         2) Increase in suspended, colloidal, and settleable solids that would cause sediment deposition or impair receiving water quality and use.
         3) Presence of residue from oil and floating substances, visible oil, and globules of grease.
   5. Contractor shall pay civil penalties and other costs incurred by Owner, including additional engineering, construction management, and inspection services, associated with non-compliance with applicable permits related to storm water discharges associated with construction activity, erosion and sediment controls, and pollution prevention measures associated with the Work. Owner may deduct as set-offs such amounts from payments due Contractor.
   6. Contract Price includes all material, labor, and other permits and incidental costs related to:
      a. Installing, constructing, repairing, replacing, and maintaining structural and non-structural items used in complying with the SWPPP and its revisions, if any.
      b. Clean-up, disposal, and repairs following wet weather events or spills caused by Contractor.

c. Implementing and maintaining “best management practices”, as defined in applicable permits and Laws or Regulations, to comply with requirements that govern storm water discharges at the Site.
d. Inspecting erosion, sediment, and storm water controls and pollution prevention measures as specified.

B. Documents: The following are part of the Work included under this Section:
1. SWPPP: Prepared by Engineer, on behalf of Owner, and filed with authorities having jurisdiction. The SWPPP is included with this Section and is part of the Contract Documents.
2. SWPPP Revisions: To be prepared by Engineer, on behalf of Owner, in accordance with Article 1.04 of this Section. Copy of each SWPPP revision will be furnished to Contractor. SWPPP revisions, if any, will become part of the Contract Documents.
3. Storm Water Permit Certification Statement:
a. To be prepared by Contractor and submitted to Engineer on the form included with this Section.
b. Do not perform Work at the Site until the storm water permit certification statement has been submitted to and accepted by Engineer.
4. Storm Water Inspection Reports: To be prepared by Engineer’s Resident Project Representative (RPR) using the form included with this Section. Storm water inspection reports will be filed in a log book kept at the Site by Engineer. Copy of each report will be furnished to Contractor upon request.

C. Coordination:
1. Coordinate requirements of this Section with requirements for earthwork, erosion and sediment control, pollution control, and landscaping in the Contract Documents, applicable permit requirements, and Laws and Regulations.
2. Implement SWPPP controls and practices prior to starting other Work at the Site.

## 1.02 QUALITY ASSURANCE

A. Qualifications:
1. Trained Contractor:
a. Employ and retain at the Site a Site supervisor or project manager with experience and knowledgeable in the principles and practices of erosion and sediment control (hereinafter, the “trained contractor”).
b. Contractor’s trained contractor shall be present at the Site at all times when ground-intrusive or other soil-disturbing Work is being performed, and shall be responsible for the day-to-day implementation of the SWPPP, including the performance of Site inspections and assessments in accordance with this Section.
c. Trained contractor shall have received four hours of NYSDEC-endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC-endorsed entity. Following the initial training, trained contractor shall have completed four hours of training every three years.

B. Regulatory Requirements:
1. Comply with Laws and Regulations related to environmental protection and restoration, including:
a. SPDES General Permit.
b. New York State Standards and Specifications for Erosion and Sediment Control.

1.03 SUBMITTALS

A. Informational Submittals:
   1. Storm Water Permit Certification Statement: Submit in accordance with Paragraph 1.01.B.3 of this Section.
   2. Qualifications Statements: Submit name and qualifications of trained contractor, including summary of experience, training received, and copy of valid certifications applicable to the Project.

1.04 SWPPP REVISIONS

A. Engineer will prepare a SWPPP revision in accordance with the SPDES General Permit:
   1. When the provisions of the SWPPP prove to be ineffective in minimizing pollutants in storm water discharges from the Site.
   2. When there is a significant change in design, construction, operation, or maintenance of the Project that has or could have an effect on the discharge of pollutants from the Site.
   3. To address issues or deficiencies identified during an inspection by Engineer's RPR, Contractor's trained contractor, NYSDEC, or other regulatory authority having jurisdiction.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 INSPECTION AND MAINTENANCE

A. General:
   1. Perform Site inspections and assessments as required by the SPDES General Permit and this Section to ensure the continued effectiveness and integrity of all SWPPP controls and practices, including erosion and sediment controls and pollution prevention measures.
   2. Initiate repairs or maintenance to SWPPP controls and practices within one day after each inspection.
   3. Complete repairs or maintenance to SWPPP controls and practices in accordance with applicable requirements and to satisfaction of Engineer within two days after each inspection. If Site conditions prevent repairs or maintenance from being completed, promptly notify Engineer's RPR and complete repairs or maintenance as soon as Site conditions permit.
   4. Cooperate with representatives of authorities having jurisdiction during periodic visits to the Site, and promptly provide information requested by authorities having jurisdiction.

B. Maintenance Inspections:
   1. Maintenance inspections shall be performed by Contractor's trained contractor on a daily basis during the Work until all disturbed areas have achieved final stabilization in accordance with the SPDES General Permit and the SWPPP.
   2. For temporary Work stoppages and seasonal shut-downs greater than two weeks in duration, maintenance inspections may be suspended if temporary stabilization measures have been applied to all disturbed surfaces, and if approved by Engineer.
   3. Immediately notify Engineer's RPR of any deficiencies observed during maintenance inspections, and any maintenance activities or corrective actions required to address those deficiencies.

C. Periodic Inspections:
   1. Periodic inspections shall be performed by Contractor's trained contractor, together with Engineer's RPR:
      a. After installation of SWPPP controls and practices, and temporary field offices and other temporary facilities, prior to starting other Work at the Site.
      b. Every seven days during the Work, and within 24 hours after wet weather events, until all disturbed areas have achieved final stabilization in accordance with the SPDES General Permit and the SWPPP.
   2. For temporary Work stoppages and seasonal shut-downs greater than two weeks in duration, inspection frequency may be reduced to once every 30 days if temporary stabilization measures have been applied to all disturbed surfaces.
   3. Engineer's RPR will prepare a storm water inspection report for each periodic inspection.

## 3.02 ATTACHMENTS

A. The attachments listed below, which follow after the "End of Section" designation, are part of this Section:
   1. Attachment A: SPDES General Permit (60 pages).
   2. Attachment B: SWPPP [TO BE INCLUDED IN 95% RD].
   3. Attachment C: Storm water permit certification statement form (two pages).
   4. Attachment D: Storm water inspection report form (four pages).

END OF SECTION

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

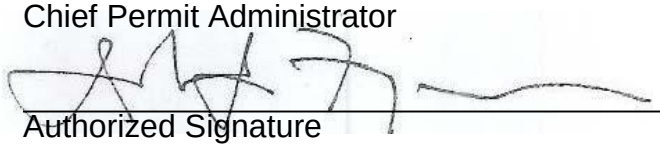
**CONSTRUCTION ACTIVITY**

Permit No. GP-0-15-002

Issued Pursuant to Article 17, Titles 7, 8 and Article 70
of the Environmental Conservation Law

Effective Date: January 29, 2015 Expiration Date: January 28, 2020

John J. Ferguson
Chief Permit Administrator



1 / 12 / 15

Authorized Signature Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

## PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York's *State Pollutant Discharge Elimination System ("SPDES")* is a NPDES-approved program with permits issued in accordance with the *Environmental Conservation Law ("ECL").*

This general permit ("permit") is issued pursuant to Article 17, Titles 7, 8 and Article 70 of the ECL. An *owner or operator* may obtain coverage under this permit by submitting a Notice of Intent ("NOI") to the Department. Copies of this permit and the NOI for New York are available by calling (518) 402-8109 or at any New York State Department of Environmental Conservation ("the Department") regional office (see Appendix G).They are also available on the Department's website at:

http://www.dec.ny.gov/

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a point source and therefore, pursuant to Article 17-0505 of the ECL, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. They cannot wait until there is an actual *discharge* from the construction site to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**
**SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES**
**FROM CONSTRUCTION ACTIVITIES**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# Part I. PERMIT COVERAGE AND LIMITATIONS

## A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

## B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated August 2005, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the Stormwater Pollution Prevention Plan (“SWPPP”) the reason(s) for the deviation or alternative design and provide information

which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s to *minimize* channel and streambank erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted; and

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharge*s from dewatering activities, including *discharge*s

from dewatering of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharge*s.** The following *discharge*s are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion

at or below the outlet does not occur.

## C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. ***Sizing Criteria* for *New Development***

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

**In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual**. The remaining portion of the total WQv

that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:

(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or

(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) Overbank Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:

(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or

(2) A downstream analysis reveals that overbank control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:

(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or

(2) A downstream analysis reveals that overbank control is not required.

b. ***Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed**

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or

standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

**In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual.** The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:

(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or

(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) Overbank Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:

(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that overbank control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:

(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that overbank control is not required.

*c.* ***Sizing Criteria* for *Redevelopment Activity***

(Part I.C.2.c.i)

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or
(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or
(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or
(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) Overbank Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(Part I.C.2.c.iv)

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

*d.* ***Sizing Criteria* for Combination of *Redevelopment Activity* and *New Development***

Construction projects that include both *New Development* and *Redevelopment Activity* shall provide post-construction stormwater management controls that meet the *sizing criteria* calculated as an aggregate of the *Sizing Criteria* in Part I.C.2.a. or b. of this permit for the *New Development* portion of the project and Part I.C.2.c of this permit for *Redevelopment Activity* portion of the project.

**D. Maintaining Water Quality**

The Department expects that compliance with the conditions of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or

if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

**E. Eligibility Under This General Permit**

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharge*s from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater *discharges* may be authorized by this permit: *discharge*s from firefighting activities; fire hydrant flushings; waters to which cleansers or other components have not been added that are used to wash vehicles or control dust in accordance with the SWPPP, routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated *groundwater* or spring water; uncontaminated *discharge*s from construction site de-watering operations; and foundation or footing drains where flows are not contaminated with process materials such as solvents. For those entities required to obtain coverage under this permit, and who *discharge* as noted in this paragraph, and with the exception of flows from firefighting activities, these *discharge*s must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

**F. Activities Which Are Ineligible for Coverage Under This General Permit**

All of the following are **not** authorized by this permit:

(Part I.F)

1. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharge*s that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an endangered or threatened species unless the *owner or operator* has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.C.2 of this permit.

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which disturb one or more acres of land with no existing *impervious cover*; and

   c. Which are undertaken on land with a Soil Slope Phase that is identified as an E or F, or the map unit name is inclusive of 25% or greater slope, on the United States Department of Agriculture (“USDA”) Soil Survey for the County where the disturbance will occur.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which disturb two or more acres of land with no existing *impervious cover*; and

   c. Which are undertaken on land with a Soil Slope Phase that is identified as an E or F, or the map unit name is inclusive of 25% or greater slope, on the USDA Soil Survey for the County where the disturbance will occur.

(Part I.F.8)

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.C.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the construction site within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the construction site within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:
      (i) No Affect
      (ii) No Adverse Affect

(Part I.F.8.c.iii)

(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharge*s from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

## II. Part II. OBTAINING PERMIT COVERAGE

### A. Notice of Intent (NOI) Submittal

1. An *owner or operator* of a *construction activity* that is <u>not</u> subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed NOI form to the Department in order to be authorized to *discharge* under this permit. An *owner or operator* shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/ ). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address.

**NOTICE OF INTENT**
**NYS DEC, Bureau of Water Permits**
**625 Broadway, 4th Floor**
**Albany, New York 12233-3505**

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the "MS4 SWPPP Acceptance" form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department. An *owner or operator* shall use either the electronic (eNOI) or paper version of the NOI.

The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the address in Part II.A.1.

(Part II.A.2)

The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.E. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4*.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

**B. Permit Authorization**

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621) have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

   c. the final SWPPP has been prepared, and

   d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.B.2 above

(Part II.B.3)

will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

(ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

(iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. The Department may suspend or deny an *owner's or operator's* coverage

under this permit if the Department determines that the SWPPP does not meet the permit requirements. In accordance with statute, regulation, and the terms and conditions of this permit, the Department may deny coverage under this permit and require submittal of an application for an individual SPDES permit based on a review of the NOI or other information pursuant to Part II.

5. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.B. of this permit.

## C. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-15-002), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, and all documentation necessary to demonstrate eligibility with this permit at the construction site until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

   a. The *owner or operator* shall

(Part II.C.3.a)

have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated August 2005.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

5. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the *regulated, traditional land use control MS4* in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice

(Part II.D)

**D. Permit Coverage for Discharges Authorized Under GP-0-10-001**

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-10-001), an *owner or operator* of *a construction activity* with coverage under GP-0-10-001, as of the effective date of GP-0-15-002, shall be authorized to *discharge* in accordance with GP-0-15-002, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-15-002.

**E. Change of *Owner or Operator***

2. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.A.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or operator* was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

(Part III)

## III. Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

### A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP:

   a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

   b. whenever there is a change in design, construction, or operation at the construction site that has or could have an effect on the *discharge* of *pollutants*; and

   c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority.

5. The Department may notify the *owner or operator* at any time that the

(Part III.A.5)

SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.C.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   > "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

   In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the

*trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the construction site. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

**B. Required SWPPP Contents**

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated August 2005. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

   a. Background information about the scope of the project, including the location, type and size of project;

   b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

   c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

   d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other

activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated August 2005, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated August 2005;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the construction site; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated August 2005. Include the reason for the deviation or alternative design

and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

   b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

   c. A Stormwater Modeling and Analysis Report that includes:

      (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

      (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

      (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

      (iv) Summary table, with supporting calculations, which demonstrates

that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

(v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

(vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

**C. Required SWPPP Components by Project Type**

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

(Part IV)

# IV. Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

## A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York, or protect the public health and safety and/or the environment.

## B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

## C. Qualified Inspector Inspection Requirements

(Part IV.C)

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

   b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

   c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

   d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

   a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

   b. For construction sites where soil disturbance activities are on-going and

the *owner or operator* has received authorization in accordance with Part II.C.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.A.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall

be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of *discharge* from the construction site.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the construction site. This shall include identification of any *discharges* of sediment from the construction site. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

(Part IV.C.4.i)

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.C.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

## V. Part V. TERMINATION OF PERMIT COVERAGE

### A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.A.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

(Part V.A.2)

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

   b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

   c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.E. of this permit.

   d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

(Part V.A.5)

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

   a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

   b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

   c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,

   d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

## VI. Part VI. REPORTING AND RETENTION OF RECORDS

### A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

### B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.A.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

(Part VII)

# VII. Part VII. STANDARD PERMIT CONDITIONS

## A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

## B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

## C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

## D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

**E. Duty to Mitigate**

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

**F. Duty to Provide Information**

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

**G. Other Information**

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

**H. Signatory Requirements**

1. All NOIs and NOTs shall be signed as follows:

   a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

      (i) a president, secretary, treasurer, or vice-president of the

corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named

(Part VII.H.2.b)

individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

## I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

## J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

## K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any *owner or operator* authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any *discharge*r authorized by a general permit to apply for an individual SPDES permit, it shall notify the *discharge*r in writing that a permit application is required. This notice shall include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the *owner or operator* to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from *owner or operator* receipt of the notification letter, whereby the authorization to

*discharge* under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

**L. Proper Operation and Maintenance**

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

**M. Inspection and Entry**

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a construction site which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the *owner's or operator's* premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

(Part VII.N)

**N. Permit Actions**

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

**O. Definitions**

Definitions of key terms are included in Appendix A of this permit.

**P. Re-Opener Clause**

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with *construction activity* covered by this permit, the *owner or operator* of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

**Q. Penalties for Falsification of Forms and Reports**

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

**R. Other Permits**

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

VIII. **APPENDIX A**

# Definitions

**Alter Hydrology from Pre to Post-Development Conditions -** means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

**Combined Sewer -** means a sewer that is designed to collect and convey both “sewage” and “stormwater”.

**Commence (Commencement of) Construction Activities -** means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for “*Construction Activity(ies)*” also.

***Construction Activity*(ies) -** means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

**Direct Discharge (to a specific surface waterbody) -** means that runoff flows from a construction site by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a construction site to a separate storm sewer system and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

**Discharge(s)** - means any addition of any pollutant to waters of the State through an outlet or point source.

**Environmental Conservation Law (ECL)** - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

**Equivalent (Equivalence)** – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

**Final Stabilization -** means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied

on all disturbed areas that are not covered by permanent structures, concrete or pavement.

**General SPDES permit** - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

**Groundwater(s)** - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

**Historic Property** – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State
or National Registers of Historic Places.

**Impervious Area (Cover) -** means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

**Infeasible** – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

**Larger Common Plan of Development or Sale -** means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term “plan” in “larger common plan of development or sale” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently being disturbed.

**Minimize** – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

**Municipal Separate Storm Sewer (MS4)** - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters,

ditches, man-made
channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State*;*

(ii) Designed or used for collecting or conveying stormwater;

(iii) Which is not a *combined sewer*; and

(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

**National Pollutant Discharge Elimination System (NPDES)** - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

**New Development** – means any land disturbance that does meet the definition of Redevelopment Activity included in this appendix.

**NOI Acknowledgment Letter** - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

**Owner or Operator** - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; and/or an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications.

**Performance Criteria** – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf ) in Part I.C.2. of the permit.

**Pollutant** - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

**Qualified Inspector** - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

**Qualified Professional -** means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York..

**Redevelopment Activity(ies)** – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

**Regulated, Traditional Land Use Control MS4 -** means a city, town or village with land use control authority that is required to gain coverage under New York State DEC's SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s).

**Routine Maintenance Activity -** means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Stream bank restoration projects (does not include the placement of spoil material),
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that makes the transition between the road shoulder and the ditch or embankment,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or embankment,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

**Site limitations –** means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

**Sizing Criteria** – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), Overbank Flood (Qp), and Extreme Flood (Qf).

**State Pollutant Discharge Elimination System (SPDES)** - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

**Steep Slope** – means land area with a Soil Slope Phase that is identified as an E or F, or

the map unit name is inclusive of 25% or greater slope, on the United States Department of Agriculture ("USDA") Soil Survey for the County where the disturbance will occur.

**Surface Waters of the State** - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

**Temporarily Ceased** – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

**Temporary Stabilization** - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

**Total Maximum Daily Loads** (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for point source discharges, load allocations (LAs) for nonpoint sources, and a margin of safety (MOS).

**Trained Contractor -** means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

**Uniform Procedures Act (UPA) Permit** - means a permit required under 6 NYCRR Part

621 of the Environmental Conservation Law (ECL), Article 70.

**Water Quality Standard** - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

## IX. APPENDIX B

### Required SWPPP Components by Project Type

**Table 1**
**CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS**

**The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:**

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other agricultural building, silo, stock yard or pen.

**The following construction activities that involve soil disturbances of one (1) or more acres of land:**

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Bike paths and trails
- Sidewalk construction projects that are not part of a road/ highway construction or reconstruction project
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics
- Spoil areas that will be covered with vegetation
- Land clearing and grading for the purposes of creating vegetated open space (i.e. recreational parks, lawns, meadows, fields), excluding projects that *alter hydrology from pre to post development* conditions
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of less than five acres and construction activities that include the construction or reconstruction of impervious area

**The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:**

- All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

## Table 2

### CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

**The following construction activities that involve soil disturbances of one (1) or more acres of land:**

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other agricultural building(e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional, includes hospitals, prisons, schools and colleges
- Industrial facilities, includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's and water treatment plants
- Office complexes
- Sports complexes
- Racetracks, includes racetracks with earthen (dirt) surface
- Road construction or reconstruction
- Parking lot construction or reconstruction
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project , wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

## X. APPENDIX C

### Watersheds Where Enhanced Phosphorus Removal Standards Are Required

**Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").**

- Entire New York City Watershed located east of the Hudson River **-** Figure 1
- Onondaga Lake Watershed **-** Figure 2
- Greenwood Lake Watershed **-**Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

**Figure 1 - New York City Watershed East of the Hudson**

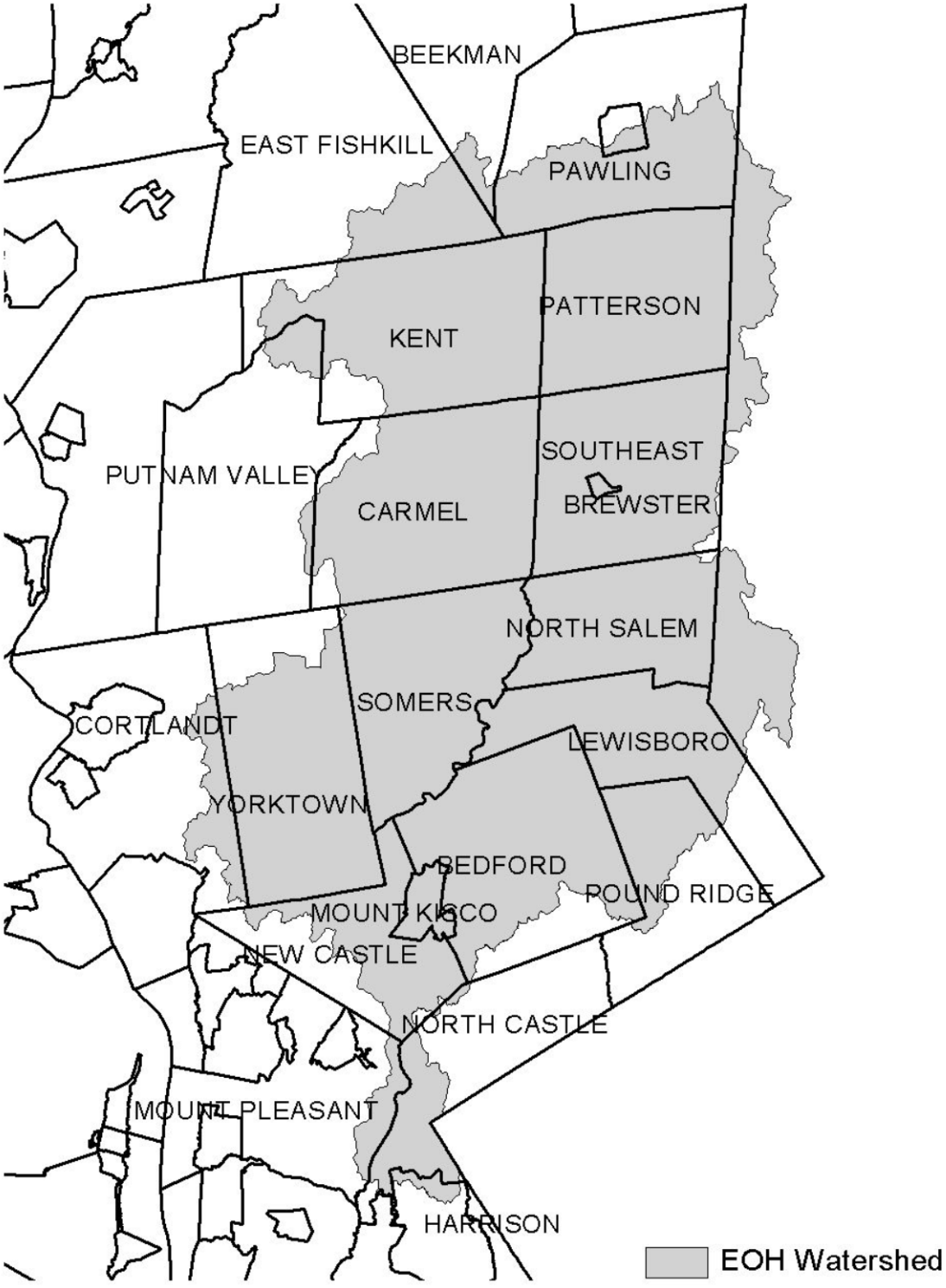


**Figure 2 - Onondaga Lake Watershed**

**Figure 3 - Greenwood Lake Watershed**

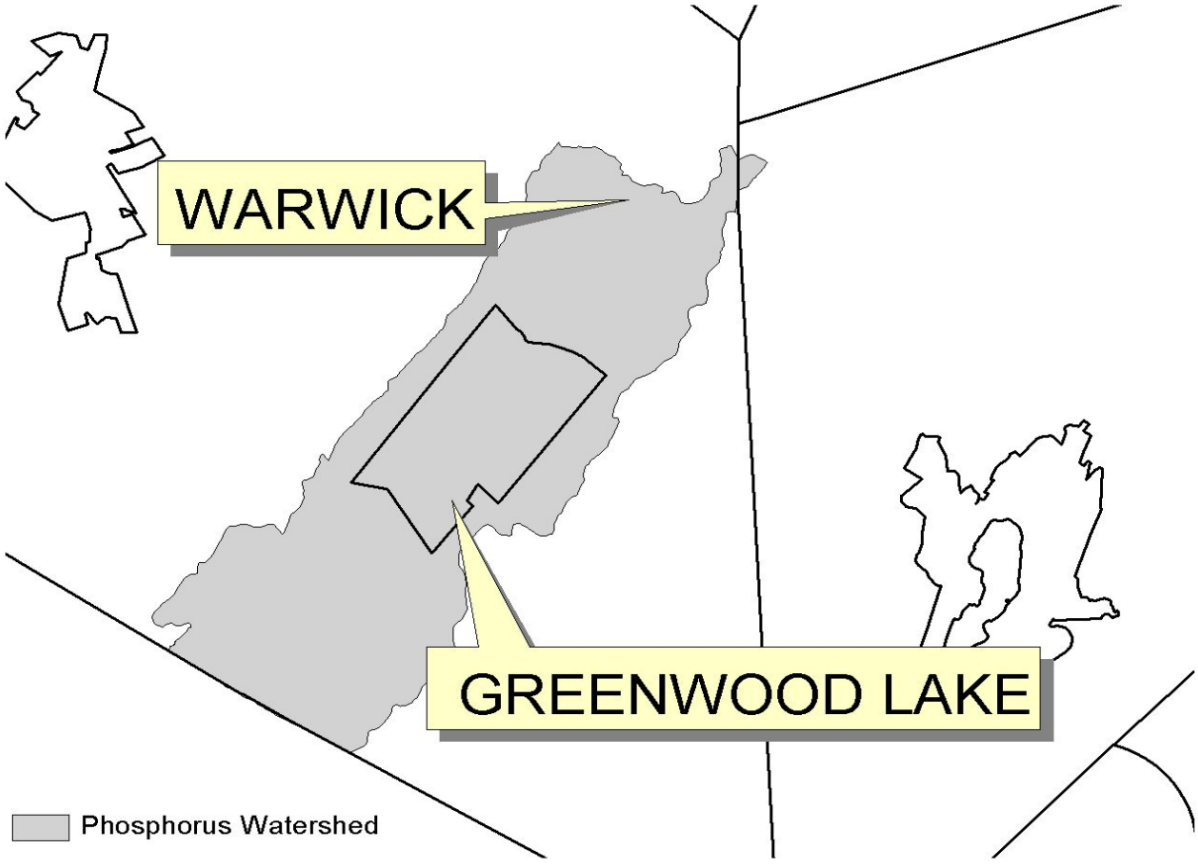
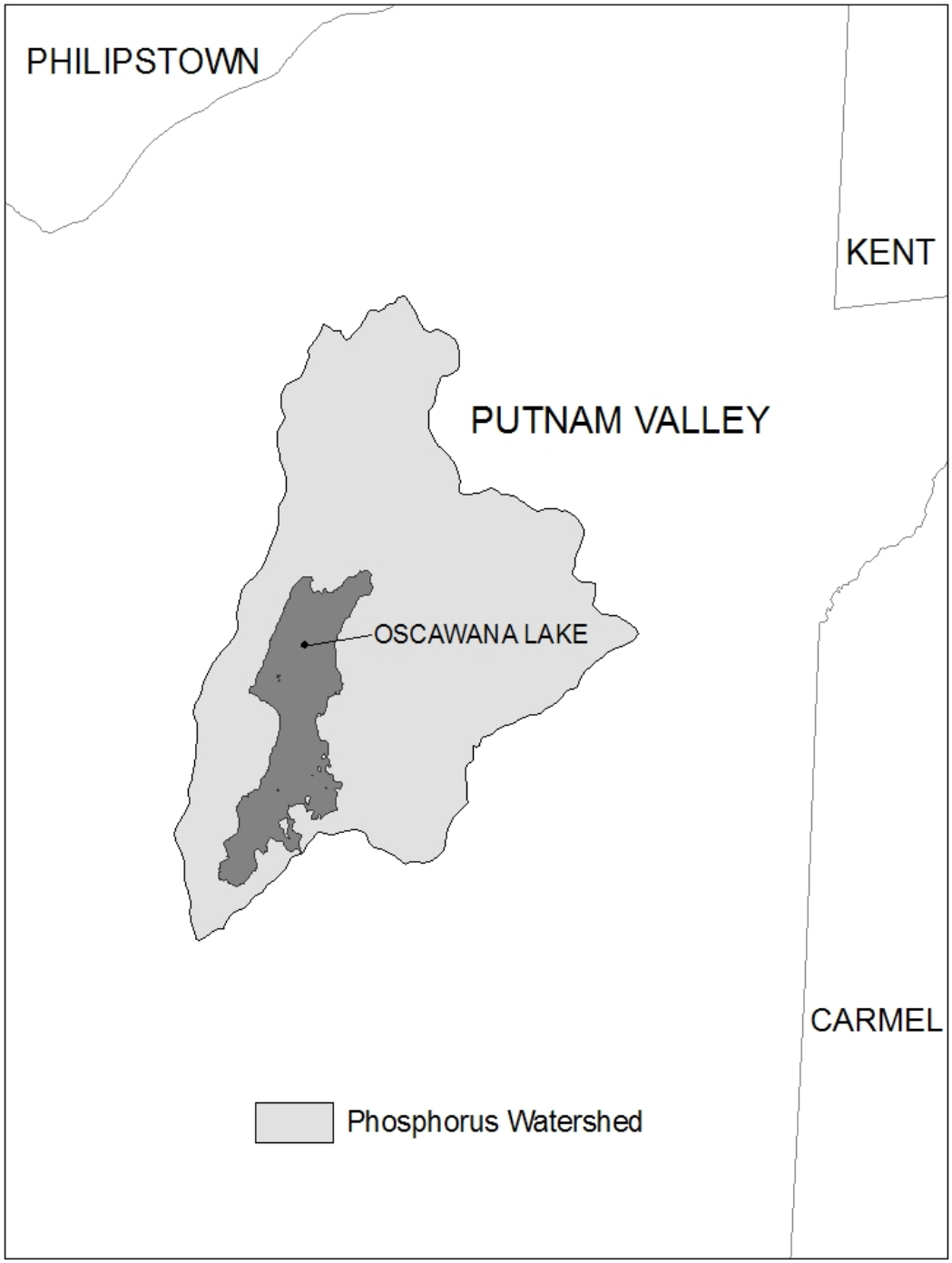
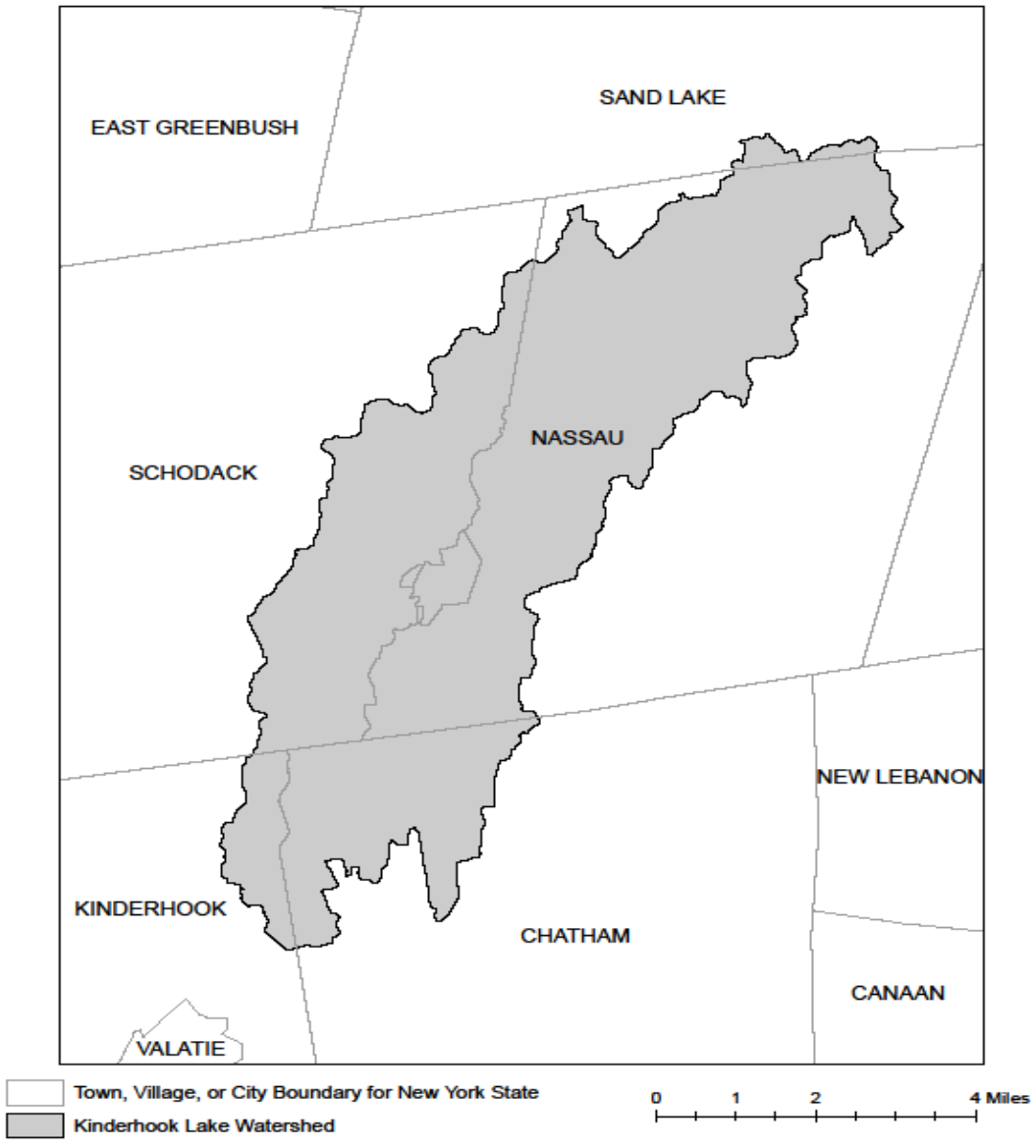


**Figure 4 - Oscawana Lake Watershed**



## Figure 5: Kinderhook Lake Watershed



## XI. APPENDIX D

**Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.**

| |
|---|
| Entire New York City Watershed that is located east of the Hudson River **-** See Figure 1 in Appendix C |

## XII. APPENDIX E

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

| COUNTY | WATERBODY |
|---|---|
| Albany | Ann Lee (Shakers) Pond, Stump Pond |
| Albany | Basic Creek Reservoir |
| Allegheny | Amity Lake, Saunders Pond |
| Bronx | Van Cortlandt Lake |
| Broome | Whitney Point Lake/Reservoir |
| Broome | Fly Pond, Deer Lake |
| Broome | Minor Tribs to Lower Susquehanna (north) |
| Cattaraugus | Allegheny River/Reservoir |
| Cattaraugus | Case Lake |
| Cattaraugus | Linlyco/Club Pond |
| Cayuga | Duck Lake |
| Chautauqua | Chautauqua Lake, North |
| Chautauqua | Chautauqua Lake, South |
| Chautauqua | Bear Lake |
| Chautauqua | Chadakoin River and tribs |
| Chautauqua | Lower Cassadaga Lake |
| Chautauqua | Middle Cassadaga Lake |
| Chautauqua | Findley Lake |
| Clinton | Great Chazy River, Lower, Main Stem |
| Columbia | Kinderhook Lake |
| Columbia | Robinson Pond |
| Dutchess | Hillside Lake |
| Dutchess | Wappinger Lakes |
| Dutchess | Fall Kill and tribs |
| Erie | Green Lake |
| Erie | Scajaquada Creek, Lower, and tribs |
| Erie | Scajaquada Creek, Middle, and tribs |
| Erie | Scajaquada Creek, Upper, and tribs |
| Erie | Rush Creek and tribs |
| Erie | Ellicott Creek, Lower, and tribs |
| Erie | Beeman Creek and tribs |
| Erie | Murder Creek, Lower, and tribs |
| Erie | South Branch Smoke Cr, Lower, and tribs |
| Erie | Little Sister Creek, Lower, and tribs |
| Essex | Lake George (primary county: Warren) |
| Genesee | Black Creek, Upper, and minor tribs |
| Genesee | Tonawanda Creek, Middle, Main Stem |
| Genesee | Oak Orchard Creek, Upper, and tribs |
| Genesee | Bowen Brook and tribs |
| Genesee | Bigelow Creek and tribs |
| Genesee | Black Creek, Middle, and minor tribs |
| Genesee | LeRoy Reservoir |
| Greene | Schoharie Reservoir |
| Greene | Sleepy Hollow Lake |
| Herkimer | Steele Creek tribs |
| Kings | Hendrix Creek |
| Lewis | Mill Creek/South Branch and tribs |
| Livingston | Conesus Lake |
| Livingston | Jaycox Creek and tribs |
| Livingston | Mill Creek and minor tribs |
| Livingston | Bradner Creek and tribs |
| Livingston | Christie Creek and tribs |
| Monroe | Lake Ontario Shoreline, Western |
| Monroe | Mill Creek/Blue Pond Outlet and tribs |
| Monroe | Rochester Embayment - East |
| Monroe | Rochester Embayment - West |
| Monroe | Unnamed Trib to Honeoye Creek |
| Monroe | Genesee River, Lower, Main Stem |
| Monroe | Genesee River, Middle, Main Stem |
| Monroe | Black Creek, Lower, and minor tribs |
| Monroe | Buck Pond |
| Monroe | Long Pond |
| Monroe | Cranberry Pond |
| Monroe | Mill Creek and tribs |
| Monroe | Shipbuilders Creek and tribs |
| Monroe | Minor tribs to Irondequoit Bay |
| Monroe | Thomas Creek/White Brook and tribs |
| Nassau | Glen Cove Creek, Lower, and tribs |
| Nassau | LI Tribs (fresh) to East Bay |
| Nassau | East Meadow Brook, Upper, and tribs |
| Nassau | Hempstead Bay |
| Nassau | Hempstead Lake |
| Nassau | Grant Park Pond |
| Nassau | Beaver Lake |
| Nassau | Camaans Pond |
| Nassau | Halls Pond |
| Nassau | LI Tidal Tribs to Hempstead Bay |
| Nassau | Massapequa Creek and tribs |
| Nassau | Reynolds Channel, east |
| Nassau | Reynolds Channel, west |
| Nassau | Silver Lake, Lofts Pond |
| Nassau | Woodmere Channel |
| Niagara | Hyde Park Lake |
| Niagara | Lake Ontario Shoreline, Western |
| Niagara | Bergholtz Creek and tribs |
| Oneida | Ballou, Nail Creeks |
| Onondaga | Ley Creek and tribs |
| Onondaga | Onondaga Creek, Lower and tribs |

## APPENDIX E

**List of 303(d) segments impaired by pollutants related to construction activity, cont'd.**

| COUNTY | WATERBODY | COUNTY | WATERBODY |
|---|---|---|---|
| Onondaga | Onondaga Creek, Middle and tribs | Suffolk | Great South Bay, West |
| Onondaga | Onondaga Creek, Upp, and minor tribs | Suffolk | Mill and Seven Ponds |
| Onondaga | Harbor Brook, Lower, and tribs | Suffolk | Moriches Bay, East |
| Onondaga | Ninemile Creek, Lower, and tribs | Suffolk | Moriches Bay, West |
| Onondaga | Minor tribs to Onondaga Lake | Suffolk | Quantuck Bay |
| Onondaga | Onondaga Creek, Lower, and tribs | Suffolk | Shinnecock Bay (and Inlet) |
| Ontario | Honeoye Lake | Sullivan | Bodine, Montgomery Lakes |
| Ontario | Hemlock Lake Outlet and minor tribs | Sullivan | Davies Lake |
| Ontario | Great Brook and minor tribs | Sullivan | Pleasure Lake |
| Orange | Monhagen Brook and tribs | Sullivan | Swan Lake |
| Orange | Orange Lake | Tompkins | Cayuga Lake, Southern End |
| Orleans | Lake Ontario Shoreline, Western | Tompkins | Owasco Inlet, Upper, and tribs |
| Oswego | Pleasant Lake | Ulster | Ashokan Reservoir |
| Oswego | Lake Neatahwanta | Ulster | Esopus Creek, Upper, and minor tribs |
| Putnam | Oscawana Lake | | |
| Putnam | Palmer Lake | Ulster | Esopus Creek, Lower, Main Stem |
| Putnam | Lake Carmel | Ulster | Esopus Creek, Middle, and minor tribs |
| Queens | Jamaica Bay, Eastern, and tribs (Queens) | | |
| Queens | Bergen Basin | Warren | Lake George |
| Queens | Shellbank Basin | Warren | Tribs to L.George, Village of L George |
| Rensselaer | Nassau Lake | | |
| Rensselaer | Snyders Lake | Warren | Huddle/Finkle Brooks and tribs |
| Richmond | Grasmere, Arbutus and Wolfes Lakes | Warren | Indian Brook and tribs |
| Rockland | Congers Lake, Swartout Lake | Warren | Hague Brook and tribs |
| Rockland | Rockland Lake | Washington | Tribs to L.George, East Shr Lk George |
| Saratoga | Ballston Lake | | |
| Saratoga | Round Lake | Washington | Cossayuna Lake |
| Saratoga | Dwaas Kill and tribs | Washington | Wood Cr/Champlain Canal, minor tribs |
| Saratoga | Tribs to Lake Lonely | | |
| Saratoga | Lake Lonely | Wayne | Port Bay |
| Schenectady | Collins Lake | Wayne | Marbletown Creek and tribs |
| Schenectady | Duane Lake | Westchester | Lake Katonah |
| Schenectady | Mariaville Lake | Westchester | Lake Mohegan |
| Schoharie | Engleville Pond | Westchester | Lake Shenorock |
| Schoharie | Summit Lake | Westchester | Reservoir No.1 (Lake Isle) |
| Schuyler | Cayuta Lake | Westchester | Saw Mill River, Middle, and tribs |
| St. Lawrence | Fish Creek and minor tribs | Westchester | Silver Lake |
| St. Lawrence | Black Lake Outlet/Black Lake | Westchester | Teatown Lake |
| Steuben | Lake Salubria | Westchester | Truesdale Lake |
| Steuben | Smith Pond | Westchester | Wallace Pond |
| Suffolk | Millers Pond | Westchester | Peach Lake |
| Suffolk | Mattituck (Marratooka) Pond | Westchester | Mamaroneck River, Lower |
| Suffolk | Tidal tribs to West Moriches Bay | Westchester | Mamaroneck River, Upp, and tribs |
| Suffolk | Canaan Lake | Westchester | Sheldrake River and tribs |
| Suffolk | Lake Ronkonkoma | Westchester | Blind Brook, Lower |
| Suffolk | Beaverdam Creek and tribs | Westchester | Blind Brook, Upper, and tribs |
| Suffolk | Big/Little Fresh Ponds | Westchester | Lake Lincolndale |
| Suffolk | Fresh Pond | Westchester | Lake Meahaugh |
| Suffolk | Great South Bay, East | Wyoming | Java Lake |
| Suffolk | Great South Bay, Middle | Wyoming | Silver Lake |

Note: The list above identifies those waters from the final New York State "2014 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy", dated January 2015, that are impaired by silt, sediment or nutrients.

## XIII. APPENDIX F

### LIST OF NYS DEC REGIONAL OFFICES

| Region | COVERING THE FOLLOWING COUNTIES: | DIVISION OF ENVIRONMENTAL PERMITS (DEP) PERMIT ADMINISTRATORS | DIVISION OF WATER (DOW) WATER (SPDES) PROGRAM |
|---|---|---|---|
| 1 | NASSAU AND SUFFOLK | 50 CIRCLE ROAD<br>STONY BROOK, NY 11790<br>TEL. (631) 444-0365 | 50 CIRCLE ROAD<br>STONY BROOK, NY 11790-3409<br>TEL. (631) 444-0405 |
| 2 | BRONX, KINGS, NEW YORK, QUEENS AND RICHMOND | 1 HUNTERS POINT PLAZA,<br>47-40 21ST ST.<br>LONG ISLAND CITY, NY 11101-5407<br>TEL. (718) 482-4997 | 1 HUNTERS POINT PLAZA,<br>47-40 21ST ST.<br>LONG ISLAND CITY, NY 11101-5407<br>TEL. (718) 482-4933 |
| 3 | DUTCHESS, ORANGE, PUTNAM, ROCKLAND, SULLIVAN, ULSTER AND WESTCHESTER | 21 SOUTH PUTT CORNERS ROAD<br>NEW PALTZ, NY 12561-1696<br>TEL. (845) 256-3059 | 100 HILLSIDE AVENUE, SUITE 1W<br>WHITE PLAINS, NY 10603<br>TEL. (914) 428 - 2505 |
| 4 | ALBANY, COLUMBIA, DELAWARE, GREENE, MONTGOMERY, OTSEGO, RENSSELAER, SCHENECTADY AND SCHOHARIE | 1150 NORTH WESTCOTT ROAD<br>SCHENECTADY, NY 12306-2014<br>TEL. (518) 357-2069 | 1130 NORTH WESTCOTT ROAD<br>SCHENECTADY, NY 12306-2014<br>TEL. (518) 357-2045 |
| 5 | CLINTON, ESSEX, FRANKLIN, FULTON, HAMILTON, SARATOGA, WARREN AND WASHINGTON | 1115 STATE ROUTE 86, PO BOX 296<br>RAY BROOK, NY 12977-0296<br>TEL. (518) 897-1234 | 232 GOLF COURSE ROAD<br>WARRENSBURG, NY 12885-1172<br>TEL. (518) 623-1200 |
| 6 | HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE | STATE OFFICE BUILDING<br>317 WASHINGTON STREET<br>WATERTOWN, NY 13601-3787<br>TEL. (315) 785-2245 | STATE OFFICE BUILDING<br>207 GENESEE STREET<br>UTICA, NY 13501-2885<br>TEL. (315) 793-2554 |
| 7 | BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS | 615 ERIE BLVD. WEST<br>SYRACUSE, NY 13204-2400<br>TEL. (315) 426-7438 | 615 ERIE BLVD. WEST<br>SYRACUSE, NY 13204-2400<br>TEL. (315) 426-7500 |
| 8 | CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES | 6274 EAST AVON-LIMA ROAD<br>AVON, NY 14414-9519<br>TEL. (585) 226-2466 | 6274 EAST AVON-LIMA RD.<br>AVON, NY 14414-9519<br>TEL. (585) 226-2466 |
| 9 | ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING | 270 MICHIGAN AVENUE<br>BUFFALO, NY 14203-2999<br>TEL. (716) 851-7165 | 270 MICHIGAN AVE.<br>BUFFALO, NY 14203-2999<br>TEL. (716) 851-7070 |

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# STORM WATER PERMIT CERTIFICATION STATEMENT

Contractor shall certify that it understands the permit conditions and Contractor's responsibilities as set forth in the Storm Water Pollution Prevention Plan (SWPPP). Contractor shall sign and submit this certification statement to Engineer prior to performing the Work. Certification statement shall be signed by an owner, principal, president, secretary, or treasurer of the firm.

---

Firm: _____

Address: _____

_____

Telephone Number: _____

Employee Responsible for SWPPP Implementation ("Trained Contractor"):

Name (Print): _____ Title: _____

I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a Site inspection. I also understand that Owner must comply with the terms and conditions of the most current version of NYSDEC's SPDES General Permit for Storm Water Discharges from Construction Activity (SPDES General Permit), and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations.

Name (Print): _____ Title: _____

Signature: _____ Date: _____

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# STORM WATER INSPECTION REPORT

Owner: _____

Project: _____

Site: _____

Date and Time of Inspection: _____

Qualified Inspector (Name, Title, and Affiliation): _____

Weather Conditions: _____

Soil Conditions: _____

Describe disturbed areas at time of inspection: _____

Describe areas stabilized (temporary or final) since previous inspection: _____

ATTACH SITE PLAN SHOWING APPROXIMATE LIMITS OF DISTURBED AND NEWLY-STABILIZED AREAS

Describe repairs, maintenance, or corrective actions implemented since previous inspection: _____

ATTACH PHOTOGRAPHS OF AREAS OR ITEMS INSTALLED, REPAIRED, OR REPLACED

**Maintaining Water Quality**

| Yes | No | NA | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Is there an increase in turbidity causing a substantial visible contrast to natural conditions? |
| ☐ | ☐ | ☐ | Is there residue from oil and floating substances, visible oil film, or globules or grease? |
| ☐ | ☐ | ☐ | All disturbance is within the limits of the approved plans? |
| ☐ | ☐ | ☐ | Have receiving lake/bay, stream, and/or wetland been impacted by silt from project? |

**Housekeeping**

| Yes | No | NA | |
|---|---|---|---|
| 1. General Site Conditions: | | | |
| ☐ | ☐ | ☐ | Is construction site litter and debris appropriately managed? |
| ☐ | ☐ | ☐ | Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained? |
| ☐ | ☐ | ☐ | Is construction impacting the adjacent property? |
| ☐ | ☐ | ☐ | Is dust adequately controlled? |
| 2. Temporary Stream Crossing: | | | |
| ☐ | ☐ | ☐ | Maximum diameter pipes necessary to span creek without dredging are installed? |
| ☐ | ☐ | ☐ | Installed non-woven geotextile fabric beneath approaches? |
| ☐ | ☐ | ☐ | Is fill composed of aggregate (no earth or soil)? |
| ☐ | ☐ | ☐ | Rock on approaches is clean enough to remove mud from vehicles and prevent sediment from entering stream during high flow? |

**Run-Off Control Practices**

| Yes | No | NA | |
|---|---|---|---|
| 1. Excavation Dewatering: | | | |
| ☐ | ☐ | ☐ | Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan? |
| ☐ | ☐ | ☐ | Clean water from upstream pool is being pumped to the downstream pool? |
| ☐ | ☐ | ☐ | Sediment laden water from work area is being discharged to a silt-trapping device? |
| ☐ | ☐ | ☐ | Constructed upstream berm with 1-foot minimum freeboard? |
| 2. Level Spreader: | | | |
| ☐ | ☐ | ☐ | Installed per plan? |
| ☐ | ☐ | ☐ | Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow? |
| ☐ | ☐ | ☐ | Flow sheets out of level spreader without erosion on downstream edge? |
| 3. Interceptor Dikes and Swales: | | | |
| ☐ | ☐ | ☐ | Installed per plan with minimum side slopes of 2H:1V or flatter? |
| ☐ | ☐ | ☐ | Stabilized by geotextile fabric, seed, or mulch with no erosion occurring? |
| ☐ | ☐ | ☐ | Sediment-laden run-off directed to sediment trapping structure? |
| 4. Stone Check Dam: | | | |
| ☐ | ☐ | ☐ | Is channel stable (flow is not eroding soil underneath or around the structure)? |
| ☐ | ☐ | ☐ | Check dam is in good condition (rocks in place and no permanent pools behind the structure)? |
| ☐ | ☐ | ☐ | Has accumulated sediment been removed? |
| 5. Rock Outlet Protection: | | | |
| ☐ | ☐ | ☐ | Installed per plan? |
| ☐ | ☐ | ☐ | Installed concurrently with pipe installation? |

**Soil Stabilization**

| Yes | No | NA | |
|---|---|---|---|
| 1. Topsoil and Spoil Stockpiles: | | | |
| ☐ | ☐ | ☐ | Stockpiles are stabilized with vegetation and/or mulch? |
| ☐ | ☐ | ☐ | Sediment control is installed at the toe of the slope? |
| 2. Revegetation: | | | |
| ☐ | ☐ | ☐ | Temporary seed and mulch have been applied to idle areas? |
| ☐ | ☐ | ☐ | Six inches minimum of topsoil has been applied under permanent seeding? |

**Sediment Control Practices**

**Yes No NA**

1. Stabilized Construction Entrance:
☐ ☐ ☐ Stone is clean enough to effectively remove mud from vehicles?
☐ ☐ ☐ Installed per standards and specifications?
☐ ☐ ☐ Does all traffic use the stabilized entrance to enter and leave construction site?
☐ ☐ ☐ Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence:

Sediment accumulation is ___% of design capacity.
☐ ☐ ☐ Installed on contour, 10 feet from toe of slope (not across conveyance channels)?
☐ ☐ ☐ Joints constructed by wrapping the two ends together for continuous support?
☐ ☐ ☐ Fabric buried six inches minimum below grade?
☐ ☐ ☐ Posts are stable, fabric is tight and without rips or frayed areas?

3. Storm Drain Inlet Protection (Use for Stone and Block; Filter Fabric; Curb; or Excavated Practices)

Sediment accumulation ___% of design capacity.
☐ ☐ ☐ Installed concrete blocks lengthwise so open ends face outward, not upward?
☐ ☐ ☐ Placed wire screen between No. 3 crushed stone and concrete blocks?
☐ ☐ ☐ Drainage area is one acre or less?
☐ ☐ ☐ Excavated area is 900 cubic feet?
☐ ☐ ☐ Excavated side slopes are 2H:1V?
☐ ☐ ☐ 2”x4” frame is constructed and structurally sound?
☐ ☐ ☐ Three-foot maximum spacing between posts?
☐ ☐ ☐ Fabric is embedded one to 1.5 feet below ground and secured to frame/posts with staples at maximum eight-inch spacing?
☐ ☐ ☐ Posts are stable, fabric is tight and without rips or frayed areas?

4. Temporary Sediment Trap:

Sediment accumulation is ___% of design capacity.
☐ ☐ ☐ Outlet structure is constructed per the approved plan or drawing?
☐ ☐ ☐ Geotextile fabric has been placed beneath rock fill?

5. Temporary Sediment Basin:

Sediment accumulation is ___% of design capacity.
☐ ☐ ☐ Basin and outlet structure constructed per the approved plan?
☐ ☐ ☐ Basin side slopes are stabilized with seed and mulch?
☐ ☐ ☐ Drainage structure flushed and basin surface restored upon removal of sediment basin facility?

---

Describe any repairs, maintenance, or corrective actions required to correct observed deficiencies: _____

ATTACH PHOTOGRAPHS OF DEFICIENT AREAS OR ITEMS OBSERVED DURING THE INSPECTION

Qualified Inspector's Certification:

I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system to ensure that qualified personnel property gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein may be punishable by Law.

Signature: _____ Date: _____

# SECTION 01 41 28

# CONFINED SPACE ENTRY PERMIT

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Owner has determined that portions of the Site may constitute confined spaces or permit-required confined spaces, as defined in this Section.
   2. Contractor shall provide appropriate measures, including labor, supervision, equipment, protective devices, and incidentals, to protect the health and safety of personnel at the Site relative to confined spaces, and who may be affected by the Work in confined spaces including, without limitation, employees and agents of Contractor, Subcontractors, Suppliers, Owner, Construction Manager, Engineer, and Engineer's consultants, while engaged in performance of their respective duties at the Site.
   3. Comply with requirements of Owner's confined space entry permitting program, if any.

B. Related Sections:
   1. Section 01 35 23, Safety Requirements.
   2. Section 01 35 29, Contractor's Health and Safety Plan.

### 1.02 TERMINOLOGY

A. The following words or terms are not defined but, when used in this Section, have the following meaning:
   1. "Confined spaces" are areas on or about the Site as defined in 29 CFR 1910.146(b), 29 CFR 1926.21(b)(6), and other Laws and Regulations. Confined spaces include, but are not limited to, the following:
      a. Storage tanks, process vessels, bins, boilers, and similar spaces.
      b. Ventilation or exhaust ducts and stacks.
      c. Manholes, underground utility vaults and chambers, sewers, pipelines, and tunnels.
      d. Open-topped spaces greater than four feet deep, such as pits/excavations, tubs, vaults, and vessels.
   2. "Entry permit" means the written or printed document provided by the employer of personnel entering permit-required confined space, to allow and control entry into permit-required confined space and that contains the information specified in 29 CFR 1926.146(f) and other Laws and Regulations.
   3. "Permit-required confined space" means confined space as defined in 29 CFR 1926.146(b) and other Laws and Regulations, and that has one or more of the following characteristics:
      a. Contains or has the potential to contain a hazardous atmosphere.
      b. Contains a material with the potential to engulf an entrant.
      c. Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls, or by a floor that slopes downward and tapers to a smaller cross-section.
      d. Contains other recognized serious safety or health hazards.
   4. "Hot work permit" means the written authorization of employer of personnel entering a confined space to perform operations, such as riveting, welding, cutting, burning, and heating, capable of providing a source of ignition.

## 1.03 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Comply with Laws and Regulations related to protecting personnel working in or entering confined spaces, including:
      a. 29 CFR 1910, Occupational Safety and Health Standards.
      b. 29 CFR 1926, Safety and Health Regulations for Construction.

## 1.04 SUBMITTALS

A. Informational Submittals: If acceptable, written response for Informational Submittals required in this Section will not be returned to Contractor.
   1. Confined Space Entry Plan: Submit in accordance with Article 1.05 of this Section.
   2. Permits and Reports: For each time personnel enter a confined space, submit copies of completed permits required for confined space entry, and completed confined space data sheets.

## 1.05 CONFINED SPACE ENTRY PLAN

A. Prepare, maintain, and implement a Site-specific confined space entry plan, which shall be incorporated into Contractor's Site-specific health and safety plan in accordance with Section 01 35 29. Maintain copy of the confined space entry plan at the Site for access by employees, Owner and authorities having jurisdiction. Confined space entry plan shall include:
   1. Results of Contractor's Site-specific hazard assessment to identify confined spaces that are permit-required confined spaces, including list of all such spaces that will be accessed for the Work. Update the list as required throughout the Project.
   2. Requirements for safeguarding access to, and restricting non-permitted personnel from accessing, permit-required confined spaces during the Project.
   3. Project-specific procedures to be followed when entering or accessing permit-required confined spaces.
   4. Documentation of training provided to each person that will enter, or work in conjunction with entry to, permit-required confined spaces.
   5. Update the plan by adding copies of permits issued and records of entry to permit-required confined spaces, as required in Article 1.06 of this Section.

## 1.06 CONFINED SPACE SAFETY

A. Personnel entering confined space shall be trained in accordance with 29 CFR 1926.21(b)(6), 29 CFR 1910.146(g), and other Laws and Regulations.

B. Comply with 29 CFR 1910.146, other Laws and Regulations, and requirements of authorities having jurisdiction.

C. Recordkeeping:
   1. Using forms required by Contractor, Owner, or authority having jurisdiction, issue for each instance of access to permit-required confined space, completed permit(s) and complete associated data sheet. Such permits and information shall include:
      a. Permit for entry to permit-required confined space(s).
      b. Permit for hot work in permit-required confined space(s).
      c. Complete confined space data sheet.
   2. File completed permits and data sheets in the Site-specific confined space entry plan, and submit in accordance with Article 1.05 of this Section.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 42 00

REFERENCES

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes the following:
      a. Definitions and terminology in general use in the Contract Documents.
      b. Applicable codes.
      c. Abbreviations in general use throughout the Contract Documents.
      d. General requirements regarding reference standards, including a listing of standard-issuing organizations (and their acronyms) used in the Contract Documents.

### 1.02 DEFINITIONS AND TERMINOLOGY

A. Definitions and terminology applicable to all of the Contract Documents are included in the General Conditions, as may be modified by the Supplementary Conditions.

B. Additional terminology used in the Contract Documents includes:
   1. "Indicated" refers to graphic representations, notes, or schedules on the Drawings, or to other paragraphs, provisions, tables, or schedules in the Specifications and similar locations in the other Contract Documents. Terminology such as "shown", "noted", "scheduled", and "specified" are used to help the user locate the reference without limitation on the location.
   2. "Installer", "applicator", or "erector" is Contractor or another person or entity engaged by Contractor, either as an employee or Subcontractor, to perform a particular construction activity, including installation, erection, application or similar Work. Installers shall be experienced in the Work that installer is engaged to perform.
      a. The term "experienced", when used in conjunction with the term "installer", means having successfully completed not less than five previous projects similar in size and scope to this Project; being familiar with the special requirements indicated and required; being familiar with Laws and Regulations; and having complied with requirements of authorities having jurisdiction, and complying with requirements of the Supplier of the material or equipment being installed, unless other experience requirements specific to that element of the Work are indicated elsewhere in the Contract Documents.
   3. Trades: Use of term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter", unless otherwise indicated in the Contract Documents or required by Laws or Regulations. Such terminology also does not imply that specified requirements apply exclusively to trade personnel of the corresponding generic name.

### 1.03 APPLICABLE CODES

A. References in the Contract Documents to local code(s) shall mean the following:
   1. New York City Administrative Code.
   2. New York City Construction Codes:
      a. General Administrative Provisions.
      b. New York City Plumbing Code.

c. New York City Building Code.
d. New York City Mechanical Code.
e. New York City Fuel Gas Code.
f. New York City Energy Conservation Code.

3. Rules of the City of New York.

1.04 ABBREVIATIONS AND ACRONYMS

A. Common abbreviations and acronyms that may be found in the Contract Documents are indicated below, alphabetically by their written-out meaning:

| | |
|---|---|
| alternating current | a-c |
| ampere | A |
| ante meridian | a.m. |
| average | avg |
| biochemical oxygen demand | BOD |
| brake horsepower | bhp |
| British thermal unit | Btu |
| Centigrade (or Celsius) | C |
| chlorinated polyvinyl chloride | CPVC |
| chlorofluorocarbons | CFC |
| Code of Federal Regulations | CFR |
| cubic inch | cu in |
| cubic foot | cu ft |
| cubic yard | cu yd, or CY |
| cubic meter | $m^3$ |
| cubic feet per minute | cfm |
| cubic feet per second | cfs |
| decibel | db |
| degrees Centigrade (or Celsius) | degrees C or $^oC$ |
| degrees Fahrenheit | degrees F or $^oF$ |
| diameter | dia |
| direct current | d-c |
| dollars | $ |
| each | ea |
| efficiency | eff |
| Fahrenheit | F |
| feet | ft |
| feet per hour | fph |
| feet per minute | fpm |
| feet per second | fps |
| figure | Fig |
| flange | flg |
| foot-pound | ft-lb |
| gallon | gal |

| | |
|---|---|
| gallons per hour | gph |
| gallons per minute | gpm |
| gallons per second | gps |
| gram | g |
| grams per liter | g/L |
| Hertz | Hz |
| horsepower | hp or HP |
| hour | hr |
| inch | in. |
| inches water gage | in. w.g. |
| inch-pound | in.-lb |
| inside diameter | ID |
| iron pipe size | IPS |
| thousand pounds | kips |
| thousand pounds per square inch | ksi |
| kilovolt-ampere | kva |
| kilowatt | kw |
| kilowatt-hour | kwhr or kwh |
| linear foot | lin ft or LF |
| liter | L |
| maximum | max |
| mercury | Hg |
| microgram | ug |
| microgram per cubic meter | $ug/m^3$ |
| milligram | mg |
| milligrams per liter | mg/l or mg/L |
| milliliter | ml |
| millimeter | mm |
| million gallons per day | mgd or MGD |
| million gallon | MG |
| minimum | min |
| nitrogen oxide (total concentration of mono-nitrogen oxides such as nitric oxide [NO] and nitrogen dioxide [$NO_2$]) | NOx |
| nominal pipe size | NPS |
| number | no. |
| New York Codes, Rules, and Regulations | NYCRR |
| ounce | oz |
| outside diameter | OD |
| particulate matter less than 10 micrometers in diameter | $PM_{10}$ |
| parts per million | ppm |
| parts per billion | ppb |
| polychlorinated biphenyl | PCB |
| polycyclic aromatic hydrocarbon | PAH |

| | |
|---|---|
| polyvinyl chloride | PVC |
| post meridian | p.m. |
| pound | lb |
| pounds per square inch | psi |
| pounds per square inch absolute | psia |
| pounds per square inch gauge | psig |
| pounds per square foot | psf |
| revolutions per minute | rpm |
| Rules of the City of New York | RCNY |
| second | sec |
| semi-volatile organic compound | SVOC |
| specific gravity | sp gr, or SG |
| square | sq |
| square foot | sq ft, or sf |
| square inch | sq in. |
| square yard | sq yd, or SY |
| standard | std |
| standard cubic feet per minute | scfm |
| thousand pounds per square inch | ksi |
| volt | V |
| volts alternating current | vac |
| volts direct current | vdc |
| volatile organic compound | VOC |

## 1.05 REFERENCE STANDARDS

A. Refer to Article 3 of the General Conditions, as may be modified by the Supplementary Conditions, relative to reference standards and resolving discrepancies between reference standards and the Contract Documents. Provisions of reference standards are in effect in accordance with the Specifications.

B. Copies of Standards: Each entity engaged in the Work shall be familiar with reference standards applicable to its construction activity. Copies of applicable reference standards are not bound with the Contract Documents. Where reference standards are needed for a construction activity, obtain copies of standards from the publication source.

C. Abbreviations and Acronyms: Where reference standards, specifications, codes, manuals, Laws or Regulations, or other published data of international, national, regional, or local organizations are referred to in the Contract Documents, the organization issuing the standard may be referred to by its abbreviation or acronym only. The following abbreviations or acronyms that may appear in the Contract Documents shall have the meanings indicated below. Listing is alphabetical by abbreviation or acronym.

| | |
|---|---|
| AASHTO | American Association of State Highway and Transportation Officials |
| ACI | American Concrete Institute |
| AI | Asphalt Institute |
| AIA | American Institute of Architects |

| | |
|---|---|
| AISC | American Institute of Steel Construction |
| AISI | American Iron and Steel Institute |
| ANSI | American National Standards Institute |
| ASTM | American Society for Testing and Materials |
| AWS | American Welding Society |
| CLFMI | Chain-Link Fence Manufacturers Institute |
| CRSI | Concrete Reinforcing Steel Institute |
| CSI | Construction Specifications Institute |
| EJCDC | Engineers Joint Contract Documents Committee |
| FHWA | Federal Highway Administration |
| FS | Federal Specification |
| IBC | International Building Code |
| ICC | International Code Council |
| NEC | National Electric Code |
| NFPA | National Fire Protection Association |
| NYCDDC | New York City Department of Design and Construction |
| NYCDEP | New York City Department of Environmental Protection |
| NYCDOB | New York City Department of Buildings |
| NYCDOT | New York City Department of Transportation |
| NYCDPR | New York City Department of Parks and Recreation |
| NYSDEC | New York State Department of Environmental Conservation |
| NYSDOH | New York State Department of Health |
| NYSDOT | New York State Department of Transportation |
| OSHA | Occupational Safety and Health Administration |
| USDA | United States Department of Agriculture |
| USEPA | United States Environmental Protection Agency |

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

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# SECTION 01 51 05

# TEMPORARY UTILITIES

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall provide all temporary utilities required for the Project, including the following:
      a. Electricity.
      b. Lighting.
      c. Telephone and communications.
      d. Heating, cooling, ventilating, and temporary enclosures.
      e. Water.
      f. Fire protection.
   2. Make all arrangements with utility owners and obtain required permits and approvals for temporary utilities.
   3. Pay all service costs for utilities indicated in this Section as Contractor's responsibility, including cost of electricity, water, fuel, and other utility services required for the Work.
   4. Continuously maintain adequate temporary utilities for all purposes during the Project, until removal of temporary utilities. At a minimum, provide and maintain temporary utilities through Substantial Completion and removal of temporary field offices and sheds.
   5. Maintain, including cleaning, temporary utilities, and continuously provide consumables as required.
   6. Temporary utilities shall be adequate for personnel using the Site and the needs of the Project.
   7. Provide temporary utilities in compliance with Laws and Regulations and, when applicable, requirements of utility owners.

B. Related Sections:
   1. Section 01 52 11, Engineer's Field Office.
   2. Section 01 52 19, Sanitary Facilities.

### 1.02 REFERENCE STANDARDS

A. The following standards are referenced in this Section:
   1. NFPA 10, Standard for Portable Fire Extinguishers.
   2. NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations.

### 1.03 REQUIREMENTS FOR TEMPORARY UTILITIES

A. Electrical:
   1. Provide temporary electrical service required for the Work, including continuous power for temporary field offices and sheds. Provide temporary outlets with circuit breaker protection and ground fault protection.
   2. Entity and personnel performing temporary electrical Work shall be an electrician legally qualified to perform electrical construction and electrical work in the jurisdiction where the Site is located.

B. Lighting:
   1. Provide lighting at the Site of not less than five foot-candles for open areas and not less than 10 foot-candles for stairs and shops. Provide not less than one, 300-watt lamp every 15 feet in indoor Work areas. Provide night security lighting of not less than five foot-candles within 50 feet of all parts of the Site during hours of darkness, controlled by photocell.
   2. Do not work in areas with insufficient lighting. Where lighting is insufficient for the work activities to be performed, provide additional temporary lighting.
   3. Provide temporary lighting sufficient for observation of the Work by Engineer and inspection by Contractor and authorities having jurisdiction. Where required by Engineer, provide additional temporary lighting.
   4. Provide temporary lighting for field offices in accordance with Section 01 52 11.

C. Telephone and Communications:
   1. Provide temporary telephone and communications required for Contractor's operations at the Site and for summoning emergency medical assistance.
   2. Provide temporary telephone and communications for field offices in accordance with Section 01 52 11.

D. Heating, Cooling, Ventilating, and Enclosures:
   1. Provide sufficient temporary heating, cooling, ventilating, and enclosures to ensure safe working conditions and prevent damage to existing facilities and the Work.
   2. Except where otherwise specified, temporary heating shall maintain temperature of the space served between 50 degrees F and maximum design temperature of building or facility and its contents.
   3. Maintain temperature of areas occupied by Owner's personnel or electronic equipment, including offices, lunch rooms, locker rooms, toilet rooms, and rooms containing computers, microprocessors, and control equipment, between 65 degrees F and 75 degrees F with relative humidity less than 75 percent.
   4. Required temperature range for storage areas and certain elements of the Work, including preparation of materials and surfaces, installation or application, and curing as applicable, shall be in accordance with the Contract Documents for the associated Work and the Supplier's recommended temperature range for storage, application, or installation, as appropriate.
   5. Provide temporary ventilation sufficient to prevent accumulation in construction areas and areas occupied by Owner of hazardous and nuisance levels or concentrations of dust and particulates, mist, fumes or vapors, odors, and gases associated with construction.
   6. Provide temporary enclosures and partitions required to maintain required temperature and humidity.
   7. Provide temporary heating, cooling, and ventilating for field offices in accordance with Section 01 52 11.

E. Water:
   1. General:
      a. Provide temporary water facilities including piping, valves, meters if not provided by owner of existing waterline, backflow preventers, pressure regulators, and other appurtenances. Provide freeze-protection as required.
      b. Continuously maintain adequate water flow and pressure for all purposes during the Project, until removal of temporary water systems.
   2. Water for Construction Purposes:
      a. Provide water for Site maintenance and cleaning and, water necessary for construction activities, and water for disinfecting and testing of systems.
   3. Water for Human Consumption and Sanitation: Comply with Section 01 52 19.

F. Fire Protection:
   1. Provide temporary fire protection, including portable fire extinguishers rated not less than 2A or 5B in accordance with NFPA 10, for each work zone, each temporary building, and every 3,000 square feet of floor area under construction.
   2. Provide Class A (ordinary combustibles), Class B (combustible liquids and gases), and Class C (electrical equipment) fire extinguishers as necessary.
   3. Comply with NFPA 241 and requirements of fire marshals and authorities having jurisdiction at the Site.
   4. Provide temporary fire protection for field offices in accordance with Section 01 52 11.

## PART 2 – PRODUCTS

### 2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment for temporary utilities may be new or used, but shall be adequate for purposes intended and shall not create unsafe conditions, and shall comply with Laws and Regulations.

B. Provide required materials, equipment, and facilities, including piping, cabling, controls, and appurtenances.

## PART 3 – EXECUTION

### 3.01 INSTALLATION

A. Install temporary utilities in neat, orderly, manner, and make structurally, mechanically, and electrically sound throughout.

B. Location of Temporary Utilities:
   1. Locate temporary systems for proper function and service.
   2. Temporary systems shall not interfere with or provide hazards or nuisances to the Work under this and other contracts, movement of personnel, traffic areas, materials handling, hoisting systems, storage areas, finishes, and work of utility owners and others.
   3. Do not install temporary utilities on the ground, with the exception of temporary extension cords, hoses, and similar systems in place for short durations.

C. Modify and extend temporary systems as required by progress of the Work.

### 3.02 USE

A. Maintain temporary systems to provide safe, continuous service as required.

B. Properly supervise operation of temporary systems:
   1. Enforce compliance with Laws and Regulations.
   2. Enforce safe practices.
   3. Prevent abuse of services.
   4. Prevent nuisances and hazards caused by temporary systems and their use.
   5. Prevent damage to finishes.
   6. Ensure that temporary systems and equipment do not interrupt continuous progress of construction.

C. At end of each work day, check temporary systems and verify that sufficient consumables are available to maintain operation until work is resumed at the Site. Provide additional consumables if the supply on hand is insufficient.

3.03 REMOVAL

A. Completely remove temporary utilities, equipment, and materials when no longer required. Repair damage caused by temporary systems and their removal, and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.

B. Where temporary utilities are disconnected from existing utility, provide suitable, water-tight or gas-tight (as applicable) cap or blind flange, as applicable, on service line, in accordance with requirements of utility owner.

C. Where permanent utilities and systems were used for temporary utilities, upon Substantial Completion replace all consumables such as filters and light bulbs and parts used during the Work.

END OF SECTION

# SECTION 01 52 11

# ENGINEER'S FIELD OFFICE

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes requirements for Contractor-provided temporary field offices, with furnishings, equipment, and consumables, for use by Owner, Construction Manager, Engineer, Air Monitoring Contractor, and authorities having jurisdiction.
   2. Contractor shall provide and maintain separate mobile field office trailers for:
      a. Owner and Construction Manager.
      b. Engineer.
      c. Air Monitoring Contractor.
      d. Authorities having jurisdiction.
   3. Provide field offices at location approved by Engineer, near Contractor's field office.
   4. Field offices shall be complete, fully functional, and ready for occupancy within 14 days after Engineer's approval of the submittal required by this Section.
   5. Obtain and pay for required permits and utilities. Field offices shall comply with Laws and Regulations.

B. Related Sections:
   1. Section 01 51 05, Temporary Utilities.
   2. Section 01 52 16, First-Aid Facilities.

### 1.02 SUBMITTALS

A. Action Submittals:
   1. Field Office Submittal: Submit, as a single submittal, the following:
      a. Site plan indicating proposed location of field office trailers, parking for field offices, and facilities related to the field offices.
      b. Information on proposed field office trailer size, construction, exterior appearance, interior finishes, and security measures.
      c. Proposed layout of field office interior, showing location of offices, common areas, closets, with dimensions indicated for each.
      d. Listing of utility providers.
      e. Product data and technical information for multifunction printer and telephone system.

## PART 2 – PRODUCTS

### 2.01 MOBILE FIELD OFFICE TRAILERS

A. Provide not less than four mobile office trailers, each in first-class condition approved by Engineer, and specifically designed for use as construction field office.
   1. Supplier: Provide field office by one of the following:
      a. Modular Space Corporation (ModSpace).
      b. Williams Scotsman, Inc.
      c. Or equal.
   2. Size: Floor area of not less than 430 square feet, and not less than 10 feet wide.

3. Partitioned to provide three separate office spaces.
4. Completely weather-tight and insulated, with minimum R-19 insulation.
5. Exterior finish approved by Engineer.
6. New interior finishes approved by Engineer, including resilient floor covering in first-class condition.
7. Provide skirting around perimeter of each mobile field office trailer.
8. Field Office Ingress and Egress:
   a. Two doors for ingress and egress for each field office unit, each with landing, stairs, and railing complying with building codes and other Laws and Regulations in effect at the Site.
   b. Landing and stairs shall be metal, pressure-treated wood, fiberglass, or concrete, and shall have slip-resistant walking surfaces.
   c. Railing shall be metal, wood, or fiberglass.
   d. Door Security:
      1) Doors shall be secure and lockable.
      2) Furnish each door with suitable, lockable security bar. Security bar shall be Master Lock 265DCCSEN Dual-Function Security Bar, or equal.
9. Windows:
   a. Window area equal to not less than 10 percent of floor area.
   b. Windows shall each have insect screen and operable sash.
   c. Provide each window with lock and exterior security bars approved by Engineer.
10. One lockable closet for storage.
11. Keys:
    a. Furnish to Engineer two identical sets of keys suitable for operating all keyed locks, including ingress/egress door locks, security bars for doors, window locks, closets, and office furnishings.
    b. Permanently label each key to indicate its associated lock.

## 2.02 FIELD OFFICE UTILITIES

A. Comply with Section 01 51 05.

B. Provide the following for each field office trailer:
   1. Electrical System and Lighting:
      a. Electric service as required, including paying all costs.
      b. Interior lighting of not less than 50 foot-candles at desktop height.
      c. Not less than eight 120-volt, wall-mounted, duplex convenience electrical receptacles.
      d. Exterior, wall-mounted lighting of not less than 250 watts at each entrance.
      e. Exterior security light for field office parking area. Provide at least one 1,000-watt, pole-mounted fixture with photocell control.
   2. Heating, Ventilating, and Air Conditioning System:
      a. Provide automatic heating to maintain indoor temperature in field office of not less than 65 degrees F in cold weather.
      b. Provide automatic cooling to maintain indoor temperature in field office of not warmer than 75 degrees F in warm weather.
      c. Furnish all fuel and pay all utility costs.
   3. Telephone Service:
      a. Land Lines:
         1) Private telephone service, including payment of installation, monthly, and service costs.
         2) Provide two telephone lines, each with separate telephone number assigned by the telephone company.

3) Pay for unlimited local and domestic long-distance service for duration of the Project.

4. Internet Service:
   a. Obtain and pay for Internet service, with unlimited (untimed) Internet access, until removal of field offices.
   b. Cable or Fiber-Optic Service:
      1) Provide either cable or fiber-optic service via communication service provider at download speed of not less than 15 megabytes per second (Mbps) and upload speed of not less than 1 Mbps.
      2) Provide appropriate modem, cabling, and appurtenances.
   c. Set up system and appurtenances required and verify functionality in each field office space.

C. Should actions of utility companies delay the complete set up of field offices, Contractor shall provide temporary electricity, heat, telephone, and internet service as required at no additional cost to Owner.

## 2.03 FIELD OFFICE FURNISHINGS AND EQUIPMENT

A. Provide the following furnishings and equipment for each field office trailer:
   1. Desks: Four five-drawer desks, each with desktop surface five feet long by 2.5 feet wide with not less than one file drawer per desk suitable for storing 8.5-inch by 11-inch documents.
   2. Desk Chairs: Four new or used (in good condition) five-point, high-backed, cushioned swivel chairs with seat-height adjustment.
   3. Other Chairs: Four metal folding chairs without arm rests.
   4. Tables:
      a. Two new or used (in good condition) portable folding tables, each eight feet long by 2.5 feet wide.
      b. Two new or used (in good condition) portable folding tables, each four feet long by 2.5 feet wide.
   5. Plan rack(s) to hold not less than four sets of the Drawings.
   6. Two four-drawer file cabinets with locks.
   7. Shelving or bookcase with a total of 12 feet of shelf length and not less than 12 inches deep.
   8. Four polyethylene waste baskets, each with capacity of not less than seven gallons.
   9. Suitable doormat at each exterior ingress/egress door.
   10. Two cork tack-boards, each approximately 2.5 feet high by three feet wide, with thumbtacks.
   11. One white board for use with dry markers, approximately four feet high by six feet wide, with marker holding tray, installed by Contractor at location selected by Engineer in the field office. Furnish supply of colored markers and eraser for the white board.
   12. Safety Equipment: Provide two wall-mounted fire extinguishers, one battery-operated ceiling-mounted smoke detector, and one carbon monoxide detector suitably installed. Comply with Laws and Regulations and fire protection requirements of Section 01 51 05.
   13. One first-aid station. Comply with Section 01 52 16.
   14. Two electric clocks.
   15. One electric coffee maker with ten-cup capacity or larger.
   16. One microwave oven with capacity of not less than 0.9 cubic foot.
   17. One refrigerator with capacity of not less than 2.5 cubic feet.
   18. Bottled water with electric cooler dispenser for five-gallon bottles, with cup dispenser.

19. Telephone System:
    a. Telephone System Features:
        1) Provide two cordless telephones.
        2) Each telephone shall have hands-free speaker, speed-dialing with not less than 16 programmable numbers, volume control, and buttons for mute, redial, and hold.
        3) Set up and verify operation of each telephone set.
    b. Provide two digital telephone answering machines.
20. Multifunction Printer:
    a. System Description: Provide one multifunction inkjet printer with color printing capability.
    b. Manufacturer and Model: Provide one of the following:
        1) Brother MFC-J5720DW Business Smart Plus Inkjet All-in-One Printer.
        2) Epson WorkForce WF-7610 All-in-One Printer.
        3) HP Officejet 7612 Wide Format e-All-in-One Printer.
        4) Or equal.
    c. Functions: Printing, photocopying, scanning, and faxing.
    d. Paper Size: Capable of printing 8.5-inch by 11-inch (A), 8.5-inch by 14-inch (legal), and 11-inch by 17-inch (B) sheets.
    e. Scanning: Capable of scanning to PDF and JPG file formats, selectable by user.
    f. Ink Cartridges: Provide all cartridges required for full-color printing, and promptly replace cartridges as needed throughout the Project.
    g. Provide necessary cables and appurtenances to enable all functions specified in this Section, including printing from field office computers.
21. Wireless Router:
    a. Provide dual-band wireless-N router with capacity not less than 300 Mbps.
    b. Manufacturer: Provide wireless router by one of the following:
        1) Linksys.
        2) Netgear.
        3) Or equal.
    c. Set up router and appurtenances required and verify functionality in each field office space.
    d. Routers will remain Contractor's property upon removal of field offices from the Site.
22. Two-way portable radio and charging unit.

## PART 3 – EXECUTION

### 3.01 INSTALLATION

A. Install field offices and related facilities in accordance with Laws and Regulations.

B. Install materials and equipment, including pre-fabricated structures, in accordance with manufacturer's instructions, and to provide optimal performance and accuracy.

### 3.02 CLEANING, MAINTENANCE, AND SUPPLIES

A. Furnish the following maintenance services:
    1. Immediately repair malfunctioning, damaged, leaking, or defective field office trailers, site improvements, systems, and equipment.
    2. Promptly provide snow and ice removal for field offices, including parking areas, walkways, and stairs and landings.

3. Provide continuous maintenance and janitorial service of field offices and sanitary facilities. Clean field offices not less than once per week. Sweep or vacuum field office not less than daily, or more-frequently when site conditions are such that dirt or mud is frequently tracked into field office.
4. Waste Disposal:
   a. Properly dispose of trash and waste as needed, not less than twice per week.
   b. Properly handle and dispose of recyclables. Do not dispose of recyclables as trash.
   c. Dispose of other waste, if any, as required, to avoid creation of nuisances and adverse environmental effects. Properly dispose of electronic waste, when necessary, at proper waste receiving facility.

B. Consumables: Provide the following consumables as needed:
1. Light bulbs for interior and exterior lights.
2. Ink cartridges for multifunction printers, as required.
3. Paper supplies for multifunction printers. Always maintain in field office not less than one ream of each size of paper for which multifunction printers are capable.
4. Dry markers in six colors and white board eraser set. Replace markers when exhausted or lost.
5. Bottled water suitable for water dispensers and disposable cups.
6. Coffee supplies, including coffee, filters, disposable cups, sugar, creamer, and stir-sticks.
7. Hand-soap, paper towels, cleansers, sanitary supplies, and janitorial implements, including broom.
8. Batteries for smoke detector and other battery-powered items furnished by Contractor.
9. Replace fire extinguishers upon expiration.
10. Not less-often than monthly, inspect first-aid kit and inventory items consumed or used, and remove items that are at or near their expiration date. Promptly replace and restock consumed and expired items.

## 3.03 REMOVAL

A. Remove field offices and furnishings when directed by Engineer, prior to inspection for final completion. Repair damage caused by field offices and their removal, and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.

END OF SECTION

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# SECTION 01 52 13

# CONTRACTOR'S FIELD OFFICE AND SHEDS

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall provide a temporary field office for Contractor's use with not less than the minimum facilities specified.
   2. Provide required temporary storage and work sheds.
   3. Obtain and pay for required permits and utilities. Field offices and sheds shall comply with Laws and Regulations.

B. Location:
   1. Locate field offices and sheds in accordance with the Contract Documents and in accordance with the Site mobilization discussions at the pre-construction conference.

C. Furnish in Contractor's field office one complete set of the Contract Documents for ready reference by interested persons. In addition to the reference set, comply with Section 01 78 39 (Project Record Documents) and related provisions of the General Conditions, as may be modified by the Supplementary Conditions.

D. Related Sections:
   1. Section 01 52 11, Engineer's Field Office.

## PART 2 – PRODUCTS

### 2.01 FIELD OFFICE AND SHEDS, FURNISHINGS, AND EQUIPMENT

A. Contractor's Field Office and Furnishings:
   1. Construction: As required by Contractor and sufficient for Project meetings.
   2. Utilities and Services: Provide the following:
      a. Telephone service.
      b. Computer network and related facilities as required for Contractor's needs.
      c. Utilities and related facilities for lighting and maintaining temperature, in accordance with Section 01 52 11.
   3. Furnishings:
      a. Conference Facilities: Provide conference area with conference table and chairs sufficient for 15 people. Conference facilities and furnishings shall be provided with suitable utilities, lighting, ventilation, and temperature controls prior to the first progress meeting, unless otherwise approved by Engineer.
      b. Other furnishings required by Contractor.
   4. Provide on field office's exterior an identification sign displaying Contractor's company name. Maximum size of sign shall be four feet by eight feet. Sign shall be suitable for outdoor use for the duration of the Project.
   5. Personal Protective Equipment for Site Visitors: Furnish and maintain at Contractor's field office the following:
      a. Protective Helmets (Hard Hats): Eight, each with full brim, of fiberglass or thermoplastic; each with ratchet suspension; white in color.

b. Safety Glasses: Eight, each with clear lenses, polycarbonate, anti-fog and anti-scratch coating, suitable to fit over personal eyewear.
c. Reflective Safety Vest: Eight, each of polyester mesh or other material acceptable to Engineer, color to be high-visibility orange, with one-inch-wide reflective tape, one-size-fits-all design.
d. Earplugs: Supply of foam, disposable earplugs. Promptly resupply when stock is depleted.

B. Contractor's Storage and Work Sheds:
1. Provide storage and work sheds sized, furnished, and equipped to accommodate personnel, materials, and equipment involved in the Work, including temporary utility services and facilities required for environmental controls sufficient for personnel, materials, and equipment.

## PART 3 – EXECUTION

### 3.01 INSTALLATION

A. Install Contractor's temporary field offices, sheds, and related facilities in accordance with Laws and Regulations.

B. Install materials and equipment, including pre-fabricated structures, in accordance with manufacturer's instructions.

### 3.02 CLEANING, MAINTENANCE, AND SUPPLIES

A. Clean and maintain field offices and sheds as needed.

B. Provide consumables as needed.

### 3.03 REMOVAL

A. Do not remove temporary field offices and sheds until after Substantial Completion of the entire Work, unless otherwise approved by Engineer.

B. Remove temporary field offices and sheds, and restore areas prior to final inspection.

END OF SECTION

# SECTION 01 52 16

# FIRST-AID FACILITIES

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes requirements for temporary first-aid facilities for personnel use at the Site during construction, including first-aid stations, lists of emergency contact information, and first-aid-trained personnel.
   2. Contractor shall provide temporary first-aid facilities during the Project.
      a. Pay all costs for temporary first-aid facilities, including installation, maintenance, and removal.
      b. Maintain, including cleaning, temporary first-aid facilities. Keep first-aid facilities continuously supplied with consumables.
      c. Facilities shall be adequate for personnel using the Site and requirements of the Project.
      d. Provide facilities in compliance with Laws and Regulations.

B. Related Sections:
   1. Section 01 35 23, Safety Requirements.

### 1.02 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
      a. 29 CFR 1910.151, Medical Services and First-Aid.
      b. 29 CFR 1926.50, Medical Services and First-Aid.

### 1.03 REQUIREMENTS FOR TEMPORARY FIRST-AID FACILITIES

A. Provide the following temporary first-aid facilities:
   1. First-Aid Stations at the Site:
      a. Provide first-aid stations at or immediately adjacent to the Site's work areas, and inside each temporary field office:
      b. Locations of first-aid stations shall be determined by Contractor's safety representative.
      c. First-aid stations shall be adequate for the number of personnel at the Site and the types of work and hazards anticipated.
   2. Emergency Contact List:
      a. Provide list of emergency telephone numbers at each hardwired telephone at the Site.
      b. List shall be in accordance with the list of emergency contact information required in Section 01 35 23.
   3. Personnel Trained in First-Aid:
      a. When work is in progress, furnish at the Site not less than one person trained in first-aid and cardiopulmonary resuscitation (CPR).
      b. First-aid- and CPR-trained personnel shall possess valid certificate indicating that they have successfully completed a first-aid and CPR training course by the American Red Cross or similar entity.

## PART 2 – PRODUCTS (NOT USED)

## PART 3 – EXECUTION

### 3.01 INSTALLATION

A. Location of temporary first-aid facilities shall be as specified in Article 1.03 of this Section.

### 3.02 USE

A. Use of Temporary Facilities:
   1. Properly supervise temporary first-aid facilities.
   2. Properly dispose of wastes.

B. Not less-often than monthly, inspect each temporary first-aid station, inventory items consumed or used, and remove items that are at or near their expiration date. Promptly replace and restock consumables and expired items.

### 3.03 REMOVAL

A. Completely remove temporary first-aid facilities and materials when no longer required. Repair damage caused by temporary first-aid facilities and their removal, and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.

END OF SECTION

# SECTION 01 52 19

# SANITARY FACILITIES

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes requirements for temporary sanitary facilities, including toilet facilities, drinking water for personnel, and personnel washing facilities.
   2. Contractor shall provide all temporary sanitary facilities required for the Project.
      a. Make all arrangements with temporary sanitary facility providers for temporary sanitary services and obtain required permits and approvals for temporary sanitary facilities and associated services.
      b. Pay all costs for temporary sanitary facilities and associated services, including cost of electricity, water, fuel, and other utility services required for temporary sanitary facilities.
      c. Continuously maintain adequate temporary sanitary facilities for all purposes during the Project, until removal of temporary sanitary facilities. At a minimum, provide and maintain temporary sanitary facilities through Substantial Completion and removal of temporary field offices and sheds, and at all times thereafter when Contractor is at the Site performing Work.
      d. Maintain and clean temporary sanitary facilities and continuously provide consumables as required.
      e. Temporary sanitary facilities shall be adequate for personnel using the Site, Site visitors, and requirements of the Project.
      f. Provide temporary sanitary facilities in compliance with Laws and Regulations and, when applicable, requirements of utility owners.

### 1.02 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
      a. 29 CFR 1910.141, Sanitation.
      b. 29 CFR 1926.51, Sanitation.

### 1.03 REQUIREMENTS FOR TEMPORARY SANITARY FACILITIES

A. Sanitary Facilities:
   1. Portable Toilets:
      a. Provide suitably-enclosed, temporary chemical or self-contained toilets for Contractor's employees, Owner, Construction Manager, Engineer, Air Monitoring Contractor, and visitors to the Site.
      b. Location of temporary toilets shall be acceptable to Owner.
   2. Drinking Water:
      a. Provide supply of potable drinking water and related facilities and consumables for all personnel using the Site, including employees of contractors, Owner, Construction Manager, Engineer, Air Monitoring Contractor, visitors, and others.
      b. Location of potable drinking water supply shall be as required by Contractor and convenient for access by personnel.

c. Replenish drinking water supply as needed. Avoid creating hazards to health and safety caused by shortages of drinking water quantity and inadequate quality.
d. Drinking water quality shall comply with Laws and Regulations.

3. Washing Facilities:
   a. Provide suitable temporary washing facilities for Contractor's employees, Owner, Construction Manager, Engineer, Air Monitoring Contractor, and visitors to the Site.
   b. Washing facilities shall be adequate for the nature of work underway at the Site.
   c. Properly handle, store, and dispose of used wash water in accordance with Laws and Regulations.

## PART 2 – PRODUCTS

### 2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment for temporary sanitary facilities may be new or used, but shall be adequate for purposes intended and shall not create unsafe conditions, and shall comply with Laws and Regulations.

B. Provide required materials, equipment, and facilities, including piping, wiring, and controls.

## PART 3 – EXECUTION

### 3.01 INSTALLATION

A. Install temporary sanitary facilities in neat, orderly, manner, and make structurally, mechanically, and electrically sound throughout.

B. Location of Temporary Sanitary Facilities:
   1. Locate temporary sanitary facilities for proper function and service.
   2. Temporary sanitary facilities shall not interfere with or provide hazards or nuisances to:
      a. The Work under this contract.
      b. Movement of personnel.
      c. Traffic areas, materials handling, hoisting systems, storage areas, and finishes.
      d. Work of utility companies.

C. Modify and extend temporary sanitary facilities as required by progress of the Work.

### 3.02 USE

A. Maintain temporary sanitary facilities to provide safe, continuous service as required.

B. Supervision and Enforcement of Use:
   1. Properly supervise operation of temporary sanitary facilities:
   2. Enforce compliance with Laws and Regulations.
   3. Enforce safe practices.
   4. Prevent abuse of services.
   5. Prevent nuisances and hazards caused by temporary sanitary facilities and their use.
   6. Prevent damage to finishes.
   7. Ensure that temporary sanitary facilities do not interrupt continuous progress of the Work.

C. At the end of each work day, check temporary sanitary facilities and verify that sufficient consumables are available to maintain operation until work is resumed at the Site. Provide additional consumables if the supply on hand is insufficient.

3.03 REMOVAL

A. Completely remove temporary sanitary facilities and materials when no longer required. Repair damage caused by temporary sanitary facilities and their removal, and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.

END OF SECTION

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# SECTION 01 55 13

# TEMPORARY ACCESS ROADS AND PARKING AREAS

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall provide temporary construction roads, walks, parking areas, and appurtenances required during the Project for use by Contractor, Owner, and emergency vehicles.
   2. Temporary roads and parking areas shall be designed and maintained by Contractor and shall be fully passable to vehicles in all weather conditions.

B. Use of Existing Roads:
   1. Contractor is allowed to use property owner's existing roads upon the Effective Date of the Agreement.
   2. Prevent interference with traffic on existing roads and parking areas. At all times, keep access roads and entrances serving the Site clear and available to Owner, emergency vehicles, and other contractors. Do not use access roads or Site entrances for parking or storage of materials or equipment.
   3. Contractor shall indemnify and hold harmless Owner, Engineer, and property owners from expenses caused by Contractor's operations over existing roads and parking areas.
   4. Schedule deliveries to minimize use of driveways and Site entrances.

C. Related Sections:
   1. Section 01 55 26, Maintenance and Protection of Traffic.

### 1.02 SITE ACCESS

A. Contractor access to the Site shall be via the Smith Street and Fifth Street gates.

### 1.03 CONTRACTOR PARKING

A. Contractor employee vehicles shall park in the area designated on the Drawings, or in other areas approved by Owner.

B. Park construction vehicles and equipment in work areas off of permanent roads and parking areas, in areas of the Site designated for Contractor staging, or in other areas approved by Owner.

## PART 2 – PRODUCTS

### 2.01 MATERIALS

A. Materials for temporary access roads and parking areas shall comply with the Contract Documents' requirements for permanent roads, drives, and parking areas.

B. Traffic controls shall comply with requirements of authorities having jurisdiction and Section 01 55 26.

## PART 3 – EXECUTION

### 3.01 TEMPORARY ROADS AND PARKING AREAS

A. Provide temporary roads and parking areas adequate to support and withstand traffic loads during the Project. Locate temporary roads and parking areas within construction limits shown or indicated.

B. Provide reasonably level, graded, well-drained subgrade of satisfactory soil material, compacted to at least 95 percent of maximum dry density in the upper six inches.

C. Where required to support loads and provide separation between subgrade and subbase materials, provide stabilizing geotextile fabric.

D. Provide crushed stone or gravel subbase material a minimum of six inches thick, roller-compacted to level, smooth, dense surface. Subbase for temporary roads and areas traveled by construction vehicles shall be adequate for loads and traffic served.

### 3.02 TRAFFIC AND PARKING CONTROL

A. Provide temporary traffic controls at intersections of temporary roads, including intersections with other temporary roads, intersections with public roads, and intersections with permanent access roads at the Site.

B. Provide temporary warning signs on permanent roads and drives, and provide temporary “STOP” signs for traffic on temporary roads where required and at entrances to permanent pavement.

C. Control Contractor-related vehicular parking at the Site to preclude interfering with traffic and parking, access by emergency vehicles, Owner’s operations, and construction operations. Provide temporary parking facilities for the public, as required because of construction operations.

D. Control parking of construction and private vehicles at the Site as follows:
   1. Maintain free vehicular access to and through parking areas.
   2. Prohibit parking on or adjacent to access roads, and in non-designated areas.
   3. Construction vehicles shall possess current vehicle registration.
   4. Private vehicles shall park only in designated areas.

E. Comply with requirements of authorities having jurisdiction and Section 01 55 26.

### 3.03 MAINTENANCE OF ROADS

A. General:
   1. Maintain temporary roads and parking areas to continuously provide at the Site access for construction vehicles and trucks, Owner’s vehicles, emergency vehicles, and parking areas for Owner’s personnel.
   2. Public roads shall be passable at all times unless a road closure is approved in writing by authority having jurisdiction.
   3. When granular material of temporary roads and parking areas without hard surfacing become intermixed with soil, or when temporary roads otherwise create a nuisance, remove intermixed granular-and-soil material and replace with clean granular material as required.
   4. Provide snow and ice removal for temporary roads and parking areas.

B. Cleaning and Dust Control:
   1. Cleaning: Clean paved surfaces over which construction vehicles travel. Perform cleaning not less often than the frequency indicated in Section 01 74 05 (Cleaning), or more frequently as directed by Engineer, by mechanical sweeping or other means acceptable to Engineer.
   2. Clean the following surfaces:
      a. Roads within limits of the Project.
      b. Permanent roads at the Site, between the Site entrance and the work areas, and between the Site entrance and construction parking and staging areas.
      c. Public roads that require sweeping and cleaning due to construction operations.
   3. Dust Control:
      a. Control dust resulting from construction operations to prevent nuisances at the Site and in nearby areas.
      b. Apply water or use other methods approved by Engineer that will minimize airborne dust. Do not use water when water will cause hazardous or objectionable conditions such as ice, mud, ponds, and pollution.
      c. Provide dust control that is non-polluting and does not contribute to tracking-out of dirt and dust onto pavement. Re-apply dust control treatment as required.
      d. Comply with dust control requirements of Section 01 57 05 (Temporary Controls).

C. Protection of Underground Facilities: Comply with the General Conditions, as may be modified by the Supplementary Conditions, Section 01 71 33 (Protection of the Work and Property), and other requirements of the Contract Documents.

## 3.04 REMOVAL AND RESTORATION

A. Removal:
   1. Remove and properly dispose of temporary roads, walks, and parking areas that are not intended or acceptable for integration into permanent pavement. Return areas of temporary roads, walks, and parking to pre-construction condition or to condition required by the Contract Documents, as applicable.
   2. Remove temporary fencing, gates, and traffic controls associated with temporary roads and parking areas.
   3. Where areas of temporary roads and parking will be permanently landscaped, remove pavement, granular subbase, geosynthetics (where required by Engineer), soil, and other materials that do not comply with the Contract Documents regarding fill, subsoil, and landscaping.
   4. Remove and properly dispose of materials contaminated with oil, bitumen, and other petrochemical compounds resulting from Contractor's operations, and other substances that might impair growth of plants and lawns.

B. Restoration:
   1. Repair or replace existing paving, curbs, gutters, and sidewalks affected by temporary roads and parking areas, and restore to conditions shown, specified, or required by authorities having jurisdiction.
   2. Restore to pre-construction conditions existing roads, walks, and parking areas damaged by Contractor, subject to approval of the owner of affected roads, walks, and parking areas.

END OF SECTION

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# SECTION 01 55 26

# MAINTENANCE AND PROTECTION OF TRAFFIC

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
1. Contractor shall keep all roads, streets, and traffic ways open for passage of traffic and pedestrians during the Work, unless otherwise approved by owner of the street, traffic way, or right-of-way, as applicable.
2. Construction traffic shall access the Site only via the entrances indicated in Section 01 55 13 (Temporary Access Roads and Parking Areas).
3. Unless otherwise shown or specified in the Contract Documents, maintenance and protection of traffic shall be in accordance with Section 619 of the NYSDOT Standard Specifications and Standard Sheets.

B. Coordination:
1. Coordinate with owner of the highway or street right-of-way, as applicable, for maintenance and protection of traffic requirements.
2. Give required advance notice to fire departments, police departments, and other emergency services as applicable of proposed construction operations and modifications to existing traffic patterns.
3. Give reasonable notice to Owner of private properties that may be affected by construction operations. Give such notice not less than 14 days prior to when such property will or may be affected by construction operations. Owner will notify owners or tenants of private properties.
4. Coordinate with the following:
   a. Section 01 14 33, Work in Highway Rights-of-Way.
   b. Section 01 55 13, Temporary Access Roads and Parking Areas.
   c. Section 01 71 33, Protection of the Work and Property, regarding temporary barriers.
   d. Section 31 23 00, Excavation and Fill, for temporary barriers at excavations.

### 1.02 QUALITY ASSURANCE

A. Regulatory Requirements:
1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
   a. 34 RCNY 2, Highway Rules.
   b. 34 RCNY 4, Traffic Rules.
2. Comply with applicable provisions and recommendations of the following:
   a. NYSDOT Standard Specifications and Standard Sheets.
   b. NYCDOT Standard Highway Specifications and Standard Details of Construction.

### 1.03 SUBMITTALS

A. Informational Submittals:
1. Traffic Control Plan: Submit detailed plan, procedures, and sequencing for maintaining and protecting traffic in accordance with the Contract Documents and requirements of authorities having jurisdiction. Include the following:
   a. Traffic staging plan, and construction sequencing as applicable to maintain and protect traffic.

b. Map or drawing depicting proposed haul routes.
c. Product data, including manufacturer's catalog information and specifications, for temporary signage, temporary signals, temporary illumination devices, and other products to be used in maintaining and protecting traffic.
d. Indication of number and types of personnel dedicated to maintaining and protecting traffic during construction.

## PART 2 – PRODUCTS

### 2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment used for the maintenance and protection of traffic shall comply with the reference specification indicated in Paragraph 1.01.A.3 of this Section.

## PART 3 – EXECUTION

### 3.01 GENERAL PROVISIONS

A. When required to cross, obstruct, or temporarily close a street or traffic way, provide and maintain suitable detours, or other acceptable temporary expedient for the accommodation of traffic. Closings shall be for shortest duration practical, and passage shall be restored immediately after completion of Work.

B. Temporary Control Devices:
   1. Provide temporary signs, signals, barricades, flares, lights and other equipment, services, and personnel required to regulate and protect traffic and warn of hazards. Such Work shall comply with the requirements of Owner and authorities having jurisdiction.
   2. Remove temporary equipment and facilities when no longer required, and restore grounds to condition required by the Contract Documents, as applicable. If condition is not specified, restore to pre-construction condition.

C. Keep accessible for use permanent facilities, such as hydrants, valves, fire alarm boxes, postal boxes and delivery service boxes, and other facilities that may require access during construction.

### 3.02 TRAFFIC SIGNALS AND SIGNS

A. Provide and operate temporary traffic controls and directional signals required to direct and maintain an orderly flow of traffic in areas under Contractor's control, and areas affected by construction operations.

B. Provide temporary traffic controls and directional signs, mounted on temporary barriers or standard posts, at the following locations:
   1. Each change of direction of a roadway and at each crossroad.
   2. Detours and areas of hazard.
   3. Parking areas.
   4. Each traffic entrance to and exit from the Site.
   5. Other locations required by the reference specification indicated in Paragraph 1.01.A.3 of this Section and authorities having jurisdiction.

## 3.03 TRAFFIC CONTROL PERSONNEL

A. General:
   1. When construction operations encroach on traffic lanes, furnish qualified and suitably-equipped traffic control personnel as required for regulating traffic and in accordance with requirements of authorities having jurisdiction.
   2. Traffic control personnel shall use appropriate flags or mobile signs.
   3. Equip traffic control personnel with appropriate personal protection equipment and suitable attire.
   4. Attire and conduct of traffic control personnel shall be appropriate and shall not create nuisances or distractions for traffic.

## 3.04 FLARES AND LIGHTS

A. During periods of low visibility provide temporary flares and lights for the following:
   1. To clearly delineate traffic lanes, to guide traffic, and to warn of hazard areas.
   2. For use by traffic control personnel directing traffic.

B. Provide adequate illumination of critical traffic and parking areas.

## 3.05 PARKING CONTROL

A. Control Contractor-related vehicular parking at the Site to preclude interfering with traffic and parking, access by emergency vehicles, Owner's operations, and construction operations. Provide temporary parking facilities for the public, as required because of construction operations.

B. Comply with parking control requirements of Section 01 55 13.

## 3.06 HAUL ROUTES

A. Drawings indicate haul routes designated by authorities having jurisdiction that shall be used for construction traffic.

B. Confine construction traffic to approved haul routes.

C. Provide temporary traffic controls at critical areas of haul routes to expedite traffic flow, and to minimize interference with normal traffic.

## 3.07 REMOVAL

A. Maintain and protect traffic until Substantial Completion and at all times thereafter when Contractor is working at the Site. Provide maintenance and protection of traffic measures at the Site until no longer required due to the progress of the Work. When no longer required, completely remove maintenance and protection of traffic measures and restore the Site to condition required by the Contract Documents or, when not indicated in the Contract Documents, to pre-construction condition.

END OF SECTION

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# SECTION 01 57 05

# TEMPORARY CONTROLS

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall provide and maintain methods, equipment, materials, and temporary construction as required for controlling environmental conditions at the Site and adjacent areas during construction.
   2. Provide temporary controls throughout the Project. Maintain temporary controls until no longer required.
   3. Temporary controls include, but are not limited to, the following:
      a. Erosion and sediment controls.
      b. Control of surface water, including storm water run-off.
      c. Odor, vapor, and dust controls.
      d. Pollution controls.
      e. Noise controls.

B. Related Sections:
   1. Section 01 34 43.13, Environmental Procedures for Hazardous Materials.
   2. Section 01 35 49, Community Air Monitoring Plan.
   3. Section 01 41 26, Storm Water Pollution Prevention Plan and Permit.
   4. Section 01 55 13, Temporary Access Roads and Parking Areas.
   5. Section 01 74 05, Cleaning.
   6. Section 31 11 00, Clearing and Grubbing.
   7. Section 31 23 00, Excavation and Fill.

### 1.02 REFERENCE STANDARDS

A. The following standards are referenced in this Section:
   1. AASHTO M 288, Standard Specification for Geotextile Specification for Highway Applications.
   2. ASTM D4751, Standard Test Method for Determining Apparent Opening Size (AOS) of a Geotextile.

### 1.03 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
      a. 15 RCNY 13, Rules Pertaining To the Prevention of The Emission Of Dust from Construction Related Activities.
      b. 15 RCNY 28, Citywide Construction Noise Mitigation.
   2. Comply with applicable provisions and recommendations of the following:
      a. NYSDEC New York State Standards and Specifications for Erosion and Sediment Control.
      b. NYSDEC Spill Guidance Manual.
      c. NYSDOT Standard Specifications and Standard Sheets.
      d. NYCDOT Standard Highway Specifications and Standard Details of Construction.

1.04 SUBMITTALS

A. Action Submittals:
   1. Product Data: Submit manufacturer's data and specifications for the following:
      a. Silt fencing.
      b. Drop inlet filter and curb inlet filter.
      c. Turbidity curtain.
      d. Vapor mitigation agents and proposed application and storage equipment for each.

B. Informational Submittals:
   1. Procedure Submittals:
      a. Dust Mitigation Plan: Submit in accordance with Article 1.05 of this Section.
      b. Construction Noise Mitigation Plan: Submit in accordance with Article 1.06 of this Section.

1.05 DUST MITIGATION PLAN

A. Develop and implement a dust mitigation plan for controlling fugitive dust emissions during the Project. Prepare dust mitigation plan using the form included with this Section.

B. Submit dust mitigation plan to Engineer not less than 14 days prior to Contractor's scheduled mobilization to the Site.

C. Post copy of accepted dust mitigation plan at conspicuous location at the Site.

1.06 CONSTRUCTION NOISE MITIGATION PLAN

A. Develop and implement a construction noise mitigation plan for minimizing construction-related noise emissions during the Project. Prepare construction noise mitigation plan using the form included with this Section.

B. Submit construction noise mitigation plan to Engineer not less than 14 days prior to Contractor's scheduled mobilization to the Site.

C. Post copy of accepted construction noise mitigation plan at conspicuous location at the Site.

PART 2 – PRODUCTS

2.01 EROSION AND SEDIMENT CONTROLS

A. General:
   1. Materials used for temporary erosion and sediment controls shall be in accordance with the applicable regulatory requirements indicated in Article 1.03 of this Section, unless otherwise shown or indicated in the Contract Documents.

B. Silt Fencing:
   1. Filter Fabric:
      a. Material: Geotextile shall comply with AASHTO M 288 specifications for temporary silt fence.
      b. Height: Three feet, minimum.
   2. Fence Support Posts:
      a. Material: Hardwood or steel posts may be used.
         1) Hardwood posts shall be at least 1.25 inches by 1.25 inches in cross section.

2) Steel posts shall be "T" or "U" shape in cross section with a minimum weight of 1.0 pound per linear foot.

b. Length: Four feet, minimum.

3. Fabric fasteners shall be heavy-duty staples, wire ties, or other fastener compatible with support post material.

C. Straw Bale Dike:
1. Straw bales shall be firmly-packed, unrotted straw bound firmly with intact bailing wire. Cross-sectional area on the small end of each bale shall be approximately 12 inches by 12 inches or larger.
2. Posts shall comply with requirements for silt fencing support posts, or may be suitable reinforcing steel rods.

D. Protection of Storm Water Drainage Inlets and Catch Basins:
1. Drop Inlet Filter:
a. Product and Manufacturer: Provide one of the following for each drop inlet to be protected:
1) GrateGator, Type B, by ACF Environmental, Inc.
2) Or equal.
b. AOS of drop inlet filter fabric shall be between 40 and 85 (US sieve size), as determined by ASTM D4751. Fabric shall be woven polypropylene with double stitching to prevent bursting.
c. Drop inlet filter shall:
1) Fit over the drainage inlet or catch basin and shall be secured by the structure's grate or by other acceptable means.
2) Have means of removing inlet filter bag and the silt and sediment collected therein without dumping filter bag's contents into the drainage inlet or catch basin.
2. Curb Inlet Filter:
a. Product and Manufacturer: Provide one of the following for each curb inlet to be protected:
1) GutterGator, by ACF Environmental, Inc.
2) Or equal.
b. AOS of curb inlet filter fabric shall be between 40 and 85 (US sieve size), as determined by ASTM D4751. Fabric shall be woven polypropylene with double stitching to prevent bursting.

E. Temporary Construction Entrance:
1. Crushed Stone: Crushed stone shall be clean, durable, sharp-angled fragments of rock of uniform quality conforming to Material Designation 703-0201, Size Designation No. 3, in accordance with Section 703 of the NYSDOT Standard Specifications.
2. Geotextile Separation Fabric: Geotextile fabric shall comply with AASHTO M 288 specifications for a Class 1 separation geotextile.

F. Turbidity Curtain:
1. System Description:
a. Turbidity curtain shall be a commercially available, pre-assembled system, including flotation system, geomembrane, bottom weight, and anchoring and securing mechanism.
b. System components shall be specifically designed and constructed for use in a marine environment.
2. Product and Manufacturer: Provide one of the following:
a. Type 2.DOT Turbidity Barrier by Aer-Flo, Inc.
b. Triton Type II DOT Silt and Turbidity Barrier by GEI Works.

c. Or equal.

3. Flotation system shall provide not less than four inches of freeboard along entire length of curtain. Material shall maintain buoyancy if punctured or cut, and shall be arranged so as to be flexible and to provide continuous support.
4. Bottom edge of curtain shall have a weight system capable of holding curtain in vertical position and conforming to bottom of water body, so as to prohibit escape of turbid water beneath curtain.
5. Curtain height shall provide sufficient slack to allow top of curtain to rise to maximum expected high-water level (including waves), while bottom edge of curtain maintains continuous contact with bottom of water body.
6. Provide anchorage lines of sufficient strength and number to support and maintain curtain in position under normally-expected current, tidal, wind, and wave conditions. End anchors shall be provided, with intermediate anchor points (for stakes or anchors) such that unanchored spans do not exceed 100 feet, sufficient to maintain curtain in position and allow curtain to rise and fall with the tide. If curtain is constructed in panels, anchor-line and shackle connections securing panels together shall be sufficient for normally-expected current, tidal, wind, and wave conditions.
7. Hemmed pockets shall be sewn or heat-bonded to contain flotation material, bottom weights, and for anchor lines.
8. Accessories:
   a. Lighted Navigational Buoys: Provide lighted navigational buoys, spaced not greater than 100 feet on center along turbidity curtain, in accordance with Laws and Regulations. Flashing lights shall automatically turn on at dusk and turn off at dawn.
   b. Oil-Absorbent Booms: Provide oil-absorbent booms, installed and secured along full length of turbidity curtain, to mitigate potential sheen migration beyond the work area. Booms shall be not less than five inches in diameter.
   c. Provide other accessories recommended by the manufacturer for the intended application and environment.

2.02 ODOR, VAPOR, AND DUST CONTROLS

A. Vapor Mitigation Agents: Provide the following:
   1. BioSolve Pinkwater, by The BioSolve Company.
   2. AC-645 Long-Duration Foam, by Rusmar, Inc.

B. Water: Clean, potable.

C. Equipment:
   1. Provide pressure washers, pneumatic foam unit, sprayers, misters, portable tanks, hoses, and other equipment required for the storage and application of vapor mitigation agents and water.
   2. Furnish and retain at the Site spare equipment to allow for uninterrupted odor, vapor, and dust control in the event of equipment damage or malfunction.

## PART 3 – EXECUTION

3.01 EROSION AND SEDIMENT CONTROL

A. Installation and Maintenance – General:
   1. General:
      a. Provide temporary erosion and sediment controls as shown and indicated on the Drawings and as indicated elsewhere in the Contract Documents. Provide erosion and sediment controls as the Work progresses into previously undisturbed areas.

b. Installation of erosion and sediment controls shall be in accordance with the applicable regulatory requirements indicated in Article 1.03 of this Section, unless more stringent methods are otherwise shown or indicated in the Contract Documents.
c. Use necessary methods to successfully control erosion and sedimentation, including ecology-oriented construction practices, vegetative measures, and mechanical controls. Use best management practices in accordance with Laws and Regulations, and regulatory requirements indicated in Article 1.03 of this Section, to control erosion and sedimentation during the Project.
d. Plan and execute construction, disturbances of soils and soil cover, and earthwork by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation. Provide temporary measures for controlling erosion and sedimentation, as indicated in the Contract Documents and as required for the Project.
e. Where areas must be cleared for storage of materials or equipment, or for temporary facilities, provide measures for regulating drainage and controlling erosion and sedimentation, subject to Engineer's approval.
f. Provide erosion and sediment controls, including stabilization of soils, at the end of each work day.

2. Coordination:
   a. Coordinate erosion and sediment controls with this Section's requirements on water control and with Section 01 41 26.
   b. Coordinate temporary erosion and sediment controls with construction of permanent drainage facilities and other Work to the extent necessary for economical, effective, and continuous erosion and sediment controls.
3. Before commencing activities that will disturb soil or soil cover at the Site, provide all erosion and sediment control measures required by the Contract Documents for the areas where soil or soil cover will be disturbed.
4. In general, implement construction procedures associated with, or that may affect, erosion and sediment control to ensure minimum damage to the environment during construction. Contractor shall implement any and all additional measures required to comply with Laws and Regulations, and Section 01 41 26.
5. Vegetation Removal:
   a. Perform clearing, grubbing, and related operations in accordance with Section 31 11 00.
   b. Remove only those shrubs, grasses, and other vegetation that must be removed for construction. Protect remaining vegetation.
6. Access Roads and Parking Areas: When possible, access roads, temporary roads, and parking areas shall be located and constructed to avoid adverse effects on the environment. Provide measures to regulate drainage, avoid erosion and sedimentation, and minimize damage to vegetation.
7. Earthwork and Temporary Controls:
   a. Perform excavation, fill, and related operations in accordance with Section 31 23 00.
   b. Control erosion to minimize transport of silt from the Site into existing waterways and surface waters. Such measures shall include, but are not limited to, using berms, silt fencing, straw bale dikes, gravel or crushed stone, temporary plantings, mulching and soil stabilization, slope drains, and other methods. Apply such temporary measures to erodible materials exposed by activities associated with the construction of the Project.
   c. Hold to a minimum the areas of bare soil exposed at one time.
   d. Construct fills and waste areas by selectively placing fill and waste materials to eliminate surface silts and clays that will erode.
   e. In performing earthwork, eliminate depressions that could cause ponding of water or serve as mosquito breeding pools.

f. Contractor shall provide special care in areas with steep slopes, where disturbance of vegetation shall be minimized to maintain soil stability.

8. Inspection and Maintenance:
   a. Periodically inspect areas of earthwork and areas where soil or soil cover are disturbed to detect evidence of the start of erosion and sedimentation. Promptly implement corrective measures as required to control erosion and sedimentation. Continue inspections and corrective measures until soils are permanently stabilized and permanent vegetation has been established.
   b. Inspect and report not less often than the frequency indicated in Section 01 41 26.
   c. Repair or replace damaged erosion and sediment controls within two days of Contractor becoming aware of such damage.
   d. Periodically remove silt and sediment that has accumulated in or behind sediment and erosion controls. Properly dispose of silt and sediment.
9. Duration of Erosion and Sediment Controls:
   a. Maintain erosion and sediment controls in effective working condition until the associated drainage area has been permanently stabilized.
   b. Maintain erosion and sediment controls until the Site is restored and site improvements including landscaping, if any, are complete with underlying soils permanently stabilized.
10. Work Stoppage: If the Work is temporarily stopped or suspended for any reason, Contractor shall provide additional temporary controls necessary to prevent environmental damage to the Site and adjacent areas while the Work is stopped or suspended.
11. Failure to Provide Adequate Controls: In the event Contractor repeatedly fails to satisfactorily control erosion and sedimentation, Owner reserves the right to employ outside assistance or to use Owner's own forces for erosion and sediment control. Cost of such work by Owner, plus engineering and inspection costs, will be deducted from amounts due to Contractor.

B. Silt Fencing:
   1. Install and maintain silt fencing in a vertical plane, at the location(s) shown or indicated in the Contract Documents and where required.
   2. Locations of Silt Fencing:
      a. Where possible, install silt fencing along contour lines so that each given run of silt fencing is at the same elevation.
      b. On slopes, install silt fencing at intervals that do not exceed the maximum lengths indicated in Table 01 57 05-A.

**TABLE 01 57 05-A**
**MAXIMUM LENGTH OF SLOPE BETWEEN RUNS**

| Slope (V:H) | Slope Length (feet) |
|---|---|
| 1:2 (50%) | 25 |
| 1:3 (33%) | 50 |
| 1:4 (25%) | 75 |
| 1:5 (20%) and Less | 100 |

      c. Provide silt fencing around the perimeter of each stockpile of topsoil, general fill material, and excavated material. Install silt fencing before expected precipitation and maintain until stockpile is removed.
      d. Do not install silt fencing at the following types of locations:
         1) Area of concentrated storm water flows such as ditches, swales, or channels.
         2) Where rock or rocky soils prevent full and uniform anchoring of silt fencing.
         3) Across upstream or discharge ends of storm water piping or culverts.

3. Installation:
    a. Securely fasten filter fabric to each support post in no less than four locations. Spacing between support posts shall not exceed 10 feet (center to center).
    b. When two sections of filter fabric abut each other, fold over edges and overlap by not less than six inches and securely fasten to wire mesh.
    c. Embed posts in the ground to the depth necessary for proper controls, but not less than 16 inches below ground surface.
    d. Filter fabric shall extend not less than six inches below ground and not less than 16 inches above ground.
    e. Filter fabric at bottom of silt fence shall be buried in a trench, in a “J” configuration, to a depth of six inches.
    f. Remove sediment accumulated at silt fencing as required. Repair and reinstall silt fencing as required.
4. Maintenance:
    a. Do not allow formation of concentrated storm water flows on slopes above silt fencing unless so shown or indicated in the Contract Documents. If unauthorized concentrated storm water flows occur, stabilize the slope via earthmoving and other stabilization measures as required to prevent flow of concentrated storm water flows toward silt fencing.

C. Straw Bale Dike:
1. Install straw bale dikes where shown or indicated, including in swales, along contours, and along toe of slopes. On slopes, install straw bale dikes at intervals that do not exceed the maximum lengths indicated in Table 01 57 05-A of this Section.
2. Install straw bales in shallow excavation as wide as the bale and approximately four to six inches below surrounding grade.
3. Ends of straw bale shall tightly abut ends of adjacent bales.
4. Securely install straw bales using two support posts per bale, driven into the ground not less than 1.5 to two feet below bottom of bale. Top of post shall be flush with top of bale. Angle first post for each straw bale toward the previously-installed bale.
5. Frequently inspect straw bales and repair or replace as required. Remove accumulated silt and debris from behind straw bales.

D. Protection of Storm Water Drainage Inlets and Catch Basins:
1. Protect each drainage inlet and catch basin that has the potential to receive storm water run-off from exposed soils.
2. Install drop inlet filter over drainage inlet or catch basin in accordance with manufacturer's instructions. Secure drop inlet filter with the structure's grate or by other acceptable means.
3. Install curb inlet filter in front of drainage inlet opening in accordance with manufacturer’s instructions. Filter shall extend not less than two feet on either side of opening.
4. Inlet filters shall not pose any obstruction above the elevation of the drainage inlet or catch basin grate requiring barricades or flashers.
5. Inspect inlet filters not less than weekly and immediately after wet weather events. Clean inlet filters and remove accumulated silt, sediment, and debris as required to maintain flow through drainage inlet or catch basin and prevent ponding.

E. Temporary Construction Entrance:
1. Where shown on the Drawings, and where construction vehicles will regularly transit to paved surfaces from unstabilized surfaces, provide a temporary construction entrance. Contractor vehicles shall use temporary construction entrances.

2. Provide temporary construction entrances of the width, length, and thickness shown or indicated on the Drawings. When not shown or indicated on the Drawings, temporary construction entrance shall be not less than 50 feet long, by 12 feet wide, by six inches thick. Slope of entrance shall not exceed 12 percent.
3. Installation:
   a. Ensure that subgrade under each temporary construction entrance is suitably dense for the intended purpose. Suitably prepare subgrade as required for temporary construction entrance.
   b. Provide on subgrade a layer of geotextile fabric, installed in accordance with geotextile manufacturer's recommendations for separation.
   c. Provide crushed stone on installed geotextile. Grade crushed stone for passage of vehicles.
4. Maintenance:
   a. Maintain temporary construction entrances at not less than the minimum required thickness. Add crushed stone as required to maintain thickness.
   b. When upper layer of temporary construction entrance becomes contaminated with soil, remove the contaminated material and replace with clean crushed stone.
   c. Using water to wash down temporary construction entrances or paved areas onto which soil material has been tracked is unacceptable.

F. Turbidity Curtain:
1. Installation:
   a. Install and maintain turbidity curtains in vertical position at the location(s) shown or indicated in the Contract Documents and where required to fully encompass sediment-disturbing construction operations.
   b. Securely anchor ends of curtain not less than three feet upland of ordinary high water. Provide intermediate anchors of a type and number sufficient to hold curtain in position under normally-expected current, tidal, wind, and wave conditions, and firmly fastened to the top of the curtain assembly. Maximum spacing between anchorage points shall not exceed 100 feet.
   c. In situations with flow velocities that exceed five feet per second, provide a redirection barrier. Install redirection barrier prior to installing turbidity curtain wherever possible, and exercise care during installation to minimize disturbance of sediments.
2. Inspection and Maintenance:
   a. Inspect turbidity curtains daily and immediately after wet weather events.
   b. Any visible sheen or plume of turbid water passing beyond the curtain from the enclosed construction area shall constitute inadequate performance of turbidity curtain. Immediately modify, adjust, or repair any portion of turbidity curtain to correct inadequate performance.
   c. Turbidity curtain shall remain in place until the protected construction activities have ceased and there is no visible contrast between the water being contained and the water body being protected.
3. Removal:
   a. Remove turbidity curtain in such a manner so as to minimize release of sediment.

## 3.02 SURFACE WATER CONTROL

A. General:
1. Provide methods to control surface water to prevent damage to the Work, the Site, and adjoining properties.

2. Control fill, grading, and ditching to direct surface water away from disturbed areas, excavations, pits, tunnels, and other construction areas, and to direct drainage to proper run-off courses to prevent erosion, damage, or nuisance. Avoid directing to adjoining properties run-off from the Site and construction operations.

B. Equipment and Facilities for Surface Water Control:
   1. Provide, operate, and maintain equipment and facilities of adequate size to control surface water.

C. Dewatering, Discharge, and Disposal:
   1. Comply with dewatering requirements of Section 31 23 00.
   2. Dispose of surface water in a manner to prevent flooding, erosion, and other damage to any and all parts of the Site and adjoining areas, and that complies with Laws and Regulations.

3.03 ODOR, VAPOR, AND DUST CONTROL

A. General:
   1. Provide means, methods, and facilities required to control MGP-related odors, vapors, and dust generated during the Work.
   2. Proactively employ odor, vapor, and dust controls during the Work, and evaluate and modify construction techniques and site management practices, as necessary and appropriate, to:
      a. Mitigate MGP-related odor emissions to the extent practicable, and to the satisfaction of Owner, Construction Manager, Engineer, and NYSDEC.
      b. Prevent exceedances of the community air monitoring action levels specified in Section 01 35 49.
   3. If Contractor's means, methods, and facilities are unsuccessful in controlling MGP-related odors, vapors, and dust as specified in this Section, based on visual observations or the results of community air monitoring, Work shall be suspended until appropriate corrective actions are taken by Contractor to remedy the situation to Construction Manager's or Engineer's satisfaction. Owner will not be liable for any expense or delay resulting from Contractor's failure to control MGP-related odors, vapors, and dust in accordance with this Section.

B. Vapor Mitigation Agents:
   1. Mobilize vapor mitigation agents and means of storage and dispersion at the Site before initiating any ground-intrusive Work or dust-generating Work.
   2. Application of vapor mitigation agents shall be as follows:
      a. BioSolve Pinkwater:
         1) Prepare three-percent solution of BioSolve Pinkwater concentrate and water. Apply to exposed soils and excavation faces using backpack sprayers, power washers, or misters.
         2) Apply when actively excavating, when actively handling excavated materials, and as required by Owner, Construction Manager, or Engineer.
      b. AC-645 Long-Duration Foam:
         1) Prepare 13-percent solution of AC-645 Long-Duration Foam concentrate and water. Apply to excavation faces and uncovered stockpiles of excavated materials using pneumatic foam unit. Completely and uniformly cover exposed soil surfaces with minimum three inches of foam.
         2) Apply before each work break, at the end of each work day, and as required by Owner, Construction Manager, or Engineer.

C. Construction Techniques and Site Management Practices:
   1. Excavate and backfill, and load, handle, and unload excavated materials and clean fill materials, in manner that minimizes the generation of airborne dust.
   2. Haul excavated materials and clean fill materials in properly covered vehicles.
   3. Restrict vehicle speeds on temporary access roads and active haul routes.
   4. Cover shallow excavations and stockpiles of clean fill materials with polyethylene liners before extended work breaks and at the end of each work day. Anchor liners to resist wind forces; slope to prevent accumulation of water.
   5. Hold to a minimum the areas of bare soil exposed at one time.
   6. Comply with cleaning and dust control requirements of Section 01 55 13 and progress cleaning requirements of Section 01 74 05.

## 3.04 POLLUTION CONTROL

A. General:
   1. Provide means, methods, and facilities required to prevent contamination of soil, water, and atmosphere caused by discharge of noxious substances from or caused by construction operations.
   2. Equipment used during construction shall comply with Laws and Regulations.
   3. Comply with Sections 01 35 43.13 and 01 41 26.

B. Spills and Contamination:
   1. Provide equipment, materials, and personnel to perform emergency measures required to contain and clean up spills, and to remove soils and liquids contaminated by spills.
   2. Provide spill kits, including oil-absorbent pads, socks, and booms, at or immediately adjacent to the Site's major work areas and equipment storage and fueling areas.
   3. Immediately notify Owner, Construction Manager, and Engineer of all spills, regardless of material, volume, or circumstances involved.
   4. Excavate contaminated material and properly dispose of off-site, and replace with suitable compacted fill.

C. Protection of Surface Waters:
   1. Provide and maintain special measures to prevent harmful substances from entering surface waters. Prevent disposal of wastes, effluents, chemicals, and other such substances in or adjacent to surface waters and open drainage routes, in sanitary sewers, or in storm sewers.

D. Atmospheric Pollutants:
   1. Provide and maintain systems for controlling atmospheric pollutants related to the Work.
   2. Prevent generation or release of toxic concentrations of chemicals and vapors.
   3. Prevent harmful dispersal of pollutants into atmosphere.

E. Solid Waste:
   1. Provide and maintain systems for controlling and managing solid waste related to the Work.
   2. Prevent solid waste from becoming airborne, and from discharging to surface waters and drainage routes.
   3. Properly handle and dispose of solid waste.
   4. Comply with requirements for cleaning and disposal of debris in the General Conditions, as may be modified by the Supplementary Conditions, and Section 01 74 05.

## 3.05 NOISE CONTROL

A. General:
   1. Contractor's vehicles, equipment, and operations shall minimize noise emissions to the greatest degree practicable. Provide mufflers and silencers on construction equipment, and provide temporary sound barriers when necessary, or as directed by Owner, Construction Manager, Engineer, or authorities having jurisdiction, and comply with provisions of accepted construction noise mitigation plan.
   2. Noise levels shall comply with Laws and Regulations, including OSHA requirements and local ordinances.
   3. Noise emissions shall not interfere with the Work of Owner or others.

## 3.06 PROHIBITED CONSTRUCTION PROCEDURES

A. Prohibited construction procedures include, but are not limited to, the following:
   1. Dumping or disposing of spoil material, cleared vegetation, debris, or other waste material in any surface waters, drainage ways, or other unauthorized locations.
   2. Indiscriminate, arbitrary, or capricious operation of equipment in any surface waters, drainage ways, or other unauthorized locations.
   3. Pumping of silt-laden water from trenches or other excavations to any surface waters, drainage ways, sewers, or other unauthorized locations.
   4. Damaging vegetation beyond the extent necessary for construction.

## 3.07 REMOVAL OF TEMPORARY CONTROLS

A. Remove temporary controls only when directed by Owner or Engineer.

END OF SECTION

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# DUST Mitigation Plan
# FORM
# September 23, 2009*

**It is not necessary to file this document with DEP however, it must be accessible to inspectors.**
**The responsible party shall be liable for the accuracy of the document and compliance with all applicable rules in 15 RCNY Chapter 13.**

## I General Introduction

**All persons constructing or operating a large article, machine, device, equipment, such as a rock crusher, or other contrivance or facility capable of causing or permitting emission of dust into the atmosphere at a construction site shall keep on site a document detailing such equipment . Information provided on this document shall include the ownership, location, design, make and model, operation, i.e. how does it operate, as well as any other pertinent information requested by the Department. In addition, the measures utilized to reduce dust emissions resulting from the use of these items as set forth in 15 RCNY 13-01 *et seq.* shall be clearly outlined. This document shall be attached as an addendum sheet to the Noise Mitigation Plan prepared pursuant to Section 24-220 of the Noise Code.**

## II Contact Information

**Name of Responsible Party as defined in 15 RCNY §28-109**_____

**Work Site Location with Borough (BLOCK/LOT/Address)**_____

**Contact Phone Number of Responsible Party**_____

## II Specialized Equipment

1. Common or Brand Name_____
2. Make_____
3. Model_____
4. Type (i.e. rock crusher)_____
5. Owner_____
6. Lease YES NO
7. Rental YES NO
8. Describe Use on Site

_____

_____

_____
_____

9. Dust Control Measures Used with Equipment

_____
_____
_____
_____

## III Additional Dust Control Measures that will be employed at site

Wetting
Describe the process i.e. handheld hoses; wheel wash station; automated sprinkler system

_____
_____
_____
_____

Appropriate Spraying Methods

_____
_____
_____
_____

Trucks Covered
YES
NO

Adequate and continuous supply of water delivered to the construction site under proper pressure and distributed by a hose system and terminating in suitable water sprays or jets.
Portable hand water sprinklers or hose sprinklers are acceptable means of wetting for dust control.
Suitable drainage means shall be provided for the removal of water and sludge which drains from the operation.
Prior to the commencement of demolition activities, all exterior surfaces of a building up to six stories in height shall be wetted.
All construction material shall be sufficiently wetted to prevent dust from becoming airborne before loading into trucks.
Wetting shall be used to control dust where drilling, grinding, or other similar construction activities occur.
Sprinklers or other effective means shall be provided to control dust produced at dumps, conveyors, chutes, and other transfer points.
Soil or debris piles shall be moistened if dust is being emitted from the piles due to prevailing winds and not from a momentary gust.
Where the demolition or renovation of any building or other structure is being performed by hand, debris, bricks, and other material shall be removed by means of chutes, by means of buckets or hoists.

During sandblasting or other similar operations, installation and use of hoods, fans and dust collectors to enclose and vent shall be used.

Earth moving equipment or erosion is required daily when there is removal of earth or other material from paved roads.

Dust and debris from the demolition operations shall be removed daily from the adjacent streets, sidewalks and alleys.

*Use latest version of the plan which can be found on the DEP Website at www.nyc.gov/dep/html/airnoise.html.

I _____ of the _____hereby certify the information contained
(Name of Responsible Party) (Company) in the form is true and accurate.

_____ _____
Signature Date

_____
NOTARY PUBLIC

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**THE CITY OF NEW YORK**
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**
Bureau of Environmental Compliance
59-17 Junction Boulevard, 9th Floor, Flushing, New York 11373
Records Control (718) 595–3855

# Construction Noise Mitigation Plan

IT IS NOT NECESSARY TO FILE THIS DOCUMENT WITH DEP; HOWEVER, IT MUST BE POSTED AND/OR ACCESSIBLE TO INSPECTORS.
**IF THIS DOCUMENT IS NOT POSTED ON SITE, CONTACT SHEET MUST BE POSTED**

*The responsible party shall be liable for the accuracy of the document and compliance with all applicable rules in Title 15 Rules of the City of New York - RCNY Chapter 28.*

## Contact Information

Name of Responsible Party as defined in Title 15 RCNY §28-109: _____

Work Site Location: _____
Address Zip Borough Block Lot

Contact Phone Number of Responsible Party: _____

Approximate Distance to Closest Receptor (defined in Title 15 RCNY §28-109 of) _____feet.

Demolition Construction Work is Taking Place from: _____ (Month) / _____ (Year) To _____ (Month) / _____ (Year)

Excavation Construction Work is Taking Place from: _____ (Month) / _____ (Year) To _____ (Month) / _____ (Year)

Foundation Construction Work is Taking Place from: _____ (Month) / _____ (Year) To _____ (Month) / _____ (Year)

Superstructure Construction Work is Taking Place from: _____ (Month) / _____ (Year) To _____ (Month) / _____ (Year)

Finishing Construction Work is Taking Place from: _____ (Month) / _____ (Year) To _____ (Month) / _____ (Year)

Other Construction Work is Taking Place from: _____ (Month) / _____ (Year) To _____ (Month) / _____ (Year)

Normal Work Hours (as defined in NYC Administrative Code §24-222) _____

NYC Department of Transportation Permit number(s) _____

NYC Department of Buildings Permit number(s) _____

## Construction Devices

Check applicable boxes below:

*List of §102 construction devices to be used at the site. When the additional devices listed below each category are utilized, the use of barriers as set forth in section IV herein is not required unless the NYC Department of Environmental Protection receives complaints as set forth in §28-102(C) of Title 15 of the RCNY for each device. If however, the specific devices listed below each main category of devices are not checked, and you are using any of the main devices listed below, then the use of barriers set forth in Section IV herein shall be utilized. However, if you specified "other" in a category, you shall be required to utilize barriers as set forth in Section IV herein.*

☐ PILE DRIVERS

- ☐ Vibratory Pile Driver or Hydraulic Impact Pile Driver as defined in 102(a)(1)(B)(ii)
- ☐ Noise Bellows as defined in 102(a)(1)(B)(viii)
- ☐ No

☐ JACKHAMMERS

- ☐ Quieter makes and models as defined in 102(a)(2)(B)(i)
- ☐ No

☐ HOE RAMS

- ☐ Quieter makes and models as defined in 102(a)(3)(B)(i)
- ☐ Noise Shroud as defined in 102(a)(3)(B)(iii
- ☐ No

☐ BLASTING

☐ VACUUM EXCAVATORS

- ☐ Smaller Capacity vac-truck as defined in 102(b)(1)(B)(i)
- ☐ Silencer as defined in 102(b)(1)(B)(iii)
- ☐ No

☐ DUMP TRUCKS

- ☐ US Made European Environmental Label equipment or equivalent as defined in 102(c)(1)(B)(iii)
- ☐ No

☐ CRANES

- ☐ Modern Hydraulic Crane as defined in 102(d)(1)(B)(ii)
- ☐ US Made European Environmental Label equipment or equivalent as defined in 102(d)(B)(1)(iii)
- ☐ No

☐ CONCRETE SAWS

☐ SANDBLASTING

☐ AUGER DRILL RIGS.

☐ OTHER

_____

_____

_____

## Additional Construction Devices

List of additional applicable construction devices to be used at the site:

**☐ GENERATORS ☐ COMPRESSORS ☐ STREET PLATES ☐ BACKUP ALARMS ☐ PUMPS**

*Note: DEP will utilize the Federal Highway Administration Roadway Construction Model as a means of identifying equipment either in Section II or III, that may be the cause of a noise complaint, see §28-101(a) of Title 15 of the RCNY for compliance options.*

## Mitigation Barriers

*Noise Mitigation Barriers Utilized: If required as set forth in §28-101(g) of Title 15 of the RCNY.*

Required to use Perimeter barrier /DOB construction fence or temporary/moveable barrier:

**☐ YES ☐ NO**

☐ PILE DRIVERS

☐ Perimeter barrier/DOB Construction Fence ☐ Temporary barrier ☐ Moveable barrier

☐ JACKHAMMERS

☐ Perimeter barrier/DOB Construction Fence ☐ Temporary barrier ☐ Moveable barrier

☐ HOE RAMS

☐ Perimeter barrier/DOB Construction Fence ☐ Temporary barrier ☐ Moveable barrier

☐ BLASTING

☐ Perimeter barrier/DOB Construction Fence ☐ Temporary barrier ☐ Moveable barrier

☐ VACUUM EXCAVATORS

☐ Perimeter barrier/DOB Construction Fence ☐ Temporary barrier ☐ Moveable barrier

☐ DUMP TRUCKS

☐ Perimeter barrier/DOB Construction Fence ☐ Temporary barrier ☐ Moveable barrier

☐ CRANES

☐ Perimeter barrier/DOB Construction Fence ☐ Temporary barrier ☐ Moveable barrier

☐ AUGER DRILL RIGS

☐ Perimeter barrier/DOB Construction Fence ☐ Temporary barrier ☐ Moveable barrier

☐ STREET PLATES

☐ Perimeter barrier/DOB Construction Fence ☐ Temporary barrier ☐ Moveable barrier

☐ BACKUP ALARMS

☐ Perimeter barrier/DOB Construction Fence ☐ Temporary barrier ☐ Moveable barrier

☐ CONCRETE SAWS

☐ Perimeter barrier/DOB Construction Fence ☐ Temporary barrier ☐ Moveable barrier

I _____ of the _____
Name of Responsible Party Company

hereby certify that the information contained in this form is true and accurate.

_____ _____
Signature Date

*Notary Public*

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# SECTION 01 57 33

# SECURITY

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes general requirements for security at the Site, including accessing the Site, securing the Work, temporary fencing, and other requirements.
   2. Contractor shall safely guard all Work, the Project, materials, equipment, and property from loss, theft, damage, and vandalism until Substantial Completion, unless otherwise agreed upon by the parties.
   3. Contractor's duty includes safely guarding Owner's property in the vicinity of the Work and Project, the Site, and other private property in the vicinity of the Project from injury and loss in connection with the performance of the Project.
   4. Employ a security guard to provide required security and prevent unauthorized entry during non-working hours, seven days a week, from the date of initial mobilization until Substantial Completion, or as otherwise directed by Owner.
   5. Costs for security required under this Section shall be paid by Contractor.
   6. Make no claim against Owner or property owners for damage resulting from trespass.
   7. Remedy damage to property of Owner and others arising from failure to furnish adequate security.
   8. Provide temporary fencing in accordance with the Contract Documents.

### 1.02 SUBMITTALS

A. Action Submittals:
   1. Shop Drawings: Submit drawings showing proposed locations and extent of breaches in existing site security fencing and proposed locations and extent of temporary site security fencing.
   2. Product Data: Submit manufacturer's data, specifications, and installation instructions for proposed temporary site security fencing and privacy screens.

B. Informational Submittals:
   1. Daily Security Logs: Submit in accordance with Paragraph 1.03.B of this Section.

### 1.03 CONTRACTOR'S SITE ACCESS AND SECURITY PROCEDURES

A. Comply with Section 01 55 13 (Temporary Access Roads and Parking Areas) and Owner's security procedures and access restrictions at the Site throughout the Project.

B. Daily Security Log:
   1. Maintain a daily security log of all Site workers and visitors throughout the Project. Include, at a minimum, the following information for each Site worker and visitor:
      a. Date.
      b. Name.
      c. Affiliation.
      d. Purpose of visit.
      e. Time in and time out.

2. Submit copy of daily security log to Construction Manager and Engineer with daily construction report in accordance with Section 01 32 26 (Construction Progress Reporting).

## PART 2 – PRODUCTS

### 2.01 TEMPORARY FENCING

A. Temporary Fencing:
   1. Provide free-standing chain-link fence panels, or chain-link fencing with in-ground posts, at locations shown on the Drawings, and at locations where permanent security fencing or barriers are breached or temporarily removed for the Work.
   2. Requirements:
      a. Materials: Fence fabric and framework shall be galvanized steel.
      b. Nominal Height: Eight feet, minimum.

### 2.02 RELATED MATERIALS

A. Privacy Screens:
   1. Provide privacy screens for all permanent security fencing and temporary fencing used for site security.
   2. Requirements:
      a. Size: Match to height of fence fabric.
      b. Color: Green or black.
      c. Opacity: 85 percent, minimum.

## PART 3 – EXECUTION

### 3.01 TEMPORARY FENCING

A. Installation:
   1. Provide temporary fencing for site security so that integrity of site security is maintained throughout the Project.
   2. Install temporary fencing used for site security in accordance with the Contract Documents and manufacturer's instructions.
   3. Install privacy screens in accordance with manufacturer's instructions on all permanent security fencing and all temporary fencing used for site security.

B. Maintenance:
   1. Maintain temporary fencing and privacy screens throughout the Project.
   2. Repair damage to temporary fencing and replace temporary fencing when required to preserve site security.
   3. Adjust or relocate temporary fencing at the Site as needed to accommodate the Work and construction sequencing.

C. Removal:
   1. Remove temporary fencing when permanent site security fencing is in place and fully functional, or when otherwise directed by Owner or Engineer.
   2. Repair damage caused by temporary fencing and its removal, and restore the Site to condition required by the Contract Documents. If condition is not specified, restore to pre-construction condition.

## 3.02 FIELD QUALITY CONTROL

A. Site Inspections:
   1. Perform hourly or more frequent inspections of the Site during non-working hours.
   2. Document the time and outcome of each inspection in a dedicated log. Log shall be made available to Owner, Construction Manager, and Engineer upon request.
   3. In the event of an on-site emergency during non-working hours, Contractor's security guard shall be responsible for notifying Contractor personnel, Owner, Construction Manager, Engineer, local emergency responders, and others as appropriate.

END OF SECTION

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# SECTION 01 58 13

# TEMPORARY PROJECT SIGNAGE

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall furnish and install temporary signage as specified in this Section for Project identification and construction site information.
   2. Temporary signs include:
      a. Project identification signs.
      b. Danger signs.
      c. Security signs.
   3. Do not display any other temporary signs, other than those specified, without prior approval of Owner.

B. Related Sections:
   1. Section 01 55 26, Maintenance and Protection of Traffic.

### 1.02 SUBMITTALS

A. Action Submittals:
   1. Shop Drawings: Submit drawings indicating size, text, font, character size, colors, graphics or logos (if any), type and grade of materials, and dimensions of each temporary sign, and the proposed locations and orientations of temporary signs at the Site.

## PART 2 – PRODUCTS

### 2.01 MATERIALS AND CONSTRUCTION

A. Project Identification Signs:
   1. Project identification signs, including size, colors, text, and logos, shall be in accordance with Figure 01 58 13-A, which is attached to this Section.
   2. Location: Install signs on perimeter security fencing at Smith Street and Fifth Street Site entrances. Provide one sign for each Site entrance; two signs total.
   3. Font: Calson 540.
   4. Background Color: White.
   5. Printing: Digital or screen printing with ultraviolet-resistant inks.
   6. Sign Board:
      a. Material: Aluminum composite, minimum thickness of three millimeters.
      b. Minimum Dimensions: As indicated on Figure 01 58 13-A.
   7. Distance from Ground to Center of Sign: Six feet.
   8. Supports and Bracing: Provide supports and bracing as required to adequately support and brace signs for the duration of the Project.

B. Danger Signs:
   1. Location: Install signs on perimeter security fencing and gates at intervals of not greater than 100 linear feet.
   2. Text: “DANGER” in upper panel and “CONSTRUCTION AREA AUTHORIZED PERSONNEL ONLY” in lower panel.

3. Background Color: Red upper panel, black outline along border, and white lower panel.
4. Text Color: White in upper panel and black in lower panel.
5. Printing: Digital or screen printing with ultraviolet-resistant inks.
6. Sign Board:
   a. Material: Treated polyethylene, thickness of 0.055 inch.
   b. Minimum Dimensions: 14 inches wide by 10 inches high.
7. Distance from Ground to Center of Sign: Six feet.
8. Supports and Bracing: Provide supports and bracing as required to adequately support and brace signs for the duration of the Project.

C. Security Signs:
1. Location: Install signs on security gates and at entrances of each field office trailer. Provide one sign for each trailer entrance.
2. Text: "SECURITY NOTICE" in upper panel and "ALL VISITORS MUST SIGN-IN AT THE FIELD OFFICE" in lower panel.
3. Background Color: Yellow upper panel, black outline along border, and white lower panel.
4. Text Color: Black for upper and lower panels.
5. Printing: Digital or screen printing with ultraviolet-resistant inks.
6. Sign Board:
   a. Material: Treated polyethylene, thickness of 0.055 inch.
   b. Minimum Dimensions: 20 inches wide by 14 inches high.
7. Supports and Bracing: Provide supports and bracing as required to adequately support and brace signs for the duration of the Project.

D. Other Signs:
1. Provide temporary signage as required for construction site operations and controlling traffic at the construction site. Temporary signage for controlling traffic shall comply with Section 01 55 26.

## PART 3 – EXECUTION

### 3.01 INSTALLATION, MAINTENANCE, AND REMOVAL

A. Installation:
1. Install temporary signs within 14 days of Engineer's approval of the submittal required by this Section.
2. Location of signs shall be as shown or indicated in the Contract Documents, or as directed by Engineer. Temporary signs shall be plainly visible to vehicular traffic.
3. Install signs in a neat, professional, workmanlike manner.

B. Maintenance:
1. Maintain temporary signage so that signs are clean, legible, and upright.
2. Cut grass, weeds, and other plants so that temporary signs are not covered or obscured.
3. Repair or replace damaged temporary signs.
4. Relocate signs as required by progress of the Project.

C. Removal:
1. Remove temporary signage prior to final inspection of the Work, or when directed by Engineer.

## 3.02 ATTACHMENTS

A. The attachments listed below, which follow after the “End of Section” designation, are part of this Section:
   1. Attachment A: Figure 01 58 13-A, Project Identification Signs (two pages).

END OF SECTION

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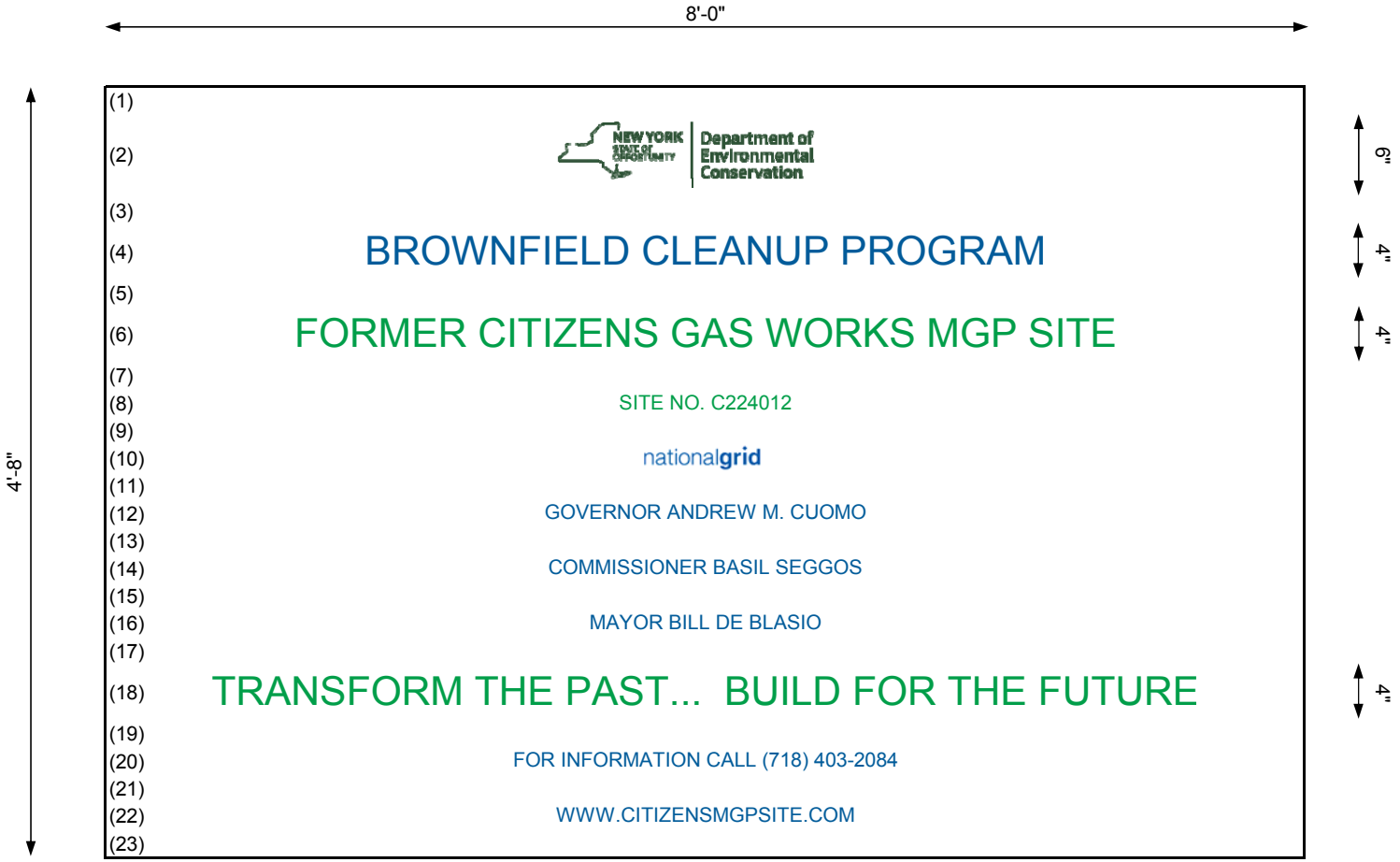


ELEVATION

NOT TO SCALE

**DRAFT**
**NOT FOR CONSTRUCTION**

NOTES:

1. (1), DENOTES LINE NUMBER.
2. FONT IS CALSON 540.
3. CENTER EACH LINE OF TEXT IN ALL CAPS.
4. TEXT COLORS ARE AS FOLLOWS:
   BLUE: PANTONE MATCHING SYSTEM 301 (LINE NOS. 4, 12, 14, 16, 20, AND 22).
   GREEN: PANTONE MATCHING SYSTEM 355 (LINE NOS. 6, 8, AND 18).
5. LOGOS WILL BE FURNISHED BY ENGINEER.
6. ROW/TEXT HEIGHT IS TWO INCHES, EXCEPT WHERE SHOWN OR INDICATED OTHERWISE.
7. INCLUDE BLANK LINE, TWO INCHES IN HEIGHT, AT TOP AND BOTTOM OF SIGN (LINE NOS. 1 AND 23) AND BETWEEN EACH LOGO OR LINE OF TEXT (LINE NOS. 3, 5, 7, 9, 11, 13, 15, 17, 19, AND 21).

NATIONAL GRID USA
SITE REMEDIATION
FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK

# PROJECT IDENTIFICATION SIGN

ARCADIS Design & Consultancy for natural and built assets

FIGURE

**01 58 13-A**

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# SECTION 01 61 00

# COMMON PRODUCT REQUIREMENTS

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes:
      a. Common requirements for materials and equipment.
      b. Compatibility of materials and equipment.

### 1.02 REQUIREMENTS FOR MATERIALS AND EQUIPMENT

A. Unless otherwise indicated in the Contract Documents, furnish materials and equipment that:
   1. have not been previously been incorporated into another project or facility; and
   2. have not changed ownership after initial shipment from the manufacturer's factory or facility; and
   3. if stored since their manufacture or fabrication, have, while in storage, been properly maintained and serviced in accordance with the manufacturer's recommendations for long-term storage; submit documentation as required by Engineer that such maintenance and service has been performed; and
   4. that the item(s) have not been subject to degradation or deterioration since manufacture; and
   5. are the current model(s) or type(s) furnished by the Supplier.

B. To the extent possible, furnish from a single source those materials and equipment that are of the same generic kind.

C. Furnish materials and equipment complete with accessories, trim, finish, fasteners, and other items shown, indicated, or required for a complete installation for the indicated use and performance.

D. Standard Items: When available, and unless custom or non-standard options are specified or indicated, furnish standard materials and equipment of types that have been produced and used successfully in similar situations on other projects.

E. Visual Matching: Where required in the Contract Documents, furnish materials and equipment that match (as determined by Engineer) referenced existing construction, and mock-ups and Samples approved by Engineer.

F. Where the Contract Documents include the phrase "as selected" for color of materials or equipment, finish pattern, option, or similar phrase, furnish materials and equipment selected by Engineer as follows:
   1. Standard Range: Where the Contract Documents include the phrase "standard range of colors, patterns, textures" or similar working, furnish color, pattern, density, or texture selected by Engineer from manufacturer's product line that does not include premium items.
   2. Full Range: Where the Contract Documents include the phrase "full range of colors, patterns, textures" or similar wording, Engineer will select color, pattern, density, or texture from manufacturer's entire product line, including standard and premium items.

1.03 COMPATIBILITY

A. Similar materials and equipment by the same Supplier shall be compatible with each other, unless otherwise indicated in the Contract Documents or approved by Engineer.

B. Furnish materials and equipment compatible with items previously selected or installed on the Project.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

# SECTION 01 62 00

# PRODUCT OPTIONS

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes:
      a. Contractor's options for selecting materials and equipment.
      b. Requirements for consideration of "or-equal" materials and equipment.

### 1.02 PRODUCT OPTIONS

A. For materials and equipment specified only by reference standard or description, without reference to Supplier, furnish materials and equipment complying with such standard, by a Supplier or from a source that complies with the Contract Documents.

B. For materials and equipment specified by naming one or more items or Suppliers, furnish the named materials and equipment that comply with the Contract Documents, unless an "or-equal" or substitute item is approved by Engineer.

C. For materials and equipment specified by naming one or more items or Suppliers and the term, "or equal", when Contractor proposes a material or equipment item or Supplier as an "or equal", submit to Engineer a request for approval of an "or-equal" item or Supplier.

D. For materials and equipment specified by naming only one item or manufacturer and followed by words indicating that no substitution is allowed, there is no option and no "or-equals" or substitution will be allowed or approved.

### 1.03 "OR-EQUAL" ITEMS

A. Procedure:
   1. For proposed materials and equipment not named in the Contract Documents and considered as an "or-equal" in accordance with the Supplementary Conditions, Contractor shall request in writing Engineer's approval of the "or-equal".
   2. Request for approval of an "or-equal" item shall accompany the Shop Drawing or product data submittal for the proposed item.

B. Requests for approval of "or-equals" shall include:
   1. Contractor's written request that the proposed item be considered as an "or-equal" in accordance with the Supplementary Conditions, accompanied by Contractor's certifications required in the Supplementary Conditions.
   2. Documentation adequate to demonstrate to Engineer that proposed item does not require extensive revisions to the Contract Documents, is consistent with the Contract Documents, will produce results and performance required in the Contract Documents, and is compatible with other portions of the Work.
   3. Detailed comparison of significant qualities of proposed item with the materials, equipment, and manufacturers named in the Contract Documents. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements shown or indicated.

4. Evidence that proposed item's manufacturer will furnish warranty equal to or better than that specified, if any.
5. List of similar installations for completed projects with project names and addresses, and names and address of design professionals and owners, when requested.
6. Samples, when requested by Engineer.
7. Other information requested by Engineer.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

# SECTION 01 65 00

# PRODUCT DELIVERY REQUIREMENTS

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes general requirements for preparing for shipping, delivering, and handling materials and equipment to be incorporated into the Work.
   2. Contractor shall make all arrangements for transporting, delivering, and handling of materials and equipment required for prosecution and completion of the Work.
   3. When required, move stored materials and equipment without changes to the Contract Price or Contract Times.

### 1.02 SUBMITTALS

A. Refer to individual Specifications Sections for submittal requirements relative to delivering and handling materials and equipment.

### 1.03 PREPARING FOR SHIPMENT

A. When practical, factory-assemble materials and equipment. Mark or tag separate parts and assemblies to facilitate field assembly. Cover machined and unpainted parts that may be damaged by the elements or climate with strippable, protective coating.

B. Package materials and equipment to facilitate handling, and protect materials and equipment from damage during shipping, handling, and storage. Mark or tag outside of each package and crate to indicate the associated purchase order number, bill of lading number, contents by name, Owner's contract designation, Contractor name, equipment number, and approximate weight. Include complete packing lists and bills of materials with each shipment.

C. Protect materials and equipment from exposure to the elements and damage by climate, and keep thoroughly dry and dust-free at all times. Protect painted surfaces against impact, abrasion, discoloration, and other damage. Lubricate bearings and other items requiring lubrication in accordance with manufacturer's instructions.

D. Advance Notification of Shipments:
   1. Keep Engineer informed of delivery of all materials and equipment to be incorporated in the Work.

E. Do not ship materials and equipment until:
   1. Related Shop Drawings, Samples, and other submittals required by the Contract Documents have been reviewed or accepted (as applicable) by Engineer, including, but not necessarily limited to, all Action Submittals associated with the materials and equipment being delivered.
   2. Manufacturer's instructions for handling, storing, and installing the associated materials and equipment have been submitted to and accepted by Engineer in accordance with the Specifications.
   3. Results of source quality control testing (factory testing), when required by the Contract Documents for the associated materials or equipment, have been submitted to and accepted by Engineer.

4. Facilities required for handling materials and equipment in accordance with the Contract Documents and manufacturer's instructions are in place and available.
5. Required storage facilities have been provided.

1.04 DELIVERY

A. Scheduling and Timing of Deliveries:
   1. Arrange deliveries of materials and equipment in accordance with the Progress Schedule accepted by Engineer and in ample time to facilitate inspection and observation prior to installation.
   2. Schedule deliveries to minimize space required for and duration of storage of materials and equipment at the Site or other delivery location, as applicable.
   3. Coordinate deliveries to avoid conflicting with the Work and conditions at the Site, and to accommodate the following:
      a. Work of other contractors and Owner.
      b. Storage space limitations.
      c. Availability of equipment and personnel for handling materials and equipment.
      d. Owner's use of premises.
   4. Deliver materials and equipment to the Site during regular working hours.
   5. Deliver materials and equipment to avoid delaying the Work and the Project, including work of other contractors, as applicable. Deliver anchor system materials, including anchor bolts to be embedded in concrete or masonry, in ample time to avoid delaying the Work.

B. Deliveries:
   1. Shipments shall be delivered with Contractor's name, Subcontractor's name (if applicable), Site name, Project name, and contract designation clearly marked.
   2. Site may be listed as the "ship to" or "delivery" address, but Owner shall not be listed as recipient of shipment unless otherwise directed in writing by Engineer.
   3. Provide Contractor's telephone number to shipper; do not provide Owner's telephone number.
   4. Arrange for deliveries while Contractor's personnel are at the Site. Contractor shall receive and coordinate shipments upon delivery. Shipments delivered to the Site when Contractor is not present will be refused by Owner, and Contractor shall be responsible for the associated delays and additional costs, if incurred.
   5. Comply with Section 01 35 43.13 (Environmental Procedures for Hazardous Materials).

C. Containers and Marking:
   1. Have materials and equipment delivered in manufacturer's original, unopened, labeled containers.
   2. Clearly mark partial deliveries of component parts of materials and equipment to identify materials and equipment, to allow easy accumulation of parts, and to facilitate assembly.

D. Inspection of Deliveries:
   1. Immediately upon delivery, inspect shipment to verify that:
      a. Materials and equipment comply with the Contract Documents and reviewed or accepted (as applicable) submittals.
      b. Quantities are correct.
      c. Materials and equipment are undamaged and of the required quality.
      d. Containers and packages are intact and labels are legible.
      e. Materials and equipment are properly protected.

2. Promptly remove damaged materials and equipment from the Site and expedite delivery of new, undamaged materials and equipment, and remedy incomplete or lost materials and equipment. Furnish materials and equipment in accordance with the Contract Documents, to avoid delaying progress of the Work.
3. Advise Engineer in writing when damaged, incomplete, or defective materials and equipment are delivered, and advise Engineer of the associated impact on the Progress Schedule.

1.05 HANDLING OF MATERIALS AND EQUIPMENT

A. Provide equipment and personnel necessary to handle materials and equipment, including those furnished by Owner, by methods that prevent soiling or damaging materials, equipment, and packaging.

B. Provide additional protection during handling as necessary to prevent scraping, marring, and otherwise damaging materials, equipment, and surrounding surfaces.

C. Handle materials and equipment by methods that prevent bending and overstressing.

D. Lift heavy components only at designated lifting points.

E. Handle materials and equipment in safe manner and as recommended by the manufacturer to prevent damage. Do not drop, roll, or skid materials and equipment off delivery vehicles or at other times during handling. Hand-carry or use suitable handling equipment.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

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# SECTION 01 66 00

# PRODUCT STORAGE AND HANDLING REQUIREMENTS

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes general requirements for storing and protecting materials and equipment.
   2. Contractor shall provide all labor, materials, tools, equipment, and incidentals to store and handle materials and equipment to be incorporated into the Work, and other materials and equipment at the Site.

### 1.02 STORAGE

A. General:
   1. Store and protect materials and equipment in accordance with manufacturer's recommendations and the Contract Documents.
   2. Contractor shall make all arrangements and provisions necessary for, and pay all costs for, storing materials and equipment.
   3. Excavated materials, construction equipment, and materials and equipment to be incorporated into the Work shall be placed to avoid injuring the Work and existing facilities and property, and so that free access is maintained at all times to all parts of the Work and to public utility installations in vicinity of the Work.
   4. Store materials and equipment neatly and compactly in locations that cause minimum inconvenience to Owner, other contractors, public travel, and owners, tenants, and occupants of adjoining property.
   5. Arrange storage in manner to allow easy access for inspection by Engineer and Resident Project Representative.

B. Storage Location:
   1. Areas available at the Site for storing materials and equipment are shown or indicated in the Contract Documents, or as acceptable to Owner or Engineer.
   2. Restrictions:
      a. Do not store materials or equipment in structures being constructed unless approved by Engineer in writing.
      b. Do not use lawns or other private property for storage without written permission of the owner or other person in possession or control of such premises.

C. Protection of Stored Materials:
   1. Store materials and equipment to become Owner's property to ensure preservation of quality and fitness of the Work, including proper protection against damage by freezing, moisture, and with outdoor ambient air high temperatures as high as 100 degrees F; temperature and humidity inside crates, containers, storage sheds, and packaging may be significantly higher than the outdoor ambient air temperature.
   2. Store in indoor, climate-controlled storage areas all materials and equipment subject to damage by moisture, humidity, heat, cold, and other elements, unless otherwise acceptable to Owner.

3. When placing orders to Suppliers for equipment and controls containing computer chips, electronics, and solid-state devices, Contractor shall obtain, coordinate, and comply with specific temperature and humidity limitations on materials and equipment, because temperature inside cabinets and components stored in warm temperatures can approach 200 degrees F.
4. Contractor shall be fully responsible for loss or damage (including theft) to stored materials and equipment.
5. Do not open manufacturer's containers until time of installation, unless recommended by the manufacturer or otherwise specified in the Contract Documents.
6. Comply with requirements of Article 1.03 of this Section.

1.03 PROTECTION – GENERAL

A. Equipment to be incorporated into the Work shall be boxed, crated, or otherwise completely enclosed and protected during shipping, handling, and storage, in accordance with Section 01 65 00 (Product Delivery Requirements).

B. Store all materials and equipment off the ground (or floor) on raised supports such as skids or pallets.

C. Protect painted surfaces against impact, abrasion, discoloration, and other damage. Painted equipment surfaces that are damaged or marred shall be repainted in their entirety in accordance with equipment manufacturer and paint manufacturer requirements, to the satisfaction of Engineer.

D. Protect electrical equipment, controls, and instrumentation against moisture, water damage, humidity, heat, cold, and dust. Space heaters provided in equipment shall be connected and operating at all times until equipment is placed in operation and permanently connected.

1.04 UNCOVERED STORAGE

A. The following types of materials may be stored outdoors without cover on supports so there is no contact with the ground:
   1. Reinforcing steel.
   2. Precast concrete materials.
   3. Structural steel.
   4. Metal stairs.
   5. Handrails and railings.
   6. Grating.
   7. Checker plate.
   8. Metal access hatches.
   9. Castings.
   10. Fiberglass items.
   11. Rigid electrical conduit, except PVC-coated conduit.
   12. Piping, except PVC or CPVC pipe.

1.05 COVERED STORAGE

A. The following materials and equipment may be stored outdoors on supports and completely covered with covering impervious to water:
   1. Grout and mortar materials.
   2. Masonry units.
   3. Rough lumber.
   4. Soil materials and granular materials such as aggregate.

5. PVC-coated electrical conduit.
6. PVC and CPVC pipe.
7. Filter media.

B. Tie down covers with rope or anchor with sandbags, and slope covering to prevent accumulation of water.

C. Store loose soil materials and granular materials, with covering impervious to water, in well-drained area or on solid surfaces to prevent mixing with foreign matter. Place, grade, and shape stockpiles for proper drainage.

1.06 FULLY-PROTECTED STORAGE

A. Store all material and equipment not indicated in Articles 1.04 and 1.05 of this Section on supports in buildings or trailers that have concrete or wooden flooring, roof, and fully-closed walls on all sides. Covering with visquine plastic sheeting or similar material in space without floor, roof, and walls is unacceptable. Comply with the following:
   1. Provide heated storage for materials and equipment that could be damaged by low temperatures or freezing.
   2. Provide air-conditioned storage for materials and equipment that could be damaged by high temperatures or humidity.
   3. Protect mechanical and electrical equipment from being contaminated by dust, dirt, and moisture.
   4. Maintain humidity at levels recommended by manufacturers for electrical and electronic equipment.

1.07 HAZARDOUS MATERIALS AND EQUIPMENT

A. Prevent contamination of personnel, storage areas, and the Site. Comply with Laws and Regulations, manufacturer's instructions, Section 01 35 43.13 (Environmental Procedures for Hazardous Materials), and other provisions of the Contract Documents.

1.08 MAINTENANCE OF STORAGE

A. On a scheduled basis, periodically inspect stored materials and equipment to ensure that:
   1. Condition and status of storage facilities is adequate to provide required storage conditions.
   2. Required environmental conditions are maintained on a continuing basis.
   3. Materials and equipment exposed to elements are not adversely affected.

1.09 RECORDS

A. Keep up-to-date account of materials and equipment in storage to facilitate preparation of Applications for Payment, if the Contract Documents provide for payment for materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing.

PART 2 – PRODUCTS (NOT USED)

## PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 71 26

CONSTRUCTION SURVEYING AND LAYOUT

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes surveying and layouts by Contractor and associated requirements. This Section supplements the provisions of the General Conditions on reference points and other matters.
   2. Contractor shall provide surveying and layout services for the Project, including:
      a. Developing and making all detail surveys and measurements required for construction, including slope stakes, batter boards, and all other working lines, elevations, and cut sheets.
      b. Providing materials required for benchmarks, control points, batter boards, grade stakes, structure and pipeline elevation stakes, and other items.
      c. Keeping a transit, theodolite, or total station (theodolite with electronic distance measurement device), leveling instrument, and related implements such as survey rods and other measurement devices, at the Site at all times, and having a skilled instrument person available when necessary for laying out the Work.
      d. Being solely responsible for all locations, dimensions, and levels. No data other than Change Order, Work Change Directive, or Field Order shall justify departure from dimensions and levels required by the Contract Documents.
      e. Rectifying all Work improperly installed because of not maintaining, not protecting, or removing without authorization established reference points, stakes, marks, and monuments.
      f. Providing such facilities and assistance necessary for Engineer and Resident Project Representative to check lines and grade points placed by Contractor. Do not perform excavation or backfilling Work until all cross-sectioning necessary for determining payment quantities for Unit Price Work have been completed and accepted by Engineer.

B. Coordination:
   1. Review requirements of this and other Sections and coordinate Work that must be performed with or before surveying and layout Work.

### 1.02 QUALITY ASSURANCE

A. Qualifications:
   1. Surveyor:
      a. Employ or retain the services, as needed, at the Site a surveyor with experience and capability of performing surveying and layout tasks required in the Contract Documents and as required for the Work.
      b. Contractor's surveyor shall possess not less than five years of experience performing duties similar in scope and extent to those required of Contractor's surveyor on this Project.
      c. Surveyor shall be a professional land surveyor licensed and registered in the State of New York.
      d. Responsibilities include, but are not necessarily limited to, the following:
         1) Providing required surveying equipment, including transit, theodolite, or total station; level; stakes; and surveying accessories.

2) Establishing required lines and grades for performing all excavating, filling, compacting, and grading, and for constructing all facilities, structures, pipelines, and site improvements.
3) Preparing and maintaining professional-quality, accurate, well-organized, legible notes of all measurements and calculations made while surveying and laying out the Work.
4) Performing such surveys and computations necessary to determine quantities of Work performed, placed, or installed.
5) Performing such surveys necessary to record actual construction, including demolition, excavation, backfilling, and restoration operations.
6) Prior to backfilling operations, surveying, locating, and recording on a copy of the Contract Documents accurate representation of buried Work and Underground Facilities installed and encountered.
7) Locating on a site plan of the Site the actual location of above-ground Work to be indicated on record documents.
8) Preparing certified survey drawings in accordance with Section 01 78 39 (Project Record Documents).
9) Complying with requirements of the Contract Documents relative to surveying and related Work.

## 1.03 SUBMITTALS

A. Informational Submittals:
   1. Procedure Submittals: Submit acceptable plan for conducting all survey Work not less than 10 days prior to starting survey Work.
   2. Survey Field Books: Submit original field books within two days after completing survey Work.
   3. Qualifications Statements: Submit name and address of firm, and resumes of each professional land surveyor and crew chief conducting the survey Work. Submit at least 10 days prior to beginning survey Work. During the Project, submit resume for each new registered land surveyor and crew chief employed or retained by Contractor at least 10 days prior to starting on the survey Work.
   4. Certificates: When requested by Engineer, submit certificate signed by professional surveyor certifying that elevations and locations of the Work comply with the Contract Documents. Explain all deviations, if any.

B. Closeout Submittals:
   1. Certified Surveys: Submit in accordance with Article 1.05 of this Section.

## 1.04 RECORDS

A. General:
   1. Maintain at the Site a complete and accurate log of control and survey Work as such Work progresses.

B. Field Books and Records:
   1. Survey data and records shall be in accordance with recognized professional surveying standards, Laws and Regulations, and prevailing standards of practice in the locality where the Site is located.
   2. Original field notes, computations, and other surveying data shall be recorded by Contractor's surveyor in Contractor-furnished hard-bound field books, and shall be signed and sealed by Contractor's surveyor.
   3. Completeness and accuracy of survey Work, and completeness and accuracy of survey records, including field books, shall be responsibility of Contractor.

4. Failure to organize and maintain survey records in an appropriate manner that allows reasonable and independent verification of calculations, and to allow identification of elevations, dimensions, and grades of the Work, shall be cause for rejecting the survey records, including field books.
5. Illegible notes or data, and erasures on any page of field books, are unacceptable. Do not submit copied notes or data. Corrections by ruling or lining out errors will be unacceptable unless initialed by the surveyor. Violation of these requirements may require re-surveying the data questioned by Engineer.

1.05 CERTIFIED SURVEYS

A. Upon completion of the Work, prepare certified surveys, signed and sealed by a professional surveyor licensed and registered in the State of New York, of the following:
   1. Remedial excavation plan, showing or indicating the final horizontal and vertical limits of excavation for each remedial excavation area, including subgrade spot elevations and topographic contours, referenced to Project datums.
   2. Barrier wall plan, showing or indicating the final horizontal and vertical limits of the barrier wall, including deadmen, tierods, wales, and appurtenances related thereto, referenced to Project datums.
   3. Final Site plan, showing or indicating final (post-construction) Site conditions.

B. Drawing Requirements:
   1. General Content:
      a. Property lines, easements, and rights-of-way.
      b. Topographic contours at minimum one-foot intervals, referenced to Project elevation datum.
      c. Horizontal and vertical location of buildings, foundations, and walls.
      d. Horizontal location of exposed piping and utilities, poles, exposed wires, posts, signs, markers, curbs, fencing, gates, guard rails, guard cables, valves, hydrants, and other facilities visible at or above ground surface.
      e. Horizontal limits of lawns, pavements, roads, walks, drives, and other surface improvements.
      f. Horizontal and vertical location of wells, including ground surface elevation, outer casing elevation, and inner casing elevation, referenced to Project elevation datum.
      g. Horizontal location, size (diameter at breast height), and species of trees and other plantings.
   2. Sheet Size: 34 inches wide by 22 inches high.

C. Certification:
   1. Each survey drawing shall be signed and sealed by Contractor's surveyor.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 SURVEYING

A. Verification of Conditions:
   1. Verify Site conditions before starting Work and promptly notify Construction Manager and Engineer of any discrepancies with the potential to affect the Work.

B. Reference Points:
   1. Refer to the General Conditions, as may be modified by the Supplementary Conditions, for requirements regarding reference points.
   2. Owner's established reference points that are damaged or destroyed by Contractor will be re-established by Owner at Contractor's expense. Owner may deduct from payments owed Contractor such amounts as set-offs in accordance with the Contract Documents.
   3. From Owner-established reference points, establish lines, grades, and elevations necessary to control the Work. Obtain measurements required for executing the Work to tolerances specified in the Contract Documents.
   4. Establish, place, and replace as required, such additional stakes, markers, and other reference points necessary for control, intermediate checks, and guidance of construction operations.

C. Surveys to Determine Quantities for Payment:
   1. For each Application for Payment, perform such surveys and computations necessary to determine quantities of Work performed, placed, or installed. Perform surveys necessary for Engineer to determine final quantities of Work performed or in place.
   2. Notify Engineer not less than 24 hours before performing survey services for determining quantities to be included in Application for Payment. Unless waived in writing by Engineer, perform quantity surveys in presence of Engineer or Resident Project Representative.

D. Surveys to Record Actual Construction: Perform such surveys necessary to record actual construction including, but not limited to, the following:
   1. Horizontal and vertical limits of excavation.
   2. Horizontal and vertical location of existing Underground Facilities and surface structures demolished, realigned, or abandoned in-place.
   3. Horizontal and vertical location of new Underground Facilities, including connections to existing Underground Facilities.
   4. Horizontal and vertical limits of fill for each material classification.
   5. Subgrade and final grade topography.
   6. Horizontal and vertical location of buildings, foundations, and walls.
   7. Horizontal location of exposed piping and utilities, poles, overhead wires, posts, signs, markers, curbs, fencing, gates, guard rails, guard cables, valves, hydrants, and other facilities visible at or above ground surface.
   8. Horizontal limits of lawns, pavements, roads, walks, drives, and other surface improvements.
   9. Horizontal and vertical location of wells, including ground surface elevation, outer casing elevation, and inner casing elevation.
   10. Horizontal location, size (diameter at beast height), and species of trees and other plantings.

E. Construction Surveying: Comply with the following:
   1. Alignment Staking: Provide alignment stakes at 50-foot intervals on tangent, and at 25-foot intervals on curves.
   2. Structures: Stake-out structures, including elevations, and check prior to and during construction.
   3. Pipelines: Stake-out pipelines including elevations, and check prior to and during construction.
   4. Roads, Drives, and Paved Areas: Stake-out roadway, driveway, and paved area elevations at 50-foot intervals on tangent, and at 25-foot intervals on curves.
   5. Cross-Sections: Provide original, intermediate, and final staking as required for site work, and other locations as necessary for quantity surveys.

6. Easement Staking: Provide easement staking at 50-foot intervals on tangent, and at 25-foot intervals on curves. Also provide wooden laths with flagging at maximum intervals of 100 feet.
7. Record Staking: Provide permanent stake at each blind flange and each utility cap provided for future connections. Stakes for record staking shall be material acceptable to Engineer.

F. Accuracy:
1. Establish Contractor's temporary survey reference points for Contractor's use to not greater than second-order accuracy (i.e., 1:10,000). Construction staking used as a guide for the Work shall be set at not greater than third-order accuracy (i.e., 1:5000). Basis on which such orders are established shall provide the absolute margin for error specified below.
2. Horizontal accuracy of easement staking shall be plus or minus 0.1 foot. Accuracy of other staking shall be plus-or-minus 0.04 foot horizontally and plus-or-minus 0.02 foot vertically.
3. Survey calculations shall include an error analysis sufficient to demonstrate required accuracy.

END OF SECTION

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# SECTION 01 71 33

# PROTECTION OF THE WORK AND PROPERTY

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes general requirements for safety and protection that augment the requirements of the General Conditions, as may be modified by the Supplementary Conditions. This Section also includes requirements for barricades and warning signals, and protection of trees and plants, existing structures, installed items, and landscaping.
   2. Contractor shall be responsible for taking all precautions, providing all programs, and taking all actions necessary to protect personnel health and safety, and to protect the Work and all public and private property and facilities from damage as specified in the General Conditions, Supplementary Conditions, and the Specifications.
   3. To prevent damage, injury, or loss, Contractor's actions shall include the following:
      a. Providing measures for safety of personnel at the Site, including workers engaged in the Work, delivery personnel, testing and inspection personnel, personnel of authorities having jurisdiction, other visitors to the Site, the public, Owner's personnel, Construction Manager, Engineer, Resident Project Representative, and Air Monitoring Contractor.
      b. Storing apparatus, materials, supplies, and equipment in an orderly, safe manner that does not unduly interfere with the progress of the Work or work of other contractors, utility owners, and owners of transportation rights-of-way.
      c. Providing suitable storage facilities for materials and equipment subject to damage or degradation by exposure to climate, temperature, theft, breakage, or other cause.
      d. Placing upon the Work or any part thereof only loads consistent with the safety and integrity of that portion of the Work and existing construction.
      e. Frequently removing and disposing of refuse, rubbish, scrap materials, and debris caused by Contractor's operations so that, at all times, the Site is safe, orderly, and workmanlike in appearance.
      f. Providing temporary barricades, fencing, and guard rails around openings, scaffolding, temporary stairs and ramps, excavations, elevated walkways, and other areas that may present a fall-hazard or hazard to vehicles and pedestrians.
   4. Do not, except after written consent from proper parties, enter or occupy privately-owned property or premises with personnel, tools, materials, or equipment, except on lands and easements provided by Owner. Contractor shall not seek out such written consent unless specifically authorized by Owner in writing to do so.
   5. Contractor has full responsibility for preserving public and private property and facilities on and adjacent to the Site. Direct or indirect damage done by, or on account of, any act, omission, neglect, or misconduct by Contractor in executing the Work, shall be remedied by Contractor, at its expense, to condition equal to that existing before damage was done.
   6. Owner may remedy:
      a. Should Contractor fail to protect and safeguard property and the Work after requests from Owner, Construction Manager, or Engineer, Owner may implement measures to protect property and the Work.
      b. Cost of such Owner-implemented measures shall be paid by Contractor. Owner may deduct from payments due Contractor such amounts as set-offs in accordance with the Contract Documents.

c. Such right, however, shall not result in any obligation by Owner, Construction Manager, or Engineer to continuously monitor or have responsibility for protection of property and the Work, which responsibility is exclusively Contractor's.

## PART 2 – PRODUCTS (NOT USED)

## PART 3 – EXECUTION

### 3.01 BARRICADES AND WARNING SIGNALS

A. General:
1. Where the Work is performed on or adjacent to roadway, access road or driveway, right-of-way, or public place:
   a. Provide temporary barricades, fences, lights, warning signs, danger signals, watchmen, and take other precautionary measures for protecting persons, property, and the Work.
   b. Use appropriately colored and reflective barricades, or paint barricades accordingly, to be visible at night.
   c. From sunset to sunrise, provide and maintain not less than one temporary light at each barricade.
   d. Erect sufficient barricades to keep vehicles from being driven on or into Work under construction.
   e. Furnish watchmen in sufficient numbers to protect the Work.
2. Provide temporary barricades to protect personnel and property for Work not in or adjacent to transportation routes and vehicular travel areas, including indoor work, in accordance with Laws and Regulations.
3. Contractor's responsibility for maintaining temporary barricades, signs, and lights, and for providing watchmen shall continue until the Work is substantially complete in accordance with the Contract Documents, unless other provision for security and protection is agreed to by the parties. After Substantial Completion, protect Work and property during periods when final Work or corrective Work is underway.

B. Temporary Fencing: Comply with Section 01 57 33 (Security).

C. Coordinate Work in this Article with the following Specifications:
1. Section 01 55 26, Maintenance and Protection of Traffic.
2. Section 01 57 33, Security.
3. Section 31 23 00, Excavation and Fill.

### 3.02 TREE AND PLANT PROTECTION

A. General:
1. Protect existing trees, shrubs, and plants on or adjacent to the Site, shown or designated to remain in place, against unnecessary cutting, breaking, damage, or skinning of trunk, branches, bark, and roots.
2. Do not store materials or equipment, or park construction equipment and vehicles, within foliage drip lines.
3. In areas subject to traffic, provide temporary fencing or temporary barricades to protect trees and plants.
4. Cover exposed roots with burlap, and keep such burlap continuously wet. Cover exposed roots with earth as soon as possible. Protect root systems from mechanical damage and damage by erosion, flooding, run-off, and noxious materials in solution.

5. If branches or trunks are damaged, prune branches immediately and protect cut or damaged areas with emulsified asphalt compounded specifically for horticultural use, in manner acceptable to Engineer.
6. When directed by Engineer, remove and properly dispose of damaged trees and plants that die or suffer permanent injury, and replace at Contractor's expense each damaged tree or plant with specimens of equal or better species and quality.

B. Coordinate Work in this Article with the following Specifications:
   1. Section 31 11 00, Clearing and Grubbing.

## 3.03 PROTECTION OF EXISTING STRUCTURES

A. Underground Facilities:
   1. Underground Facilities known to Owner and Engineer, except water, gas, sewer, electric, and communications services to individual buildings and properties, are shown on the Drawings. Information shown for Underground Facilities is the best available to Owner and Engineer but, in accordance with the General Conditions, as may be modified by the Supplementary Conditions, is not guaranteed to be correct or complete.
   2. Utility Mark-Out:
      a. Clearly delineate areas of selective demolition, trenching, excavating, pile driving, or other subsurface Work at the Site.
      b. Provide required notification to local one-call notification system (New York 811) at least two working days, but not more than 10 working days, before planned start of selective demolition, trenching, excavating, pile driving, or other subsurface Work.
      c. Walk the Site and review utility markings before proceeding with selective demolition, trenching, excavating, pile driving, or other subsurface Work.
      d. Protect and preserve staking, markings, or other designations until no longer required for proper and safe Work at or near Underground Facilities.
   3. Contractor shall explore ahead of selective demolition, trenching, excavating, pile driving, or other subsurface Work, and shall sufficiently uncover Underground Facilities that will or may interfere with the Work to determine their location, to prevent damage to Underground Facilities, and to prevent service interruption to structures and properties served by Underground Facilities. If Contractor damages an Underground Facility, or the material surrounding or supporting the same, Contractor shall immediately notify Owner, Construction Manager, Engineer, and the owner of the damaged facility and restore it to its pre-construction condition, in accordance with requirements of the owner of the damaged facility and the General Conditions. Such repair or restoration Work shall be performed at no additional cost to Owner.
      a. Undertake such emergency response actions as may be required.
      b. Collect, containerize, characterize, and properly dispose of any oils or pollutants released from the damaged facility.
      c. Provide provisions for alternate or temporary service until damaged facility is repaired.
      d. Provide assistance to the owner of the damaged facility during repairs unless authorized by the facility's owner to undertake such repairs directly.
   4. Necessary changes in the location of the Work may be directed by Engineer to avoid Underground Facilities not shown or indicated on the Contract Documents.
   5. If permanent relocation of an existing Underground Facility is required and is not otherwise shown or indicated in the Contract Documents, Contractor may be directed in writing to perform the required Work. When such relocation Work results in a change in the Contract Price or Contract Times, the associated contract modification procedures and payment for such Work shall be in accordance with the Contract Documents.

B. Surface Structures:
   1. Surface structures are existing buildings, structures, and other facilities at or above ground surface, including their foundations and any extension below ground surface. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage routes, exposed piping and utilities, wells, poles, exposed wires, posts, signs, markers, curbs, walks, fencing, and other facilities visible at or above ground surface.
   2. Existing surface facilities, including but not limited to guard rails, posts, guard cables, signs, poles, markers, curbs, and fencing, that are damaged or temporarily removed to facilitate the Work shall be replaced and restored to their pre-construction condition at Contractor's expense.

C. Protection of Underground Facilities and Surface Structures:
   1. Contractor shall sustain in their places and protect from direct or indirect injury all Underground Facilities and surface structures located within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully and as required by the party owning or controlling such facility or structure.
   2. Before proceeding with the Work of sustaining and supporting such facility or structure, Contractor shall satisfy Engineer that methods and procedures to be used have been approved by party owning same.
   3. Contractor shall bear all risks attending the presence or proximity of all Underground Facilities and surface structures within or adjacent to the limits of the Work, in accordance with the Contract Documents.
   4. Contractor shall be responsible for damage and expense for direct or indirect injury, caused by Contractor's activities, to structures and facilities. Contractor shall promptly repair damage caused by Contractor's activities, to the satisfaction of the owner of damaged structure or facility.
   5. Protection of Underground Facilities Under Roads and Parking Areas:
      a. Provide temporary, heavy-duty steel roadway plates to protect existing manholes, handholes, valve boxes, vaults, and other Underground Facilities near to or visible at the ground surface.
   6. Protection of Wells:
      a. Clearly mark, maintain, and protect wells shown or indicated to remain.
      b. Repair or decommission and replace at Contractor's expense wells damaged during the Work.
         1) Decommissioning shall be in accordance with Section 33 29 00 (Well Decommissioning).
         2) Replace decommissioned well with new well of equal construction. Install new well at location selected by Engineer.
   7. Comply with 16 NYCRR 753 (Protection of Underground Facilities) and other Laws and Regulations regarding the protection of Underground Facilities.

D. Coordinate Work in this Article with the following Specifications:
   1. Section 02 41 19, Selective Demolition.
   2. Section 31 23 00, Excavation and Fill.
   3. Section 31 50 00, Excavation Support and Protection.
   4. Section 33 29 00, Well Decommissioning.

## 3.04 PROTECTION OF INSTALLED MATERIALS, EQUIPMENT, AND LANDSCAPING

A. Protect installed Work to prevent damage from subsequent operations. Remove protective items when no longer needed, prior to Substantial Completion of the Work.

B. Control traffic to prevent damage to equipment, materials, and surfaces.

C. Provide temporary coverings to protect materials and equipment from damage.

END OF SECTION

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# SECTION 01 73 29

# CUTTING AND PATCHING

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes general requirements for cutting and patching Work.
   2. Contractor shall perform cutting and coring, and rough and finish patching of holes and openings in existing construction.
   3. Provide cutting, coring, fitting and patching, including attendant excavation and fill, required to complete the Work, and to:
      a. remove and replace defective Work;
      b. remove samples of installed Work as specified or required for testing;
      c. remove construction required to perform required alterations or additions to existing construction;
      d. uncover the Work for Engineer's observation of covered Work, testing or inspection by testing entities, or observation by authorities having jurisdiction;
      e. connect to completed Work not performed in proper sequence;
      f. remove or relocate existing utilities and piping that obstruct the Work in locations where connections are to be made; and
      g. make connections or alterations to existing or new facilities.

## PART 2 – PRODUCTS

### 2.01 MATERIALS

A. General:
   1. Use materials that comply with the Contract Documents.
   2. If not shown or indicated in the Contract Documents, use materials that are identical to existing materials affected by cutting and patching Work.
   3. For exposed surfaces, use materials that visually match existing adjacent surfaces to fullest extent possible. If identical materials are unavailable or cannot be used, use materials whose installed performance will equal or surpass that of existing materials.
   4. Replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, using materials that do not void required or existing warranties.

B. Compound Applied to Core-Drilled Surfaces and Cut Concrete Surfaces:
   1. After core-drilling and before installing the utility or equipment through the penetration, coat exposed concrete and steel with solvent-free, two-component, protective, epoxy resin coating.
   2. Color shall approximate the finish color of the existing surface to be coated.
   3. Product and Manufacturer: Provide one of the following:
      a. Sikagard 62, by Sika Corporation.
      b. Or equal.

## PART 3 – EXECUTION

### 3.01 GENERAL

A. Perform cutting and coring in such manner that limits extent of patching required.

B. Structural Elements:
   1. Do not cut or patch structural elements in manner that would change the element's structural load-carrying capacity as load deflection ratio.

C. Operating Elements:
   1. Do not cut or patch operating elements in manner that would reduce their capacity to perform as intended.
   2. Do not cut or patch operating elements or related components in manner that would increase maintenance requirements or decrease operational life or safety.

D. Replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, using methods that do not void required or existing warranties.

### 3.02 INSPECTION

A. Examine surfaces to be cut or patched, and conditions under which cutting or patching will be performed before starting cutting or patching Work.

B. Report unsatisfactory or questionable conditions to Engineer in writing. Do not proceed with cutting or patching Work until unsatisfactory conditions are corrected.

### 3.03 PREPARATION

A. Provide temporary support required to maintain structural integrity of facilities, to protect adjacent work from damage during cutting, and to support the element(s) to be cut.

B. Protection of Existing Construction During Cutting and Patching:
   1. Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project and facility that will be exposed during cutting and patching operations.
   2. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
   3. Do not cut existing pipe, conduit, ductwork, or other utilities serving facilities scheduled to be removed or relocated until provisions have been made to bypass them.

### 3.04 CORING

A. Use core-drilling to make penetrations through concrete and masonry walls, slabs, or arches, unless otherwise accepted by Engineer in writing.

B. Coring:
   1. Perform coring with non-impact rotary tool using diamond core-drills. Size holes for pipe, conduit, sleeves, equipment or mechanical seals, as required, to be installed through the penetration.
   2. Do not core-drill through electrical conduit or other utilities embedded in walls or slabs without approval of Engineer. To extent possible, avoid cutting reinforcing steel in slabs and walls.

C. Protection:
   1. Protect existing equipment, utilities, and adjacent areas from water and other damage caused by or resulting from core-drilling operations.
   2. After core-drilling and before installing the utility or equipment through the penetration, coat exposed concrete and steel with protective coating material indicated in Paragraph 2.01.B of this Section. Apply protective coating in accordance with manufacturer's instructions.

D. Cleaning:
   1. After core-drilling, vacuum or otherwise remove slurry and tailings from the work area.

## 3.05 CUTTING

A. Cutting – General:
   1. Cut existing construction using methods least-likely to damage elements retained and adjoining construction and that provide proper surfaces to receive subsequent installation or repair.
   2. In general, use hand tools or small power tools suitable for sawing or grinding. When possible, avoid using hammering and avoid chopping.
   3. Cut holes and slots as small as possible, neatly to the size required, and with minimum disturbance of adjacent surfaces.
   4. Prior to starting cutting, provide adequate bracing of area to be cut.
   5. To avoid marring existing finished surfaces, cut or drill from exposed or finished side into concealed side.
   6. Provide equipment of adequate size to remove the cut panel or "coupon".
   7. Provide temporary covering over cut openings where not in use.

B. Cutting – Concrete and Masonry:
   1. Cut through concrete and masonry using concrete wall saw with diamond saw blades.
   2. On both sides of the element being cut, provide for control of slurry generated during sawing.
   3. After cutting concrete and before installing subsequent construction on or through the opening, coat exposed concrete and steel with protective coating material indicated in Paragraph 2.01.B of this Section. Apply protective coating in accordance with manufacturer's instructions.

## 3.06 PATCHING

A. Patching – General:
   1. Patch construction by filling, repairing, refinishing, closing-up, and similar operations following performance of other Work.
   2. Patch with durable seams that are as inconspicuous as possible. Provide materials and comply with installation requirements indicated in the Contract Documents.
   3. Patch to provide airtight and watertight connections to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
   4. Where feasible, test patched areas to demonstrate integrity of installation.

B. Restoration:
   1. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in manner that eliminates evidence of patching and refinishing.
   2. For continuous surfaces, refinish to nearest intersection.
   3. For an assembly, refinish the entire unit that was patched.

## 3.07 CLEANING

A. Cleaning and Restoration:
   1. Clean areas and spaces where cutting, coring, or patching were performed.
   2. Clean piping, conduit, and similar constructions before applying paint or other finishing materials.
   3. Restore damaged coverings of pipe and other utilities to original condition.

END OF SECTION

# SECTION 01 74 05

# CLEANING

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes requirements for keeping the Site free of accumulations of waste materials during construction ("progress cleaning") and cleaning for Substantial Completion and prior to final inspection (collectively, "closeout cleaning").
   2. Contractor shall perform cleaning during the Project, including progress cleaning, upon completion of the Work, and as required by the General Conditions, as may be modified by the Supplementary Conditions, and this Section.
   3. Maintain in a clean manner the Site, the Work, and areas adjacent to or affected by the Work.

### 1.02 REFERENCE STANDARDS

A. The following standards are referenced in this Section:
   1. NFPA 241, Safeguarding Construction, Alteration, and Demolition Operations.

## PART 2 – PRODUCTS (NOT USED)

## PART 3 – EXECUTION

### 3.01 PROGRESS CLEANING

A. General:
   1. Clean the Site, work areas, and other areas occupied by Contractor not less than weekly. Dispose of materials in accordance with the General Conditions, as may be modified by the Supplementary Conditions, and the following:
      a. Comply with NFPA 241 for removing combustible waste materials and debris.
      b. Do not hold non-combustible materials at the Site more than three days if the temperature is expected to rise above 80 degrees F. When temperature is less than 80 degrees F, dispose of non-combustible materials within seven days of their generation.
      c. Provide suitable containers for storage of waste materials and debris.
      d. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately.

B. Site:
   1. Keep outdoor, dust-generating areas wetted down or otherwise control dust emissions.
   2. Not less than weekly, brush-sweep roadways and paved areas at the Site that are used by construction vehicles or otherwise affected by construction activities.
   3. Comply with cleaning and dust control requirements of Sections 01 55 13 (Temporary Access Roads and Parking Areas) and 01 57 05 (Temporary Controls).

C. Work Areas:
   1. Clean areas where the Work is in progress to maintain the extent of cleanliness necessary for proper execution of the Work.
   2. Remove liquid spills promptly. Immediately report spills, regardless of material, volume, or circumstances involved, to Owner, Construction Manager, Engineer, and authorities having jurisdiction in accordance with the Contract Documents and Laws and Regulations.
   3. Where dust would impair proper execution of the Work, broom-clean or vacuum entire work area, as appropriate.
   4. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

D. Installed Work:
   1. Keep installed Work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of material or equipment installed, using only cleaning agents and methods specifically recommended by material or equipment manufacturer. If manufacturer does not recommend specific cleaning agents or methods, use cleaning agents and methods that are not hazardous to health and property and that will not damage exposed surfaces.

E. Exposed Surfaces:
   1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration until Substantial Completion.

F. Cutting and Patching:
   1. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, trailings and cuttings, and similar materials.
   2. Thoroughly clean piping, conduits, and similar features before applying patching material, paint, or other finishing materials. Restore damaged coverings on piping, ducting, and similar items to its pre-construction condition.

G. Waste Disposal:
   1. Properly dispose of waste materials, surplus materials, debris, and rubbish off the Site.
   2. Do not burn or bury rubbish and waste materials at the Site.
   3. Do not discharge volatile or hazardous substances, such as mineral spirits, oil, or paint thinner, into storm sewers or sanitary sewers.
   4. Do not discharge wastes into surface waters or drainage routes.
   5. Contractor is solely responsible for complying with Laws and Regulations regarding storing, transporting, and disposing of waste generated by Contractor's operations or brought to the Site by Contractor.

H. During handling and installation of materials and equipment, clean and protect construction in progress and adjoining materials and equipment already in place. Apply protective covering where required for protection from damage or deterioration, until Substantial Completion.

I. Clean completed construction as frequently as necessary throughout the construction period.

## 3.02 CLOSEOUT CLEANING

A. Complete the following prior to requesting inspection for Substantial Completion:
   1. Clean and remove from the Site rubbish, waste material, debris, and other foreign substances.
   2. Sweep paved areas broom-clean. Remove petrochemical spills, stains, and other foreign deposits.
   3. Hose-clean sidewalks and loading areas.

4. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
5. Leave surface waterways, drainage routes, storm sewers, and gutters open and clean.
6. Repair pavement, roads, sod, and other areas affected by construction operations and restore to specified condition. If condition is not specified, restore to pre-construction condition.
7. Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, and similar spaces.
8. Remove non-permanent tags and labels.
9. Leave the Site clean, and in neat, orderly condition, satisfactory to Owner and Engineer.

B. Complete the following prior to requesting final inspection:
   1. Following completion of the Work on the “punch list” of Work uncompleted at Substantial Completion, clean in accordance with Paragraph 3.02.A of this Section.

END OF SECTION

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# SECTION 01 74 19

# CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes administrative and procedural requirements for:
      a. Recycling non-hazardous, uncontaminated demolition and construction waste.
      b. Recycling and reusing non-hazardous, uncontaminated demolition and construction waste.
      c. Disposing of non-hazardous, uncontaminated demolition and construction waste.

B. Coordination:
   1. Coordinate recycling and disposing of waste as specified under this and other Sections.

C. Related Sections:
   1. Section 01 31 13, Project Coordination.
   2. Section 02 41 19, Selective Demolition.
   3. Section 02 60 05, Contaminated Waste Management and Disposal.
   4. Section 31 23 00, Excavation and Fill.

D. Performance Requirements:
   1. Practice efficient waste management in using materials in the Work.
   2. Employ reasonable means to divert demolition and construction waste from landfills and incinerators. Facilitate recycling of materials, including the following:
      a. Demolition Waste:
         1) Concrete.
         2) Concrete reinforcing steel.
         3) Brick.
         4) Concrete masonry units.
         5) Structural steel and miscellaneous steel and metal.
      b. Construction Waste:
         1) Site-clearing waste.
         2) Packaging:
            a) Paper.
            b) Cardboard and boxes.
            c) Pallets and wood crates.
   3. Dispose of demolition and construction waste only at Owner-approved facilities.

### 1.02 TERMINOLOGY

A. The following words or terms are not defined but, when used in this Section, have the following meaning:
   1. “Construction waste” is building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
   2. “Demolition waste” is building and site improvement materials resulting from demolition or selective demolition operations.

3. “Disposal” is removal to an off-site location of demolition and construction waste and subsequent sale, recycling, reuse, or placement in an Owner-approved landfill or incinerator facility conforming to Laws and Regulations and acceptable to authorities having jurisdiction.
4. “Recycle” is recovery of demolition waste or construction waste for subsequent processing in preparation for reuse.
5. “Recycle and reuse” is recovery of demolition waste or construction waste and subsequent processing and reuse in the Work.

## 1.03 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
      a. 6 NYCRR 217, Motor Vehicle Emissions.
      b. 6 NYCRR 360, Solid Waste Management Facilities.
      c. 16 RCNY 2, Use of Department Disposal Facilities.
      d. 16 RCNY 5, Specifications for Trucks and Vehicles Conveying Rubbish Through the Streets and the Impoundment of Vehicles.
   2. Obtain required permits and approvals for transportation and disposal Work.
   3. Comply with hauling and disposal Laws and Regulations of authorities having jurisdiction.

## 1.04 SUBMITTALS

A. Informational Submittals:
   1. Waste Management Plan: Submit acceptable plan for managing demolition and construction waste within 14 days of the date the Contract Times commence running, and before removing any waste from the Site. Include the following:
      a. For materials that will be recycled and reused in the Work, procedures and equipment for preparing recycled materials before incorporating them into the Work.
      b. Procedures for separating each type of recyclable waste, including sizes of containers, container labeling, and designated location at the Site where materials will be separated and stored.
      c. List of local, Owner-approved disposal facilities that will be used for demolition and construction waste. Include name, address, and telephone number of each recycling or processing facility, landfill, and incinerator facility. Identify type of waste to be disposed of at each facility.
   2. Waste Profiles:
      a. Preliminary Waste Profiles: Submit waste profile, listing Owner’s name and address of the Site as generator of waste, for each landfill and incinerator facility. Owner will sign and return each acceptable waste profile to Contractor.
      b. Final Waste Profiles: Submit counter-signed waste profile and proof of acceptance of waste for each landfill and incinerator facility.
   3. Disposal Records:
      a. Recycling and Processing Facility Records: Submit counter-signed manifests, weight tickets, receipts, and invoices on a monthly basis throughout the Project, and concurrent with each Application for Payment.
      b. Landfill and Incinerator Facility Records: Submit counter-signed manifests, weight tickets, receipts, and invoices on a monthly basis throughout the Project, and concurrent with each Application for Payment.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Recyclable Waste: On a daily basis, remove all recyclable materials from the work area in acceptable containers.

B. Provide separate collection containers as required by recycling haulers and to prevent contamination of materials, including protection from the elements as applicable.

C. Replace loaded containers with empty containers as demand requires, at least weekly.

D. Handling: Deposit recyclable materials in containers in clean (no mud, adhesives, solvents, or petroleum or coal tar contamination), debris-free condition.

E. If contamination chemically combines with materials so that materials cannot be cleaned, do not deposit into recycle containers.

F. Environmental Requirements: Transport recyclable waste materials from the work area to recycling containers, and carefully deposit in containers in manner to minimize noise and dust. Close the covers of container immediately after materials are deposited. Do not place recyclable waste materials on the ground adjacent to container.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 WASTE MANAGEMENT

A. Provide handling, containers, storage, signage, transportation, and other items required to manage wastes during the Project.

B. Site Access and Temporary Controls:
   1. Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent facilities.
      a. Designate and label specific areas of the Site necessary for separating materials to be recycled or recycled and reused.
      b. Provide temporary controls in accordance with the Contract Documents.

C. Shipping Documents: Prepare a non-hazardous waste manifest for each shipment of demolition and construction waste. Owner or an authorized agent will review and sign each manifest as generator of waste.

3.02 RECYCLING WASTE

A. General:
   1. Recycle paper and beverage containers used by Contractor's personnel, Subcontractors, and Suppliers.
   2. Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at the Site to the maximum extent practical.
      a. Provide appropriately marked containers or bins for controlling recyclable waste until recyclable materials are removed from the Site. Post list of acceptable and unacceptable materials at each container and bin. Inspect containers and bins for contamination and remove contaminated materials if found.

b. Before removing from the Site, prepare and process recyclable waste as required by recycling or processing facility.
c. Stockpile processed materials at the Site without intermixing with other materials. Place, grade, and shape stockpiles to drain water. Cover to prevent dust and blowing debris.
d. Stockpile materials away from the construction area. Do not store within drip line of trees.
e. Remove recyclable waste from the Site and from Owner's property not less than weekly and transport to Owner-approved recycling or processing facility.

B. Recycling and Reuse of Demolition Waste:
1. Concrete:
a. Remove reinforcement and other metals from concrete and sort with other metals.
b. Crush concrete to maximum dimensions of three inches and screen to comply with general fill gradation requirements of Section 31 23 00.
c. Concrete that does not comply with requirements for fill, or is in excess of the quantity required for fill, shall be removed, transported, and disposed of away from the Site, unless otherwise approved by Engineer.
2. Masonry:
a. Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
b. Crush masonry to maximum dimensions of three inches and screen to comply with general fill gradation requirements of Section 31 23 00.
c. Masonry that does not comply with requirements for fill, or is in excess of the quantity required for fill, shall be removed, transported, and disposed of away from the Site, unless otherwise approved by Engineer.

C. Recycling Demolition Waste:
1. Metals:
a. Separate metals by type.
b. Stack structural steel according to size, type of member, and length.
c. Remove and dispose of bolts, nuts, washers, and other rough hardware.

D. Recycling Construction Waste:
1. Site-Clearing Wastes:
a. Cut trees, branches, shrubs, brush, and logs into manageable lengths.
b. If required by recycling or processing facility, chip trees, branches, shrubs, brush, and logs before removing from the Site.
2. Packaging:
a. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store at dry location.
b. Pallets: Require that goods delivered on pallets have the pallets removed from Site, to the extent possible. For pallets that remain at the Site, break down pallets into component wood pieces. Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, and treated wood materials.
c. Crates: Break down crates into component wood pieces. Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, and treated wood materials.

## 3.03 DISPOSAL OF WASTE

A. General: Except for items or materials to be recycled or recycled and reused, remove from the Site and properly dispose of waste at Owner-approved facility such as permitted landfill or incinerator, or other method acceptable to Owner and authorities having jurisdiction.

1. Except as otherwise specified, remove from the Site all waste and debris from the Work as it accumulates. Upon completion of the Work, remove materials, equipment, waste, and debris and leave the Site clean, neat, and orderly. Comply with the Contract Documents regarding cleaning and removal of trash, debris, and waste.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials at the Site.

END OF SECTION

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# SECTION 01 77 19

# CLOSEOUT REQUIREMENTS

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes general administrative and procedural requirements for the following:
      a. Substantial Completion.
      b. Final inspection.
      c. Request for final payment and acceptance of the Work.

### 1.02 SUBSTANTIAL COMPLETION

A. Substantial Completion – General:
   1. Prior to requesting Substantial Completion, perform the following for the substantially completed Work:
      a. Materials and equipment for which Substantial Completion is requested shall be fully ready for their intended use, including full operating and monitoring capability in automatic and manual modes.
      b. Complete field quality control Work, including testing at the Site, indicated in Specifications Sections for individual materials and equipment items. Submit results of, and obtain Engineer's acceptance of, field quality control tests required by the Contract Documents.
      c. Startup and checkout shall be completed in accordance with the requirements of the Specifications for the various materials and equipment in the substantially completed Work.
      d. Cleaning for Substantial Completion shall be completed in accordance with Section 01 74 05 (Cleaning).
      e. Spare parts, extra stock materials, and tools shall be delivered and accepted in accordance with the Specifications for the various materials and equipment in the substantially completed Work.
      f. Submit and obtain Engineer's acceptance of final operations and maintenance manuals, if any.
      g. Obtain and submit to Engineer all required permits, inspections, and approvals of authorities having jurisdiction for the substantially completed Work to be occupied and used by Owner.
      h. Complete other tasks that the Contract require be completed prior to Substantial Completion.
   2. Procedures for requesting and documenting Substantial Completion are specified in the General Conditions, as may be modified by the Supplementary Conditions.
   3. Unless decided otherwise by Owner and Construction Manager, form of certificate of Substantial Completion will be EJCDC® C-625, "Certificate of Substantial Completion" (2013 edition) prepared by Construction Manager.
   4. Refer to the Agreement and Section 01 29 76 (Progress Payment Procedures) for requirements regarding consent of surety to partial release of or reduction in retainage.

## 1.03 FINAL INSPECTION

A. Final Inspection – General:
   1. Prior to requesting final inspection, verify that all of the Work is fully complete and ready for final payment.
   2. Procedures for requesting and documenting the final inspection are specified in the General Conditions, as may be modified by the Supplementary Conditions.

## 1.04 REQUEST FOR FINAL PAYMENT AND ACCEPTANCE OF THE WORK

A. Procedure:
   1. Submit request for final payment in accordance with the Agreement and General Conditions, as may be modified by the Supplementary Conditions, and using the procedures specified in Section 01 29 76 (Progress Payment Procedures) and this Section.
   2. Acceptance of the Work:
      a. Upon Construction Manager's receipt of the final Application for Payment, accompanied by other required Contract closeout documentation in accordance with the Contract Documents, Construction Manager will issue to Owner and Contractor a notice of acceptability of the Work, in accordance with the General Conditions, as may be modified by the Supplementary Conditions.
      b. Nothing other than receipt of such notice of acceptability from Construction Manager constitutes acceptance of the Work.
      c. Unless decided otherwise by Owner and Construction Manager, form of acceptance will be EJCDC® C-626, "Notice of Acceptability of Work" (2014 edition).

B. Request for final payment shall include:
   1. Documents required for progress payments in Section 01 29 76 (Progress Payment Procedures).
   2. Documents required by the General Conditions, as may be modified by the Supplementary Conditions.
   3. List of all disputes that Contractor believes are unsettled.
   4. Consent of Surety to Final Payment:
      a. Acceptable form includes AIA® G707TM, "Consent of Surety to Final Payment" (1994 or later edition), or other form acceptable to Owner.
   5. Releases or Waivers of Lien Rights:
      a. When submitting releases or waivers of Lien rights, furnish release or waiver by Contractor and each Subcontractor and Supplier that provided Contractor, Subcontractor, or Supplier with labor, material, or equipment totaling $1,000.00 or more for the Contract.
      b. Furnish list of Subcontractors and Suppliers for which release or waiver of Lien is required, indicating final amount of the associated subcontract or purchase order for each. Include on the list all lower-tier Subcontractors and Suppliers retained by Subcontractors and Suppliers with direct subcontract or purchase order with Contractor.
      c. Each release or waiver of Lien shall be signed by an authorized representative of the entity submitting release or waiver of Lien, and shall include Contractor's, Subcontractor's, or Supplier's (as applicable) corporate seal, when applicable.
      d. Release or waiver of Lien may be conditional upon receipt of final payment.

6. Affidavits:
   a. In lieu of the release or waiver of Liens, Contractor may submit the following, for Contractor and each Subcontractor and Supplier that provided Contractor, Subcontractor, or Supplier with labor, material, or equipment totaling $1,000.00 or more, to Owner's satisfaction:
      1) Affidavit of payment of debts and claims. Acceptable form includes AIA® G706TM, "Contractor's Affidavit of Payment of Debts and Claims" (1994 or later edition), or other form acceptable to Owner, and;
      2) Affidavit of release of Liens. Acceptable form includes AIA® G706ATM, "Affidavit of Release of Liens" (1994 or later edition), or other form acceptable to Owner.
   b. Affidavits and supporting documents furnished under this Paragraph 1.04.B.6 shall comply with the requirements of the General Conditions, as may be modified by the Supplementary Conditions.
   c. Each affidavit furnished shall be signed by an authorized representative of the entity furnishing the affidavit, and shall include Contractor's, Subcontractor's, or Supplier's (as applicable) corporate seal, when applicable.
7. Evidence satisfactory to Owner that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of Liens or other title defects, or will so pass upon final payment.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

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# SECTION 01 78 36

# WARRANTIES

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes general requirements for warranties required in the various Specifications.
   2. Provisions on the Contract's correction period, Contractor's general warranty and guarantee, and Contractor's warranty of title are in the General Conditions, as may be modified by the Supplementary Conditions.
   3. This section includes general requirements for:
      a. Suppliers' standard warranties.
      b. Suppliers' special warranties.
      c. Implied warranties.
      d. Commencement and duration of warranties.

### 1.02 SUBMITTALS

A. General:
   1. For each item of material or equipment furnished under the Contract, submit Supplier's standard warranty, regardless of whether such warranty or submittal thereof is required by the associated Specifications for that item.
   2. For each item of material or equipment where Supplier's special (or extended) warranty is required by the Contract Documents, submit appropriate special warranty that complies with the Contract Documents.
   3. Supplier's warranties shall be specifically endorsed solely to Owner by the entity issuing such warranty.
   4. Submit Suppliers' standard warranties and special warranties as submittals in accordance with Schedule of Submittals accepted by Engineer.

### 1.03 SUPPLIERS' WARRANTIES FOR MATERIALS AND EQUIPMENT

A. Warranty Types:
   1. Required by the General Conditions:
      a. Warranties specified for materials and equipment shall be in addition to, and run concurrent with, Contractor's general warranty and guarantee and requirements for the Contract's correction period.
      b. Disclaimers and limitations in specific materials and equipment warranties do not limit Contractor's general warranty and guarantee, nor does such affect or limit Contractor's performance obligations under the correction period.
   2. Material or equipment manufacturer's standard warranty is pre-printed, written warranty published by item's manufacturer and specifically endorsed by manufacturer to Owner.
   3. Special warranty is written warranty required by the Contract Documents, either to extend the duration of material or equipment manufacturer's standard warranty or to provide other, increased rights to Owner. Where the Contract Documents indicate specific requirements for warranties that differ from the manufacturer's standard warranty for that item, special warranty is implied.

B. Requirements for Special Warranties:
   1. Submit written special warranty document that contains appropriate provisions and identification, ready for execution by material or equipment manufacturer and Owner. Submit draft warranty with submittals required prior to fabrication and shipment of the item from the Supplier's facility.
   2. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed by product manufacturer and other entities as appropriate.
   3. Specified Form: When specified forms for special warranties are included in the Contract Documents, prepare written document, properly executed by item manufacturer and Owner, using the required form.
   4. Refer to the Specifications for content and requirements for submitting special warranties.

1.04 IMPLIED WARRANTIES

A. Warranty of Title and Intellectual Rights:
   1. Except as may be otherwise indicated in the Contract Documents, implied warranty of title required by Laws and Regulations is applicable to the Work and to materials and equipment incorporated therein.
   2. Provisions on intellectual rights, including patent fees and royalties, are in the General Conditions, as may be modified by the Supplementary Conditions.

B. Warranty of Merchantability:
   1. Notwithstanding any other provision of the Contract to the contrary, implied warranties of merchantability required by Laws and Regulations apply to the Work, including the materials and equipment incorporated therein.

C. Warranty of Fitness-for-Purpose:
   1. Implied warranty of fitness-for-purpose for materials and equipment to be incorporated into the Work is hereby disclaimed by Owner and Contractor.
   2. When Supplier is aware of, or has reason to be aware of, specified materials or features of the Work that are contrary to the intended use, purpose, service, application, or environment in which the material or equipment item will be used, submit request for interpretation in accordance with Section 01 26 00 (Contract Modification Procedures). Where appropriate, such request for interpretation shall indicate the apparent discrepancy and propose appropriate, alternative materials or equipment.

1.05 COMMENCEMENT AND DURATION OF WARRANTIES

A. Commencement of Warranties:
   1. Contract correction period and Contractor's general warranty commence as indicated in the General Conditions, as may be modified by the Supplementary Conditions.
   2. Suppliers' general warranties and special warranties commence running on the date that the associated item is certified by Engineer as substantially complete. In no event shall special warranties commence running prior to Engineer's review and acceptance of special warranty submittal for the item.
   3. Implied warranties commence in accordance with Laws and Regulations.

B. Duration of Warranties:
   1. Duration of correction period is in accordance with the General Conditions, as may be modified by the Supplementary Conditions.
   2. Duration of Contractor's general warranty and guarantee is in accordance with Laws and Regulations.
   3. Duration of Suppliers' general warranties is in accordance with the applicable general warranty document accepted by Engineer.

4. Duration of required Suppliers' special warranties shall be in accordance with the requirements of the Contract Documents for the subject item.
5. Duration of implied warranties shall be in accordance with Laws and Regulations.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 78 39

PROJECT RECORD DOCUMENTS

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. This Section includes requirements for Project record documents, to supplement the requirements of the General Conditions, as may be modified by the Supplementary Conditions.
   2. Contractor shall provide all labor, materials, equipment, and services to maintain and submit to Engineer Project record documents in accordance with the Contract Documents.

### 1.02 SUBMITTALS

A. Closeout Submittals:
   1. Record Documents: Submit the following Project record documents in accordance with Article 1.04 of this Section:
      a. Drawings.
      b. Specifications and Addenda.

### 1.03 MAINTENANCE OF RECORD DOCUMENTS

A. Maintain in Contractor's field office, in clean, dry, legible condition, complete sets of the following record documents:
   1. Drawings, Specifications, and Addenda.
   2. Shop Drawings, Samples, and other Contractor submittals, including records of test results, reviewed or accepted, as applicable, by Engineer.
   3. Change Orders, Work Change Directives, Field Orders, copies of all interpretations and clarifications issued.
   4. Photographic documentation, survey data, permits, and all other documents pertinent to the Work.

B. Provide files and racks for proper storage and easy access to record documents. File record documents in accordance with the edition of the Construction Specifications Institute's MasterFormat™ used for organizing the Project Manual, unless otherwise accepted by Engineer.

C. Promptly make record documents available for observation and review upon request of Owner, Construction Manager, or Engineer.

D. Do not use record documents for any purpose other than serving as Project record. Do not remove record documents from Contractor's field office without Engineer's approval.

### 1.04 SUBMITTAL OF RECORD DOCUMENTS

A. Prior to readiness for final payment, submit to Engineer one copy of the Project's final record documents and obtain Engineer's acceptance of the same. Submit complete record documents; do not make partial submittals.

B. Submit record documents with transmittal letter on Contractor letterhead in accordance with requirements of Section 01 33 00 (Submittal Procedures).

C. Certifications:
   1. Record documents submittal shall include certification, with original signature of an official authorized to execute legal agreements on behalf of Contractor, reading as follows:

      "[*Insert Contractor's corporate name*] has maintained and submitted record documentation in accordance with the General Conditions, Supplementary Conditions, Specification Section 01 78 39, and other elements of Contract Documents, for the National Grid USA, Site Remediation, Former Citizens Gas Works Manufactured Gas Plant Site, Borough of Brooklyn, Kings County, New York. We certify that each record document submitted is complete, accurate, and legible relative to the Work performed under our Contract, and that the record documents comply with the requirements of the Contract Documents.

      [*Provide signature, print name, print signing party's corporate title, and date*]"

## 1.05 RECORDING CHANGES

A. General:
   1. At the start of the Project, label each record document to be submitted as "PROJECT RECORD" using legible, printed letters. Letters on record copy of the Drawings shall be two inches high.
   2. Keep record documents current, consistent with the progress of the Work. Make entries on record documents within two working days of receipt of information required to record the change.
   3. Do not permanently conceal the Work until required information has been recorded for Project record documents.
   4. Accuracy of record documents shall be such that future searches for items shown on the record documents may rely reasonably on information obtained from Engineer-accepted record documents.
   5. Marking of Entries:
      a. Use erasable, colored pencils (not ink or indelible pencil) for marking changes, revisions, additions, and deletions to record documents.
      b. Clearly describe the change by graphic line and make notations as required. Use straight-edge to mark straight lines. Writing shall be legible and sufficiently dark to allow scanning of record documents into legible electronic files in portable document format (".PDF").
      c. Date each entry on record documents.
      d. Indicate changes by drawing a "cloud" around the change(s) indicated.
      e. Mark initial revisions in red. In the event of overlapping changes, use different colors for subsequent changes.

B. Drawings:
   1. Record changes on a copy of the Drawings. Submittal of Contractor-originated or -produced drawings as a substitute for recording changes on a copy of the Drawings is unacceptable.
   2. Record changes on plans, sections, elevations, schematics, schedules, and details as required for clarity, making reference dimensions and elevations (to Project datum) for complete record documentation.

3. Record actual construction, including:
    a. Horizontal and vertical location of existing Underground Facilities and surface structures demolished, realigned, or abandoned in-place, referenced to permanent surface improvements and Project datums. For each Underground Facility or surface structure, show and indicate dimensions to not less than two permanent, visible surface improvements.
    b. Horizontal and vertical limits of excavation.
    c. Horizontal and vertical location of new Underground Facilities referenced to permanent surface improvements and Project datums. For each Underground Facility, including pipe fittings, provide dimensions to at least two permanent, visible surface improvements.
    d. Location of exposed utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure and, where applicable, to Project datums.
    e. Changes in structural and architectural elements of the Work, including changes in reinforcing.
    f. Field changes of dimensions, arrangements, and details.
    g. Changes made in accordance with Addenda, Change Orders, Work Change Directives, and Field Orders.
    h. Changes in details on the Contract Drawings. Submit additional details prepared by Contractor when required to document such changes.
4. Supplemental Drawings:
    a. In some cases, drawings produced during construction by Engineer or Contractor supplement the Drawings and shall be included with Project record documents submitted by Contractor. Supplemental record drawings shall include drawings or sketches that are part of Change Orders, Work Change Directives, and Field Orders and that cannot be incorporated into the Drawings because of space limitations.
    b. Supplemental drawings submitted with record drawings shall be integrated with the Drawings and include necessary cross-references between drawings. Supplemental record drawings shall be on sheets the same size as the Drawings.
    c. When supplemental drawings developed by Contractor using computer-aided drafting/design (CADD) software are to be included in record drawings, submit electronic files for such drawings in “DWG” format compatible with AutoDesk AutoCAD 2012 as part of record drawing submittal. Submit electronic files on compact disc labeled, “Supplemental Record Drawings”, including Contractor name, Project name, and Contract designation.

C. Specifications and Addenda:
1. Mark each Specifications Section to record:
    a. Manufacturer, trade name, catalog number, and Supplier of each material and equipment item actually provided.
    b. Changes made by Addendum, Change Orders, Work Change Directives, and Field Orders.

## 1.06 ELECTRONIC FILES FURNISHED BY ENGINEER

A. CADD files of the Drawings will be furnished by Engineer upon the following conditions:
1. Contractor shall submit to Engineer a letter on Contractor letterhead requesting CADD files of the Drawings and indicating specific definition(s) or description(s) of how such files will be used, and specific description of benefits to Owner if the request is granted.
2. Contractor shall execute Engineer’s standard agreement for release of electronic files and shall abide by the provisions of such agreement for release of electronic files.

3. Layering system incorporated in CADD files shall be maintained as transmitted by Engineer. CADD files transmitted by Engineer containing cross-referenced files shall not be bound by Contractor. Drawing cross-references and paths shall be maintained. If Contractor alters layers or cross-reference files, Contractor shall restore all layers and cross-references prior to submitting record documents to Engineer.
4. Contractor shall submit record drawings to Engineer in same CADD format that files were furnished to Contractor.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

# DIVISION 02

## Existing Conditions

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# SECTION 02 41 19

# SELECTIVE DEMOLITION

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall provide all labor, materials, equipment, and incidentals as shown, specified, and required for the selective demolition, removal, and disposal of existing buildings and structures, pavements, curbs, sidewalks, gutters, fencing, Underground Facilities, and similar facilities.
   2. Perform selective demolition Work within areas shown or indicated.
   3. Pay all fees associated with transporting and disposing of materials and equipment resulting from selective demolition.

B. Coordination:
   1. Review procedures under this and other Sections and coordinate Work that must be performed with or before selective demolition Work.

C. Related Sections:
   1. Section 01 73 29, Cutting and Patching.
   2. Section 01 74 05, Cleaning.
   3. Section 01 74 19, Construction Waste Management and Disposal.
   4. Section 02 60 05, Contaminated Waste Management and Disposal.
   5. Section 31 11 00, Clearing and Grubbing.
   6. Section 31 23 00, Excavation and Fill.
   7. Section 33 29 00, Well Decommissioning.

### 1.02 REFERENCE STANDARDS:

A. The following standards are referenced in this Section:
   1. NFPA 51, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work.

### 1.03 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
      a. 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response.
      b. 29 CFR 1910.251 through 29 CFR 1910.255, Subpart Q – Welding, Cutting, and Brazing.
      c. 29 CFR 1926.65, Hazardous Waste Operations and Emergency Response.
      d. 29 CFR 1926.350 through 29 CFR 1926.354, Subpart J – Welding and Cutting.
      e. 29 CFR 1926.850 through 29 CFR 1926.860, Subpart T – Demolition.
      f. 12 NYCRR 23-1.25, Welding and Flame Cutting Operations.
      g. 12 NYCRR 23-3.1 through 12 NYCRR 23-3.3, Subpart 23-3 – Demolition Operations.
      h. 16 NYCRR 753, Protection of Underground Utilities.
   2. Obtain required permits and approvals for selective demolition, removal, and disposal Work.
   3. Comply with requirements of authorities having jurisdiction.

1.04 SUBMITTALS

A. Informational Submittals:
   1. Selective Demolition Plan: Submit acceptable plan for selective demolition Work not less than 14 days prior to starting selective demolition Work. Include the following:
      a. Plan for coordinating shut-offs, locating, capping, temporary services, and continuing utility services.
      b. List of proposed equipment for selective demolition Work.
      c. Proposed selective demolition procedures. Where different procedures or equipment will be used for different types of material or at different locations at the Site, indicate where each procedure and equipment item will be used.
      d. Planned sequence of selective demolition operations, including coordination with excavation, backfilling, and pile driving Work.
      e. Detailed schedule of selective demolition Work in accordance with the accepted Progress Schedule.
   2. Notification of Intended Demolition Start: Submit in accordance with Paragraph 3.03.A of this Section.

1.05 WARRANTY

A. Existing Special Warranty: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 INSPECTION

A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain:
   1. Maintain services/systems indicated to remain and protect them against damage during selective demolition Work.

B. Existing Services/Systems to be Removed, Relocated, or Abandoned:
   1. Shutdown of utility services shall be coordinated and paid for by Contractor, and will be assisted by Owner as required relative to contacting utility owners.
   2. Before proceeding with selective demolition, locate; identify; drain, purge, or de-energize; and make safe for removal and capping all Underground Facilities to be removed, relocated, or abandoned. Collect, containerize, and properly dispose of chemicals, gases, coal tar, or other dangerous materials recovered from Underground Facilities.
   3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems.
   4. All modifications, shut-downs, and removals shall be in accordance with utility owner's policies and procedures.

C. Should uncharted or incorrectly charted Underground Facilities be encountered, Contractor's responsibilities shall be in accordance with the General Conditions, as may be modified by the Supplementary Conditions. Cooperate with utility owners in keeping adjacent services and facilities in operation.

## 3.03 PREPARATION

A. Notification:
   1. At least 48 hours prior to commencing selective demolition or removal Work, notify Owner and Engineer in writing of planned start of selective demolition Work. Do not start selective demolition without permission of Engineer.

B. Protection of Surrounding Areas and Facilities:
   1. Perform selective demolition and removal Work in manner that prevents damage and injury to property, structures, occupants, the public, and facilities. Do not interfere with use of, and free and safe access to and from, structures and properties.
   2. Closing or obstructing roads, drives, sidewalks, and passageways adjacent to the Work is not allowed unless indicated otherwise in the Contract Documents. Conduct the Work with minimum interference to vehicular and pedestrian traffic.
   3. Provide temporary barriers, lighting, sidewalks, sheds, and other necessary protection.
   4. Protect construction and facilities indicated to remain against damage and soiling during selective demolition operations. Repair damage at Contractor's expense. When permitted by Engineer, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
   5. Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
      a. Strengthen or add new supports when required during progress of selective demolition.
      b. Cease operations and immediately notify Engineer if safety of structure or facility appears to be endangered.
      c. Do not resume selective demolition operations until safety is restored.

C. Pollution Control:
   1. Provide and maintain special measures to prevent debris, waste, rubbish, and material resulting from selective demolition operations from entering surface waters, open drainage routes, sanitary sewers, or storm sewers. Comply with pollution control requirements of Section 01 57 05.
   2. Use water sprinkling, temporary enclosures, and other suitable methods to limit emissions of dust and dirt to lowest practical level. Comply with Section 01 57 05 and Laws and Regulations.
   3. Do not use water when water may create hazardous or objectionable conditions such as icing, flooding, or pollution.

## 3.04 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
   1. Unless otherwise approved by Engineer, proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.

2. Cutting and Patching: Comply with Section 01 73 29 and the following:
   a. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
   b. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Hot Work: Comply with NFPA 51, Laws and Regulations, and the following:
   a. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
   b. Maintain adequate ventilation when using cutting torches.
4. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
5. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain and at regular intervals using power-driven saw or hand tools, then remove concrete or masonry between saw cuts. Do not use power-driven impact tools. Where reinforcement is present, dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete indicated for selective demolition.
6. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
7. Break up and remove foundations and slabs-on-grade unless otherwise shown or indicated as remaining in place.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing, adjacent surfaces, and Underground Facilities.
9. Dispose of demolished items and materials promptly. Comply with requirements of Sections 01 74 19 and 02 60 05.

B. Selective Demolition of Buildings or Structures:
   1. Remove structures to lines and grades shown or indicated, unless otherwise directed by Engineer. Where limits are not shown or indicated, limits shall be four inches outside item to be installed. Removals beyond limits shown or indicated shall be at Contractor's expense and such excess removals shall be reconstructed to satisfaction of Engineer without additional cost to Owner.
   2. After removing concrete and masonry walls or portions thereof, slabs, and similar construction that ties into the Work or existing construction, neatly repair the junction point to leave exposed only finished edges and finished surfaces.
   3. Where parts of existing structures are to remain in service following demolition, remove the portions shown or indicated for removal, repair damage, and leave the building or structure in proper condition for the intended use.
      a. Remove concrete and masonry to the lines shown or indicated by sawing, drilling, chipping, and other suitable methods. Leave the resulting surfaces true and even, with sharp, straight corners that will result in neat joints with new construction and be satisfactory for the purpose intended.
      b. Do not damage reinforcing bars beyond the area of concrete and masonry removal. Do not saw-cut beyond the area to be removed.
      c. Reinforcing bars that are exposed at surfaces of removed concrete and masonry that will not be covered with new concrete or masonry shall be removed to 1.5 inches below the final surface. Repair the resulting hole, with repair mortar for concrete and grout for masonry, to be flush with the surface.

d. Where existing reinforcing bars are shown or indicated to extend into new construction, remove existing concrete so that reinforcing bars are clean and undamaged.

4. Where equipment or material anchored to concrete or masonry are removed and anchors are not to be re-used, remove the anchors to not less than 1.5 inches beneath surface of concrete or masonry member. Repair the resulting hole, using repair mortar for concrete and grout for masonry, to be flush with the surface. Alternately, when the anchor is stainless steel, the anchor may be cut flush with the surface of the concrete or masonry, when so approved by Engineer.
5. Jambs, sills and heads of windows, passageways, doors, or other openings (as applicable) cut-in to the Work or to existing construction shall be dressed with masonry, concrete, or metal to provide smooth, finished appearance.
6. Where anchoring materials, including bolts, nuts, hangers, welds, and reinforcing steel, are required to attach the Work to existing construction, provide such materials under this Section, unless specified elsewhere in the Contract Documents.
7. Waterfront Structures: Remove to the limits shown or indicated on the Drawings. Completely remove fenders, piles, and other below-water construction where shown or indicated. Where extent is not shown or indicated, remove to the extent required by new construction.

C. Selective Demolition of Site Improvements:
1. Pavement, Sidewalks, Curbs, and Gutters: Selective demolition of asphalt or concrete pavement, sidewalks, curbs, and gutters, as applicable, shall terminate at saw-cut edges. Edges shall be linear and have a vertical cut face.
2. Fencing, Guardrails, and Bollards: Remove to the limits shown or indicated on the Drawings. Completely remove below-grade posts and concrete.
3. Landscaping: Comply with Section 31 11 00.

D. Selective Demolition of Underground Facilities:
1. Wells and Piezometers: Comply with Section 33 29 00.
2. Manholes, Vaults, Chambers, and Handholes: Remove to the limits shown or indicated on the Drawings.
3. Underground Facilities Other than Wells, Piezometers, Manholes, Vaults, Chambers, and Handholes:
   a. Remove to the extent shown or indicated on the Drawings. Where extent is not shown or indicated, extent of removal shall be 24 inches (horizontally) outside of excavations and six inches below subgrade elevations shown or indicated.
   b. Unless otherwise shown or indicated, cap ends of piping to remain. Caps shall be compatible with the piping to which the cap is attached, fluid-tight and gas-tight, and appropriate for the fluid or gas conveyed in the pipe.
   c. Upon completing removals, measure, survey, and record portions of Underground Facilities, if any, that remain.

## 3.05 REUSE OF DEMOLISHED MATERIALS

A. Concrete and Masonry:
1. Separate concrete and masonry resulting from selective demolition operations from other demolished materials and process at the Site for use as fill. Comply with Sections 01 74 19 and 31 23 00.
2. Concrete or masonry that does not comply with requirements for fill, or is in excess of the quantity required for fill, shall be removed, transported, and disposed of away from the Site, unless otherwise approved by Engineer.

## 3.06 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove from the Site all debris, waste, rubbish, and material resulting from selective demolition operations and equipment used in selective demolition Work. Comply with the General Conditions, Supplementary Conditions, and Sections 01 74 05, 01 74 19, and 02 60 05.

B. Transportation and Disposal:
   1. Non-Hazardous Material: Properly transport and dispose of non-hazardous demolition debris at an appropriate, Owner-approved facility in accordance with Laws and Regulations. Non-hazardous material does not contain Asbestos, PCBs, Petroleum, Hazardous Waste, Radioactive Material, or other material designated as hazardous in Laws and Regulations.
   2. Hazardous Material: When handling and disposal of hazardous materials is included in the Work, properly transport and dispose of hazardous materials in accordance with Laws and Regulations and the Contract Documents.

## 3.07 CLEANING

A. Clean adjacent structures, facilities, properties, and improvements of dust, dirt, and debris caused by selective demolition operations in accordance with the General Conditions and Section 01 74 05.

END OF SECTION

# SECTION 02 60 05

# CONTAMINATED WASTE MANAGEMENT AND DISPOSAL

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall provide all labor, materials, equipment, services, and incidentals as specified and required to manage, remove from the Site, and dispose of contaminated waste generated during the Project.
   2. The Work includes, but is not limited to, characterizing, handling, segregating, dewatering, containerizing, temporary storage as necessary, loading, transporting, and disposing of contaminated waste at appropriate, Owner-approved facilities in accordance with Laws and Regulations.
   3. Pay all fees associated with transporting and disposing of contaminated waste.

B. Coordination:
   1. Coordinate disposing of waste as specified under this and other Sections.

C. Related Sections:
   1. Section 02 41 19, Selective Demolition.
   2. Section 31 11 00, Clearing and Grubbing.
   3. Section 31 23 00, Excavation and Fill.

### 1.02 REFERENCES

A. Terminology:
   1. The following words or terms are not defined but, when used in this Section, have the following meaning:
      a. “Construction wastewater” is water used for working or processing, or resulting from excavation dewatering or decontamination operations.
      b. “Contaminated waste” is waste material containing Manufactured Gas Plant Waste or Site-related Contaminants. Examples of potential contaminated wastes include, but are not limited to, the following:
         1) Site grubbing waste.
         2) Construction wastewater.
         3) Demolition waste.
         4) Excavation waste.
         5) Free-phase coal tar.
      c. “Demolition waste” is building and site improvement materials resulting from demolition or selective demolition operations.
      d. “Disposal” is removal to an off-site location of contaminated waste and subsequent recycling, reuse, or disposal in an Owner-approved treatment facility, landfill, or incinerator facility conforming to Laws and Regulations and acceptable to authorities having jurisdiction.
      e. “Excavation waste” is earth; sand; clay; gravel; hardpan; soft, weathered, or decomposed rock; debris; and other materials removed from excavations that does not comply with the requirements for general fill material, or is in excess of the quantity required for general fill material.

B. Reference Standards:
   1. The following standards are referenced in this Section:
      a. ASTM D5199, Standard Test Method for Measuring the Nominal Thickness of Geosynthetics.
      b. ASTM D5261, Standard Test Method for Measuring Mass per Unit Area of Geotextiles.
      c. GRI GM17, Standard Specification for Test Methods, Test Properties and Testing Frequency for Linear Low-Density Polyethylene (LLDPE) Smooth and Textured Geomembranes.
      d. GRI GT12, Standard Specification for Test Methods and Properties for Nonwoven Geotextiles Used as Protection (or Cushioning) Materials.
      e. USEPA SW-846 Method 9095, Paint Filter Liquids Test.

1.03 QUALITY ASSURANCE

A. Qualifications:
   1. Waste Transporters: Waste transportation firms shall possess valid permit or license issued by authorities having jurisdiction for transporting contaminated waste.

B. Regulatory Requirements:
   1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
      a. 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response.
      b. 29 CFR 1918, Safety and Health Regulations for Longshoring.
      c. 29 CFR 1926.65, Hazardous Waste Operations and Emergency Response.
      d. 29 CFR 1926.600 through 29 CFR 1926.606, Subpart O – Motor Vehicles, Mechanized Equipment, and Marine Operations.
      e. 33 CFR 155, Oil or Hazardous Material Pollution Prevention Regulations for Vessels.
      f. 33 CFR 161, Navigation Safety Regulations.
      g. 40 CFR 261.3, 264, and 265, Resource Conservation and Recovery Act (RCRA).
      h. 49 CFR 171 through 49 CFR 185, Subchapter C – Hazardous Materials Regulations.
      i. 6 NYCRR 217, Motor Vehicle Emissions.
      j. 6 NYCRR 360, Solid Waste Management Facilities.
      k. 6 NYCRR 364, Waste Transporter Permits.
      l. 6 NYCRR 370, Hazardous Waste Management System – General.
      m. 6 NYCRR 371, Identification and Listing of Hazardous Wastes.
      n. 6 NYCRR 372, Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities.
      o. 6 NYCRR 373, Hazardous Waste Management Facilities.
      p. 6 NYCRR 375, Environmental Remediation Programs.
   2. Comply with applicable provisions and recommendations of the following:
      a. NYSDEC Management of Coal Tar Waste and Coal Tar Contaminated Soils and Sediment from Former Manufactured Gas Plants (MGPs) (DER-4).
      b. NYSDOT Standard Specifications and Standard Sheets.
   3. Obtain required permits and approvals for contaminated waste transportation and disposal operations.
   4. Comply with hauling and disposal Laws and Regulations of authorities having jurisdiction.

## 1.04 SUBMITTALS

A. Action Submittals:
   1. Product Data: Submit manufacturer's product data for proposed soil drying agent.

B. Informational Submittals:
   1. Contaminated Waste Management Plan: Submit acceptable plan for managing contaminated waste within 14 days of the date the Contract Times commence running, and before removing any contaminated waste from the Site. Include the following:
      a. Procedures for separating each type of contaminated waste, including sizes of containers, container labeling, and designated location at the Site where contaminated wastes will be separated and stored.
      b. Description of the type(s) and size(s) of vehicles or barges that will be used for transporting contaminated waste from the Site.
      c. Procedures for loading contaminated waste into transport vehicles or barges.
      d. List of local, Owner-approved disposal facilities that will be used for contaminated wastes. Include name, address, and telephone number of each treatment facility, landfill, and incinerator facility. Identify type of contaminated waste to be disposed of at each facility.
   2. Waste Profiles:
      a. Preliminary Waste Profiles: Submit waste profile, listing Owner's name and address of the Site as generator of waste, for each treatment facility, landfill, and incinerator facility. Owner will sign and return each acceptable waste profile to Contractor.
      b. Final Waste Profiles: Submit counter-signed waste profile and proof of acceptance of waste for each treatment facility, landfill, and incinerator facility.
   3. Permits: Submit copy of valid NYSDEC waste transporter permit for each waste transporter hauling contaminated waste.
   4. Waste Characterization Results: Submit laboratory test reports for waste characterization samples collected by Contractor.
   5. Disposal Records: Submit counter-signed manifests or bills of lading, weight tickets, receipts, and invoices for each treatment facility, landfill, and incinerator facility on a monthly basis throughout the Project, and concurrent with each Application for Payment.

## 1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store soil drying agent in closed, water-proof containers not exceeding one ton in weight. Bulk deliveries and on-site storage of soil drying agent are prohibited.

## 1.06 REQUIREMENTS FOR VEHICLES AND BARGES TRANSPORTING CONTAMINATED WASTE

A. General:
   1. Vehicles and barges transporting contaminated waste shall comply with Laws and Regulations, and shall be permitted, licensed, or certified, as appropriate, by authorities having jurisdiction.

B. Vehicles:
   1. Vehicles transporting contaminated waste shall be water-tight and structurally sound, and shall possess functioning tailgate locks and solid, water-proof tarpaulins.
   2. License plates and placards shall be properly affixed and visible at all times.
   3. Line each vehicle with not less than six-mil polyethylene sheeting prior to loading contaminated waste.

C. Barges:
   1. Barges transporting contaminated waste shall be water-tight, structurally sound, and seaworthy. Scows are prohibited.
   2. Provide barges that clearly indicate draft of barge. Each barge shall be used with an ullage table (i.e., displacement table) to provide required information regarding tonnage located in/on the barge.

## PART 2 – PRODUCTS

### 2.01 MATERIALS

A. Soil Drying Agent:
   1. Soil drying agent shall be non-biodegradable sorbent complying with 40 CFR 264.314(d)(1). Inorganic minerals, if used, shall contain no more than 50 percent reactive (free) calcium oxide and magnesium oxide by weight.

B. Temporary Containment Areas:
   1. Crushed stone shall be clean, durable, sharp-angled fragments of rock of uniform quality conforming to Material Designation 703-0201, Size Designation No. 3, in accordance with Section 703 of the NYSDOT Standard Specifications.
   2. Geomembrane shall be chemically-resistant, free of and resistant to fungal or bacterial attack, and free of cuts, abrasions, holes, blisters, contaminants, and other imperfections. Nominal thickness of geomembrane shall be not less than 40 mils when tested in accordance with ASTM D5199. HDPE or LLDPE geomembrane may be used.
      a. HDPE Geomembrane: Comply with GRI GM13.
      b. LLDPE Geomembrane: Comply with GRI GM17.
   3. Geotextile shall be a non-woven cushioning fabric composed of 100 percent polyester filaments. Fabric shall be inert to biological degradation and naturally encountered chemicals, alkalizes, and acids. Unit weight of fabric shall be not less than 12 ounces per square yard when tested in accordance with ASTM D5261. Comply with GRI GT12.

## PART 3 – EXECUTION

### 3.01 CONTAMINATED WASTE MANAGEMENT

A. General:
   1. Provide handling; packagings, markings, labeling, and placarding; storage; signage; transportation; and other items required to manage contaminated wastes during the Project in accordance with Laws and Regulations.
   2. Packagings shall be new or in like-new condition, water-tight, and compatible with the contaminated wastes to be contained therein.
   3. Segregate contaminated waste streams in accordance with Laws and Regulations and as required by waste transporters and disposal facilities.
   4. Crush excavated rock and debris, as necessary, to render material suitable for disposal.

B. Site Access and Temporary Controls: Conduct contaminated waste management operations to ensure minimum interference with roads, streets, drives, walkways, and other adjacent facilities.
   1. Designate and label specific areas of the Site necessary for separating and storing contaminated wastes.
   2. Provide temporary controls in accordance with the Contract Documents.

C. Waste Characterization:
   1. Determine disposal facility characterization requirements for each waste stream.
   2. Collect required waste characterization samples, and coordinate and pay for required laboratory testing.

## 3.02 DEWATERING EXCAVATION WASTE

A. Dewater excavation waste as necessary to pass Paint Filter testing procedures (USEPA SW-846 Method 9095) before leaving the Site.

B. Dewatering may include one or more of the following:
   1. Active dewatering of soils before or during excavation in accordance with Section 31 23 00.
   2. Blending of dry soils excavated from above the water table with wet soils excavated from below the water table.
   3. Stockpiling soils on a temporary basis to allow for gravity dewatering.
   4. Use of approved soil drying agent to amend soils excavated from below the water table. Unless otherwise directed by Owner, excavation waste shall be amended with not more than four percent soil drying agent by weight.

C. Storage of Liquids Resulting from Dewatering Operations: Comply with temporary storage requirements for construction wastewater.

## 3.03 TEMPORARY CONTAINMENT AREAS

A. General:
   1. Provide temporary containment areas for the temporary storage of contaminated waste.
   2. Temporary containment areas shall be constructed as shown or indicated in the Contract Documents.

B. Installation:
   1. Provide reasonably level, graded, well-drained subgrade of satisfactory soil material, compacted to at least 95 percent of maximum dry density in the upper six inches. Prepared subgrade shall be free of sharp stones, roots, debris, and other deleterious matter.
   2. Install geomembrane, with layer of cushioning geotextile fabric above and below liner, upon prepared subgrade. Comply with manufacturer's installation instructions. Geomembrane shall be sloped to a sump to allow for the collection and removal of leachate.
   3. Provide crushed stone material a minimum of 12 inches thick above geosynthetics. Grade crushed stone to a level, dense surface.
   4. Provide compacted berm around perimeter of temporary containment area not less than 12 inches in height.

C. Maintenance:
   1. Maintain not less than the minimum required thickness of crushed stone above geosynthetics. Add crushed stone as required to maintain thickness.
   2. Remove leachate from temporary containment areas on a regular basis so as to not exceed storage capacity of temporary containment area.

D. Removal:
   1. Completely remove temporary containment areas when no longer required. Repair damage caused by temporary containment areas and their removal, and restore the Site to condition required by the Contract Documents. If restoration of damaged areas is not specified, restore to pre-construction condition.

## 3.04 TEMPORARY STORAGE OF CONTAMINATED WASTE

A. Excavation Waste:
   1. Excavation waste shall be stockpiled in a temporary containment area.
      a. Place, grade, and shape stockpiles for proper drainage.
      b. Stockpiles shall be securely covered at all times, during both working and non-working hours, with minimum six-mil polyethylene liners or other covering impervious to water when not in use. Covers shall be properly anchored to prevent uplift due to wind conditions and shall be sloped to prevent accumulation of water.
      c. Inspect stockpiles not less than daily and immediately correct any deficiencies observed.
   2. Based on Site conditions, Owner may elect to limit the maximum size of stockpiles. Limitations to stockpile size shall not result in any additional cost to Owner.
   3. Remove stockpiles from the Site within 24 hours of placement unless a longer duration is approved by Owner or Engineer.

B. Construction Wastewater:
   1. Construction wastewater shall be stored in closed-top steel tanks or 55-gallon steel drums.
   2. Locate tanks and drums in a temporary containment area.

C. Coal Tar:
   1. Free-phase coal tar, if encountered, shall be stored in 55-gallon steel drums.
   2. Locate drums in a temporary containment area.

## 3.05 SHIPPING DOCUMENTS

A. Prepare a waste manifest or bill of lading, as appropriate, for each shipment of contaminated waste from the Site.

B. Owner or an authorized representative will review and sign each manifest or bill of lading as generator of contaminated waste.

C. Submit counter-signed waste manifests and bills of lading in accordance with this Section.

## 3.06 LOADING, TRANSPORTATION, AND DISPOSAL OF CONTAMINATED WASTE

A. General:
   1. Load, transport, and dispose of contaminated waste in accordance with Laws and Regulations and in a manner that will prevent spillage on adjacent surfaces and areas.
   2. Provide and maintain special measures to prevent contaminated waste from entering surface waters, open drainage routes, sanitary sewers, or storm sewers. Comply with pollution control requirements of Section 01 57 05 (Temporary Controls).

3. Keep all streets, drives, sidewalks, and pavements clean and free from contaminated waste. Comply with Section 01 74 05 (Cleaning) and cleaning requirements of Section 01 55 13 (Temporary Access Roads and Parking Areas).
4. Maintenance and Protection of Traffic: Comply with Section 01 55 26 (Maintenance and Protection of Traffic).
5. Vehicle idling or queueing in public rights-of-way is prohibited.

B. Loading:
1. Direct-load contaminated waste to the greatest extent practicable.
2. Exercise care when loading contaminated waste to prevent spillage and contamination of vehicles and adjacent surfaces.
3. Conduct barge loading operations in a manner that will optimize the quantity of contaminated waste in each barge, maintain barge stability and integrity, and minimize barge traffic in the canal.
4. Upon completion of loading, completely cover each load with vapor-suppressant foam in accordance with Section 01 57 05 (Temporary Controls) and water-proof liner.
5. Inspect each vehicle before it leaves the Site. Clean vehicles of visible soil or debris within a temporary decontamination area.

C. Transportation:
1. Transport contaminated waste directly from the Site to the intended transfer, processing, or disposal facility.
2. Vehicles transporting contaminated waste from the Site shall follow approved haul route(s) in accordance with Section 01 55 26 (Maintenance and Protection of Traffic).
3. Coordinate barge movement with tidal stage and canal traffic.

D. Disposal:
1. Remove from the Site and properly dispose of contaminated waste at Owner-approved treatment facility, landfill, or incinerator facility permitted to accept each type of contaminated waste.
2. Except as otherwise specified, remove contaminated waste from the Site as fast as it accumulates.

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# DIVISION 31

## Earthwork

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# SECTION 31 05 19.13

# GEOTEXTILES FOR EARTHWORK

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall provide all labor, materials, tools, equipment, and services as shown, specified, and required to furnish and install geotextiles.

B. Related Sections:
   1. Section 31 23 00, Excavation and Fill.

### 1.02 REFERENCE STANDARDS

A. The following standards are referenced in this Section:
   1. AASHTO M 288, Standard Specification for Geotextile Specification for Highway Applications.

### 1.03 QUALITY ASSURANCE

A. Qualifications:
   1. Manufacturer: Geotextile manufacturer shall be a specialist in the manufacture of geotextile separation and stabilization fabrics, and shall have produced and successfully installed a minimum of five million square feet.

### 1.04 SUBMITTALS

A. Action Submittals:
   1. Product Data: Submit geotextile manufacturer's data, specifications, installation instructions, and dimensions.

B. Informational Submittals:
   1. Certificates: Submit affidavit certifying that the geotextile furnished complies with the requirements of this Section. Do not ship geotextile to the Site until affidavit is submitted to Engineer.

### 1.05 DELIVERY, STORAGE, AND HANDLING

A. Each roll of geotextile delivered to the Site shall be labeled by the manufacturer identifying the manufacturer's name, product identification, lot number, roll number, and roll dimensions.

B. All rolls and packages shall be inspected by Contractor upon delivery to the Site. Contractor shall notify Engineer if any loss or damage exists to geotextile. Replace loss and repair damage to new condition, in accordance with manufacturer’s instructions.

C. Geotextile shall be protected from ultraviolet light exposure, precipitation or other inundation, mud, dirt, dust, puncture, cutting, or any other damaging or deleterious conditions. Geotextile rolls shall be shipped and stored in relatively opaque and watertight wrappings.

## PART 2 – PRODUCTS

### 2.01 GEOTEXTILE SEPARATION FABRIC

A. Geotextile shall be composed of high-tenacity polypropylene yarns, which are woven into a stable network such that the yarns retain their relative position. The fabric shall be inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids. Geotextile fabric shall comply with AASHTO M 288 specifications for a Class 1 separation geotextile.

B. Product and Manufacturer: Provide one of the following:
   1. Mirafi 600X by TenCate Mirafi.
   2. US 315 by US Fabrics, Inc.
   3. Or equal.

## PART 3 – EXECUTION

### 3.01 INSPECTION

A. Examine the areas and conditions under which the Work will be performed and notify Engineer in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions are corrected in a manner acceptable to Engineer.

### 3.02 PREPARATION

A. Excavate or fill subgrade, as required, to bring subgrade to elevations shown or indicated. Maintain all angles of repose. Confirm that subgrade is at proper elevations and that no further earthwork is required to bring the subgrade to proper elevations.

B. Remove all stones greater than two inches in any dimension, construction debris, trash, rubble, and all other extraneous materials from the subgrade.

C. Notify Engineer that subgrade has been prepared, and obtain Engineer's approval before installing geotextile.

### 3.03 INSTALLATION

A. Geotextile shall be laid flat and smooth so that it is in direct contact with the subgrade. On slopes steeper than 10 percent, lay geotextile with the machine direction of the fabric parallel to the slope direction. Geotextiles shall be placed (rolled out) in the direction of most frequent vehicular travel.

B. Continuously overlap geotextile panels a minimum of 12 inches at all longitudinal and transverse joints. Where seams must be oriented across the slope, lap the upper panel over the lower panel.

C. Geotextile shall be weighted with sandbags or equivalent when required. Such sandbags shall be installed during placement and shall remain until replaced with cover materials.

D. During installation of geotextile, care shall be taken not to entrap in the geotextile stone, excessive dust, mud, or moisture that could damage or cause clogging of the geotextile.

E. Use proper tools to cut and size geotextile; exercise care while cutting geotextile.

F. Geotextile shall not be exposed to precipitation prior to being installed, and shall not be exposed to direct sunlight for more than 15 days.

3.04 GEOTEXTILE REPAIR

A. Any holes or tears in the fabric shall be repaired as follows:
   1. On Slopes: A fabric patch shall be sewn into place using a double sewn lock stitch (1/4 inch to 3/4 inch apart and no closer than one inch from any edge). Should any tear exceed 10 percent of the width of the roll, that roll shall be removed from the slope and replaced.
   2. Non-Slopes: A fabric patch shall be spot-seamed in place with a minimum of 24 inches of overlap in all directions.

3.05 PLACEMENT OF COVER MATERIALS

A. Place cover materials in such a manner as to ensure that geotextile is not damaged or dislodged.

END OF SECTION

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# SECTION 31 11 00

# CLEARING AND GRUBBING

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
1. Contractor shall provide all labor, materials, equipment, and incidentals required to perform clearing and grubbing as shown and specified in the Contract Documents.
2. The Work includes removing from the Site and disposing of trees, shrubs, stumps, roots, brush, logs, vegetation, topsoil, rubbish, and other objectionable material.
3. Pay all fees associated with transporting and disposing of debris resulting from clearing and grubbing.
4. Limits of Clearing and Grubbing Work: Clear and grub the areas shown or indicated on the Drawings.

B. Related Sections:
1. Section 01 41 26, Storm Water Pollution Prevention Plan and Permit.
2. Section 01 57 05, Temporary Controls.
3. Section 01 74 19, Construction Waste Management and Disposal.
4. Section 02 41 19, Selective Demolition.
5. Section 02 60 05, Contaminated Waste Management and Disposal.

### 1.02 QUALITY ASSURANCE

A. Regulatory Requirements:
1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
   a. 56 RCNY 5, Rules Governing Tree Replacement.
2. Comply with applicable provisions and recommendations of the following:
   a. NYCDOT Standard Highway Specifications and Standard Details of Construction.
   b. NYCDPR Parks Tree Preservation Protocols.

### 1.03 WARRANTY

A. Contractor shall warrant that Work performed under this Section will not permanently damage trees, shrubs, turf, and plants designated to remain, or other adjacent work, facilities, or property. If damage resulting from Contractor's operations becomes evident during the correction period, Contractor shall replace damaged items and property at no additional cost to Owner.

## PART 2 – PRODUCTS (NOT USED)

## PART 3 – EXECUTION

### 3.01 PREPARATION

A. Protection:
   1. Throughout the Project, protect existing site improvements, including streets, drives, and Underground Facilities to remain (if any), and adjacent property and structures. Repair damage caused by Contractor to pre-construction condition or replace in kind, to satisfaction of Engineer, and at no additional cost to Owner.
   2. Protect trees, shrubs, vegetation, and grassed areas to remain by providing temporary fencing, barricades, wrapping, or other methods shown, specified, or accepted by Engineer. Correct at Contractor's expense damage caused by Contractor outside the limits of clearing and grubbing Work.
   3. Do not remove trees without the approval of Owner or Engineer, unless shown or indicated for removal on the Drawings.
   4. Do not locate construction equipment, stored materials, or stockpiles within the drip line of trees and vegetation to remain.

B. Site Preparation:
   1. Obtain, pay costs associated with, and comply with applicable permits, if any, required for clearing and grubbing Work.
   2. Delineation of Clearing and Grubbing Limits:
      a. Locate and clearly flag trees, vegetation, and other items to remain within the limits of clearing and grubbing.
      b. Provide flagging to delineate limits of areas to be cleared or grubbed. Review at Site with Engineer before initiating clearing and grubbing Work.
      c. Replace flagging that is lost, removed, or destroyed until clearing and grubbing Work is complete and Engineer allows removal of flagging.
   3. Erosion and Sediment Controls:
      a. Install applicable erosion and sediment controls before initiating clearing and grubbing Work.
      b. Comply with Section 01 41 26 and erosion and sediment control requirements of Section 01 57 05.
      c. Adjust, relocate, or install additional erosion and sediment controls as clearing and grubbing Work progresses to previously uncleared, ungrubbed areas of the Site.

### 3.02 CLEARING AND GRUBBING

A. Remove all trees, shrubs, stumps, roots, brush, logs, rubbish, and debris within limits of clearing and grubbing shown or indicated in the Contract Documents, unless otherwise shown or indicated.

B. Trees and shrubs to remain that have been damaged or require trimming shall be treated and repaired under the direction of a qualified arborist, or other professional with qualifications acceptable to Engineer and authorities having jurisdiction. Trees and shrubs intended to remain, that are damaged beyond repair or that are removed, shall be replaced by Contractor at no additional cost to Owner.

C. Removal of Site Improvements: Comply with Section 02 41 19.

## 3.03 DISPOSAL OF CLEARING AND GRUBBING WASTES

A. Properly transport and dispose of clearing and grubbing wastes at appropriate, Owner-approved facilities in accordance with Laws and Regulations.
   1. Site Clearing Wastes: Comply with Section 01 74 19.
   2. Site Grubbing Wastes: Comply with Section 02 60 05.

END OF SECTION

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# SECTION 31 23 00

# EXCAVATION AND FILL

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall provide all labor, materials, equipment, and incidentals required to perform all excavating, filling, and grading, and disposing of earth materials as shown, specified, and required to complete the Work.
   2. Perform excavation and fill Work within the areas shown or indicated on the Drawings.
   3. Preparation of subgrade for pavements and crushed stone surfacing is included under this Section.
   4. No classification of excavated materials will be made. Excavation includes all materials regardless of type, character, composition, moisture, or condition thereof, except rock requiring drilling, blasting, or special equipment for removal.

B. Coordination:
   1. Review requirements of this and other Sections and coordinate Work that must be performed with or before excavation and fill Work.

C. Related Sections:
   1. Section 01 35 49, Community Air Monitoring Plan.
   2. Section 01 41 26, Storm Water Pollution Prevention Plan and Permit.
   3. Section 01 55 26, Maintenance and Protection of Traffic.
   4. Section 01 57 05, Temporary Controls.
   5. Section 02 41 19, Selective Demolition.
   6. Section 02 60 05, Contaminated Waste Management and Disposal.
   7. Section 31 11 00, Clearing and Grubbing.
   8. Section 31 50 00, Excavation Support and Protection.

### 1.02 REFERENCES

A. Terminology:
   1. The following words or terms are not defined but, when used in this Section, have the following meaning:
      a. "Debris" means man-placed buried material including, but not limited to, brick, concrete, metal, wood, ash, cinders, and glass.
      b. "Subgrade" means the uppermost surface of native soil material unmoved from cuts; the bottom of excavation.

B. Reference Standards:
   1. The following standards are referenced in this Section:
      a. ASTM C33/C33M, Standard Specification for Concrete Aggregates.
      b. ASTM C94/C94M, Standard Specification for Ready-Mixed Concrete.
      c. ASTM C117, Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing.
      d. ASTM C136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
      e. ASTM C150/C150M, Standard Specification for Portland Cement.

f. ASTM C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
g. ASTM D422, Standard Test Method for Particle-Size Analysis of Soils.
h. ASTM D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft$^3$ [600 kN-m/m$^3$]).
i. ASTM D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
j. ASTM D4832, Standard Test Method for Preparation and Testing of Controlled Low-Strength Material (CLSM) Test Cylinders.
k. ASTM D5971/D5971M, Standard Practice for Sampling Freshly Mixed Controlled Low-Strength Material.
l. ASTM D6023, Standard Test Method for Density (Unit Weight), Yield, Cement Content, and Air Content (Gravimetric) of Controlled Low-Strength Material (CLSM).
m. ASTM D6938, Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
n. ASTM E329, Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.
o. USEPA SW-846 Method 6010, Inductively Coupled Plasma-Atomic Emission Spectrometry.
p. USEPA SW-846 Method 7471, Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique).
q. USEPA SW-846 Method 8081, Organochlorine Pesticides by Gas Chromatography.
r. USEPA SW-846 Method 8082, Polychlorinated Biphenyls (PCBs) by Gas Chromatography.
s. USEPA SW-846 Method 8151, Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization.
t. USEPA SW-846 Method 8260, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS).
u. USEPA SW-846 Method 8270, Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS).
v. USEPA SW-846 Method 9012, Total and Amenable Cyanide (Automated Colorimetric, with Off-Line Distillation).

## 1.03 QUALITY ASSURANCE

A. Qualifications:
1. Testing Laboratory: Retain the services of an independent testing laboratory to design CLSM mix and perform quality assurance and field quality control testing required in this Section. Testing laboratory shall comply with ASTM E329, shall be certified by the NYSDOH Environmental Laboratory Approval Program for the chemical testing and analytical methods to be performed, and shall be experienced in the types of testing required.

B. Regulatory Requirements:
1. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
a. 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response.
b. 29 CFR 1926.65, Hazardous Waste Operations and Emergency Response.
c. 29 CFR 1926.650 through 29 CFR 1926.652, Subpart P – Excavations.
d. 6 NYCRR 375, Environmental Remediation Programs.
e. 12 NYCRR 23-4.1 through 12 NYCRR 23-4.5, Subpart 23-4 – Excavation Operations.
f. 16 NYCRR 753, Protection of Underground Utilities.

2. Comply with applicable provisions and recommendations of the following:
   a. NYSDEC Technical Guidance for Site Investigation and Evaluation (DER-10).
   b. NYSDOT Standard Specifications and Standard Sheets.
   c. NYCDOT Standard Highway Specifications and Standard Details of Construction.
3. Obtain required permits and approvals for excavation and fill Work, including work permits from right-of-way owners.

C. Quality Assurance Testing:
   1. Off-Site Granular Fill Materials:
      a. Collect samples and coordinate and pay for laboratory testing of proposed off-site granular fill materials to verify compliance with the Contract Documents.
      b. Advise Engineer not less than three days before sampling proposed off-site granular fill materials. Engineer's Resident Project Representative will accompany Contractor and observe sampling.
      c. Geotechnical Testing: Perform the following testing:
         1) Particle size in accordance with ASTM D422. Perform one test for every 5,000 cubic yards of the following types of material to be incorporated into the Work:
            a) General fill material.
            b) Subbase material.
            c) Drainage fill.
            d) Pipe bedding material.
         2) Atterberg limits in accordance with ASTM D4318. Perform one test for every 5,000 cubic yards of the following types of material to be incorporated into the Work:
            a) General fill material.
            b) Subbase material.
            c) Pipe bedding material.
         3) Moisture/density relationship in accordance with ASTM D698. Perform one test for every 5,000 cubic yards of the following types of material to be incorporated into the Work:
            a) General fill material.
            b) Subbase material.
            c) Pipe bedding material.
      d. Chemical Testing: Perform chemical testing on each proposed off-site granular fill material with greater than 10 percent by weight passing the No. 80 sieve, as determined by particle size testing performed in accordance with Paragraph 1.03.C.1.c.1) of this Section.
         1) Collect a combination of discrete and composite samples of each off-site granular fill material in accordance with Subdivision 5.4(e) of DER-10 and as follows:
            a) Virgin Mine, Pit, or Quarry: Collect two discrete samples and one composite sample.
            b) Fill Sources Other Than Virgin Mine, Pit, or Quarry: Collect seven discrete samples and two composite samples for the initial 1,000 cubic yards of material, and two discrete samples and one composite sample for every 5,000 cubic yards of material thereafter.
         2) Perform the following testing on each discrete sample:
            a) VOCs in accordance with USEPA SW-846 Method 8260.
         3) Perform the following testing on each composite sample:
            a) SVOCs in accordance with USEPA SW-846 Method 8270.
            b) PCBs in accordance with USEPA SW-846 Method 8082.
            c) Pesticides in accordance with USEPA SW-846 Method 8081.
            d) Herbicides in accordance with USEPA SW-846 Method 8151.
            e) Total metals in accordance with USEPA SW-846 Methods 6010.

f) Total mercury in accordance with USEPA SW-846 Methods 7471.
g) Total cyanide in accordance with USEPA SW-846 Method 9012.

e. Requirements for geotechnical or chemical testing may be waived by Engineer if sufficient laboratory test data documenting compliance with the Contract Documents is submitted to and accepted by Engineer. Tests shall have been performed not more than two years before the Effective Date of the Agreement, and shall have been made on the same material types from the same off-site sources proposed for the Work.
f. Submit test results, certified by testing laboratory, to Engineer within 24 hours after completion of each test.
g. Engineer will submit test results for acceptable off-site granular fill materials to NYSDEC. Do not ship off-site granular fill materials to the Site until proposed materials, sources, and Suppliers are accepted by Engineer and approved by NYSDEC.
h. If test results indicate that a proposed off-site granular fill material does not comply with the Contract Documents, identify and propose new off-site source of the specified material.
   1) Submit required information for proposed off-site fill source and Supplier in accordance with Article 1.04 of this Section.
   2) Collect samples and coordinate and pay for laboratory testing in accordance with this Paragraph 1.03.C.1.

2. CLSM:
   a. Verify CLSM mix design by laboratory trial batch, unless indicated otherwise. Perform the following testing on each trial batch:
      1) Aggregate gradation in accordance with ASTM C117 and ASTM C136.
      2) Air content in accordance with ASTM D6023.
      3) Unconfined compressive strength of CLSM mix at three, seven, and 28 days in accordance with ASTM D4832.
   b. Submit for each trial batch the following information:
      1) Project identification name and number (if applicable).
      2) Date of test report.
      3) Complete identification of aggregate source of supply.
      4) Tests of aggregates for compliance with the Contract Documents.
      5) Brand, type, and composition of cementitious materials.
      6) Brand, type, and quantity of each admixture.
      7) Quantity of water used in trial batch.
      8) Proportions of each material per cubic yard.
      9) Gross weight and yield per cubic yard of trial mixture.
      10) Measured air content.
      11) Unconfined compressive strength.
   c. Requirement for laboratory trial batch may be waived by Engineer if sufficient field test data documenting compliance with specified material properties and performance properties is submitted to and accepted by Engineer. Tests shall have been made on CLSM with identical mix design to mix design proposed for the Work, including sources of aggregate and manufacturers of cementitious materials and admixtures.

3. On-Site General Fill Material:
   a. Collect samples and coordinate and pay for laboratory testing of on-site general fill material to verify compliance with the Contract Documents.
   b. Collect samples in presence of Engineer's Resident Project Representative.
   c. Geotechnical Testing: Perform the following testing:
      1) Particle size in accordance with ASTM D422. Perform one test for every 1,000 cubic yards of the following types of on-site general fill material to be incorporated into the Work:

a) Excavated material.
b) Crushed recycled concrete and masonry material.

2) Moisture/density relationship in accordance with ASTM D698. Perform one test for every 1,000 cubic yards of the following types of on-site general fill material to be incorporated into the Work:
a) Excavated material.
b) Crushed recycled concrete and masonry material.

d. Chemical Testing: Perform the following testing:
1) Total polycyclic aromatic hydrocarbons (PAHs) in accordance with USEPA SW-846 Method 8270. Perform one test for every 1,000 cubic yards of excavated material to be used as on-site general fill material.

e. Submit test results, certified by testing laboratory, to Engineer within 24 hours after completion of each test.

f. Engineer will submit test results for acceptable on-site general fill material to NYSDEC. Do not use on-site general fill material in the Work until material is approved by NYSDEC.

g. If on-site materials are found unsuitable for use as general fill material, properly dispose of such unsuitable materials and provide approved off-site general fill material.

## 1.04 SUBMITTALS

A. Action Submittals:
1. Shop Drawings:
a. Submit list of CLSM materials and proposed CLSM mix design. Include results of tests performed to qualify the materials and to establish the mix design.
b. Laboratory Trial Batch Reports: Submit laboratory test reports for CLSM cylinders, materials, and mix design tests.
2. Product Data:
a. Submit manufacturer's specifications with application and installation instructions for proprietary materials and items, including admixtures to be used in CLSM mix design.

B. Informational Submittals:
1. Excavation and Backfilling Plan: Submit acceptable plan for excavating, backfilling, and related Work not less than 21 days prior to starting excavation Work. Include the following:
a. Name of Contractor's "competent person" in responsible charge of excavation and fill Work.
b. Plan for coordinating shut-offs, locating, capping, abandoning, temporary services, and continuing utility services.
c. List of proposed equipment for excavation, dewatering, backfilling, and compaction Work.
d. Proposed excavation, dewatering, backfilling, and compaction procedures. Where different procedures or equipment will be used for different types of material or at different locations at the Site, indicate where each procedure and equipment item will be used.
e. Planned sequence of excavation and backfilling operations, including coordination with selective demolition and pile driving Work.
f. Detailed schedule of excavation and backfilling Work in accordance with the accepted Progress Schedule.

2. Qualifications Statements:
   a. Testing Laboratory: Submit name and qualifications of testing laboratory to be employed, and qualifications of testing laboratory's personnel that will perform quality assurance and field quality control testing required in this Section. If more than one laboratory will be employed, submit qualifications statement for each laboratory and indicate scope of testing assigned to each.
3. Quality Assurance Test Results Submittals:
   a. Submit results of quality assurance testing performed in accordance with Paragraph 1.03.C of this Section, unless included as part of another submittal under this Section. Submit results for the following:
      1) Geotechnical and chemical tests performed for each type of off-site granular fill material. Submit in accordance with Paragraph 1.03.C.1 of this Section.
      2) Geotechnical and chemical tests performed for each type of on-site general fill material. Submit in accordance with Paragraph 1.03.C.3 of this Section.
4. Source Quality Control Submittals: Submit Supplier name, source address, copy of NYSDEC mining permit, and proof of NYSDOT approval, as required, for each proposed source of off-site fill material.
5. Delivery Tickets:
   a. Submit copy of delivery ticket for each load of off-site general fill material, subbase material, drainage fill material, and pipe bedding material delivered to the Site. Each delivery ticket shall indicate Supplier name and source address, project name, contract number, date, material type, NYSDOT item number when applicable, and quantity delivered.
   b. Submit copy of delivery ticket for each load of CLSM delivered to or mixed at the Site. Each delivery ticket shall contain information in accordance with ASTM C94/C94M along with project name, contract number, date, mix type, mix time, quantity delivered to or mixed at the Site, and quantity of water introduced.
6. Field Quality Control Submittals:
   a. Laboratory Test Reports: Submit in accordance with Paragraph 3.10.A of this Section.
   b. Daily Inspection Logs: Submit in accordance with Paragraph 3.10.B of this Section.

## 1.05 SITE CONDITIONS

A. Subsurface Information:
   1. The Supplementary Conditions indicate information available relative to subsurface conditions at the Site. Such information and data are not intended as a representation or warranty of continuity of conditions between soil borings or test pits, nor of groundwater levels at dates and times other than date and time when measured, nor that purpose of obtaining the information and data were appropriate for use by Contractor. Owner and Engineer will not be responsible for interpretations or conclusions drawn therefrom by Contractor.
   2. Soil borings and other exploratory operations may be made by Contractor, at no additional cost to Owner. Coordinate Contractor-performed test borings and other exploratory operations with Owner, utility owners, and others as appropriate. Perform such explorations without disrupting or otherwise adversely affecting operations of Owner, utility owners, or others. Comply with Laws and Regulations relative to required notifications.

B. Existing Structures:
   1. The Contract Documents show or indicate certain structures and Underground Facilities adjacent to or within the limits of the Work. Such information was obtained from existing records and is not guaranteed to be correct or complete. Contractor shall explore ahead of selective demolition, trenching, excavating, pile driving, or other subsurface Work to determine the exact location of all existing structures and Underground Facilities. Existing structures and Underground Facilities shall be supported and protected from damage by Contractor. Immediately repair and restore existing structures and Underground Facilities damaged by Contractor without additional cost to Owner.
   2. Movement or operation of construction equipment over Underground Facilities shall be at Contractor's sole risk and only after Contractor has prepared and submitted to Engineer and utility owners (as applicable), and received acceptance therefrom, a plan describing Contractor's analysis of the loads to be imparted and Contractor's proposed measures to protect structures and Underground Facilities during the Project.
   3. Coordinate with utility owners for shut off of services in active piping and conduits, and for testing, shut off of services, and draining, purging, or de-energizing where specified or required of piping and conduits of unknown status. When required by utility owner, Owner will assist Contractor with utility owner notifications. Completely remove buried piping and conduits indicated for removal and not otherwise indicated as being abandoned or to remain in place.
   4. In general, service lines and laterals to individual houses and businesses are not shown; however, Contractor shall assume that a service exists for each utility owner to each house, business, and property.
   5. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, except when such interruption is indicated in the Contract Documents or when allowed in writing by Engineer after acceptable temporary utility services are provided by Contractor for the affected structure or property.

C. Contaminants:
   1. The Supplementary Conditions indicate information available relative to the presence of Contaminants in soil and groundwater at the Site.

## PART 2 – PRODUCTS

### 2.01 MATERIALS

A. General Fill Material:
   1. Material shall be free of rock and gravel larger than three inches in any dimension, debris, waste, frozen materials, organic material, and other deleterious matter.
   2. Gradation shall be as specified in Table 31 23 00-A.

**TABLE 31 23 00-A**
**GRADATION REQUIREMENTS FOR GENERAL FILL MATERIAL**

| U.S. Sieve Size | Percentage by Weight Passing Sieve |
|---|---|
| 3-inch | 100 |
| No. 200 | 10-30 |

   3. Fill shall have a liquid limit not greater than 45, and plasticity index not greater than 25.
   4. Material shall be free of foreign chemical contaminants and shall comply with the soil cleanup objectives for restricted residential use, as set forth in 6 NYCRR 375-6.8(b).
   5. Excavated materials resulting from remedial excavation activities and crushed recycled concrete and masonry materials resulting from selective demolition operations may be used for general fill material if the following conditions are met:

a. Materials shall be free of visible coal tar, as determined by Engineer and authorities having jurisdiction, and shall comply with the general fill material gradation requirements of this Section.
b. Concentration of total PAHs in excavated material shall be not greater than 500 parts per million.
c. Before using in the Work, process concrete and masonry materials in accordance with Section 01 74 19.
d. Materials shall only be used for general fill material at depths greater than two feet below finished grade.
e. Perform quality assurance testing, and submit results to Engineer, in accordance with Paragraph 1.03.C.3 of this Section.

6. When on-site materials are found unsuitable for use as general fill material, provide approved off-site general fill material.

B. Subbase Material:
1. Material shall be naturally- or artificially-graded mixture of natural or crushed gravel, crushed stone, or natural or crushed sand. Crushed slag is unacceptable.
2. Gradation shall be as specified in Table 31 23 00-B.

**TABLE 31 23 00-B**
**GRADATION REQUIREMENTS FOR SUBBASE MATERIAL**

| U.S. Sieve Size | Percentage by Weight Passing Sieve |
|---|---|
| 2-inch | 100 |
| 1/4-inch | 25-60 |
| No. 40 | 5-40 |
| No. 200 | 0-10 |

3. Plasticity index of material passing the No. 40 sieve shall not exceed 5.0.
4. Material shall be free of foreign chemical contaminants and shall comply with the soil cleanup objectives for restricted residential use, as set forth in 6 NYCRR 375-6.8(b).

C. Drainage Fill Material:
1. Material shall be washed, uniformly-graded mixture of crushed stone, or crushed or uncrushed gravel, with 100 percent passing the 1.5-inch sieve and not more than five percent passing the No. 4 sieve.

D. Pipe Bedding Material:
1. Material shall be crushed stone and gravel, free of rock or gravel larger than one inch in any dimension, debris, waste, frozen materials, organic material, and other deleterious matter.
2. Gradation shall be as specified in Table 31 23 00-C.

**TABLE 31 23 00-C**
**GRADATION REQUIREMENTS FOR PIPE BEDDING MATERIAL**

| U.S. Sieve Size | Percentage by Weight Passing Sieve |
|---|---|
| 1-inch | 100 |
| 3/8-inch | 30-65 |
| No. 4 | 25-55 |
| No. 10 | 15-40 |
| No. 40 | 8-20 |
| No. 200 | 2-8 |

3. Sand material, where required, shall consist of natural or manufactured granular material, shall contain no organic material, and shall be non-plastic when tested in accordance with ASTM D4318. One-hundred percent shall pass the 0.5-inch screen and not more than five percent shall pass the No. 200 screen.
4. Material shall be free of foreign chemical contaminants and shall comply with the soil cleanup objectives for restricted residential use, as set forth in 6 NYCRR 375-6.8(b).

E. CLSM:
1. Materials:
   a. Portland Cement: ASTM C150/C150M, Type I or Type II.
   b. Fine Aggregate: ASTM C33/C33M.
   c. Water: Clean, potable.
   d. Fly Ash Mineral Admixture: ASTM C618, Class F.
   e. Chemical Admixtures: Provide chemical admixtures in accordance with product manufacturer's published instructions. Admixtures shall be compatible with each other. Do not use calcium chloride or admixtures containing chloride ions. Use only admixtures that have been tested and approved in the mix design.
2. CLSM Mix: Materials shall be selected and proportioned by Contractor on the basis of field experience or laboratory trial batch to produce a cohesive, non-segregating mixture complying with the following performance criteria:
   a. Unconfined Compressive Strength: 40 to 150 psi at 28 days, in accordance with ASTM D4832.
   b. Placement Characteristics: Self-leveling, self-compacting.

## 2.02 SOURCE QUALITY CONTROL

A. Off-Site Granular Fill Sources:
1. Provide off-site granular fill materials from a NYSDEC-permitted mine, pit, or quarry. Sources shall be approved by NYSDOT for furnishing aggregates for NYSDOT projects.
2. Perform quality assurance testing, and submit results to Engineer, in accordance with Paragraph 1.03.C.1 of this Section.

# PART 3 – EXECUTION

## 3.01 INSPECTION

A. Provide Engineer with sufficient notice and with means to examine areas and conditions under which excavating, filling, and grading Work will be performed. Engineer will advise Contractor in writing when Engineer is aware of conditions that may be detrimental to proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions are corrected.

## 3.02 PREPARATION

A. Erosion and Sediment Control: Provide temporary erosion and sediment controls in accordance with Section 01 57 05, and comply with Section 01 41 26.

B. Odor, Vapor, and Dust Control: Provide odor, vapor, and dust controls in accordance with Section 01 57 05, and comply with Section 01 35 49.

C. Site Preparation:
1. Clearing and Grubbing: Comply with Section 31 11 00.
2. Demolitions, Removals, and Abandonments: Comply with Section 02 41 19.

D. Temporary Barriers:
   1. Provide temporary barrier surrounding excavations and excavation work areas to provide temporary protection to persons and property. Barrier shall have openings only at vehicular, equipment, and worker access points.
   2. During non-working hours, completely enclose all sides of excavation with temporary barriers.
   3. Minimum Material Requirements for Temporary Barriers:
      a. Temporary barrier shall be not less than snow fence-type fencing, four feet high.
      b. Fence shall be constructed of vertical hardwood slats measuring not less than 1.5 inches by 1/4 inch interwoven with strands of horizontal wire, or shall be of equivalent plastic construction.
      c. Posts:
         1) Posts shall be steel, either "U"-, "Y"-, or "T"-shaped, or channel section.
         2) Posts shall have a nominal weight of not less than 1/3-pound per linear foot, exclusive of the anchor.
         3) Posts shall have tapered anchors weighing not less than 0.67 pound, each firmly attached by means of welding, riveting, or clamping.
         4) Posts shall have corrugations, knobs, notches, or studs placed and constructed to engage a substantial number of fence line wire in the proper position.
      d. Provide each post with sufficient quantity of galvanized wire fasteners or clamps, of not less than 0.120 inch in diameter, for attaching fence wire to post.

E. Maintenance and Protection of Traffic: Comply with Section 01 55 26.

## 3.03 TEST PITS

A. General: In advance of the construction, excavate, make observations and measurements, and fill test pits to determine conditions or location of existing structures and Underground Facilities. Perform all Work required in connection with excavating, stockpiling, maintaining, sheeting, shoring, and filling test pits. Contractor shall be responsible for the definite location of each existing structure and Underground Facility involved within the areas of excavation for the Work. Exercise care during such location work to avoid damaging and disrupting the affected structure or Underground Facility. Contractor shall be responsible for repairing, at its expense, damage caused during the Work to existing structures or Underground Facilities to remain.

B. Payment for Test Pits: There shall be no separate payment for test pits.

## 3.04 DEWATERING

A. General:
   1. Provide and maintain adequate drainage and dewatering equipment to remove and dispose of all surface water and groundwater entering excavations, or other parts of the Work and work areas. Keep each excavation dry during excavation, subgrade preparation, and continually thereafter until backfilling operations are completed and acceptable to Engineer.
   2. Keep all working areas at the Site free of surface water at all times. Provide temporary drainage ditches and temporary dikes, and provide required temporary pumping and other work necessary for diverting or removing rainfall and all other accumulations of surface water from excavation and fill areas. Perform diversion and removal of surface water in a manner that prevents accumulation of water behind permanent or temporary structures and at any other locations in the work area where such accumulations may be detrimental. Comply with surface water control requirements of Section 01 57 05.

3. Contractor shall be responsible for the condition of piping, conduits, and channels used for drainage, and such piping, conduits, and channels shall be clean and free of sediment.
4. Remove water from excavations as fast as water collects.

B. Temporary Dewatering System:
1. Contractor shall design, provide, operate, and maintain dewatering system to include sufficient trenches, sumps, pumps, hose, piping, well points, and similar facilities, necessary to depress and maintain groundwater level two feet below the base of each excavation until backfilling operations are completed and acceptable to Engineer.
2. Design and operate dewatering system to avoid settlement and damage to existing structures and Underground Facilities, and to minimize the turbidity of the collected water.
3. To the extent practicable, groundwater table shall be lowered in advance of excavation for a sufficient period of time to allow dewatering of fine grain soils.
4. Operate dewatering system continuously during active excavation and backfilling Work. Provide standby pumping facilities and personnel to maintain the continued effectiveness of the system. Do not discontinue dewatering operations without first obtaining Engineer's acceptance for such discontinuation.
5. If, in Engineer's opinion, groundwater levels are not being lowered or maintained as required, provide additional or alternate temporary dewatering devices, as necessary, at no additional cost to Owner.
6. Locate elements of temporary dewatering system to allow continuous dewatering operation without interfering with the Work to the extent practicable.

C. Disposal of Water Removed by Dewatering System:
1. Water used for working or processing, or resulting from excavation dewatering or decontamination operations shall be collected, containerized, removed, transported, and disposed of away from the Site, unless otherwise approved by Engineer.
2. Convey water removed from excavations in closed, water-tight piping. Do not use trench excavations as temporary drainage ditches. Piping shall not be located in environmentally-sensitive areas such as wetlands.
3. Handling, temporary storage, and disposal of construction wastewater shall be in accordance with Laws and Regulations and Section 02 60 05.

## 3.05 EXCAVATION

A. Perform all excavation required to complete the Work as shown, specified, and required. Excavation shall include removing and handling of earth, sand, clay, gravel, hardpan, soft, weathered, or decomposed rock, pavements, rubbish, debris, and other materials within the excavation limits.

B. Excavation Protection: Provide and maintain excavation protection system(s) in accordance with Section 31 50 00 and Laws and Regulations to prevent injury to persons and property, including surface structures and Underground Facilities.
1. Excavation Less Than Five Feet Deep: Excavations in stable rock or in soil conditions where there is no potential for a cave-in may be made with vertical sides. Under all other conditions, excavations shall be sloped and benched, shielded, or shored and braced.
2. Excavations Greater Than Five Feet Deep: Excavations in stable rock may be made with vertical sides. Under all other conditions, excavations shall be sloped and benched, shielded, or shored and braced.

C. Maintain excavations in dry condition in accordance with Article 3.04 of this Section.

D. Extend excavations sufficiently on each side of structures, footings, and similar construction to allow setting of forms, installation of shoring and bracing, and the safe sloping of banks, as necessary.

E. Subgrades:
   1. General:
      a. Subgrades shall be firm and intact, dense, and thoroughly compacted and consolidated; shall be free of standing water and mud, muck, and other soft or unsuitable materials; and shall remain firm and intact under all construction operations. Subgrades that are otherwise solid but become soft or mucky on top due to construction operations shall be reinforced with general fill material. Finished elevation of stabilized subgrades shall not be above subgrade elevations shown or indicated.
      b. If, in Engineer's opinion, subgrade becomes softened or mucky because of construction delays, failure to dewater properly, or other cause within Contractor's control, the subgrade shall be excavated to firm material, trimmed, and backfilled with compacted general fill material at Contractor's expense.
   2. Proof-Rolling Subgrades:
      a. Prior to placing fill or constructing pavements or slabs, proof-roll the subgrade surface with sufficient proof-rolling apparatus. Before starting proof-rolling, submit to and obtain acceptance from Engineer of proof-rolling apparatus and procedure to be used.
      b. Proof-rolling operations shall be made in the presence of Engineer. Notify Engineer at least 24 hours in advance of start of proof-rolling operations.
      c. Subgrades displaying pronounced elasticity or deformation, deflection, cracking, or rutting shall be stabilized as directed by Engineer. Unsuitable materials shall be undercut to the depth directed by Engineer and replaced with compacted general fill material. Other suitable stabilization methods may be directed by Engineer.

F. Pipe Trench Preparation:
   1. Not more than 150 feet of trench shall be opened in advance of installing pipe in trench.
   2. Trench width shall be minimized to the greatest extent practical, and shall comply with the following:
      a. Trench width shall be sufficient to provide space for installing, jointing, and inspecting piping. Refer to the Drawings for trench requirements. In no case shall trench be wider at top of pipe than pipe barrel OD plus two feet, unless otherwise shown or indicated.
      b. Enlargement of trench width at pipe joints may be made when required and approved by Engineer.
      c. Trench width shall be sufficient for shoring and bracing, or shielding and dewatering.
      d. Trench width shall be sufficient to allow thorough compaction of fill adjacent to bottom half of pipe.
      e. Do not use excavating equipment that requires the trench to be excavated to excessive width.
   3. Depth of trench shall be as shown or indicated on the Drawings. If required and approved by Engineer in writing, depths may be revised.
   4. Where bedrock or other unyielding material is encountered at the bottom of the trench, remove such material to a minimum depth of six inches below the bottom of the pipe and replace with pipe bedding material.
   5. Where Engineer considers existing material beneath bedding material unsuitable, remove and replace such unsuitable material with pipe bedding material.

G. Excavated Materials to be Used as General Fill Material:
   1. Stockpile excavated materials that are suitable for use as general fill material.
   2. As excavation proceeds, keep stockpiles of excavated materials suitable for use as general fill material separate from unsuitable materials and waste materials.
   3. Store excavated materials, with covering impervious to water, in well-drained area or on solid surfaces to prevent mixing with foreign matter. Place, grade, and shape stockpiles for proper drainage.
   4. Locate and retain soil materials away from edge of excavations.
   5. Dispose of excess soil material and waste materials as specified in this Section.

H. Disposal of Excavation Waste:
   1. Material removed from excavations that does not comply with the requirements for general fill material, or is in excess of the quantity required for general fill material, shall be removed, transported, and disposed of away from the Site, unless otherwise approved by Engineer.
   2. Handling, temporary storage, and disposal of excavation waste shall be in accordance with Laws and Regulations and Section 02 60 05.

I. Unauthorized Excavation: All excavations outside the lines and grades shown or indicated and that are not approved by Engineer, together with removing and disposing of the excavated material and backfilling with suitable material, shall be at Contractor's expense. Fill unauthorized excavations with properly-compacted general fill material at Contractor's expense.

3.06 FILL AND COMPACTION

A. Provide and compact all fill required for the finished grades as shown and as specified in this Section.

B. Place fill in excavations as promptly as progress of the Work allows, but not until completing the following:
   1. Surveying and recording of horizontal and vertical limits of excavation.
   2. Inspection, testing, approval, and recording of horizontal and vertical locations of Underground Facilities.
   3. Removal of trash and debris.

C. Fill that includes organic materials or other unacceptable material shall be removed and replaced with approved fill material in accordance with the Contract Documents.

D. Placement – General:
   1. Place fill to the grades shown or indicated. Bring up evenly on all sides fill around structures and Underground Facilities.
   2. Fill areas shall be undercut and proof-rolled as directed by Engineer.
   3. Place fill materials at moisture content and density specified in Paragraph 3.06.G and Table 31 23 00-D of this Section. Furnish and use equipment capable of adding measured amounts of water to the fill materials to bring fill materials to a condition within required moisture content range. Furnish and use equipment capable of discing, aerating, and mixing the fill materials to ensure reasonable uniformity of moisture content throughout the fill materials, and to reduce moisture content of borrow materials by air drying, when necessary. When subgrade or lift of fill materials requires moisture-conditioning before compaction, fill material shall be sufficiently mixed or worked on the subgrade to ensure uniform moisture content throughout the lift of material to be compacted. Materials at moisture content in excess of specified limit shall be dried by aeration or stockpiled for drying.

4. Perform compaction with equipment suitable for the type of fill material placed. Select and use equipment capable of providing the minimum density required in the Contract Documents. Furnish and use equipment capable of compacting in restricted areas next to structures and around piping and Underground Facilities. Effectiveness of the equipment selected by Contractor shall be tested at start of compacted fill Work by constructing a small section of fill within or adjacent to the area where fill will be placed. Record total number of coverages with selected compaction equipment and perform field moisture content and density tests to ensure that specified compaction of fill has been obtained. If tests on the test section of fill indicate that required compaction has not obtained, do one or more of the following:
   a. Increase the amount of coverages.
   b. Decrease the lift thicknesses.
   c. Use different compaction equipment.
5. Place fill materials in horizontal, loose lifts, not exceeding specified uncompacted thickness. Place fill in a manner ensuring uniform lift thickness after placing. Mechanically compact each lift, by not less than two complete coverages of the compactor. One coverage is defined as the conditions reached when all portions of the fill lift have been subjected to the direct contact of compactor's compacting surface. Compaction of fill materials by inundation with water is unacceptable.
6. Do not place fill materials when standing water is present on surface of the area where fill will be placed. Do not compact fill when standing water is present on the fill to be compacted. Do not place or compact fill in a frozen condition or on top of frozen material. Fill containing organic materials or other unacceptable material previously described shall be removed and replaced prior to compaction.
7. If required densities are not obtained because of improper control of placement or compaction procedures, or because of inadequate or improperly-functioning compaction equipment, Contractor shall perform all work required to provide the required densities. Such work shall include, at no additional cost to Owner, complete removal of unacceptable fill areas and replacement and re-compaction until acceptable fill is provided.
8. Repair, at Contractor's expense, observed or measured settlement. Make repairs and replacements as required within five days after being so advised by Engineer.

E. Fill in Pipe Trenches:
   1. Where shown or indicated, provide geotextile separation fabric between pipe embedment and native material in accordance with Section 31 05 19.13.
   2. Place pipe bedding material in pipe trenches in horizontal layers, and thoroughly compact each layer before the next layer is placed.
   3. Pipe trenches may be backfilled prior to testing of piping, unless nature of the test requires observation of piping during testing.
   4. Pipe Bedding: Install piping on not less than four-inch layer of pipe bedding material. Pipe bedding material shall extend 12 inches above the top of the pipe.
   5. Placing and Compacting Pipe Trench Fill: Unless otherwise shown, placement and compaction of pipe trench fill material shall comply with the following:
      a. Pipe bedding material shall be spread and the surface graded to provide a uniform and continuous support beneath piping at all points between bell holes or pipe joints. Slight disturbance of installed pipe bedding material surface during withdrawal of pipe slings or other lifting tackle is acceptable.

b. After each pipe's bedding material has been graded, and the piping has been aligned, joined in accordance with the Contract Documents, and placed in final position on bedding material, provide and compact sufficient pipe trench fill material under and around each side of the pipe and back of the bell or end thereof to hold piping in proper position and maintain alignment during subsequent pipe jointing and embedment operations. Deposit and compact pipe trench fill material uniformly and simultaneously on each side of piping to prevent lateral displacement of piping. Place and compact pipe trench fill material to an elevation 12 inches above top of pipe, unless otherwise shown or specified.
c. Each layer of pipe trench fill material shall be compacted by at least two complete coverages of all portions of surface of each lift using appropriate compaction equipment.
d. Method of compaction and compaction equipment used shall be appropriate for material to be compacted and shall not transmit damaging shocks to the piping.

F. Subbase Placement:
1. Provide subbase material where shown to the limits shown or indicated.
2. Place subbase material in compacted lifts not exceeding depth of six inches each.

G. Drainage Fill Placement:
1. Provide drainage fill material where shown to the limits shown or indicated.
2. Place drainage fill material in compacted layers of uniform thickness not exceeding depth of six inches each. Compact lifts of drainage fill using suitable compaction equipment.

H. Compaction Density Requirements:
1. Compaction required for all types of fills shall be in accordance with Table 31 23 00-D of this Section. Moisten material or aerate the material as necessary to provide the moisture content that will facilitate obtaining the required compaction.

**TABLE 31 23 00-D**
**MINIMUM DENSITY REQUIREMENTS**

| Fill Material | Maximum Uncompacted Lift Thickness (inches) | Percent Compaction (ASTM D698) |
|---|---|---|
| General Fill Material | | |
| More Than Five Feet Below Final Grade | 18 | 95 |
| Less Than Five Feet Below Final Grade | 12 | 95 |
| Subbase Material | | |
| Below Pavements and Sidewalks | 6 | 98 |
| All Other Locations | 12 | 95 |
| Drainage Fill | 6 | NA |
| Pipe Bedding Material | | |
| Below Piping, Structures, and Pavements | 8 | 98 |
| All Other Locations | 6 | 95 |

2. Fill shall be wetted and thoroughly mixed to achieve optimum moisture content plus-or-minus two percent.
3. Replace natural, undisturbed soils or compacted soil subsequently disturbed or removed by construction operations with materials compacted as indicated in Table 31 23 00-D of this Section.
4. Field quality control testing for density, to verify that specified density was obtained, shall be performed in accordance with Paragraph 3.10.A of this Section.

5. When field quality control testing indicates unsatisfactory compaction, provide additional compaction necessary to obtain the specified compaction. Perform additional compaction Work at no additional cost to Owner until specified compaction is obtained. Such work includes complete removal of unacceptable (as determined by Engineer) fill areas and replacement and re-compaction until acceptable fill is provided in accordance with the Contract Documents.

I. Replacement of Unacceptable Excavated Materials: In cases where over-excavation to replace unacceptable soil materials is required, backfill the excavation to required subgrade with general fill material and thoroughly compact in accordance with Paragraph 3.06.G and Table 31 23 00-D of this Section.

## 3.07 GRADING

A. General:
1. Uniformly grade areas within limits of grading under this Section, including adjacent transition areas.
2. Smooth subgrade surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
3. Blend grading over trench or excavation to elevations shown or indicated. Where elevations are not shown or indicated, blend finished grade with existing grade on each side of trench or excavation.

B. Grading Outside Building Lines: Grade areas adjacent to building lines to drain away from structures and to prevent ponding. Finish surfaces free of irregular surface changes, and comply with the following:
1. Grassed Areas or Areas Covered with Gravel, Stone, Wood Chips, or Other Special Cover: Finish areas to receive topsoil or special cover to within not more than one inch above or below the required subgrade elevations.
2. Sidewalks: Shape surface of areas under sidewalks to line, grade, and cross section, with finish surface not more than one inch above or below the required subgrade elevation.
3. Pavements: Shape surface of areas under pavements to line, grade, and cross section, with finish surface not more than 1/2 inch above or below the required subgrade elevation.

C. Compaction: After grading, compact subgrade surfaces to achieve required subgrade elevations and percentage of maximum density for each material classification.

## 3.08 CLSM

A. CLSM Placement:
1. Discharge CLSM from the mixer by reasonable means into the space to be filled.
2. Bring CLSM uniformly up to the fill line shown or indicated in the Contract Documents. If not shown or indicated, bring CLSM uniformly up to the desired level.
3. Placement of fill over the CLSM may proceed after a curing period of not less than three days.

## 3.09 SUBBASE COURSE FOR PAVEMENT AND CRUSHED STONE SURFACING

A. General:
1. Place subbase material, in layers of specified thickness, over ground surface to support pavement base course or crushed stone surfacing.

2. After completing filling and grading, shape and compact subgrade to an even, firm foundation in accordance with this Section. Remove unsuitable subgrade materials, including soft materials, boulders, vegetation, and loose stones, and replace with compacted fill material as directed by Engineer.

B. Grade Control: During construction, maintain lines and grades including crown and cross-slope of subbase course.

C. Subbase Course Placement:
   1. Place subbase course material on prepared subgrade in layers of uniform thickness, in accordance with indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placing operations.
   2. Provide geotextile separation fabric over the prepared subgrade in accordance with Section 31 05 19.13.
   3. Compaction and Grade Control: Comply with compaction requirements for excavation and fill in this Section, and the following requirements:
      a. Compaction with roller shall begin at the sides of the area to be paved or receive crushed stone surfacing, and shall continue toward the center. Continue compaction until there is no movement of the course ahead of the roller.
      b. After rolling, check for grade with a line not less than 40 feet in length. Depressions over 1/2 inch deep shall be filled to satisfaction of Engineer.
   4. After completing compaction, other than that necessary for bringing material for the next course, do not haul or drive over the compacted subbase.
   5. Do not install subbase in excess of 500 feet in length without compacting to prevent softening of the subgrade.
   6. If subgrade material becomes churned up into or mixed with the subbase material, remove the mixed material and replace with clean, compacted subbase material.

D. Shoulders:
   1. Place shoulders along edges of subbase course to prevent lateral movement. Construct shoulders of acceptable soil materials, placed in such quantity to compact to thickness of each lift of subbase material.
   2. Compact and roll not less than 12-inch width of shoulder simultaneously with compacting and rolling of each lift of subbase material.

## 3.10 FIELD QUALITY CONTROL

A. Site Tests:
   1. Moisture Content and Density Tests:
      a. Perform field moisture content and density tests in accordance with ASTM D6938 to verify that specified compaction of fill materials has been obtained. Comply with the following:
         1) Trenches for Structures and Underground Facilities:
            a) In Open Fields: Perform test at two locations for every 1,000 linear feet of trench.
            b) Along Dirt or Gravel Roads or Off Traveled Right-of-Way: Perform test at two locations for every 500 linear feet of trench.
            c) Crossing Paved Roads: Perform test at two locations along each crossing.
            d) Under Pavement Cuts or Within Two Feet of Pavement Edges: Perform test at one location for every 400 linear feet of trench.
         2) Remedial Excavation Areas: Perform test at one location for every 1,000 square feet of excavation and for every compacted lift placed less than five feet below finished grade.

b. Submit test results, certified by testing laboratory, to Engineer within 24 hours after completion of test.
c. If testing laboratory reports or inspections indicate subgrade, bedding, or fill compaction below specified density, Contractor shall remove unacceptable materials as necessary and replace with specified materials, and provide additional compaction at Contractor's expense until subgrades, bedding, and fills are acceptable. Costs for retesting of subgrade, bedding, or fills that did not originally comply with specified density shall be paid by Contractor.

2. CLSM Testing:
   a. Perform sampling and testing for field quality control during placement of CLSM. Comply with the following:
      1) Sampling of Fresh CLSM: ASTM D5971/D5971M. Engineer will direct where samples are to be obtained.
      2) Air Content: ASTM D6023. Perform one test for every two CLSM loads at point of discharge, and when a change in the CLSM is observed.
      3) Unit Weight: ASTM D6023. Perform one test for every two CLSM loads at point of discharge, and when a change in the CLSM is observed.
      4) Compressive Strength:
         a) Prepare one set of test cylinders for each 150 cubic yards of CLSM, or fraction thereof, placed each day. Each set shall consist of four standard cylinders, unless otherwise directed by Engineer. Cast, store, and cure test specimens in accordance with ASTM D4832.
         b) Perform compressive strength testing in accordance with ASTM D4832. For each set of CLSM cylinders, test one specimen at three days, one specimen at seven days, and two specimens at 28 days.
         c) CLSM that does not comply with strength requirements will be considered as defective Work.
   b. Submit test results, certified by testing laboratory, to Engineer within 24 hours after completion of test.

B. Site Inspections:
   1. Perform daily or more frequent inspections of all excavations, adjacent areas, and protective systems as required by Laws and Regulations and this Section to ensure their continued effectiveness and integrity, and the safety of exposed employees.
   2. Inspections shall be performed by Contractor's competent person, together with Engineer's Resident Project Representative:
      a. Prior to the start of Work and as needed throughout the day.
      b. After every rainstorm or other hazard-increasing occurrence.
   3. During each inspection, note the condition of each excavation, the adjacent areas, and protective systems, and any evidence of situations that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions.
   4. Where Contractor's competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions or corrective actions have been taken to ensure their safety.
   5. Document the date, time, and outcome of each inspection in a dedicated log. Submit copy of inspection log to Construction Manager and Engineer with daily construction report in accordance with Section 01 32 26 (Construction Progress Reporting).

END OF SECTION

# DIVISION 32

## Exterior Improvements

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# SECTION 32 15 40

# CRUSHED STONE SURFACING

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall provide all labor, materials, tools, equipment, and incidentals as shown, specified, and required to furnish and install crushed stone surfacing.
   2. Extent of crushed stone surfacing is shown or indicated on the Drawings.

B. Coordination:
   1. Review installation procedures under this and other Sections and coordinate the installation of items that must be installed with or before crushed stone surfacing.

C. Related Sections:
   1. Section 31 23 00, Excavation and Fill.

### 1.02 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Reference Specifications: Comply with applicable requirements of the NYSDOT Standard Specifications.

### 1.03 SUBMITTALS

A. Informational Submittals:
   1. Source Quality Control Submittals: Submit Supplier name, source address, copy of current NYSDEC mining permit, and proof of NYSDOT approval for proposed source of crushed stone.
   2. Delivery Tickets: Submit copy of delivery ticket for each load of crushed stone delivered to the Site. Each delivery ticket shall indicate Supplier name and source address, project name, contract number, date, material type, NYSDOT item number, and quantity delivered.

## PART 2 – PRODUCTS

### 2.01 MATERIALS

A. Crushed Stone: Provide clean, durable, sharp-angled fragments of rock of uniform quality conforming to Material Designation 703-0201, Size Designation No. 2, in accordance with Section 703 of the NYSDOT Standard Specifications.

### 2.02 SOURCE QUALITY CONTROL

A. Crushed Stone Source: Provide crushed stone from a NYSDEC-permitted mine, pit, or quarry. Source shall be approved by NYSDOT for furnishing aggregates for NYSDOT projects.

## PART 3 – EXECUTION

### 3.01 INSPECTION

A. Examine the subgrade and subbase on which crushed stone surfacing will be installed and notify Engineer in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions are corrected in a manner acceptable to Engineer.

B. Subgrade:
   1. Verify that earthwork is completed to correct line and grade.
   2. Verify that subgrade is smooth, properly compacted, and free of frost and excessive moisture in accordance with Section 31 23 00.
   3. Do not commence the Work under this Section until conditions are satisfactory.

### 3.02 PREPARATION

A. Prepare subgrade and provide subbase for crushed stone surfacing in accordance with Section 31 23 00. Before installing crushed stone surfacing, obtain Engineer's concurrence that subgrade and subbase are suitable for installing crushed stone surfacing.

### 3.03 INSTALLATION

A. Place and uniformly spread crushed stone to a depth of three inches, but not less than required to meet finished grades after rolling.

B. Perform rolling with consecutive passes to achieve an even and smooth finish without roller marks, within plus-or-minus 1/2 inch of final elevations. Roll and rake and remove all ridges, and fill depressions, as required.

C. If subbase material becomes churned up into or mixed with the crushed stone, remove the mixed material and replace with clean, crushed stone.

### 3.04 CLEANING AND REPAIR

A. Repair all erosion channels that may form until time of Substantial Completion.

B. Keep crushed stone surfacing free of all foreign materials including, but not limited to, soil, debris, and weeds, until time of Substantial Completion.

### 3.05 INSPECTION AND ACCEPTANCE

A. When the crushed stone surfacing is completed, including cleaning and repair, Engineer will make an inspection to determine acceptability.

B. Where inspected crushed stone surfacing does not comply with the requirements, replace rejected Work and continue specified cleaning and repair until reinspected by Engineer and found to be acceptable.

END OF SECTION

# SECTION 32 31 13

# CHAIN-LINK FENCES AND GATES

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. Scope:
   1. Contractor shall provide all labor, materials, tools, equipment, and incidentals as shown, specified, and required to furnish and install chain-link fencing and gates.
   2. Extent of chain-link fencing and gates is shown or indicated on the Drawings.
   3. Types of products required under this Section include the following:
      a. Galvanized steel chain-link fabric.
      b. Galvanized steel framework.
      c. Auxiliary system components, gates, accessories, fasteners, and fittings.

B. Coordination:
   1. Review installation procedures under this and other Sections and coordinate the installation of items that must be installed with or before chain-link fences and gates.

C. Related Sections:
   1. Section 03 00 05, Concrete.

### 1.02 REFERENCES

A. Terminology:
   1. The following words or terms are not defined but, when used in this Section, have the following meaning:
      a. “Knuckling” describes the type of selvage obtained by interlocking adjacent pairs of wire ends and then bending the wire ends back into a closed loop.
      b. “Fencing” describes an assembly of metal components, including wire chain-link fabric fastened to top, bottom, and intermediate horizontal rails, and to vertical line posts, corner posts, and terminal posts. This assembly includes all auxiliary components, gates, fittings, fasteners, and other accessories, all with specified protective coatings.
   2. Terminology used in this Section and not defined in this Article will be construed in accordance with the terminology used in ASTM F552 and CLFMI CLF-PM0610.

B. Reference Standards:
   1. The following standards are referenced in this Section:
      a. ASTM A53/A53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
      b. ASTM A90/A90M, Standard Test Method for Weight (Mass) of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.
      c. ASTM A153/A153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
      d. ASTM A392, Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric.
      e. ASTM A641/A641M, Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
      f. ASTM A780/A780M, Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

g. ASTM A817, Standard Specification for Metallic-Coated Steel Wire for Chain-Link Fence Fabric and Marcelled Tension Wire.
h. ASTM A824, Standard Specification for Metallic-Coated Steel Marcelled Tension Wire for Use With Chain-Link Fence.
i. ASTM B6, Standard Specification for Zinc.
j. ASTM B221, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
k. ASTM F552, Standard Terminology Relating to Chain-Link Fencing.
l. ASTM F567, Standard Practice for Installation of Chain-Link Fence.
m. ASTM F626, Standard Specification for Fence Fittings.
n. ASTM F900, Standard Specification for Industrial and Commercial Swing Gates.
o. ASTM F1043, Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework.
p. ASTM F1083, Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.
q. ASTM F1184, Standard Specification for Industrial and Commercial Horizontal Slide Gates.
r. CLFMI CLF-PM0610, Product Manual.

## 1.03 QUALITY ASSURANCE

A. Qualifications:
   1. Installer:
      a. Engage a single installer skilled, trained, and with successful and documented experience in the installation of fencing, and who agrees to employ only tradesmen with specific skill and successful experience in the type of Work required.
      b. Installer shall be acceptable to fencing manufacturer.

B. Component Supply and Compatibility:
   1. Provide fencing as complete system with all gates, hardware, appurtenances, and other components produced by a single manufacturer, including custom erection accessories, fittings, clamps, and fastenings as required for complete system.

C. Regulatory Requirements:
   1. Obtain required permits and approvals for the installation of chain-link fencing and gates.

## 1.04 SUBMITTALS

A. Action Submittals:
   1. Shop Drawings:
      a. Submit shop drawings of typical fence assembly, identifying all materials, dimensions, sizes, weights, and finishes of rails, posts, braces, supports, and other fencing components. Show fence heights and locations of gates. Show gate swing or other operation, hardware, and accessories. Include plans, elevations, and sections, with required installation and operating clearances, and details of post anchorage, attachments, and bracing.
      b. Submit large-scale details for all connections and gate details.
      c. Submit list of all hardware, fasteners, and accessories.
   2. Product Data:
      a. Submit copies of manufacturer's technical product information, and specifications for all fencing components.
      b. Submit data substantiating that materials proposed comply with the following:
         1) Weight of zinc coating on wire and pipe fabrications, in compliance with ASTM A90/A90M.

B. Informational Submittals:
   1. Certifications: Submit shipping list for materials used, endorsed with manufacturer's voucher, signed by authorized employee of manufacturer, certifying that material used in fencing complies with the Contract Documents and with the approved submittals.
   2. Manufacturer's Instructions: Submit manufacturer's installation instructions.
   3. Qualifications Statements: Submit name and address of fence installer.

C. Closeout Submittals:
   1. Submit warranty documentation in accordance with Article 1.07 of this Section.
   2. Submit specified number of keys for locksets and padlocks.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials in manufacturer's original, unopened packaging with all factory-applied tags, labels, and other identifying information intact, legible, and accurately representing material on approved submittals.

B. Storage:
   1. Store all materials under weather-proof cover, off the ground and away from other construction activities.
   2. Do not store material in a manner that would create a humidity chamber. Provide for free movement of air under protective cover and between components of the fencing.

C. Handling: Handle material in manner that is in compliance with manufacturer's recommendations and that avoids damaging coatings.

1.06 SITE CONDITIONS

A. Obtain measurements at the Site to verify layout information and dimensions for fencing and gates in relation to reference points provided by Owner or indicated in the Contract Documents.

1.07 WARRANTY

A. General Warranty: The special warranties specified in this Article shall not deprive Owner of other rights or remedies Owner may otherwise have under the Contract Documents and shall be in addition to and run concurrent with other warranties made by Contractor under the Contract Documents.

B. Special Warranties: Submit manufacturer's written 10-year warranty against rusting or corrosion of metal.

## PART 2 – PRODUCTS

2.01 MATERIALS

A. General:
   1. Pipe sizes specified are actual outside dimension.
   2. Wire gages shall conform to American Steel and Wire Company gage.

B. Steel Wire:
   1. Chain-Link Fabric and Tension Wire: ASTM A817, Type II, Class 4.
   2. Tie Wires and Hog Rings: ASTM A641/A641M, Class 3 or A.

C. Steel Pipe:
   1. ASTM F1083, Regular Grade, Standard Weight (Schedule 40).

D. Square and Rectangular Aluminum Tube:
   1. ASTM B221.

2.02 FENCE FABRIC

A. Steel Chain-Link Fabric: ASTM A392. Fabric shall be galvanized before weaving.
   1. Wire Size: Nine gage.
   2. Mesh Size: Two inches.
   3. Nominal Fabric Height: As shown or indicated.
   4. Selvage: Knuckled at top, twisted at bottom.

B. Provide fence fabric imprinted with manufacturer's trade name, country of origin, core wire gage, and finished outside diameter gage.

2.03 FENCE FRAMEWORK

A. Steel Fence Framework: ASTM F1043, Group IA. Provide posts and rails of the following minimum sizes:
   1. End, Corner, and Pull Posts: Provide posts of the minimum sizes indicated in Table 32 31 13-A:

**TABLE 32 31 13-A**
**MINIMUM TERMINAL POST SIZE**

| Nominal Fence Fabric Height | Post OD (inches) | Post Weight (pounds per linear foot) |
|---|---|---|
| Up to Six Feet | 2.375 | 3.65 |
| Over Six Feet to Eight Feet | 2.875 | 5.79 |
| Over Eight Feet to 10 Feet | 3.500 | 7.58 |

   2. Line Posts: Provide posts of the minimum sizes indicated in Table 32 31 13-B:

**TABLE 32 31 13-B**
**MINIMUM LINE POST SIZE**

| Nominal Fence Fabric Height | Post OD (inches) | Post Weight (pounds per linear foot) |
|---|---|---|
| Up to Six Feet | 1.900 | 2.72 |
| Over Six Feet to Eight Feet | 2.375 | 3.65 |
| Over Eight Feet to 10 Feet | 2.875 | 5.79 |

   3. Top Rail: 1.660-inch OD pipe weighing 2.27 pounds per linear foot. Furnish in manufacturer's longest lengths.
   4. Brace Rail: 1.660-inch OD pipe weighing 2.27 pounds per linear foot.

2.04 GATES

A. Swing Gates: ASTM F900.
   1. Gate Framework: ASTM F1043, Group IA. Provide framework of the minimum sizes indicated in Table 32 31 13-C:

**TABLE 32 31 13-C**
**MINIMUM SWING GATE FRAME MEMBER SIZE**

| Frame Member | Member OD (inches) | Member Weight (pounds per linear foot) |
|---|---|---|
| Nominal Gate Fabric Height Up to Six Feet: | | |
| Perimeter Frame | 1.660 | 1.83 |
| Interior Bracing | 1.660 | 1.83 |
| Nominal Gate Fabric Height Over Six Feet: | | |
| Perimeter Frame | 1.900 | 2.28 |
| Interior Bracing | 1.660 | 1.83 |

2. Provide gate frames with intermediate horizontal rails. Provide additional horizontal and vertical members to ensure proper gate operation and for attachment of fabric, hardware, and accessories. Space so that frame members are not more than eight feet apart.
3. Gate Hardware: Gate hardware shall be of sufficient strength and durability to support the gate and repeated open-close cycles.
   a. Gate Hinges: Provide non-lift-off-type hinges of galvanized pressed steel. Hinges shall permit the gate to swing a full 180 degrees inward.
   b. Gate Latch: Provide forked-type latch of galvanized pressed steel to permit operation from either side of gate, with padlock eye as integral part of latch. Latch shall be capable of retaining gate in closed position and shall have provision for padlock.
4. Assemble gate frames by welding or with special malleable or pressed steel fittings and rivets for rigid connections. Use same fabric as provided for fence. Install fabric with tension bars at vertical edges. Attach tension bars to gate frame with tension bands spaced not more than 15 inches on centers. Attach hardware with rivets or by other means that will provide security against removal and breakage.
5. Gate Posts: ASTM F1043, Group IA. Provide posts of the minimum sizes indicated in Table 32 31 13-D:

**TABLE 32 31 13-D**
**MINIMUM SWING GATE POST SIZE**

| Gate Leaf Width | Post OD (inches) | Post Weight (pounds per linear foot) |
|---|---|---|
| Nominal Gate Fabric Height Up to Six Feet: | | |
| Up to Four Feet | 2.375 | 3.11 |
| Over Four Feet to 10 Feet | 2.875 | 4.64 |
| Over 10 Feet to 18 Feet | 4.000 | 8.65 |
| Nominal Gate Fabric Height Over Six Feet: | | |
| Up to Six Feet | 2.875 | 4.64 |
| Over Six Feet to 12 Feet | 4.000 | 8.65 |
| Over 12 Feet to 18 Feet | 6.625 | 18.02 |
| Over 18 Feet to 24 Feet | 8.625 | 27.12 |

B. Cantilever Slide Gates: ASTM F1184, Type II, Class 2.
   1. Gate Framework: ASTM B221. Fabricate gate perimeter frames of square or rectangular extruded aluminum-alloy tubing in accordance with manufacturer's design and based on gate opening and height. Top horizontal member shall be one-piece precision extruded structural section with integral enclosed track to accommodate truck assemblies. Provide additional vertical members to ensure proper gate operation and for attachment of fabric, hardware, and accessories. Space so that frame members are not more than eight feet apart.
   2. Gate Hardware: Gate hardware shall be of sufficient strength and durability to support the gate and repeated open-close cycles.

a. Provide manufacturer's internal truck assemblies, hanger brackets, guides, stays, bracing, and accessories as required. Internal truck assemblies shall be self-aligning, factory lubricated and sealed ball-bearing wheels. Each internal roller truck assembly shall be affixed to hanger bracket by means of a 5/8-inch diameter stainless steel bolt. Attachment of center bolt to truck body shall be by means of a swivel joint to ensure equivalent and consistent loading on all bearing wheels and internal track surfaces throughout the travel of the gate.
b. Gate latch shall be capable of retaining gate in closed position and shall have provision for padlock

3. Assemble gate frames by welding or with special malleable or pressed steel fittings and rivets for rigid connections. Use same fabric as provided for fence. Install fabric with stretcher bars at vertical edges. Bars may also be used at top and bottom edges. Attach stretchers to gate frame at not more than 15 inches on centers. Attach hardware with rivets or by other means that will provide security against removal and breakage.
4. Install diagonal cross-bracing on gates consisting of adjustable-length truss rods provided with turnbuckles to ensure frame rigidity without sag or twist.
5. Gate Posts: ASTM F1043, Group IA. Provide 4.00-inch OD pipe weighing not less than 6.56 pounds per linear foot.

C. Padlocks: Provide each gate with heavy-duty bronze padlock and shackle chain as follows:
1. Product and Manufacturer: Provide one of the following:
a. No. 160DHM with 11/32-inch marine brass shackle by Master Lock Company.
b. Or equal.
2. Provide three keys for each padlock. Where more than one gate is required for same enclosure, padlocks shall be keyed identically.

## 2.05 AUXILIARY FENCING MATERIALS AND ACCESSORIES

A. Steel Tension Wire: ASTM A824, Type II, Class 4.

B. Fittings: ASTM F626.
1. Post Caps: Galvanized pressed steel, designed to fit snugly over tubular posts and exclude moisture.
a. Provide one loop-type cap for each line post.
b. Provide one dome-type cap for each terminal post.
2. Rail and Brace Ends: Provide galvanized pressed steel rail and brace ends for each connection of brace or rail to terminal posts.
3. Top Rail Sleeves: Galvanized pressed steel or round steel tubing with minimum thickness of 0.051 inch and minimum length of six inches. Provide one sleeve for each length of rail.
4. Tie Wires and Clips:
a. Tie Wires: Nine-gage galvanized steel wire with Class 3 or A coating in accordance with ASTM A641/A641M.
b. Hog Rings: 12-gage galvanized steel wire with Class 3 or A coating in accordance with ASTM A641/A641M.
5. Tension and Brace Bands:
a. Tension Bands: Galvanized pressed steel with minimum thickness of 0.074 inch (14 gage) and minimum width of 3/4 inch.
b. Brace Bands: Galvanized pressed steel with minimum thickness of 0.105 inch (12 gage) and minimum width of 3/4 inch.
6. Tension Bars: Galvanized, merchant-quality steel in one-piece lengths equal to full height of fabric, with minimum cross-section of 3/16 inch by 3/4 inch. Provide one tension bar for each gate and end post, and two tension bars for each corner and pull post.

7. Truss Rod Assembly: Galvanized, merchant-quality steel rod with minimum diameter of 3/8 inch, complete with pressed steel tightener.

C. Concrete: Concrete shall be Class "B", in accordance with Section 03 00 05, unless otherwise shown or indicated.

2.06 FINISHING

A. Galvanized Finish:
   1. Provide galvanized finish for all fencing components. Zinc for galvanizing shall be of High Grade or Special High Grade conforming to ASTM B6 with maximum aluminum content of 0.01 percent.
   2. Galvanize metal using hot-dip process in accordance with the following:
      a. Steel Wire:
         1) Chain-Link Fabric and Tension Wire: ASTM A817.
         2) Tie Wires and Hog Rings: ASTM A641/641M.
      b. Steel Pipe: ASTM A53/A53M.
      c. Fittings: ASTM F626.
      d. Hardware and Accessories: ASTM A153/A153M.
   3. Provide minimum weights of zinc as follows:
      a. Steel Wire:
         1) Chain-Link Fabric and Tension Wire: 1.20 ounces of zinc per square foot of uncoated wire surface, as determined by ASTM A90/A90M.
         2) Tie Wires and Hog Rings: 0.90 ounce of zinc per square foot of uncoated wire surface, as determined by ASTM A90/A90M.
      b. Steel Pipe: 1.80 ounces of zinc per square foot. Apply Type A coating both inside and outside according to ASTM F1043, as determined by ASTM A90/A90M.
      c. Fittings: 1.20 ounces of zinc per square foot of surface area, as determined by ASTM A90/A90M.
      d. Hardware and Accessories: Zinc weights in accordance with Table 1 of ASTM A153/A153M.

B. Welded Joints:
   1. Repair zinc coatings at welded joints by applying zinc-rich paint, as specified in ASTM A780/A780M.

2.07 SOURCE QUALITY CONTROL

A. Fabrication Tolerances: Fabric, posts, rails, and other supports shall be straight or uniformly curved to provide the profiles shown, to dimensional tolerance of 1/16 inch in 10 feet without warp or rack in the finished Work.

## PART 3 – EXECUTION

3.01 INSPECTION

A. Examine the areas and conditions under which the Work will be erected and notify Engineer in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions are corrected in a manner acceptable to Engineer.

## 3.02 PREPARATION

A. Confirm that areas to receive fencing are at proper elevations and that no further earthwork is required to bring the subgrade to proper elevations.

B. Confirm that property lines and legal boundaries of Work are clearly established before initiating the installation of fencing.

## 3.03 INSTALLATION

A. Comply with ASTM F567. Do not begin installation of fencing until final grading is completed.

B. Post Locations:
   1. Space line posts equidistant at intervals not exceeding 10 feet on centers.
   2. Set terminal posts at the beginning and end of each continuous length of fence and at abrupt changes in vertical and horizontal alignments.

C. Setting Posts:
   1. Posts shall be set in concrete footings, except as otherwise shown or specified.
   2. Excavate or drill holes of diameters and depths specified for post footings in firm, undisturbed or compacted soil.
      a. End, Corner, Pull, and Line Posts: Provide post holes excavated or drilled approximately three inches deeper than bottom of post, with bottom of posts set not less than two feet below finished grade plus an additional three inches for each one-foot increase in fence height over four feet. Hole diameter shall be not less than four times the largest cross-section of post to be installed.
      b. Gate Posts: Provide post holes excavated or drilled approximately six inches deeper than bottom of post. Hole diameter shall be not less than four times the largest cross-section of post to be installed.
         1) Swing Gates: Bottom of posts shall be set not less than two feet below finished grade plus an additional three inches for each one-foot increase in fence height over four feet.
         2) Cantilever Slide Gates: Bottom of posts shall be set not less than three feet below finished grade.
   3. When solid rock or concrete is encountered at ground surface, drill into rock or concrete at least 12 inches for line posts and at least 18 inches for end, corner, pull, and gate posts. Hole diameter shall be a minimum of one inch greater than the largest cross-section of post to be installed.
   4. If solid rock or concrete is below soil overburden, drill to full depth required, except penetration into rock or concrete need not exceed the minimum depths specified for rock or concrete encountered at ground surface.
   5. Remove loose and foreign materials from sides and bottoms of holes, and moisten soil prior to placing concrete.
   6. Center and align posts in holes three or six inches above bottom of excavation, as specified.
   7. Place concrete around posts in continuous pour, and vibrate or tamp for consolidation. Check each post for vertical and top alignment, and hold in position during placement and finishing operations.
   8. Extend concrete to two inches above ground surface, or to two inches below ground surface if cover of sod, bituminous asphalt paving, or other material is shown or indicated to conceal concrete. Crown to shed water away from posts.
   9. Extend footings for gate posts to underside of bottom hinge. Set keeps, stops, sleeves, and other accessories into concrete as required.

10. Keep exposed concrete surfaces moist for at least seven days after placement, or cure with membrane curing materials, or other acceptable curing method.
11. Allow concrete to attain at least 75 percent of its minimum 28-day unconfined compressive strength, but in no case sooner than seven days after placement, before installing rails, tension wires, or chain-link fabric.
12. Do not stretch and tension fabric and wires, and do not hang gates, until concrete has attained its full design strength.
13. Provide caps on top of each post to exclude moisture and to receive top rail.

D. Rails and Braces:
   1. Top Rails: Run rail continuously through post caps or extension arms, bending to radius for curved runs. Provide expansion couplings as recommended by fencing manufacturer to form continuous rail between terminal posts.
   2. Brace Assemblies: Provide brace assemblies at end and gate posts, and at both sides of corner and pull posts, with horizontal brace located at mid-height of fabric. Diagonal bracing, consisting of adjustable-length truss rods, shall run from center of first line post to bottom of terminal post. Install brace assemblies so posts are plumb when diagonal rod is under proper tension.

E. Tension Wire:
   1. Install tension wire within bottom six inches of chain-link fabric.
   2. Stretch tension wire taut and free of sag, from end to end of each stretch of fence, and secure to terminal posts with brace bands.
   3. Fasten tension wire to each line post with tie wire.

F. Chain-Link Fabric:
   1. Install fabric on security side of fence, and anchor to framework so that fabric remains in tension after pulling force is released.
      a. Fasten to terminal posts and gate posts with tension bars threaded through mesh and secured with tension bands at maximum intervals of 15 inches.
      b. Fasten to line posts, gate frames, and rails with tie wires spaced at maximum intervals of 15 inches on posts and 24 inches on rails.
      c. Fasten to tension wire with hog rings spaced at maximum intervals of 24 inches.
   2. Leave approximately two inches between finished grade and bottom selvage, except where bottom of fabric extends into concrete.
   3. Join roll of chain-link fabric by weaving a single picket into the ends of roll to form continuous mesh.

G. Gates:
   1. Install gates plumb, level, and secure for full opening without interference.
   2. Adjust hardware for smooth operation and lubricate where necessary.

H. Tie Wires: Use “U”-shaped wires conforming to diameter of pipe. Clasp pipe and fabric firmly with ends twisted at least two full turns. Bend ends of wire to minimize hazard to persons and clothing.

I. Fasteners: Install nuts for tension band and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

## 3.04 ADJUSTMENT AND CLEANING

A. Repair coatings damaged in the shop or at the Site by recoating with manufacturer’s recommended repair compound, applied in accordance with manufacturer’s directions. Repair hot-dip galvanized coatings in accordance with ASTM A780/A780M.

B. Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, and malfunction throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

C. Lubricate operating equipment and clean exposed surfaces.

D. Repair and replace broken or bent components.

END OF SECTION

# DRAWINGS

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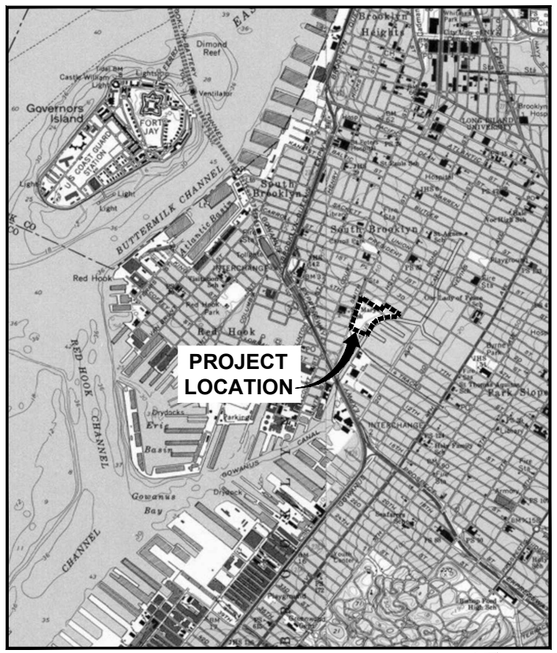
DESIGN DRAWINGS

# SITE REMEDIATION

## FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE CARROLL GARDENS/PUBLIC PLACE BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK


PROJECT LOCATION
Governors Island
Red Hook
Gowanus Bay
Buttermilk Channel
Red Hook Channel
Gowanus Canal
South Brooklyn
Park Slope
Brooklyn Heights
Diamond Reef
Ventilator
Drydocks
Basin
Atlantic Basin
Atlantic Basin Entrance
Fort Jay
Castle Williams
Coast Guard Station
Pier 41
Light
Brooklyn Bridge Park
Pier 6
Pier 5
Pier 4
Pier 3
Pier 2
Pier 1
Brooklyn Piers
Long Island University
Brooklyn Hospital Center
Brooklyn Navy Yard
Wallabout Channel
Wallabout Bay
Williamsburg Bridge
Manhattan Bridge
Brooklyn Bridge
Governors Island Ferry
Statue of Liberty Ferry
Red Hook Ferry
Atlantic Basin Ferry
Brooklyn Army Terminal
Erie Basin
Gowanus
Bay
CHANNEL
RED HOOK CHANNEL
BUTTERMILK CHANNEL
Atlantic Basin
Red Hook
Park Slope
Brooklyn Heights
Brooklyn Navy Yard
Brooklyn Piers
Long Island University
Brooklyn Hospital Center
Brooklyn Bridge Park
Pier 6
Pier 5
Pier 4
Pier 3
Pier 2
Pier 1
Brooklyn Bridge
Manhattan Bridge
Williamsburg Bridge
Governors Island Ferry
Statue of Liberty Ferry
Red Hook Ferry
Atlantic Basin Ferry
Brooklyn Army Terminal
Erie Basin
Gowanus Canal
Wallabout Channel
Wallabout Bay
Gowanus

CITY: SYRACUSE,NY DIV/GROUP: ENV/CAD DB: B.GETTS, K.SARTORI PIC: T. YOUNG PM: M.BENOIT TM: A. GEORGE LYR:ON=*;OFF=*REF*
C:\local-g\ENVCAD\SYRACUSE\ACTIB0036728\0001\0003\DWG\CONTRACT-RP\36728_G-002.dwg LAYOUT: G-002 SAVED: 8/9/2016 2:37 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 8/9/2016 2:38 PM BY: DECLERCQ, BRIAN

## GENERAL NOTES:

### SAFETY:

1. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. SUCH RESPONSIBILITY DOES NOT RELIEVE SUBCONTRACTORS OF THEIR RESPONSIBILITY FOR THE SAFETY OF PERSONS OR PROPERTY IN THE PERFORMANCE OF THEIR WORK, NOR FOR COMPLIANCE WITH APPLICABLE SAFETY LAWS AND REGULATIONS. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF, AND SHALL PROVIDE THE NECESSARY PROTECTION TO PREVENT DAMAGE, INJURY, OR LOSS TO: ALL PERSONS ON THE SITE, REGARDLESS OF EMPLOYER, OR WHO MAY BE AFFECTED BY THE WORK; ALL THE WORK AND MATERIALS AND EQUIPMENT TO BE INCORPORATED THEREIN, WHETHER IN STORAGE ON OR OFF THE SITE; AND OTHER PROPERTY AT THE SITE OR ADJACENT THERETO, INCLUDING TREES, SHRUBS, LAWNS, WALKS, PAVEMENTS, ROADWAYS, STRUCTURES, OTHER WORK IN PROGRESS, UTILITIES, AND UNDERGROUND FACILITIES NOT DESIGNATED FOR REMOVAL, RELOCATION, OR REPLACEMENT IN THE COURSE OF CONSTRUCTION.
2. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS RELATING TO THE SAFETY OF PERSONS OR PROPERTY, OR TO THE PROTECTION OF PERSONS OR PROPERTY FROM DAMAGE, INJURY, OR LOSS; AND SHALL ERECT AND MAINTAIN ALL NECESSARY SAFEGUARDS FOR SUCH SAFETY AND PROTECTION. CONTRACTOR SHALL NOTIFY OWNER, CONSTRUCTION MANAGER, AND ENGINEER; THE OWNERS OF ADJACENT PROPERTY, UNDERGROUND FACILITIES, AND OTHER UTILITIES; AND OTHER CONTRACTORS AND UTILITY OWNERS PERFORMING WORK AT OR ADJACENT TO THE SITE, WHEN PROSECUTION OF THE WORK MAY AFFECT THEM, AND SHALL COOPERATE WITH THEM IN THE PROTECTION, REMOVAL, RELOCATION, AND REPLACEMENT OF THEIR PROPERTY OR WORK IN PROGRESS.
3. THE SITE IS CLASSIFIED AS A HAZARDOUS WASTE SITE. PRESENCE OF CONTAMINANTS, WHERE KNOWN TO OWNER AND ENGINEER, ARE INDICATED IN THE REPORTS AND DRAWINGS (IF ANY) OF SUCH CONTAMINANTS LISTED IN THE SUPPLEMENTARY CONDITIONS.
4. EACH EMPLOYER WORKING AT THE SITE SHALL DEVELOP AND IMPLEMENT A WRITTEN HEALTH AND SAFETY PLAN FOR ITS EMPLOYEES AND OTHER INDIVIDUALS FOR WHOM SUCH EMPLOYER IS RESPONSIBLE. HEALTH AND SAFETY PLAN SHALL INCLUDE PROCEDURES THAT WILL BE USED TO ENSURE THE SAFE HANDLING OF CONTAMINANTS DURING EXCAVATING, LOADING, AND TRANSPORTING ACTIVITIES. HEALTH AND SAFETY PLAN SHALL COMPLY WITH 29 CFR 1904, 29 CFR 1910, 29 CFR 1926, OTHER LAWS AND REGULATIONS, AND SPECIFICATIONS SECTION 01 35 29 (CONTRACTOR'S HEALTH AND SAFETY PLAN).

### EXISTING CONDITIONS, STRUCTURES, AND UNDERGROUND FACILITIES:

1. SITE CONDITIONS AT THE TIME OF CONSTRUCTION MAY BE DIFFERENT THAN THOSE SHOWN OR INDICATED ON THE DRAWINGS. CONTRACTOR SHALL VERIFY THE ACCURACY AND COMPLETENESS OF THE INFORMATION SHOWN OR INDICATED ON THE DRAWINGS BEFORE STARTING WORK. PROMPTLY NOTIFY CONSTRUCTION MANAGER AND ENGINEER IN WRITING OF ANY DISCREPANCIES WITH THE POTENTIAL TO AFFECT THE WORK.
2. THE SUPPLEMENTARY CONDITIONS INDICATE INFORMATION AVAILABLE RELATIVE TO SUBSURFACE CONDITIONS AT THE SITE. SUCH INFORMATION AND DATA ARE NOT INTENDED AS A REPRESENTATION OR WARRANTY OF CONTINUITY OF CONDITIONS BETWEEN SOIL BORINGS OR TEST PITS, NOR OF GROUNDWATER LEVELS AT DATES AND TIMES OTHER THAN DATE AND TIME WHEN MEASURED, NOR THAT PURPOSE OF OBTAINING THE INFORMATION AND DATA WERE APPROPRIATE FOR USE BY CONTRACTOR. OWNER AND ENGINEER WILL NOT BE RESPONSIBLE FOR INTERPRETATIONS OR CONCLUSIONS DRAWN THEREFROM BY CONTRACTOR.
3. SOIL BORINGS AND OTHER EXPLORATORY OPERATIONS MAY BE MADE BY CONTRACTOR, AT NO ADDITIONAL COST TO OWNER. COORDINATE CONTRACTOR-PERFORMED TEST BORINGS AND OTHER EXPLORATORY OPERATIONS WITH OWNER, UTILITY OWNERS, AND OTHERS AS APPROPRIATE. PERFORM SUCH EXPLORATIONS WITHOUT DISRUPTING OR OTHERWISE ADVERSELY AFFECTING OPERATIONS OF OWNER, UTILITY OWNERS, OR OTHERS. COMPLY WITH LAWS AND REGULATIONS RELATIVE TO REQUIRED NOTIFICATIONS.
4. UNDERGROUND FACILITIES KNOWN TO OWNER AND ENGINEER, EXCEPT WATER, GAS, SEWER, ELECTRIC, AND COMMUNICATIONS SERVICES TO INDIVIDUAL BUILDINGS AND PROPERTIES, ARE SHOWN ON THE DRAWINGS. INFORMATION SHOWN FOR UNDERGROUND FACILITIES IS THE BEST AVAILABLE TO OWNER AND ENGINEER BUT, IN ACCORDANCE WITH THE GENERAL CONDITIONS, AS MAY BE MODIFIED BY THE SUPPLEMENTARY CONDITIONS, IS NOT GUARANTEED TO BE CORRECT OR COMPLETE.
5. CONTRACTOR SHALL EXPLORE AHEAD OF SELECTIVE DEMOLITION, TRENCHING, EXCAVATING, PILE DRIVING, OR OTHER SUBSURFACE WORK, AND SHALL SUFFICIENTLY UNCOVER UNDERGROUND FACILITIES THAT WILL OR MAY INTERFERE WITH THE WORK TO DETERMINE THEIR LOCATION, TO PREVENT DAMAGE TO UNDERGROUND FACILITIES, AND TO PREVENT SERVICE INTERRUPTION TO STRUCTURES AND PROPERTIES SERVED BY UNDERGROUND FACILITIES.
6. COORDINATE WITH UTILITY OWNERS FOR SHUT OFF OF SERVICES IN ACTIVE PIPING AND CONDUITS, AND FOR TESTING, SHUT OFF OF SERVICES, AND DRAINING, PURGING, OR DE-ENERGIZING WHERE SPECIFIED OR REQUIRED OF PIPING AND CONDUITS OF UNKNOWN STATUS. WHEN REQUIRED BY UTILITY OWNER, OWNER WILL ASSIST CONTRACTOR WITH UTILITY OWNER NOTIFICATIONS. COMPLETELY REMOVE BURIED PIPING AND CONDUITS INDICATED FOR REMOVAL AND NOT OTHERWISE INDICATED AS BEING ABANDONED OR TO REMAIN IN PLACE.
7. CONTRACTOR SHALL SUSTAIN IN THEIR PLACES AND PROTECT FROM DIRECT OR INDIRECT INJURY ALL UNDERGROUND FACILITIES AND SURFACE STRUCTURES LOCATED WITHIN OR ADJACENT TO THE LIMITS OF THE WORK. SUCH SUSTAINING AND SUPPORTING SHALL BE DONE CAREFULLY AND AS REQUIRED BY THE PARTY OWNING OR CONTROLLING SUCH FACILITY OR STRUCTURE.
8. MOVEMENT OR OPERATION OF CONSTRUCTION EQUIPMENT OVER UNDERGROUND FACILITIES SHALL BE AT CONTRACTOR'S SOLE RISK AND ONLY AFTER CONTRACTOR HAS PREPARED AND SUBMITTED TO ENGINEER AND UTILITY OWNERS (AS APPLICABLE), AND RECEIVED ACCEPTANCE THEREFROM, A PLAN DESCRIBING CONTRACTOR'S ANALYSIS OF THE LOADS TO BE IMPARTED AND CONTRACTOR'S PROPOSED MEASURES TO PROTECT STRUCTURES AND UNDERGROUND FACILITIES DURING THE PROJECT.
9. IF CONTRACTOR DAMAGES AN UNDERGROUND FACILITY, OR THE MATERIAL SURROUNDING OR SUPPORTING THE SAME, CONTRACTOR SHALL IMMEDIATELY NOTIFY OWNER, CONSTRUCTION MANAGER, ENGINEER, AND THE OWNER OF THE DAMAGED FACILITY AND RESTORE IT TO ITS PRE-CONSTRUCTION CONDITION, IN ACCORDANCE WITH REQUIREMENTS OF THE OWNER OF THE DAMAGED FACILITY AND THE GENERAL CONDITIONS. SUCH REPAIR OR RESTORATION WORK SHALL BE PERFORMED AT NO ADDITIONAL COST TO OWNER.
10. DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED AND USED BY OWNER OR OTHERS, EXCEPT WHEN SUCH INTERRUPTION IS INDICATED IN THE CONTRACT DOCUMENTS OR WHEN ALLOWED IN WRITING BY ENGINEER AFTER ACCEPTABLE TEMPORARY UTILITY SERVICES ARE PROVIDED BY CONTRACTOR FOR THE AFFECTED STRUCTURE OR PROPERTY.

### SURVEY:

1. PROJECT HORIZONTAL REFERENCE DATUM IS NAD83, NEW YORK STATE PLANE EAST ZONE.
2. PROJECT VERTICAL REFERENCE DATUM IS NAVD88.
3. TIDAL ELEVATIONS, WHERE SHOWN OR INDICATED, ARE REFERENCED TO NOAA STATION 8518750, THE BATTERY, NEW YORK, 1983 TO 2001 EPOCH.

## GENERAL REFERENCE DRAWINGS:

### BASE MAP:

1. GEOD CORPORATION. DRAWING TITLED "BOUNDARY & TOPOGRAPHIC SURVEY, BLOCK 471, LOTS 1, 100 & 200, BLOCK 468, LOT 25, BOROUGH OF BROOKLYN, KINGS CO., CITY AND STATE OF NEW YORK", DATED JANUARY 15, 2016. PREPARED FOR ARCADIS OF NEW YORK, INC.
2. OCEAN SURVEYS, INC. DRAWING NUMBER 1, SHEET NUMBER 2 OF 3, TITLED "MULTIBEAM HYDROGRAPHY, GOWANUS CANAL, BROOKLYN, NEW YORK", DATED NOVEMBER 11, 2014. PREPARED FOR GEOSYNTEC CONSULTANTS, INC.

### BOND-LORRAINE STREET SEWER:

1. BROOKLYN DEPARTMENT OF CITY WORKS. DRAWING NUMBER 9W16, TITLED "PROPERTY MAP OF THE BOND ST. SEWER EXTENSION", DATED NOVEMBER 11, 1879.
2. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 2-A-73, TITLED "CITIZENS WORKS, PROPOSED DOCK REPLACEMENT PLAN 3", DATED MAY 10, 1922, REVISED JUNE 30, 1922.
3. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 16-B-55, TITLED "CITIZENS WORKS, PILING DIAGRAM - UNDER REPLACED SECTION OF SEWER", DATED AUGUST 17, 1922, REVISED OCTOBER 5, 1922.
4. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 16-B-98, TITLED "CITIZENS WORKS, CONDITIONS AT CANAL NEAR 5TH ST. EXTENDED", DATED NOVEMBER 27, 1922.
5. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 3A94, TITLED "CITIZENS WORKS, ASH POCKET FOUNDATIONS & SALT WATER PUMP PIT", DATED SEPTEMBER 7, 1923, REVISED SEPTEMBER 5, 1924.
6. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 15-A-40, TITLED "CITIZENS WORKS, SURVEY OF RECONSTRUCTED CITY SEWER", DATED APRIL 17, 1939.
7. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 11-C-14, TITLED "CITIZENS WORKS - CONVERSION, LOCATION PLAN & SECTION THRU CITY SEWER FOR BOROUGH PRESIDENT", DATED MAY 7, 1953.
8. MATTHEWS, JOHN P. DRAWING NUMBER 2-E-115, TITLED "CITS. WKS., LOCATION OF CENTERLINE 6' SEWER NEAR 5TH ST.", DATED NOVEMBER 27, 1922.
9. NEW YORK CITY DEPARTMENT OF WATER RESOURCES, DIVISION OF SEWER CONSTRUCTION. UNNUMBERED SKETCH TITLED "REPAIR - 105'-54" R.C.P. INSIDE 72" BRICK SEWER", DRAWN BY R. PANTELIS, DATED JULY 27, 1977.

### GAS TUNNEL, GAS MAINS, AND OTHER UNDERGROUND FACILITIES IN PUBLIC RIGHTS-OF-WAY:

1. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 3-A-78, TITLED "CITIZENS WORKS, CONNECTIONS AT TUNNEL WEST SHAFT - CITIZENS WKS SIDE", DATED JULY 30, 1923, REVISED MAY 28, 1924.
2. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 3-A-95, TITLED "CITIZENS WORKS, CONNECTIONS AT TOP OF EAST SHAFT OF TUNNEL", DATED SEPTEMBER 19, 1923, REVISED NOVEMBER 22, 1924.
3. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 6-G-83, TITLED "CITIZENS WORKS, CONNECTIONS AT TUNNEL WEST SHAFT, CITIZENS WORKS SIDE", DATED MAY 23, 1924.
4. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 19-B-32, TITLED "CITIZENS WORKS, STAIRS, PLATFORMS, TOP COVER, STAIR DETAILS AND HOUSING OVER STAIRS AT GRADE", DATED AUGUST 23, 1924, REVISED SEPTEMBER 29, 1924.
5. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 19-B-37, TITLED "CITIZENS WORKS, HOUSING OVER STAIR WELLS IN EAST AND WEST SHAFTS TO TUNNEL", DATED AUGUST 25, 1924, REVISED SEPTEMBER 26, 1924.
6. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER DF-681, "16"-60 PSI AND 24"-15 PSI WRAPPED WELDED STEEL GAS MAINS IN EASEMENT STRIP TO SUPPLY SUCREST (TESTED TO 125 PSI)", DATED JUNE 10, 1958, REVISED OCTOBER 4, 2005.
7. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER DF-250, TITLED "GOVERNOR NO. 79, HOYT ST & 4TH AVE", DATED AUGUST 28, 1958, REVISED JANUARY 7, 1994.
8. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 25-A-57, TITLED "CITIZENS GATE STATION, GAS PIPING IN TUNNEL", DATED FEBRUARY 27, 1969.
9. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER DF-680-INDEX, TITLED "RELOCATION OF 12"-60 PSI SUCREST LINE IN 5TH ST AND SMITH ST OUTSIDE OF FORMER CITIZEN'S WORKS (TESTED TO 125 PSI)", DATED SEPTEMBER 9, 1970, REVISED OCTOBER 29, 1975.
10. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER DF-680, SHEET NUMBER 1 OF 2, UNTITLED PLAN AND PROFILE OF 12-INCH 60-PSI WRAPPED WELDED STEEL GAS MAIN BENEATH SMITH STREET, UNDATED, REVISED OCTOBER 8, 2002.
11. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER DF-680, SHEET NUMBER 2 OF 2, UNTITLED PLAN AND PROFILE OF 12-INCH 60-PSI WRAPPED WELDED STEEL GAS MAIN BENEATH SMITH STREET AND 5TH STREET, UNDATED, REVISED JULY 19, 1995.
12. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER DF-383, SHEET NUMBER 4 OF 5, UNTITLED PLAN AND PROFILE OF 12-INCH 15-PSI WRAPPED WELDED STEEL GAS MAIN BENEATH 4TH PLACE, SMITH STREET, AND 5TH STREET, UNDATED, REVISED JULY 17, 1995.
13. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER DF-383, SHEET NUMBER 5 OF 5, UNTITLED PLAN AND PROFILE OF 12-INCH 15-PSI WRAPPED WELDED STEEL GAS MAIN BENEATH 5TH STREET, UNDATED, REVISED JULY 17, 1995.
14. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER GO-1-B-10, TITLED "CITIZENS GATE STATION, REPLACE EAST TUNNEL ENTRANCE HOUSING", DATED MAY 22, 1979.
15. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER DF-681A, "EASEMENT STRIP REQUIRED FOR 16"-60 PSI AND 24"-15 PSI WRAPPED WELDED STEEL", UNDATED.
16. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 39A-10A, UNTITLED PLAN OF GAS MAINS BENEATH SMITH STREET AND 5TH STREET, UNDATED.
17. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 39B-10B, UNTITLED PLAN OF GAS MAINS BENEATH 5TH STREET AND HOYT STREET, UNDATED.
18. CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. PLATE NUMBER 40-L, SHEET NUMBER 1 OF 2, TITLED "CONDUIT AND DUCT OCCUPANCY PLATE", UNDATED, REVISED JANUARY 23, 2007.
19. CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. PLATE NUMBER 40-L, SHEET NUMBER 2 OF 2, TITLED "LOW TENSION MAINS AND SERVICE PLATE", UNDATED, REVISED JULY 24, 2007.

## ABBREVIATIONS AND ACRONYMS:

| | |
|---|---|
| AC. | ACRE |
| AVG. | AVERAGE |
| BGS | BELOW GROUND SURFACE |
| BHBD | BROOKLYN HIGHWAY BUREAU DATUM |
| CFR | CODE OF FEDERAL REGULATIONS |
| CIP | CAST IRON PIPE |
| C.L.F. | CHAIN-LINK FENCE |
| CLSM | CONTROLLED LOW-STRENGTH MATERIAL |
| CONC. | CONCRETE |
| CY | IN-SITU CUBIC YARD |
| EA. | EACH |
| EL. | ELEVATION |
| GA. | GAUGE |
| GALV. | GALVANIZED |
| I.D. | INSIDE DIAMETER |
| INV. | INVERT |
| KSI | THOUSAND POUNDS PER SQUARE INCH |
| LF | LINEAR FOOT |
| MAX. | MAXIMUM |
| MGP | MANUFACTURED GAS PLANT |
| MHHW | MEAN HIGHER HIGH WATER |
| MHW | MEAN HIGH WATER |
| MIN. | MINIMUM |
| MLLW | MEAN LOWER LOW WATER |
| MLW | MEAN LOW WATER |
| MSL | MEAN SEA LEVEL |
| MTA | METROPOLITAN TRANSPORTATION AUTHORITY |
| NAD83 | NORTH AMERICAN DATUM OF 1983 |
| NAVD88 | NORTH AMERICAN VERTICAL DATUM OF 1988 |
| NO. | NUMBER |
| NOAA | NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION |
| NYCT | NEW YORK CITY TRANSIT |
| NYSDEC | NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION |
| O.D. | OUTSIDE DIAMETER |
| PSI | POUNDS PER SQUARE INCH |
| PVC | POLYVINYL CHLORIDE |
| RCP | REINFORCED CONCRETE PIPE |
| SQ. | SQUARE |
| STA. | STATION |
| TYP. | TYPICAL |

## VERTICAL DATUM RELATIONSHIPS:




## LEGEND:

- PROJECT WORK LIMIT
- PROPERTY LINE (APPROXIMATE)
- EASEMENT LINE (APPROXIMATE)
- TOPOGRAPHIC CONTOUR (1-FOOT INTERVAL)
- BATHYMETRIC CONTOUR (1-FOOT INTERVAL)
- EDGE OF WATER
- TREE
- EDGE OF VEGETATION
- EDGE OF PAVEMENT/CONCRETE
- EDGE OF GRAVEL
- EDGE OF SOIL/AGGREGATE PILE (APPROXIMATE)
- EDGE OF BULKHEAD
- CHAIN-LINK FENCE
- BUILDING
- MTA RAILROAD TRACK
- CONCRETE WALL
- LIMIT OF FORMER STRUCTURE (APPROXIMATE)
- OVERHEAD WIRES
- SANITARY SEWER LINE
- STORM SEWER LINE
- WATER LINE
- GAS LINE
- RETIRED GAS LINE
- TELECOMMUNICATIONS LINE
- ELECTRICAL LINE
- EXISTING 72" I.D. BRICK SEWER (1 / G-502)
- EXISTING 72" I.D. CONCRETE SEWER (1922 REPLACEMENT) (2 / G-502)
- EXISTING 72" I.D. CONCRETE SEWER (1939 REPLACEMENT) (3 / G-502)
- EXISTING 72" I.D. BRICK SEWER WITH 54" I.D. RCP LINING (1977 REPAIR) (4 / G-502)
- BENCHMARK (BM-1, EL. 27.21)
- BOLLARD
- SIGN
- UTILITY POLE
- HYDRANT
- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- WATER MANHOLE
- GAS MANHOLE
- TELECOMMINICATIONS MANHOLE
- ELECTRICAL MANHOLE
- MANHOLE (TYPE UNKNOWN)
- CATCH BASIN
- ELECTRICAL BOX
- WATER VALVE
- GAS VALVE
- CGPZ-3 PIEZOMETER
- CGMW-02S MONITORING WELL
- CGRW-201 RECOVERY WELL
- IMP-02 INCLINOMETER MONITORING POINT
- X / X-XXX PROFILE/SECTION/DETAIL NUMBER; DRAWING NUMBER

NOT TO SCALE

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|---|---|---|---|---|
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Professional Engineer's Name: TERRY W. YOUNG
Professional Engineer's No.: 074847
State: NY | Date Signed: . | Project Mgr.: MJB
Designed by: MJB | Drawn by: BGG | Checked by: RPK

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ARCADIS OF NEW YORK, INC.
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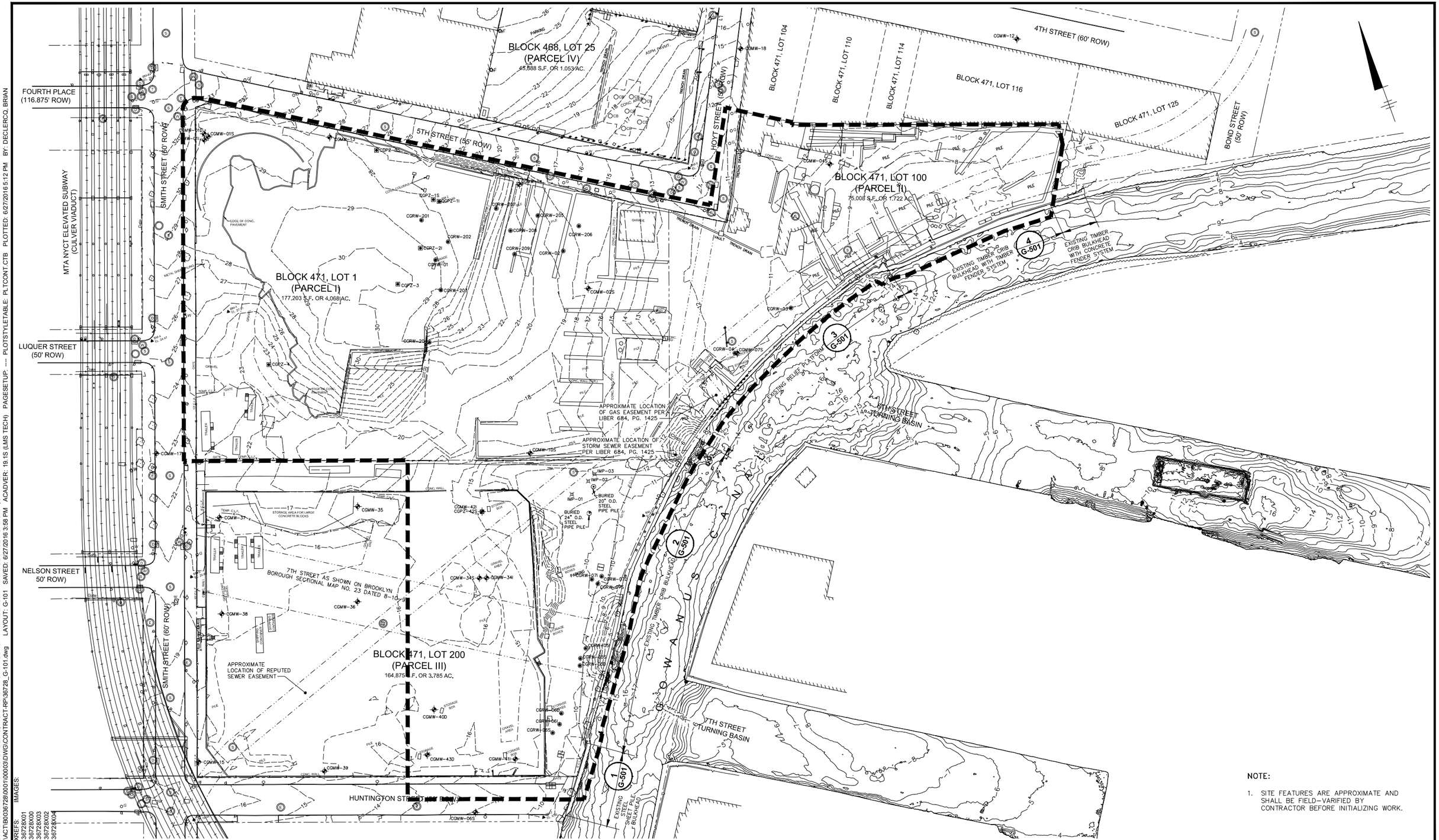
FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# GENERAL NOTES, REFERENCE DRAWINGS, ABBREVIATIONS, AND LEGEND

ARCADIS Project No. B0036728.0001.00003
Date: _____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

G-002




NOTE:

1. SITE FEATURES ARE APPROXIMATE AND SHALL BE FIELD-VARIFIED BY CONTRACTOR BEFORE INITIALIZING WORK.

CITY: SYRACUSE,NY DIV/GROUP: ENV/CAD DB: B. GETTS, K.SARTORI PIC: T. YOUNG PM: M.BENOIT TM: A. GEORGE LYR:ON="OFF=*REF*
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IMAGES:
36728X01
36728X00
36728X03
36728X02
36728X04

50' 0 50' 100'
1"=50'

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Professional Engineer's Name
**TERRY W. YOUNG**
Professional Engineer's No.
074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | | MJB |
| Designed by | Drawn by | Checked by |
| MJB | BGG | RPK |

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BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# EXISTING SITE PLAN

ARCADIS Project No.
B0036728.0001.00003

Date
_____ 2016

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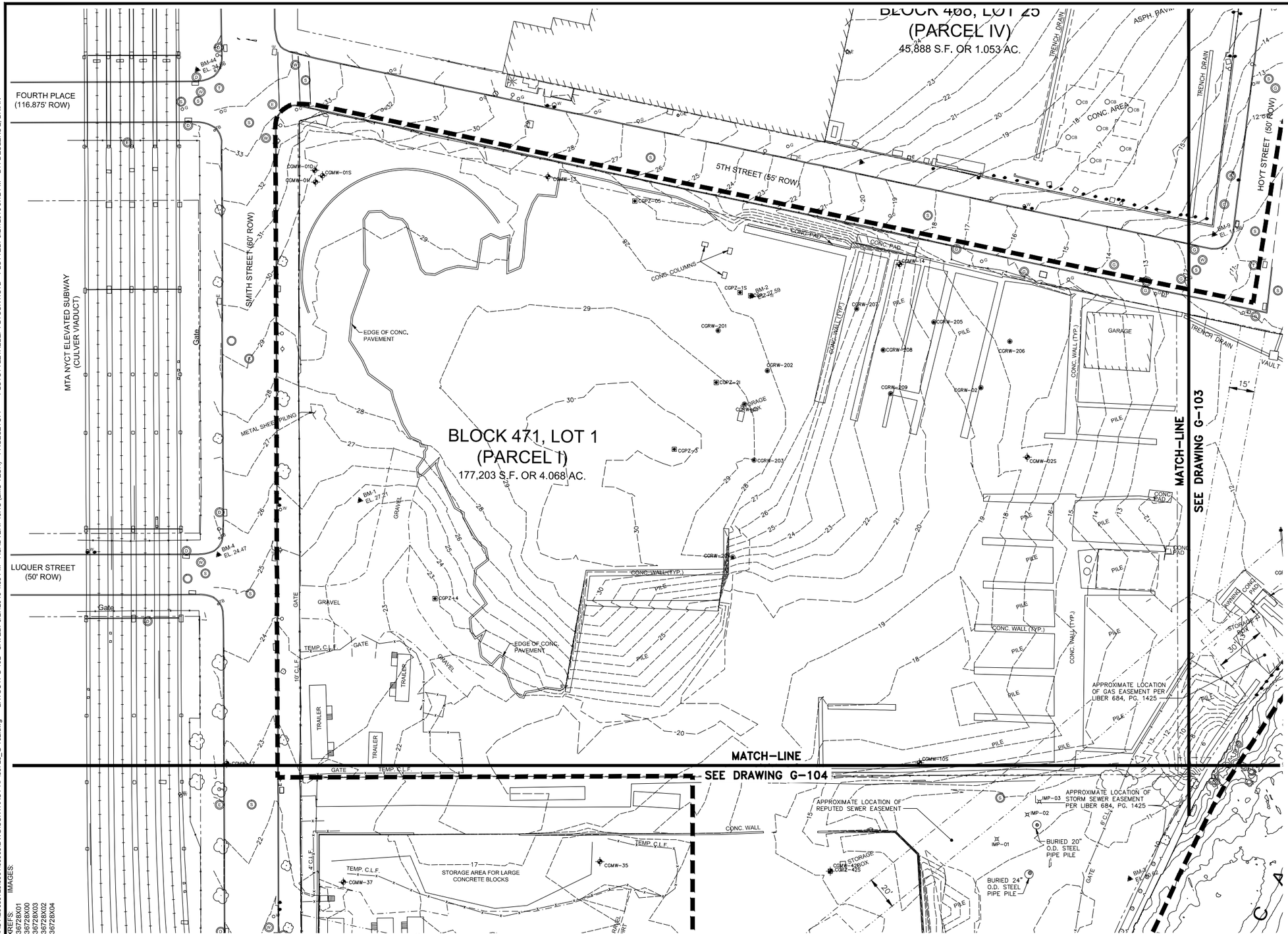
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

G-101




NOTE:

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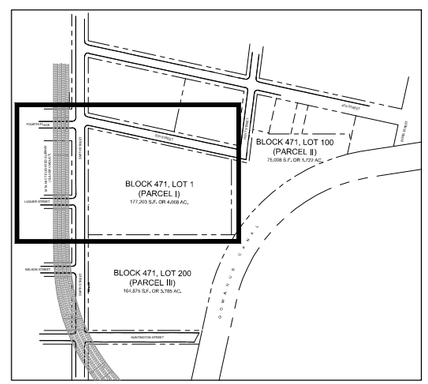


**KEY MAP**
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IMAGES:
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36728X00
36728X03
36728X02
36728X04

CITY: SYRACUSE,NY DIV/GROUP: ENV/CAD DB: B. GETTS, K.SARTORI PIC: T. YOUNG PM: M.BENOIT TM: A. GEORGE LYR:ON=*;OFF=*REF*
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30' 0 30' 60'
1"=30'

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Professional Engineer's Name
**TERRY W. YOUNG**
Professional Engineer's No.
074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | . | MJB |
| Designed by | Drawn by | Checked by |
| MJB | BGG | RPK |

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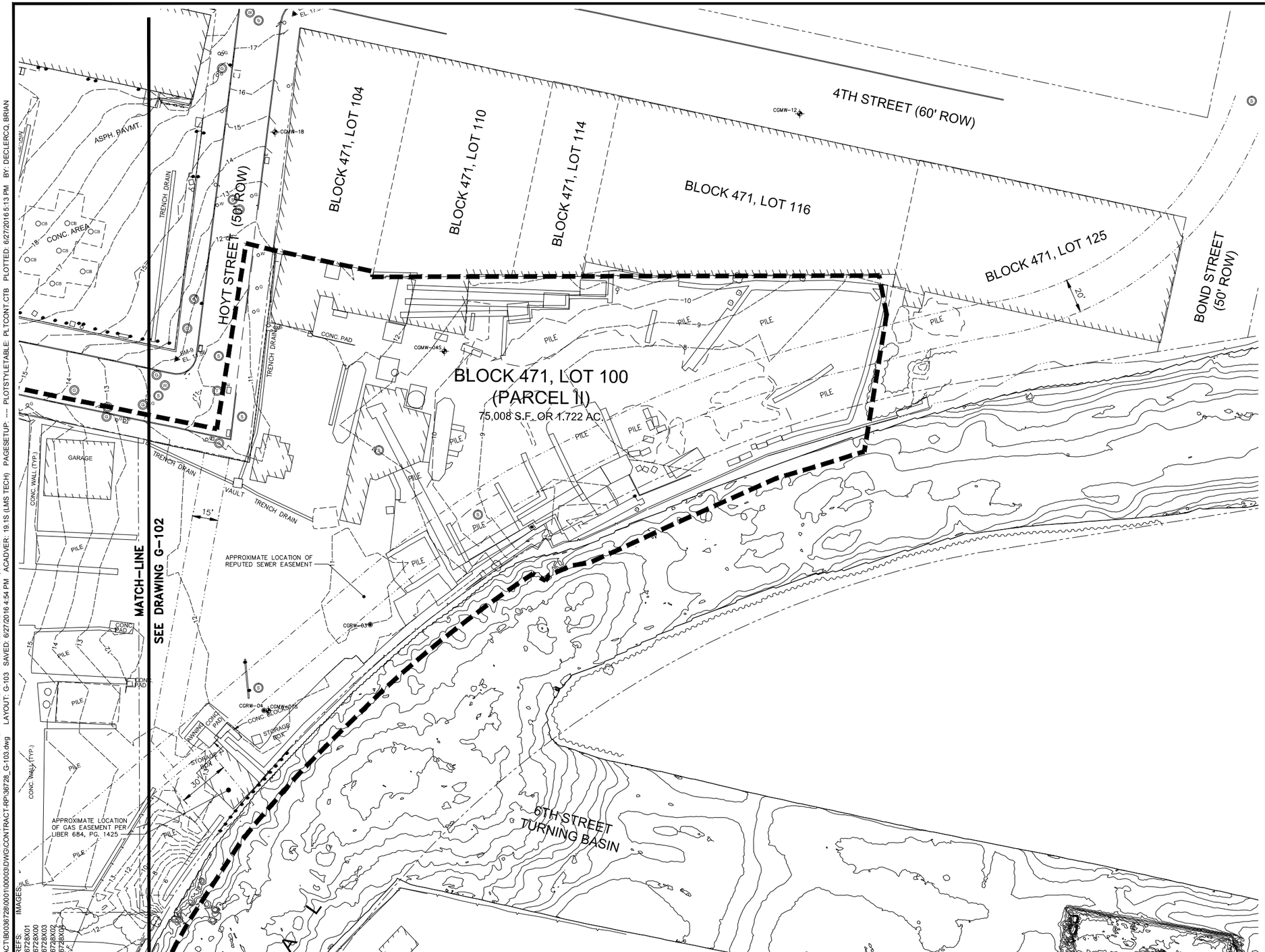
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# EXISTING PARCEL I PLAN

ARCADIS Project No.
B0036728.0001.00003
Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

**G-102**




NOTE:

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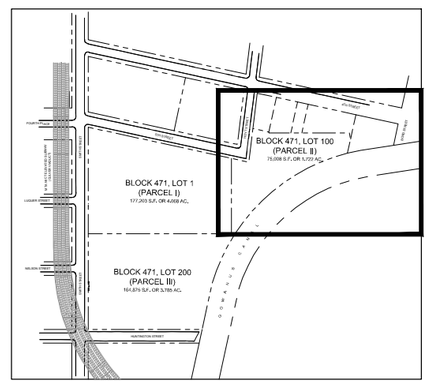


**KEY MAP**
NOT TO SCALE

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36728X00
36728X03
36728X02
36728X04
IMAGES:

CITY: SYRACUSE,NY DIV/GROUP: ENV/CAD DB: B. GETTS, K.SARTORI PIC: T. YOUNG PM: M.BENOIT TM: A. GEORGE LYR:ON=*;OFF=*REF*
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30' 0 30' 60'
1"=30'

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Professional Engineer's Name
**TERRY W. YOUNG**
Professional Engineer's No.
074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | | MJB |
| Designed by | Drawn by | Checked by |
| MJB | BGG | RPK |

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BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# EXISTING PARCEL II PLAN

ARCADIS Project No.
B0036728.0001.00003

Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

**G-103**

CITY: SYRACUSE,NY DIVGROUP: ENV/CAD DB: B. GETTS, K.SARTORI PIC: T. YOUNG PM: M.BENOIT TM: A. GEORGE LYR:ON=*;OFF=*REF*
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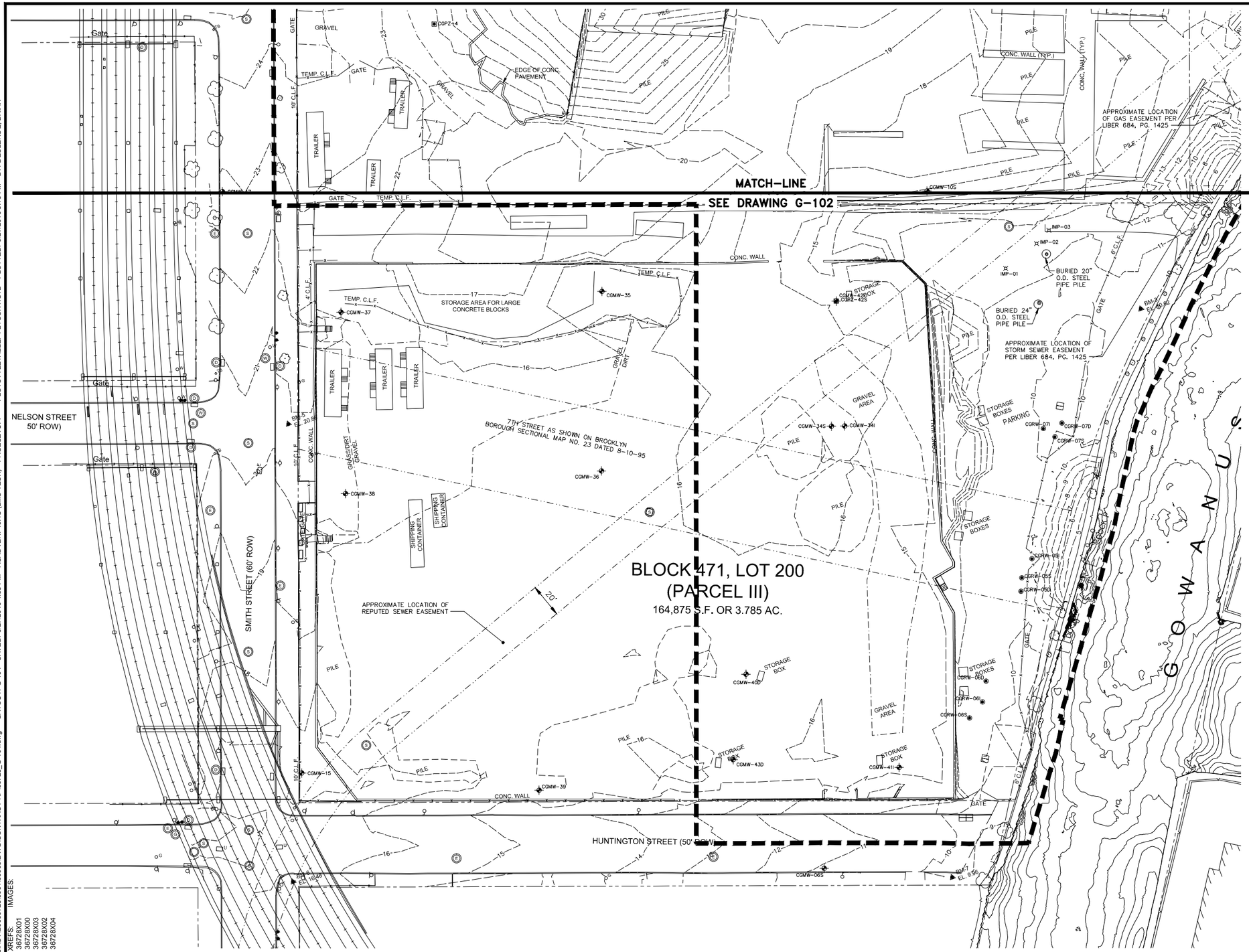


NOTE:

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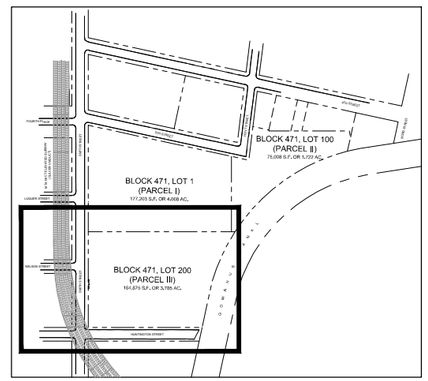


**KEY MAP**
NOT TO SCALE

30' 0 30' 60'
1"=30'

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Professional Engineer's Name: **TERRY W. YOUNG**
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | . | MJB |
| Designed by: MJB | Drawn by: BGG | Checked by: RPK |

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BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# EXISTING PARCEL III PLAN

ARCADIS Project No.
B0036728.0001.00003

Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

**G-104**

RIM EL.=34.49'
INV. EL.(A)=29.10' 12" CIP
SUMP EL.=26.04'

RIM EL.=34.08'
SUMP EL.=31.08'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=34.54'

RIM EL.=34.71'

RIM EL.=33.73'
SUMP EL.=30.33'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=34.44'
SUMP EL.=25.14'
NO PIPES VISIBLE

RIM EL.=26.77'
SUMP EL.=19.57'
NO PIPES VISIBLE

RIM EL.=26.20'
INV. EL.(A)=20.85' 12" CIP
SUMP EL.=17.60'

RIM EL.=25.34'
SUMP EL.=22.54'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=25.52'
INV. EL.(A)=19.92' 12" CIP
INV. EL.(B)=19.07' 12" UNKNOWN
INV. EL.(C)=18.67' 12" CIP
INV. EL.(D)=16.77' 12" CIP
INV. EL.(E)=16.67' 12" CIP
INV. EL.(F)=14.14' 18" RCP
INV. EL.(G)=14.12' 18" RCP

RIM EL.=26.65'
INV. EL.(A)=23.65' 6" CIP
INV. EL.(B)=21.58' 12" RCP

RIM EL.=21.69'
SUMP EL.=12.64'
NO PIPES VISIBLE

RIM EL.=21.68'
INV. EL.(A)=18.13' 12" CIP
SUMP EL.=16.88'

RIM EL.=21.23'
INV. EL.(A)=16.28' 12" RCP
SUMP EL.=12.23'

RIM EL.=20.27'
SUMP EL.=17.57'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=22.19'
INV. EL.(A)=16.29' 6" CIP FROM DOWN SPOUT
INV. EL.(B)=16.19' 12" CIP

RIM EL.=16.66'
SUMP EL.=13.91'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=17.47'
INV. EL.(A)=11.42' 12" RCP
SUMP EL.=9.22'

RIM EL.=17.23'
INV. (A) CAPPED
SUMP EL.=7.93'

RIM EL.=16.36'
SUMP EL.=13.36'
BOX NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=17.23'
INV. EL.(A)=13.33' 12" CIP
INV. EL.(B)=11.43' 12" CIP
INV. EL.(C)=11.03' 12" CIP
INV. EL.(D)=9.78' 12" CIP
INV. EL.(E)=5.61' 15" CIP
INV. EL.(F)=5.43' 15" CIP

RIM EL.=16.86'
SUMP EL.=8.66'
NO PIPES VISIBLE

RIM EL.=17.07'
INV. EL.(A)=4.72' 15" UNKNOWN
INV. EL.(B)=4.22' 18" UNKNOWN
INV. EL.(C)=4.17' 18" UNKNOWN
INV. EL.(D)=4.17' 24" UNKNOWN

RIM EL.=35.06'
SUMP EL.=26.41'
NO PIPES VISIBLE

RIM EL.=33.81'

RIM EL.=34.30'
SUMP EL.=31.10'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=33.70'

RIM EL.=29.04'

RIM EL.=26.00'

RIM EL.=25.06'
SUMP EL.=19.01'
NO PIPES VISIBLE

RIM EL.=24.93'

RIM EL.=23.48'
SUMP EL.=18.73'
NO PIPES VISIBLE

RIM EL.=23.32'
INV. EL.(A)=20.72' 12" UNKNOWN

RIM EL.=22.59'

RIM EL.=20.92'
SUMP EL.=18.27'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=20.56'
TOP OF DEBRIS EL.=18.26'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=21.40'
SUMP EL.=16.04'
NO PIPES VISIBLE

RIM EL.=20.69'
SUMP EL.=17.79'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=20.52'

RIM EL.=20.72'

RIM EL.=20.85'
SUMP EL.=13.35'
NO PIPES VISIBLE

RIM EL.=18.48'

RIM EL.=16.73'
SUMP EL.=8.53'
NO PIPES VISIBLE

MH-18
RIM EL.=15.05'
INV. EL.=-2.2'

RIM EL.=17.31'
INV. EL.(A)=14.31' 8" CIP
INV. EL.(B)=11.86' 12" CIP
INV. EL.(C)=9.76' 12" CIP
INV. EL.(D)=5.33' 18" CIP
INV. EL.(E)=4.56' 18" CIP
INV. EL.(F)=4.36' 18" CIP

RIM EL.=17.61'
SUMP EL.=7.96'

RIM EL.=18.42'
SUMP EL.= 9.02'

8" PIPE

RIM EL.=17.78'
SUMP EL.=8.24'

RIM EL.=16.86'
SUMP EL.=7.58'

RIM EL.=16.76'
SUMP EL.=7.86'

6" PIPE

RIM EL.=16.32'
SUMP EL.=7.02'

RIM EL.=17.29'
SUMP EL.=8.09'

RIM EL.=26.34'

RIM EL.=18.27'

RIM EL.=11.74'

RIM EL.=10.90'
INV. (A) CAPPED
SUMP EL.=5.74'

RIM EL.=10.94'

RIM EL.=10.80'
INV. EL.(A)=6.80' 12" CIP
INV. EL.(B)=1.95' 12" RCP
INV. EL.(C)=1.70' 12" RCP
INV. EL.(D)=1.60' 12" RCP

MH-179
LOCATION
UNVERIFIED

RIM EL.=10.00'
SUMP EL.=4.95'
NO PIPES VISIBLE

MH-15
RIM EL.=11.38'
INV. EL.=-2.7'

MH-16
RIM EL.=11.92'
INV. EL.=-2.9'

MH-17
RIM EL.=15.13'
INV. EL.=-2.6'

RIM EL.=9.68'
INV. EL.(A)=7.33' 12" CLAY PIPE

RIM EL.=9.57'
FILLED TO TOP WITH SILT

RIM EL.=9.52'
INV. EL.(A)=6.90' 12" CLAY PIPE
INV. EL.(B)=6.80' 12" CLAY PIPE
INV. EL.(C)=6.77' 12" CLAY PIPE

MH-12
RIM EL.=7.24'
INV. EL.=-1.91'

MH-13
RIM EL.=7.00'
SUMP EL.=-2.15'
NO PIPE VISIBLE

MH-14
RIM EL.=9.00'
INV. EL.=-2.6'

RIM EL.=9.45'
INV. EL.(A)=6.77' 12" CLAY PIPE
INV. EL.(B)=6.67' 12" CLAY PIPE

GC-OF-027
10" TILE

GC-OF-028
2" STEEL PIPE

GC-OF-029
4" BROKEN PVC

GC-OF-030
8"

GC-OF-031
10" STEEL PIPE
INV. EL.=0.72'

GC-OF-032
10" STEEL PIPE
INV. EL.=0.62'

GC-OF-033
10" STEEL PIPE
INV. EL.=0.58'

GC-OF-034
8" STEEL PIPE
INV. EL.=2.90'

GC-OF-1000
10" CLAY PIPE
INV. EL.=6.26'

GC-OF-035
12" STEEL PIPE
INV. EL.=2.38'

GC-OF-036
12" STEEL PIPE
INV. EL.=2.50'

GC-OF-038
12" STEEL PIPE
INV. EL.=3.80'

GC-OF-039
12" STEEL PIPE

NYCDEP RH035
GC-OF-023
18" STEEL PIPE
GC-OF-024
18" STEEL PIPE
GC-OF-025
18" STEEL PIPE
GC-OF-026
18" STEEL PIPE

BLOCK 468, LOT 25
(PARCEL I)

BLOCK 471, LOT 1
(PARCEL I)
477,203 S.F. OR 4.068AC.

BLOCK 471, LOT 100
(PARCEL II)
75,008 S.F. OR 1.722 AC.

BLOCK 471, LOT 200
(PARCEL III)

BLOCK 471, LOT 10
BLOCK 471, LOT 110
BLOCK 471, LOT 114
BLOCK 471, LOT 116
BLOCK 471, LOT 125

9TH STREET (60' ROW)
BOND STREET (60' ROW)
HUNTINGTON STREET (50' ROW)
NELSON STREET (50' ROW)
10TH STREET TURNING BASIN
GAS TUNNEL (BENEATH CANAL)
APPROXIMATE LOCATION OF GAS EASEMENT STORER BK. 884, ES. 225
APPROXIMATE LOCATION OF REPUTED SEWER EASEMENT
GAS MAIN ABANDONED CIRCA 1969

XREFS:
36728X01
36728X00
36728X03
36728X02
36728X04

IMAGES:

CITY: SYRACUSE,NY DIV/GROUP: ENV/CAD DB: B. GETTS, K.SARTORI PIC: T. YOUNG PM: M.BENOIT TM: A. GEORGE LYR:ON=*;OFF=*REF*
G:\ENV\CAD\SYRACUSE\ACTIVE\B0036728\0001\00003\DWG\CONTRACT-RPI\36728_G-105.dwg LAYOUT: G-105 SAVED: 8/8/2016 2:50 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 8/8/2016 2:51 PM BY: DECLERCQ, BRIAN

50' 0 50' 100'
1"=50'

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:

USE TO VERIFY FIGURE REPRODUCTION SCALE

| No. | Date | Revisions | By | Ckd |
|---|---|---|---|---|

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Professional Engineer's Name
**TERRY W. YOUNG**
Professional Engineer's No.
074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | . | MJB |
| Designed by | Drawn by | Checked by |
| MJB | BGG | RPK |

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ARCADIS | Design & Consultancy for natural and built assets
ARCADIS OF NEW YORK, INC.

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NATIONAL GRID USA • BROOKLYN, NEW YORK
FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# EXISTING SITE UTILITY PLAN

ARCADIS Project No.
B0036728.0001.00003

Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

**G-105**

CITY: SYRACUSE,NY DIV/GROUP: ENV/CAD DB: B. GETTS, K.SARTORI PIC: T. YOUNG PM: M.BENOIT TM: A. GEORGE LYR:ON=*;OFF=*REF* G:\ENVCAD\SYRACUSE\ACTIB\0036728\(0001\00003\DWG\CONTRACT-RP\36728_G-106.dwg LAYOUT: G-106 SAVED: 8/8/2016 3:11 PM BY: DECLERCQ, BRIAN PAGESETUP: ---- PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 8/8/2016 2:53 PM ACADVER: 19.1S (LMS TECH)

XREFS:
IMAGES:
36728X01
36728X00
36728X03
36728X02
36728X04

RIM EL.=34.49'
INV. EL.(A)=29.10' 12" CIP
SUMP EL.=26.04'

RIM EL.=34.08'
SUMP EL.=31.08'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=34.54'

RIM EL.=34.71'

RIM EL.=33.73'
SUMP EL.=30.33'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=34.44'
SUMP EL.=25.14'
NO PIPES VISIBLE

RIM EL.=35.06'
SUMP EL.=26.41'
NO PIPES VISIBLE

RIM EL.=33.81'

RIM EL.=34.30'
SUMP EL.=31.10'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=33.70'

RIM EL.=26.34'

RIM EL.=29.04'

RIM EL.=26.77'
SUMP EL.=19.57'
NO PIPES VISIBLE

RIM EL.=26.00'

RIM EL.=25.06'
SUMP EL.=19.01'
NO PIPES VISIBLE

RIM EL.=24.93'

RIM EL.=23.48'
SUMP EL.=18.73'
NO PIPES VISIBLE

RIM EL.=26.20'
INV. EL.(A)=20.85' 12" CIP
SUMP EL.=17.60'

RIM EL.=25.34'
SUMP EL.=22.54'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=25.52'
INV. EL.(A)=19.92' 12" CIP
INV. EL.(B)=19.07' 12" UNKNOWN
INV. EL.(C)=18.67' 12" CIP
INV. EL.(D)=18.77' 12" CIP
INV. EL.(E)=18.67' 12" CIP
INV. EL.(F)=14.14' 18" RCP
INV. EL.(G)=14.12' 18" RCP

RIM EL.=26.65'
INV. EL.(A)=23.65' 6" CIP
INV. EL.(B)=21.58' 12" RCP

RIM EL.=17.61'
SUMP EL.=7.96'

RIM EL.=18.42'
SUMP EL.= 9.02'

8" PIPE

RIM EL.=17.78'
SUMP EL.=8.24'

RIM EL.=16.86'
SUMP EL.=7.58'

RIM EL.=16.76'
SUMP EL.=7.86'

6" PIPE

RIM EL.=16.32'
SUMP EL.=7.22'

RIM EL.=17.29'
SUMP EL.=8.09'

RIM EL.=18.27'

RIM EL.=11.74'

RIM EL.=21.69'
SUMP EL.=12.64'
NO PIPES VISIBLE

RIM EL.=21.68'
INV. EL.(A)=18.13' 12" CIP
SUMP EL.=16.88'

RIM EL.=23.32'
INV. EL.(A)=20.72' 12" UNKNOWN

UNKNOWN CONDUIT

RIM EL.=22.59'

RIM EL.=20.92'
SUMP EL.=18.27'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=20.56'
TOP OF DEBRIS EL.=18.26'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

MH-16
RIM EL.=11.92'
INV. EL.=-2.9'

BLOCK 471, LOT 1
(PARCEL I)
177,203 S.F. OR 4.068 AC.

BLOCK 466, LOT 25
(PARCEL IV)
45,888 S.F. OR 1.053 AC.

MTA NYCT ELEVATED SUBWAY
(CULVER VIADUCT)

MATCH-LINE
SEE DRAWING G-107

MATCH-LINE
SEE DRAWING G-108

KEY MAP
NOT TO SCALE

30' 0 30' 60'
1"=30'

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:

USE TO VERIFY FIGURE REPRODUCTION SCALE

| No. | Date | Revisions | By | Ckd |
|---|---|---|---|---|

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Professional Engineer's Name
TERRY W. YOUNG
Professional Engineer's No.
074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | . | MJB |
| Designed by | Drawn by | Checked by |
| MJB | BGG | RPK |

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NATIONAL GRID USA • BROOKLYN, NEW YORK
FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# EXISTING PARCEL I UTILITY PLAN

ARCADIS Project No.
B0036728.0001.00003
Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

G-106

CITY: SYRACUSE,NY DIV/GROUP: ENV/CAD DB: B. GETTS, K.SARTORI PIC: T. YOUNG PM: M.BENOIT TM: A. GEORGE LYR:ON=*;OFF=*REF*
G:\ENV\CAD\SYRACUSE\ACT\B0036728\0001\0003\DWG\CONTRACT-RP-36728_G-107.dwg LAYOUT: G-107 SAVED: 8/8/2016 3:15 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 8/8/2016 3:15 PM BY: DECLERCQ, BRIAN

RIM EL.=17.78'
SUMP EL.=8.24'

RIM EL.=18.42'
SUMP EL.= 9.02'

RIM EL.=17.61'
SUMP EL.=7.96'

RIM EL.=16.76'
SUMP EL.=7.86'

RIM EL.=10.90'
INV. (A) CAPPED
SUMP EL.=5.74'

RIM EL.=10.94'

6" PIPE

RIM EL.=16.32'
SUMP EL.=7.22'

RIM EL.=17.29'
SUMP EL.=8.09'

RIM EL.=16.86'
SUMP EL.=7.58'

RIM EL.=10.80'
INV. EL.(A)=6.80' 12" CIP
INV. EL.(B)=1.95' 12" RCP
INV. EL.(C)=1.70' 12" RCP
INV. EL.(D)=1.60' 12" RCP

MH-179
LOCATION
UNVERIFIED

RIM EL.=11.74'

RIM EL.=10.00'
SUMP EL.=4.95'
NO PIPES VISIBLE

MH-14
RIM EL.=9.00'
INV. EL.=-2.6'

MH-15
RIM EL.=11.38'
INV. EL.=-2.7'

MH-12
RIM EL.=7.24'
INV. EL.=-1.91'

MH-13
RIM EL.=7.00'
SUMP EL.=-2.15'
NO PIPE VISIBLE

GC-OF-027
10" TILE

GC-OF-028
2" STEEL PIPE

GC-OF-029
4" BROKEN PVC

GC-OF-030
8"

GC-OF-031
10" STEEL PIPE
INV. EL.=0.72'

GC-OF-032
10" STEEL PIPE
INV. EL.=0.62'

GC-OF-033
10" STEEL PIPE
INV. EL.=0.58'

NYCDEP RH035
GC-OF-023
18" STEEL PIPE
GC-OF-024
18" STEEL PIPE
GC-OF-025
18" STEEL PIPE
GC-OF-026
18" STEEL PIPE

BLOCK 471, LOT 100
(PARCEL II)
75,008 S.F. OR 1.722 AC.

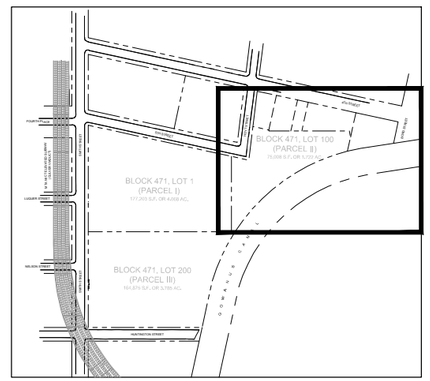
BLOCK 471, LOT 104
BLOCK 471, LOT 110
BLOCK 471, LOT 114
BLOCK 471, LOT 116
BLOCK 471, LOT 125

4TH STREET (60' ROW)
BOND STREET (50' ROW)
6TH STREET TURNING BASIN

TRENCH DRAIN
VAULT
APPROXIMATE LOCATION OF REPUTED SEWER EASEMENT
APPROXIMATE LOCATION OF GAS EASEMENT PER LIBER 684, PAGE 425
24" GAS TUNNEL (BENEATH CANAL)

MATCH-LINE
SEE DRAWING G-106

XREFS:
36728X01
36728X00
36728X03
36728X02
36728X04
IMAGES:




**KEY MAP**
NOT TO SCALE

30' 0 30' 60'
1"=30'

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:
USE TO VERIFY FIGURE REPRODUCTION SCALE

| No. | Date | Revisions | By | Ckd |
|---|---|---|---|---|

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Professional Engineer's Name: TERRY W. YOUNG
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | - | MJB |
| Designed by | Drawn by | Checked by |
| MJB | BGG | RPK |

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FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# EXISTING PARCEL II UTILITY PLAN

ARCADIS Project No.
B0036728.0001.00003
Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

G-107

CITY: SYRACUSE,NY DIV/GROUP: ENV/CAD DB: B. GETTS, K.SARTORI PIC: T. YOUNG PM: M.BENOIT TM: A. GEORGE LYR:ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACTIB0036728\0001\000003\DWG\CONTRACT-RP\36728_G-108.dwg LAYOUT: G-108 SAVED: 8/8/2016 3:01 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 8/8/2016 3:02 PM BY: DECLERCQ, BRIAN
XREFS:
IMAGES:
36728X01
36728X00
36728X03
36728X02
36728X04

RIM EL.=24.93'

RIM EL.=25.06'
SUMP EL.=19.01'
NO PIPES VISIBLE

RIM EL.=23.48'
SUMP EL.=18.73'
NO PIPES VISIBLE

RIM EL.=26.65'
INV. EL.(A)=23.65' 6" CIP
INV. EL.(B)=21.58' 12" RCP

RIM EL.=23.32'
INV. EL.(A)=20.72' 12" UNKNOWN

**MATCH–LINE**
**SEE DRAWING G–106**

RIM EL.=22.59'

RIM EL.=21.69'
SUMP EL.=12.64'
NO PIPES VISIBLE

RIM EL.=20.92'
SUMP EL.=18.27'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=21.68'
INV. EL.(A)=18.13' 12" CIP
SUMP EL.=16.88'

RIM EL.=21.23'
INV. EL.(A)=16.28' 12" RCP
SUMP EL.=12.23'

RIM EL.=20.27'
SUMP EL.=17.57'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=20.56'
TOP OF DEBRIS EL.=18.26'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=21.40'
SUMP EL.=16.04'
NO PIPES VISIBLE

RIM EL.=20.69'
SUMP EL.=17.79'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=20.52'

RIM EL.=18.48'

RIM EL.=20.72'

RIM EL.=20.85'
SUMP EL.=13.35'
NO PIPES VISIBLE

RIM EL.=22.19'
INV. EL.(A)=16.29' 6" CIP FROM DOWN SPOUT
INV. EL.(B)=16.19' 12" CIP

RIM EL.=16.73'
SUMP EL.=8.53'
NO PIPES VISIBLE

RIM EL.=16.66'
SUMP EL.=13.91'
NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

MH–18
RIM EL.=15.05'
INV. EL.=–2.2'

RIM EL.=17.47'
INV. EL.(A)=11.42' 12" RCP
SUMP EL.=9.22'

RIM EL.=17.23'
INV. (A) CAPPED
SUMP EL.=7.93'

RIM EL.=16.36'
SUMP EL.=13.36'
BOX NO PIPES VISIBLE
LOOKS TO CONNECT TO MH

RIM EL.=17.23'
INV. EL.(A)=13.33' 12" CIP
INV. EL.(B)=11.43' 12" CIP
INV. EL.(C)=11.03' 12" CIP
INV. EL.(D)=9.78' 12" CIP
INV. EL.(E)=5.61' 15" CIP
INV. EL.(F)=5.43' 15" CIP

RIM EL.=16.86'
SUMP EL.=8.66'
NO PIPES VISIBLE

RIM EL.=17.31'
INV. EL.(A)=14.31' 8" CIP
INV. EL.(B)=11.86' 12" CIP
INV. EL.(C)=9.76' 12" CIP
INV. EL.(D)=5.33' 18" CIP
INV. EL.(E)=4.56' 18" CIP
INV. EL.(F)=4.36' 18" CIP

RIM EL.=17.07'
INV. EL.(A)=4.72' 15" UNKNOWN
INV. EL.(B)=4.22' 18" UNKNOWN
INV. EL.(C)=4.17' 18" UNKNOWN
INV. EL.(D)=4.17' 24" UNKNOWN

MH–16
RIM EL.=11.92'
INV. EL.=–2.9'

RIM EL.=9.68'
INV. EL.(A)=7.33' 12" CLAY PIPE

GC–OF–034
8" STEEL PIPE
INV. EL.=2.90'

GC–OF–1000
10" CLAY PIPE
INV. EL.=6.26'

GC–OF–035
12" STEEL PIPE
INV. EL.=2.38'

GC–OF–036
12" STEEL PIPE
INV. EL.=2.50'

MH–17
RIM EL.=15.13'
INV. EL.=–2.6'

RIM EL.=9.45'
INV. EL.(A)=6.77' 12" CLAY PIPE
INV. EL.(B)=6.67' 12" CLAY PIPE

GC–OF–038
12" STEEL PIPE
INV. EL.=3.80'

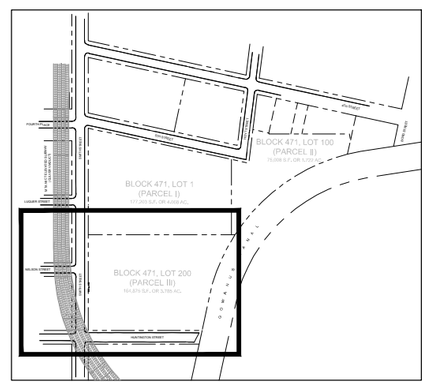
RIM EL.=9.57'
FILLED TO TOP WITH SILT

GC–OF–039
12" STEEL PIPE

RIM EL.=9.52'
INV. EL.(A)=6.90' 12" CLAY PIPE
INV. EL.(B)=6.80' 12" CLAY PIPE
INV. EL.(C)=6.77' 12" CLAY PIPE

BLOCK 471, LOT 200
(PARCEL III)
164,875± S.F. OR 3.785 AC.

NELSON STREET (50' ROW)
7TH STREET AS SHOWN ON BROOKLYN BOROUGH SECTIONAL MAP NO. 23 DATED 8–10–95
HUNTINGTON STREET (50' ROW)
BOND–LORRAINE STREET SEWER
APPROXIMATE LOCATION OF DISPUTED SEWER EASEMENT
APPROXIMATE LOCATION OF STORM SEWER EASEMENT PER LIBER 6847, PG. 1425
BURIED 20" O.D. STEEL PIPE PILE
BURIED 24" O.D. STEEL PIPE PILE
STORAGE AREA FOR LARGE CONCRETE BLOCKS
GRAVEL AREA
CONC. WALL (TYP.)
EDGE OF CONC. PAVEMENT
TEMP. C.L.F.
PILE
TRAILER
STORAGE BOX
STORAGE BOXES
SHIPPING CONTAINER
GRASS AREA
GRAVEL
DIRT
CONC. WALL
CGMW–105
CGMW–35
CGMW–37
CGMW–36
CGMW–34S
CGMW–34I
CGMW–40D
CGMW–43D
CGMW–39
CGMW–41D
CGMW–06S
CGMW–07D
CGMW–07I
CGMW–07S
CGMW–05S
CGMW–06D
CGMW–06I
CGMW–06S
CGPZ–4
CGPZ–42S
CGPZ–42D
IMP–01
IMP–02
IMP–03
BM–1
EL. 40.82'
BM–2
EL. 9.96'
GAS MAIN ABANDONED CIRCA 1969
4" GAS
12" GAS, COV. 4'
2" GAS SERVICE, 60 PSI, COV. 3.0'
3" GAS SERVICE
8" WATER
20" WATER MAIN, COV. 4'
16" HIGH PRESSURE WATER
FIRE DUCT, COV. 1.67'
2 CON ED DUCTS
3 CON ED DUCTS
2 CON ED DUCTS (RETIRED)
18" SEWER
INV. 5.44'
INV. 6.53'
INV. 6.84'
OH
OW
G
S
W




**KEY MAP**
NOT TO SCALE

1"=30' (30' 0 30' 60')

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| No. | Date | Revisions | By | Ckd |
|---|---|---|---|---|

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Professional Engineer's Name: **TERRY W. YOUNG**
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | . | MJB |
| **Designed by** | **Drawn by** | **Checked by** |
| MJB | BGG | RPK |

**DRAFT NOT FOR CONSTRUCTION**

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ARCADIS OF NEW YORK, INC.

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FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# EXISTING PARCEL III UTILITY PLAN

ARCADIS Project No.
B0036728.0001.00003

Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

**G-108**

CITY: SYRACUSE,NY DIV/GROUP: ENV/CAD DB: B. GETTS, K.SARTORI PIC: T. YOUNG PM: M.BENOIT TM: A. GEORGE LYR:ON=*;OFF=*REF*
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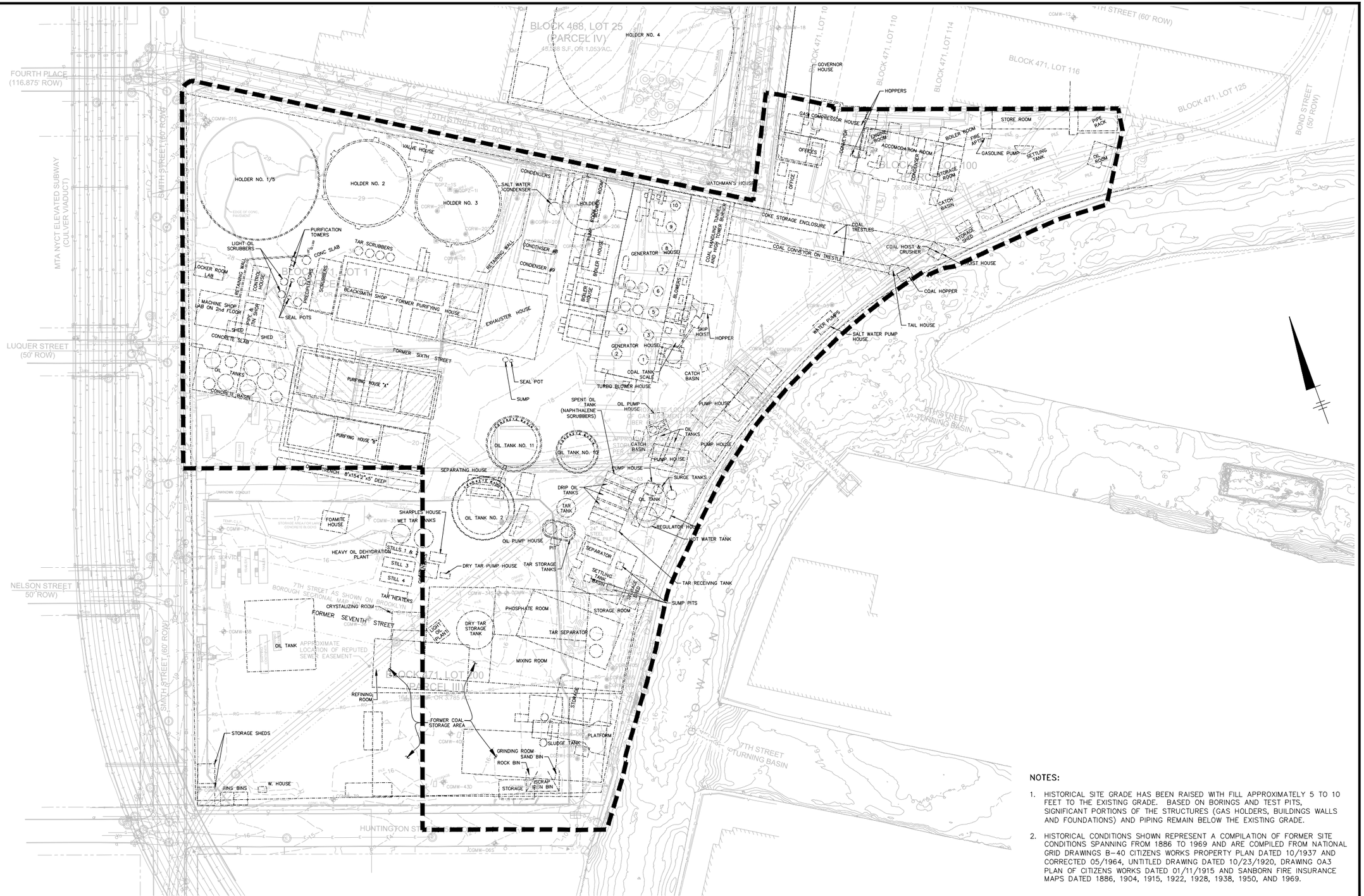


NOTES:

1. HISTORICAL SITE GRADE HAS BEEN RAISED WITH FILL APPROXIMATELY 5 TO 10 FEET TO THE EXISTING GRADE. BASED ON BORINGS AND TEST PITS, SIGNIFICANT PORTIONS OF THE STRUCTURES (GAS HOLDERS, BUILDINGS WALLS AND FOUNDATIONS) AND PIPING REMAIN BELOW THE EXISTING GRADE.
2. HISTORICAL CONDITIONS SHOWN REPRESENT A COMPILATION OF FORMER SITE CONDITIONS SPANNING FROM 1886 TO 1969 AND ARE COMPILED FROM NATIONAL GRID DRAWINGS B-40 CITIZENS WORKS PROPERTY PLAN DATED 10/1937 AND CORRECTED 05/1964, UNTITLED DRAWING DATED 10/23/1920, DRAWING OA3 PLAN OF CITIZENS WORKS DATED 01/11/1915 AND SANBORN FIRE INSURANCE MAPS DATED 1886, 1904, 1915, 1922, 1928, 1938, 1950, AND 1969.

1"=50' — 50' 0 50' 100'

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

| No. | Date | Revisions | By | Ckd |
|---|---|---|---|---|

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Professional Engineer's Name: TERRY W. YOUNG
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | - | MJB |
| Designed by | Drawn by | Checked by |
| MJB | BGG | RPK |

DRAFT NOT FOR CONSTRUCTION

ARCADIS Design & Consultancy for natural and built assets
ARCADIS OF NEW YORK, INC.

NO ALTERATIONS PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW

NATIONAL GRID USA • BROOKLYN, NEW YORK
FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# HISTORICAL SITE PLAN

ARCADIS Project No.
B0036728.0001.00003

Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

G-109

FOURTH PLACE (116.875' ROW)
LUQUER STREET (50' ROW)
NELSON STREET (50' ROW)
SMITH STREET (60' ROW)
MTA NYCT ELEVATED SUBWAY (CULVER VIADUCT)
BLOCK 471, LOT 1 (PARCEL I)
177,203 S.F. OR 4.069 AC.
BLOCK 471, LOT 100 (PARCEL II)
75,008 S.F. OR 1.722 AC.
BLOCK 471, LOT 200 (PARCEL III)
164,870 S.F. OR 3.785 AC.
BLOCK 468, LOT 25 (PARCEL IV)
BLOCK 471, LOT 110
BLOCK 471, LOT 114
BLOCK 471, LOT 116
BLOCK 471, LOT 125
BOND STREET (50' ROW)
9TH STREET (60' ROW)
HUNTINGTON STREET
7TH STREET AS SHOWN ON BROOKLYN BOROUGH SECTIONAL MAP NO. 23
APPROXIMATE LOCATION OF REPUTED SEWER EASEMENT
APPROXIMATE LOCATION OF GAS EASEMENT PER LIBER 684, FP. 1825
APPROXIMATE LOCATION OF 30" STEEL PIPE PILES BURIED AT 20' O.C.
STORAGE AREA FOR LARGE CONCRETE BLOCKS
ABANDONED TEST PIT
CGTP-103A
CGTP-103B
CGTP-107
CGTP-108
CGTP-109
CGTP-110A
CGTP-110B
CGTP-110S
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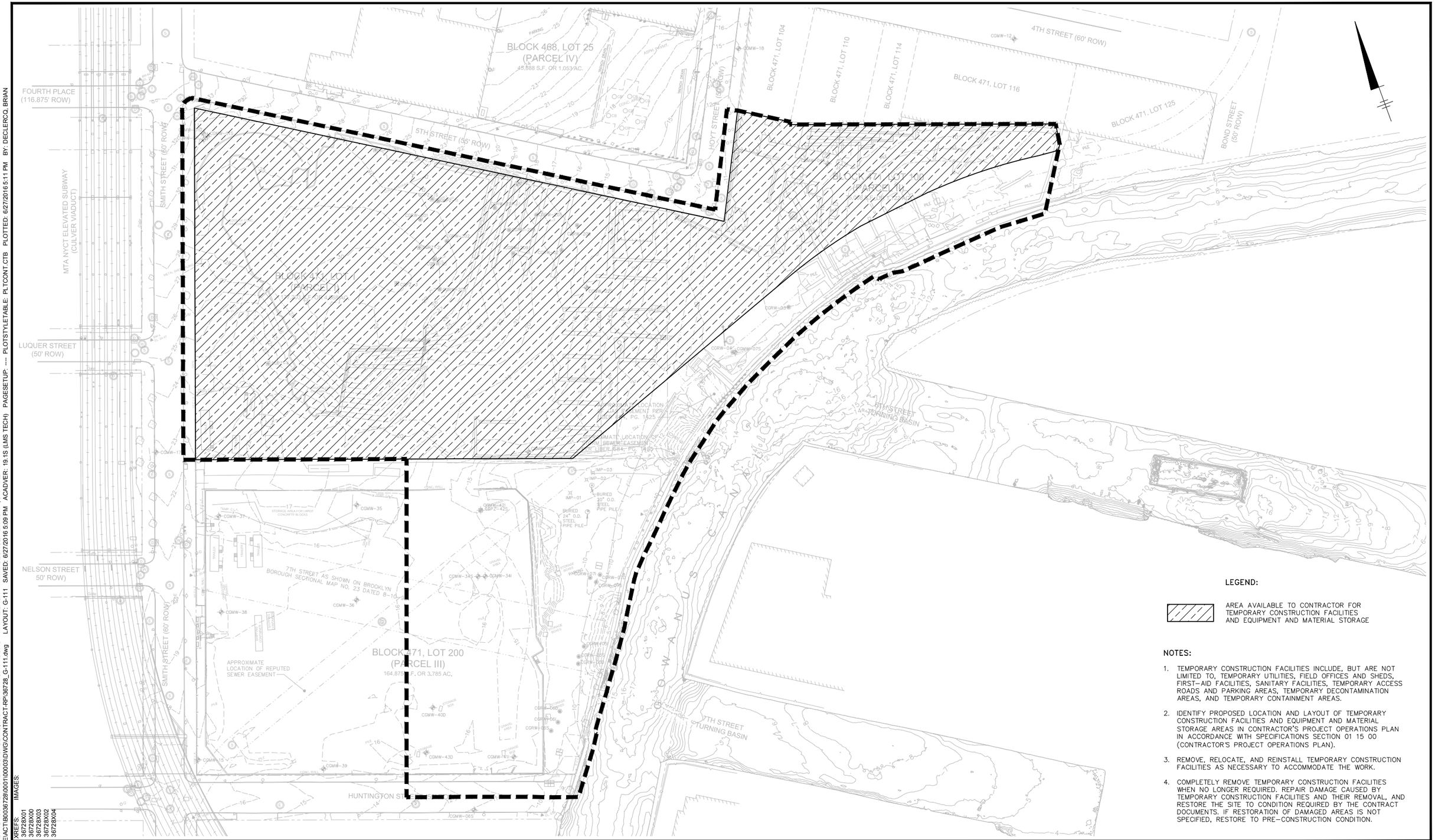


LEGEND:

AREA AVAILABLE TO CONTRACTOR FOR TEMPORARY CONSTRUCTION FACILITIES AND EQUIPMENT AND MATERIAL STORAGE

NOTES:

1. TEMPORARY CONSTRUCTION FACILITIES INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY UTILITIES, FIELD OFFICES AND SHEDS, FIRST-AID FACILITIES, SANITARY FACILITIES, TEMPORARY ACCESS ROADS AND PARKING AREAS, TEMPORARY DECONTAMINATION AREAS, AND TEMPORARY CONTAINMENT AREAS.
2. IDENTIFY PROPOSED LOCATION AND LAYOUT OF TEMPORARY CONSTRUCTION FACILITIES AND EQUIPMENT AND MATERIAL STORAGE AREAS IN CONTRACTOR'S PROJECT OPERATIONS PLAN IN ACCORDANCE WITH SPECIFICATIONS SECTION 01 15 00 (CONTRACTOR'S PROJECT OPERATIONS PLAN).
3. REMOVE, RELOCATE, AND REINSTALL TEMPORARY CONSTRUCTION FACILITIES AS NECESSARY TO ACCOMMODATE THE WORK.
4. COMPLETELY REMOVE TEMPORARY CONSTRUCTION FACILITIES WHEN NO LONGER REQUIRED. REPAIR DAMAGE CAUSED BY TEMPORARY CONSTRUCTION FACILITIES AND THEIR REMOVAL, AND RESTORE THE SITE TO CONDITION REQUIRED BY THE CONTRACT DOCUMENTS. IF RESTORATION OF DAMAGED AREAS IS NOT SPECIFIED, RESTORE TO PRE-CONSTRUCTION CONDITION.

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1"=50'

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

| No. | Date | Revisions | By | Ckd |
|---|---|---|---|---|

THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REUSED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.

Professional Engineer's Name: **TERRY W. YOUNG**
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | . | MJB |
| Designed by | Drawn by | Checked by |
| MJB | BGG | RPK |

DRAFT NOT FOR CONSTRUCTION

ARCADIS | Design & Consultancy for natural and built assets

ARCADIS OF NEW YORK, INC.

NO ALTERATIONS PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW

NATIONAL GRID USA • BROOKLYN, NEW YORK
FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

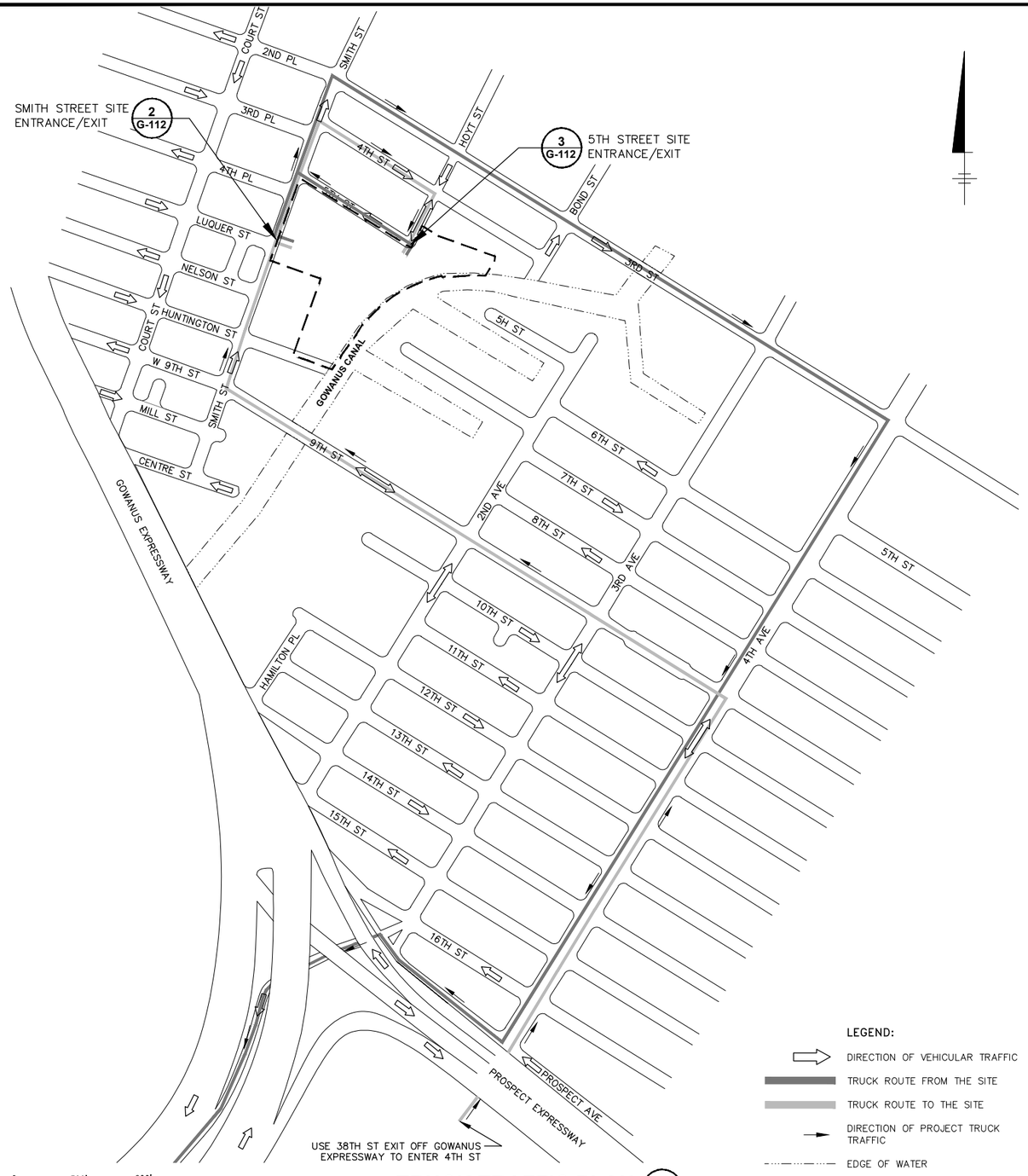
# SITE UTILIZATION PLAN

ARCADIS Project No.
B0036728.0001.00003

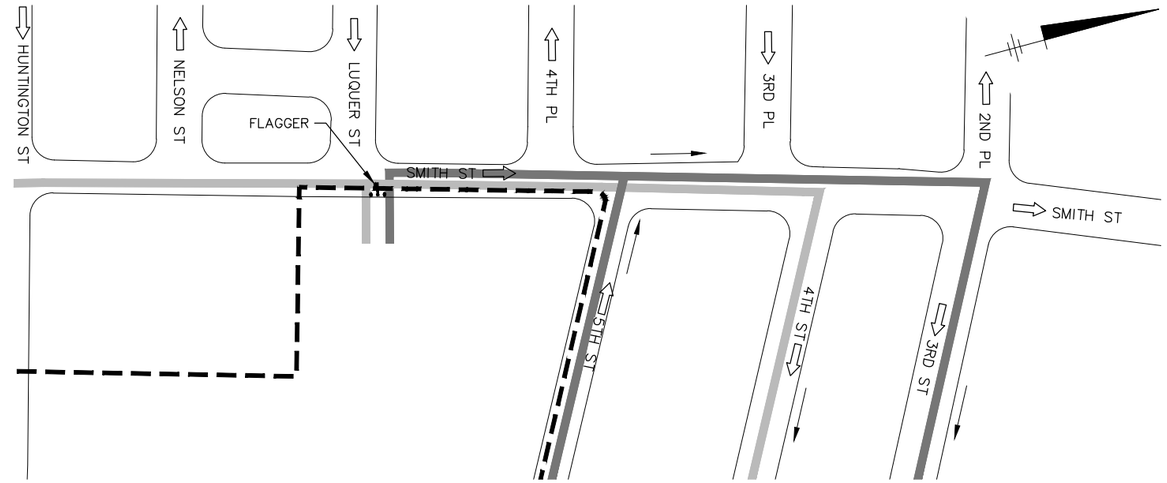
Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

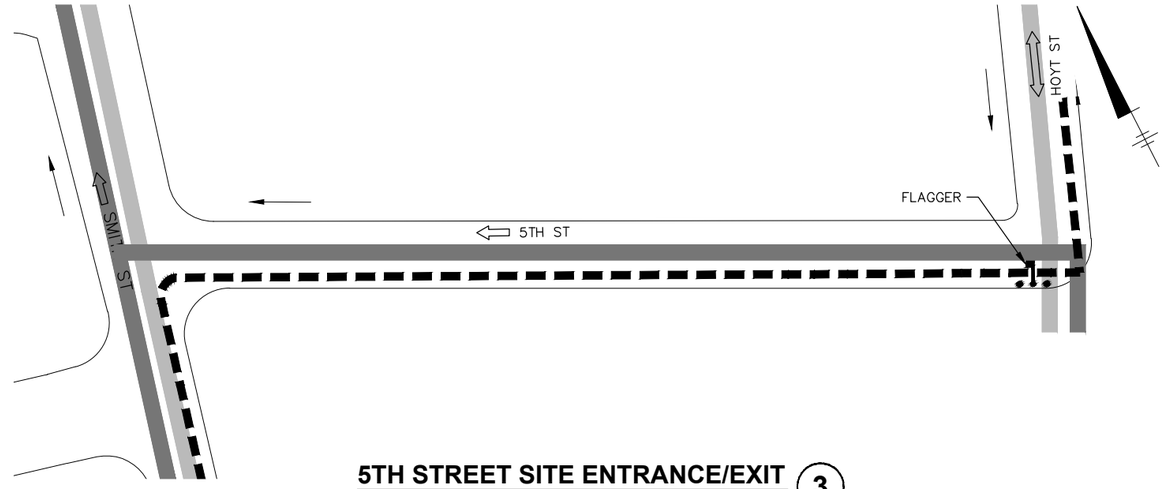
**G-111**




## TRUCK TRAFFIC PLAN 1




## SMITH STREET SITE ENTRANCE/EXIT 2




## 5TH STREET SITE ENTRANCE/EXIT 3

LEGEND:

- DIRECTION OF VEHICULAR TRAFFIC
- TRUCK ROUTE FROM THE SITE
- TRUCK ROUTE TO THE SITE
- DIRECTION OF PROJECT TRUCK TRAFFIC
- EDGE OF WATER

DIRECTIONS TO THE SITE (VIA SMITH STREET GATE):

| | | |
|---|---|---|
| 1. | HEAD NORTHEAST ON I-278 | |
| 2. | TAKE EXIT 23 FOR 38TH ST | 0.1 MI |
| 3. | MERGE ONTO 38TH ST | 184 FT |
| 4. | TURN LEFT AT 4TH AVE | 1.5 MI |
| 5. | TURN LEFT AT 9TH ST | 0.6 MI |
| 6. | TAKE 3RD RIGHT ONTO SMITH ST | 0.1 MI |
| 7. | RIGHT TURN INTO SITE | |

DIRECTIONS FROM THE SITE (VIA SMITH STREET GATE):

| | | |
|---|---|---|
| 1. | RIGHT OUT OF SITE ON SMITH ST | |
| 2. | TURN RIGHT AT 3RD ST | 0.6 MI |
| 3. | TURN RIGHT AT 4TH AVE | 0.7 MI |
| 4. | TURN RIGHT AT PROSPECT AVE | 0.2 MI |
| 5. | TURN LEFT TO MERGE ONTO I-278 W | |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| | | |
|---|---|---|
| Professional Engineer's Name: TERRY W. YOUNG | | |
| Professional Engineer's No.: 074847 | | |
| State: NY | Date Signed: | Project Mgr.: MJB |
| Designed by: MJB | Drawn by: BGG | Checked by: RPK |

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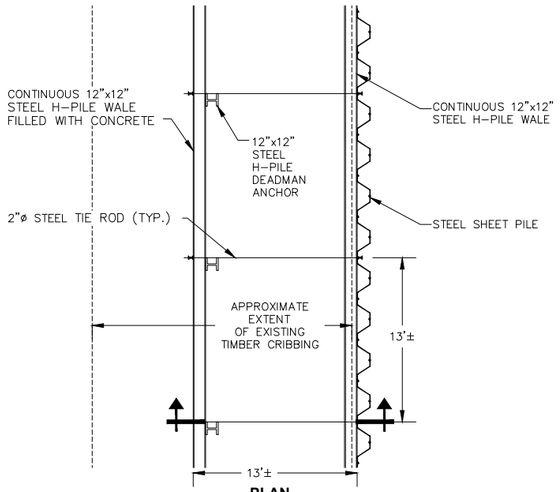
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# TRUCK TRAFFIC PLAN

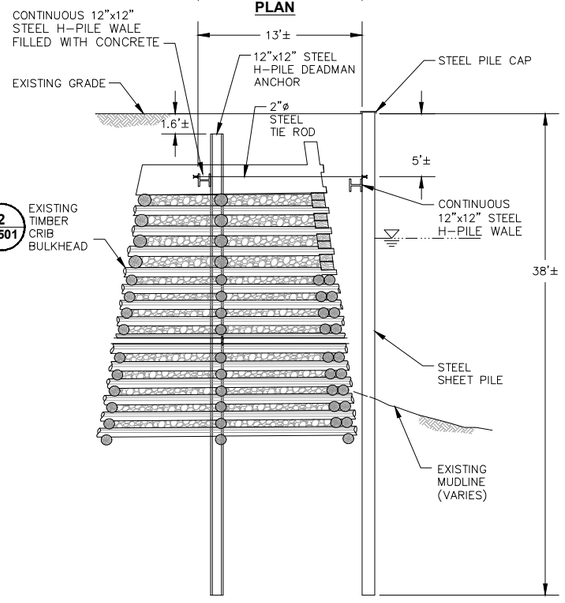
ARCADIS Project No.: B0036728.0001.00003
Date: _____ 2016


ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120


G-112




**PLAN**




**SECTION**

## EXISTING STEEL SHEET PILE BULKHEAD (1)

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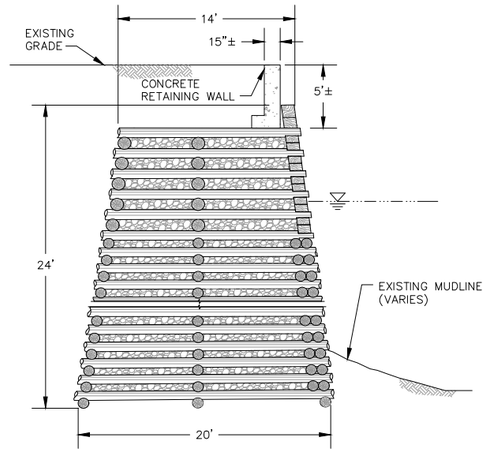


**SECTION**

## TYPICAL EXISTING TIMBER CRIB BULKHEAD (2)

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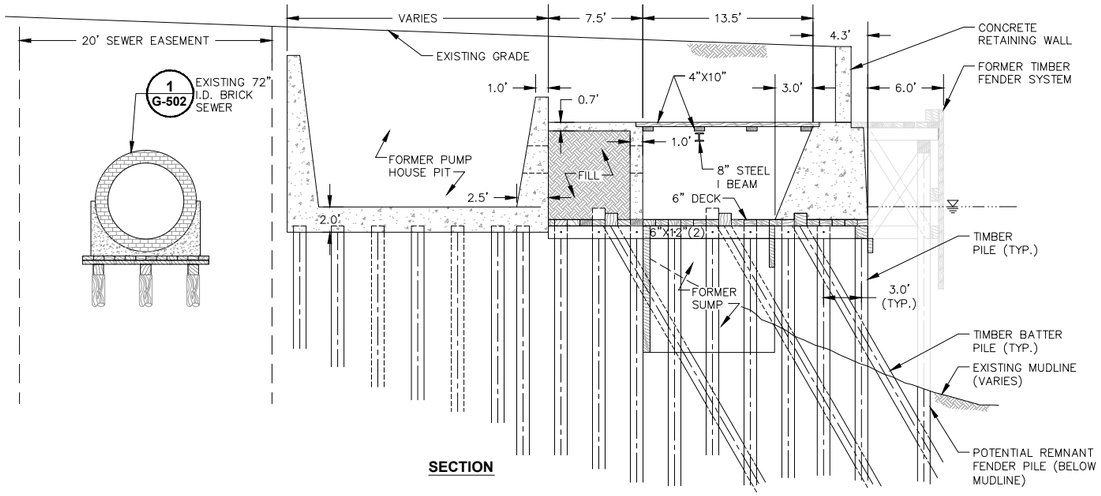
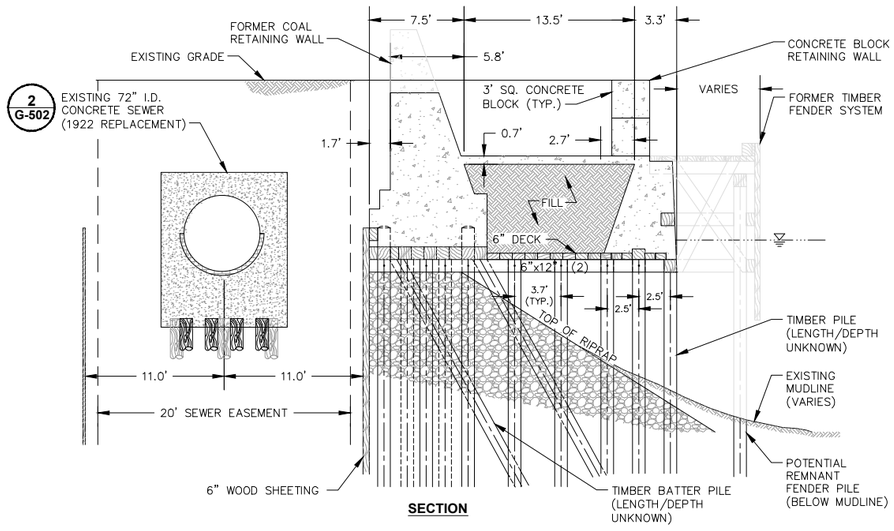



**SECTION**

## TYPICAL EXISTING RELIEF PLATFORM SOUTH OF GAS TUNNEL (3)

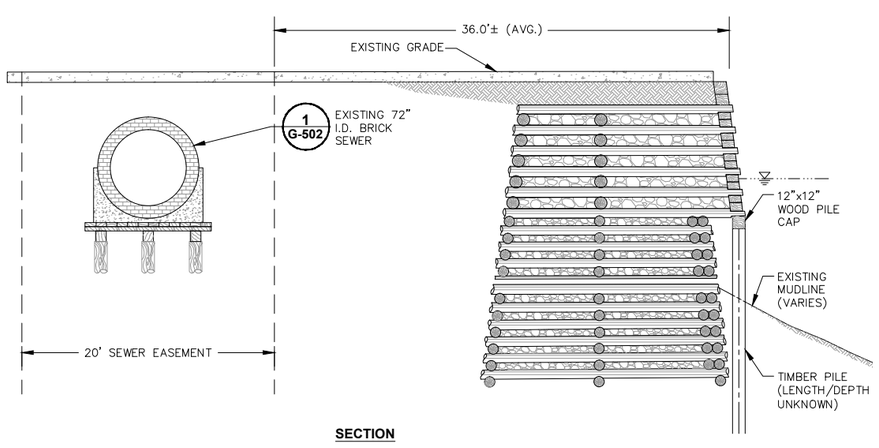
NOT TO SCALE




**SECTION**

## TYPICAL EXISTING RELIEF PLATFORM NORTH OF GAS TUNNEL (4)

NOT TO SCALE




**SECTION**

## TYPICAL EXISTING TIMBER CRIB BULKHEAD WITH TIMBER FENDER SYSTEM (5)

NOT TO SCALE

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Professional Engineer's Name: TERRY W. YOUNG
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | - | MJB |
| Designed by: MJB | Drawn by: BGG | Checked by: RPK |

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# EXISTING BULKHEAD DETAILS

ARCADIS Project No.
B0036728.0001.00003

Date
_____ 2016

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6723 TOWPATH ROAD
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SYRACUSE, NY 13214-0066
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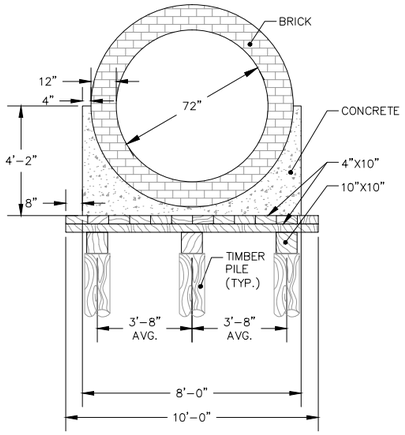
**G-501**




SECTION

## EXISTING 72" I.D. BRICK SEWER (1)

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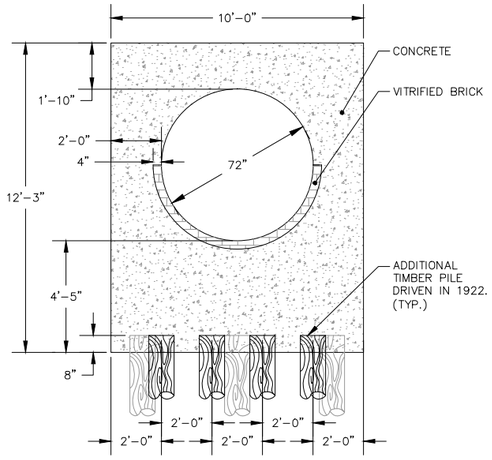


SECTION

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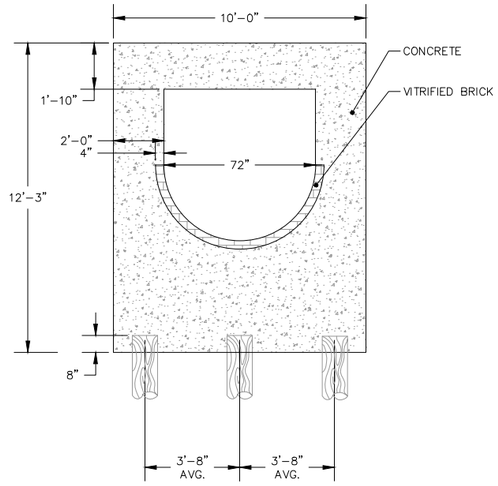


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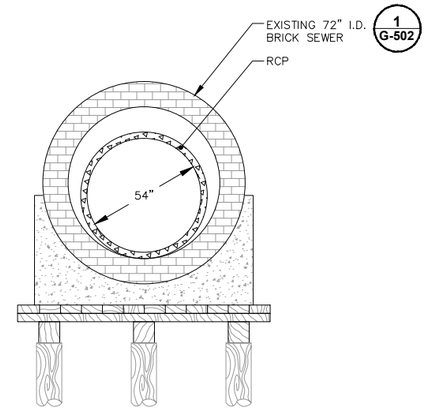


SECTION

## EXISTING 72" I.D. BRICK SEWER WITH 54" I.D. RCP LINING (1977 REPAIR) (4)

NOT TO SCALE

CITY: SYRACUSE,NY DIV/GROUP: ENV/CAD DB: B. GETTS, K.SARTORI PIC: T. YOUNG PM: M.BENOIT TM: A. GEORGE LYR:ON=*;OFF=*REF*
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Professional Engineer's Name: TERRY W. YOUNG
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | . | MJB |
| Designed by | Drawn by | Checked by |
| MJB | BGG | RPK |

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# EXISTING SEWER DETAILS

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G-502

CITY: SYRACUSE,NY DIV/GROUP: ENV/CAD DB: B. GETTS, K.SARTORI PIC: T. YOUNG PM: M.BENOIT TM: A. GEORGE LYR:ON=*;OFF=*REF*
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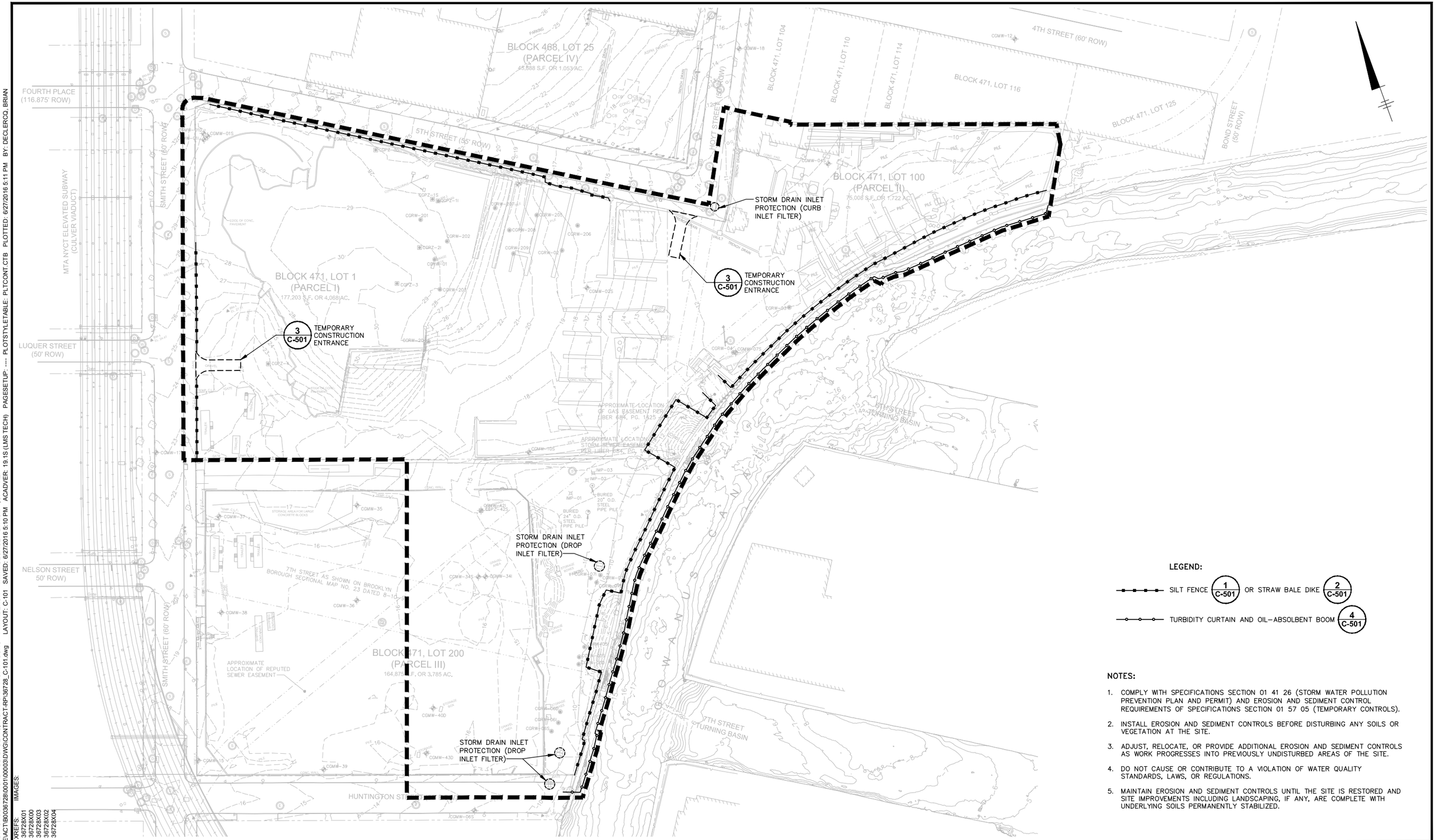


**LEGEND:**

SILT FENCE 1 C-501 OR STRAW BALE DIKE 2 C-501

TURBIDITY CURTAIN AND OIL–ABSOLBENT BOOM 4 C-501

**NOTES:**

1. COMPLY WITH SPECIFICATIONS SECTION 01 41 26 (STORM WATER POLLUTION PREVENTION PLAN AND PERMIT) AND EROSION AND SEDIMENT CONTROL REQUIREMENTS OF SPECIFICATIONS SECTION 01 57 05 (TEMPORARY CONTROLS).
2. INSTALL EROSION AND SEDIMENT CONTROLS BEFORE DISTURBING ANY SOILS OR VEGETATION AT THE SITE.
3. ADJUST, RELOCATE, OR PROVIDE ADDITIONAL EROSION AND SEDIMENT CONTROLS AS WORK PROGRESSES INTO PREVIOUSLY UNDISTURBED AREAS OF THE SITE.
4. DO NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF WATER QUALITY STANDARDS, LAWS, OR REGULATIONS.
5. MAINTAIN EROSION AND SEDIMENT CONTROLS UNTIL THE SITE IS RESTORED AND SITE IMPROVEMENTS INCLUDING LANDSCAPING, IF ANY, ARE COMPLETE WITH UNDERLYING SOILS PERMANENTLY STABILIZED.

50' 0 50' 100'
1"=50'

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Professional Engineer's No.: 074847

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| NY | | MJB |
| Designed by: MJB | Drawn by: BGG | Checked by: RPK |

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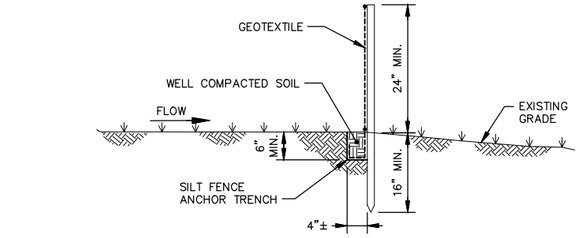
# TEMPORARY EROSION AND SEDIMENT CONTROL PLAN

ARCADIS Project No.
B0036728.0001.00003

Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

C-101

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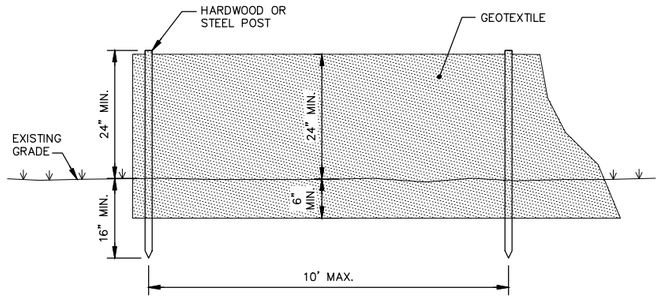
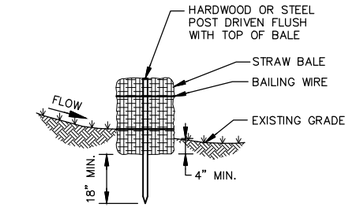



**ELEVATION**

## SILT FENCE 1

NOT TO SCALE

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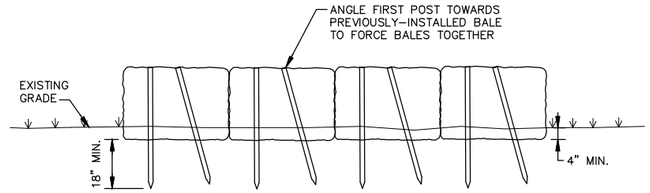


**ELEVATION**

## STRAW BALE DIKE 2

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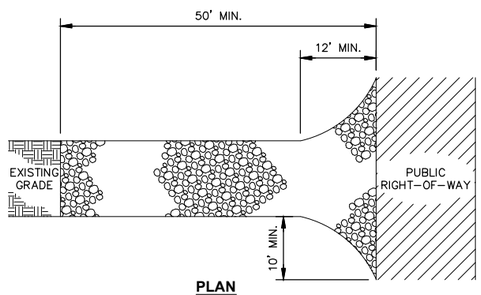
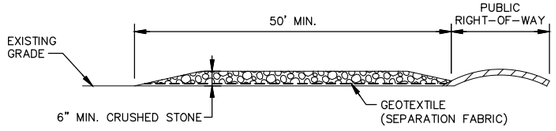
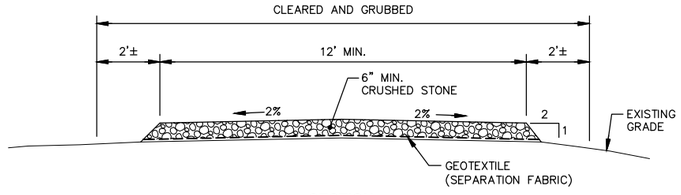



**PLAN**




**PROFILE**




**SECTION**

## TEMPORARY CONSTRUCTION ENTRANCE 3

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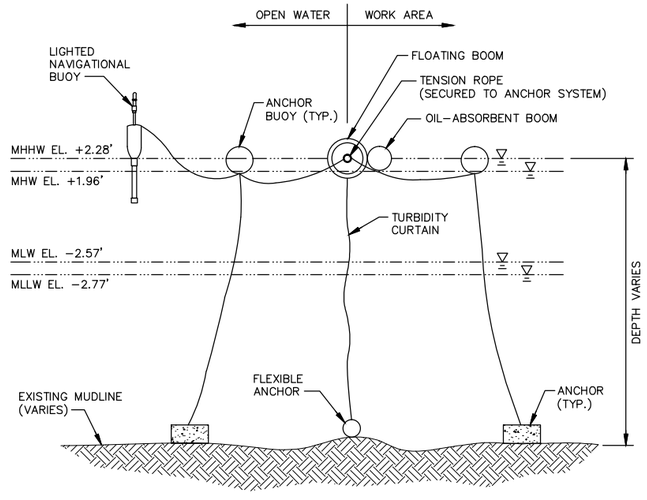


**SECTION**

## TURBIDITY CURTAIN AND OIL-ABSORBENT BOOM 4

NOT TO SCALE


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Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
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| NY | - | MJB |
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# TEMPORARY EROSION AND SEDIMENT CONTROL DETAILS

ARCADIS Project No.
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Date
_____ 2016

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SYRACUSE, NY 13214-0066
TEL. 315.446.9120

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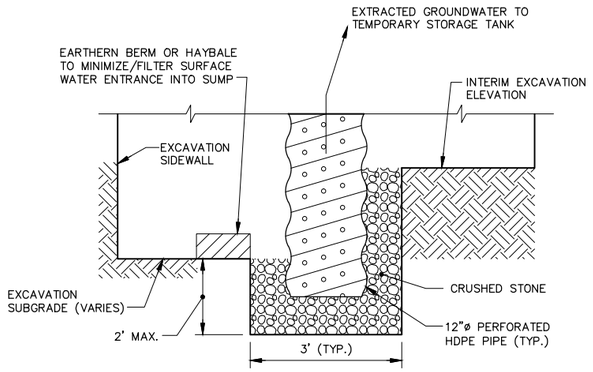


## TYPICAL EXCAVATION DEWATERING SUMP 1

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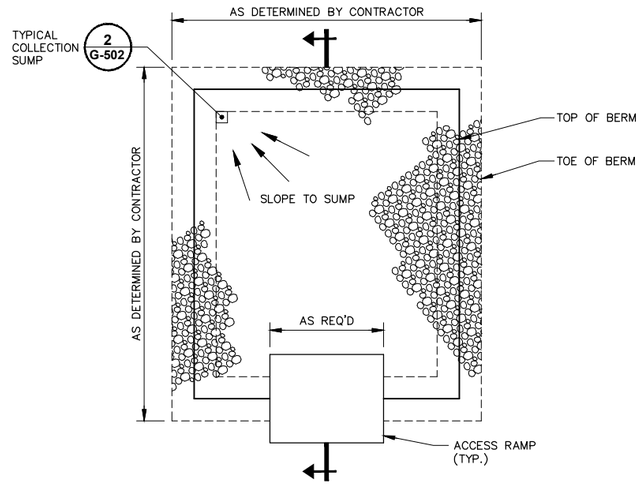
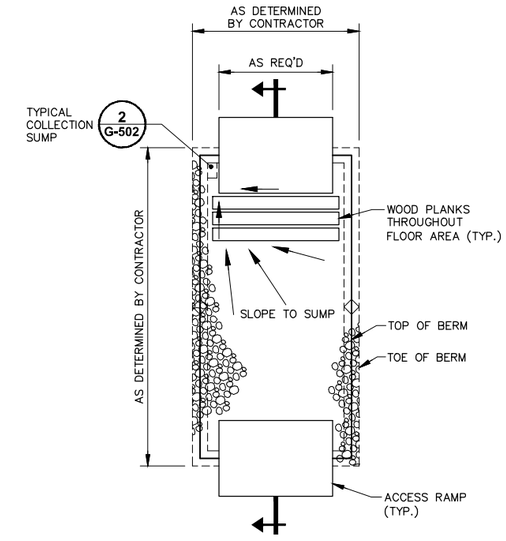



**PLAN**

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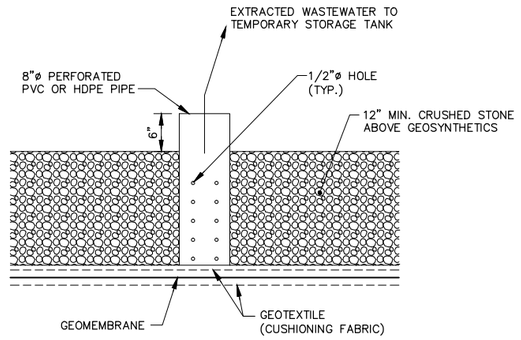
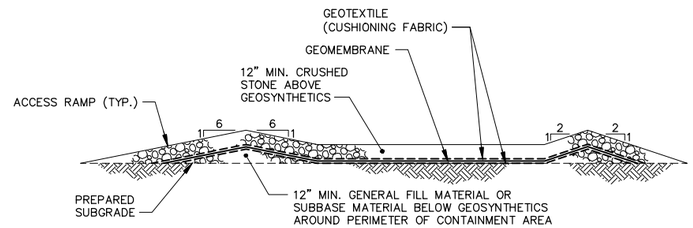



## TYPICAL COLLECTION SUMP 2

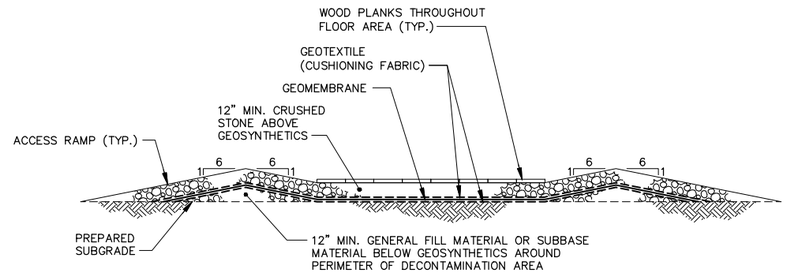
NOT TO SCALE




**PROFILE**

## TYPICAL TEMPORARY CONTAINMENT AREA 3

NOT TO SCALE




**PROFILE**

## TYPICAL TEMPORARY DECONTAMINATION AREA 4

NOT TO SCALE

CITY: SYRACUSE, NY DIV/GROUP: ENV/CAD DB: B.GETTS LD: PIC: T.YOUNG PM: M.BENOIT TM: D.NODINE LYR: ON=*;OFF=*REF* G:\ENV\CAD\SYRACUSE\ACT\B0036728\0001\00003\DWG\CONTRACT-RP\36728_C-502.DWG LAYOUT: C-502 SAVED: 4/29/2016 11:29 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 4/29/2016 11:29 AM BY: DECLERCQ, BRIAN
XREFS: 36728X00
IMAGES:

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Professional Engineer's Name: **TERRY W. YOUNG**
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | | MJB |
| Designed by | Drawn by | Checked by |
| MJB | BGG | RPK |

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NATIONAL GRID USA • BROOKLYN, NEW YORK
FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# TEMPORARY CONSTRUCTION DETAILS

ARCADIS Project No.
B0036728.0001.00003

Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

**C-502**

| PARCEL I SHEET PILE SCHEDULE | | | | |
|---|---|---|---|---|
| WALL ALIGNMENT | | LENGTH OF WALL (LF) | MIN. SHEET PILE TIP EL. (FEET NAVD88) | MIN. REQUIRED SECTION |
| FROM | TO | | | |
| CP-01 | CP-02 | 19.8 | -14.0 | AZ 30-750 |
| CP-02 | CP-03 | 96.0 | -14.0 | AZ 30-750 |
| CP-03 | CP-04 | 99.4 | -18.0 | AZ 32-750 |
| CP-03 | CP-08 | 112.5 | -14.0 | AZ 18-700 |
| CP-04 | CP-05 | 50.6 | -16.0 | AZ 17-700 |
| CP-04 | CP-07 | 112.5 | -16.0 | AZ 17-700 |
| CP-05 | CP-06 | 110.4 | -16.0 | AZ 17-700 |
| CP-06 | CP-07 | 55.7 | -13.0 | AZ 12-770 |
| CP-07 | CP-08 | 99.4 | -17.0 | AZ 23-800 |
| CP-08 | CP-09 | 98.9 | -18.0 | AZ 30-750 |
| CP-09 | CP-10 | 17.1 | -18.0 | AZ 30-750 |
| CP-10 | CP-01 | 73.5 | -15.0 | AZ 23-800 |

LEGEND:

- SHEET PILE
- CP-01 PILE CONTROL POINT
- W36x262 WALE
- SLOPE
- NEW CLSM GRAVITY WALL
- REMEDIAL EXCAVATION AREA

PARCEL I GENERAL CONSTRUCTION SEQUENCE:

1. EXCAVATE INTERIOR PERIMETER OF AREA 1 TO TOP OF HOLDER FOUNDATION SLAB (ELEVATION +15.0 FEET) AND INSTALL CLSM GRAVITY WALL.
2. PRE-TRENCH SHEET PILE ALIGNMENTS OF AREAS 2, 3, AND 4 TO NOT LESS THAN 8.0 FEET BELOW EXISTING GRADE.
3. DRIVE SHEET PILING AT THE LOCATIONS AND TO THE MINIMUM TIP ELEVATIONS SHOWN OR INDICATED.
4. INSTALL TEMPORARY MEMBRANE-COVERED FRAME STRUCTURE OVER REMEDIAL EXCAVATION AREAS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
5. EXCAVATE REMAINDER OF AREA 1 WITHIN LIMITS OF CLSM GRAVITY WALL TO TOP OF HOLDER FOUNDATION SLAB (ELEVATION +15.0 FEET).
6. BACKFILL AREA WITHIN LIMITS OF AREA 1 CLSM GRAVITY WALL TO THE SUBGRADE ELEVATIONS SHOWN OR INDICATED ON DRAWING C-107.
7. EXCAVATE AND SLOPE AREA BETWEEN PILE CONTROL POINTS CP-02 AND CP-09 AS SHOWN OR INDICATED.
8. EXCAVATE AREAS 2 AND 3 TO ELEVATION +20.0 FEET AND INSTALL INTERNAL BRACING IN AREA 2.
9. EXCAVATE AREA 2 TO ELEVATION +3.0 FEET OR, IF DIRECTED BY ENGINEER, TO CONTINGENCY ELEVATION -2.0 FEET.
10. BACKFILL AREA 2 TO ELEVATION +20.0 FEET AND REMOVE INTERNAL BRACING.
11. EXCAVATE AREAS 3 AND 4 TO ELEVATION +16.0 FEET AND INSTALL INTERNAL BRACING IN AREA 3.
12. EXCAVATE AREA 3 TO ELEVATION +2.0 FEET OR, IF DIRECTED BY ENGINEER, TO CONTINGENCY ELEVATION -3.0 FEET.
13. BACKFILL AREA 3 TO ELEVATION +16.0 FEET AND REMOVE INTERNAL BRACING.
14. EXCAVATE AREA 4 TO ELEVATION +12.0 FEET AND INSTALL INTERNAL BRACING.
15. EXCAVATE AREA 4 TO ELEVATION +2.0 FEET OR, IF DIRECTED BY ENGINEER, TO CONTINGENCY ELEVATION -3.0 FEET.
16. BACKFILL AREA 4 TO ELEVATION +12.0 FEET AND REMOVE INTERNAL BRACING.
17. BACKFILL AREAS 2, 3, AND 4 TO THE SUBGRADE ELEVATIONS SHOWN OR INDICATED ON DRAWING C-105.
18. REMOVE TEMPORARY MEMBRANE-COVERED FRAME STRUCTURE.
19. PULL ALL SHEET PILING.

| PARCEL I PILE CONTROL POINT SCHEDULE | | |
|---|---|---|
| CONTROL POINT ID | EASTING (FEET NAD83) | NORTHING (FEET NAD83) |
| CP-01 | 631911.22 | 671957.23 |
| CP-02 | 631921.78 | 671973.94 |
| CP-03 | 632003.61 | 671924.45 |
| CP-04 | 632087.64 | 671871.79 |
| CP-05 | 632131.54 | 671842.53 |
| CP-06 | 632072.95 | 671748.95 |
| CP-07 | 632026.85 | 671777.09 |
| CP-08 | 631942.81 | 671829.75 |
| CP-09 | 631861.76 | 671881.07 |
| CP-10 | 631872.19 | 671894.95 |

NOTES:

1. COMPLY WITH SPECIFICATIONS SECTIONS 31 23 00 (EXCAVATION AND FILL) AND 31 50 00 (EXCAVATION SUPPORT AND PROTECTION).
2. COORDINATE PILE DRIVING OPERATIONS WITH SELECTIVE DEMOLITION AND EXCAVATION OPERATIONS.
3. BEFORE PROCEEDING WITH PILE DRIVING OPERATIONS, LOCATE, IDENTIFY, AND REMOVE OR RELOCATE OBSTRUCTING STRUCTURES AND UNDERGROUND FACILITIES. COMPLY WITH SPECIFICATIONS SECTION 02 41 19 (SELECTIVE DEMOLITION) FOR DEMOLITIONS AND REMOVALS.
4. TEMPORARY STOCKPILES ARE PROHIBITED WITHIN 25 FEET OF REMEDIAL EXCAVATION AREAS DURING EXCAVATION AND BACKFILLING OPERATIONS.
5. CONSTRUCTION VEHICLES AND VEHICLE LOADING ARE PROHIBITED BETWEEN REMEDIAL EXCAVATION AREAS AND 5TH STREET DURING EXCAVATION AND BACKFILLING OPERATIONS.

CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: B GETTS, B DECLERQ, L POSENAUER, J HARRIS
C:\ENVCAD\NEWTOWNACT\2016\RETURN-TO\Syrac-se-NY\B0036728\0001\00003\DWG\CONTRACT-RP\MW 36728_PARCEL I.dwg LAYOUT: S-101 SAVED: 8/9/2016 3:18 PM PLOTSTYLETABLE: ---- PLOTTED: 8/9/2016 3:18 PM BY: WASILEWSKI, MATT
XREFS:
IMAGES:
36728X01
36728X00
36728X03
36728X04
36728X02
36728

20' 0 20' 40'
1"=20'

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|---|---|---|---|---|

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Professional Engineer's Name: TERRY W. YOUNG
Professional Engineer's No.: 074847
State: NY | Date Signed: | Project Mgr.: MJB
Designed by: RPK | Drawn by: BGG/JLH | Checked by: APC

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CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# PARCEL I REMEDIAL EXCAVATION SHORING PLAN AND CONSTRUCTION SEQUENCE

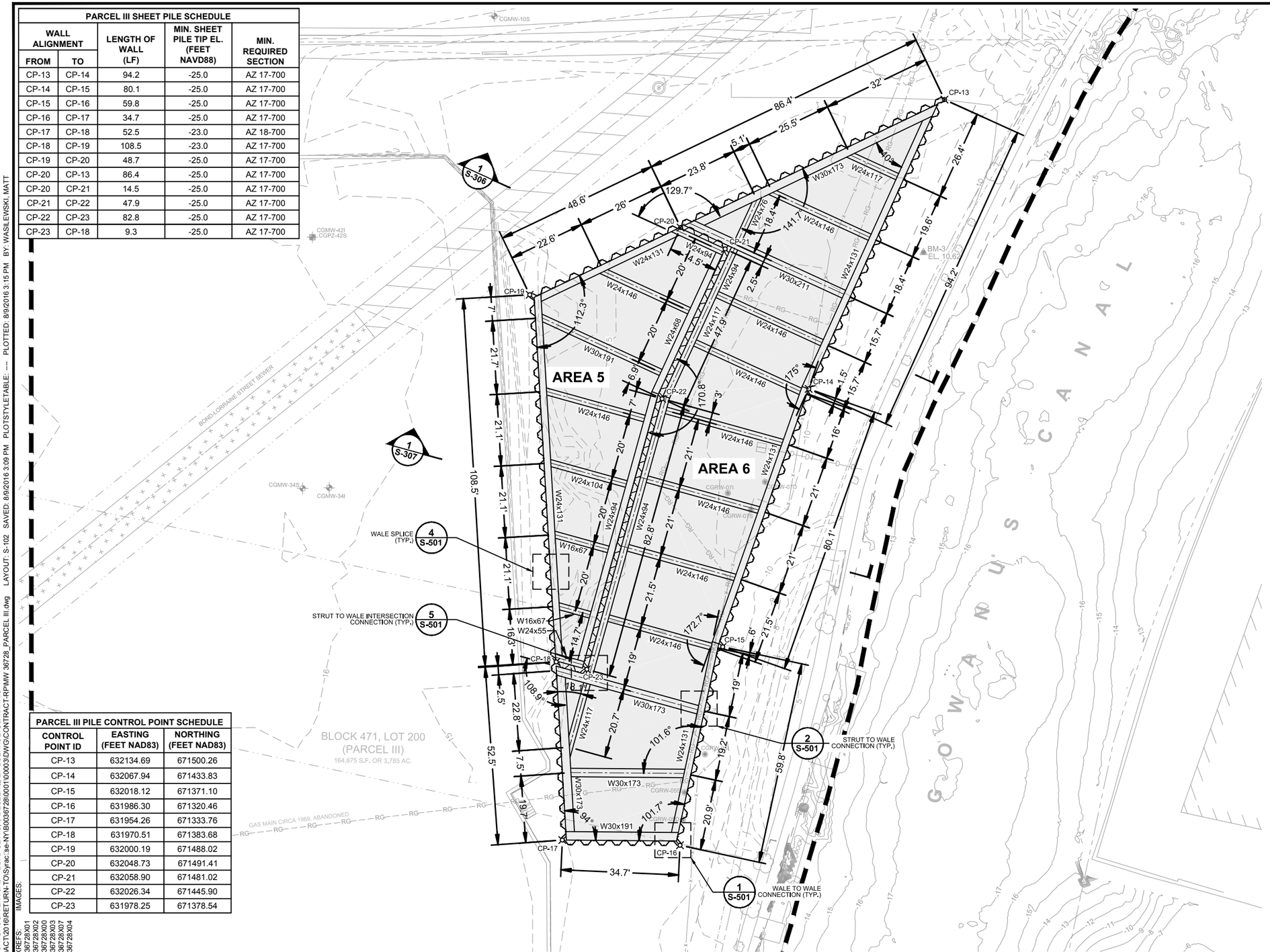
ARCADIS Project No.: B0036728.0001.00003
Date: _____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

S-101

| PARCEL III SHEET PILE SCHEDULE | | | | |
|---|---|---|---|---|
| WALL ALIGNMENT | | LENGTH OF WALL (LF) | MIN. SHEET PILE TIP EL. (FEET NAVD88) | MIN. REQUIRED SECTION |
| FROM | TO | | | |
| CP-13 | CP-14 | 94.2 | -25.0 | AZ 17-700 |
| CP-14 | CP-15 | 80.1 | -25.0 | AZ 17-700 |
| CP-15 | CP-16 | 59.8 | -25.0 | AZ 17-700 |
| CP-16 | CP-17 | 34.7 | -25.0 | AZ 17-700 |
| CP-17 | CP-18 | 52.5 | -23.0 | AZ 18-700 |
| CP-18 | CP-19 | 108.5 | -23.0 | AZ 17-700 |
| CP-19 | CP-20 | 48.7 | -25.0 | AZ 17-700 |
| CP-20 | CP-13 | 86.4 | -25.0 | AZ 17-700 |
| CP-20 | CP-21 | 14.5 | -25.0 | AZ 17-700 |
| CP-21 | CP-22 | 47.9 | -25.0 | AZ 17-700 |
| CP-22 | CP-23 | 82.8 | -25.0 | AZ 17-700 |
| CP-23 | CP-18 | 9.3 | -25.0 | AZ 17-700 |

| PARCEL III PILE CONTROL POINT SCHEDULE | | |
|---|---|---|
| CONTROL POINT ID | EASTING (FEET NAD83) | NORTHING (FEET NAD83) |
| CP-13 | 632134.69 | 671500.26 |
| CP-14 | 632067.94 | 671433.83 |
| CP-15 | 632018.12 | 671371.10 |
| CP-16 | 631986.30 | 671320.46 |
| CP-17 | 631954.26 | 671333.76 |
| CP-18 | 631970.51 | 671383.68 |
| CP-19 | 632000.19 | 671488.02 |
| CP-20 | 632048.73 | 671491.41 |
| CP-21 | 632058.90 | 671481.02 |
| CP-22 | 632026.34 | 671445.90 |
| CP-23 | 631978.25 | 671378.54 |




LEGEND:

- APPROXIMATE LIMIT OF EXISTING CRIBBING
- SHEET PILE
- CP-15 PILE CONTROL POINT
- W24x146 WALE
- REMEDIAL EXCAVATION AREA

PARCEL III GENERAL CONSTRUCTION SEQUENCE:

1. PRE-TRENCH SHEET PILE ALIGNMENTS OF AREAS 5 AND 6 TO NOT LESS THAN 8.0 FEET BELOW EXISTING GRADE.
2. DRIVE SHEET PILING AT THE LOCATIONS AND TO THE MINIMUM TIP ELEVATIONS SHOWN OR INDICATED.
3. INSTALL TEMPORARY MEMBRANE-COVERED FRAME STRUCTURE OVER REMEDIAL EXCAVATION AREAS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
4. EXCAVATE AREAS 5 AND 6 TO ELEVATION +3.0 FEET AND INSTALL INTERNAL BRACING IN AREA 5.
5. EXCAVATE AREA 5 TO ELEVATION -10.0 FEET.
6. BACKFILL AREA 5 TO ELEVATION +3.0 FEET AND REMOVE INTERNAL BRACING.
7. INSTALL INTERNAL BRACING IN AREA 6.
8. EXCAVATE AREA 6 TO ELEVATION -10.0 FEET.
9. BACKFILL AREA 6 TO ELEVATION +3.0 FEET AND REMOVE INTERNAL BRACING.
10. BACKFILL AREAS 5 AND 6 TO THE SUBGRADE ELEVATIONS SHOWN OR INDICATED ON DRAWING C-105.
11. REMOVE TEMPORARY MEMBRANE-COVERED FRAME STRUCTURE.
12. PULL ALL SHEET PILING EXCEPT FOR THOSE PILES LOCATED BETWEEN CONTROL POINTS CP-21 AND CP-23.

NOTES:

1. COMPLY WITH SPECIFICATIONS SECTIONS 31 23 00 (EXCAVATION AND FILL) AND 31 50 00 (EXCAVATION SUPPORT AND PROTECTION).
2. COORDINATE PILE DRIVING OPERATIONS WITH SELECTIVE DEMOLITION AND EXCAVATION OPERATIONS.
3. BEFORE PROCEEDING WITH PILE DRIVING OPERATIONS, LOCATE, IDENTIFY, AND REMOVE OR RELOCATE OBSTRUCTING STRUCTURES AND UNDERGROUND FACILITIES. COMPLY WITH SPECIFICATIONS SECTION 02 41 19 (SELECTIVE DEMOLITION) FOR DEMOLITIONS AND REMOVALS.
4. TEMPORARY STOCKPILES ARE PROHIBITED WITHIN 25 FEET OF REMEDIAL EXCAVATION AREAS DURING EXCAVATION AND BACKFILLING OPERATIONS.

CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: B GETTS, B DECLERQ, L POSENAUER, J HARRIS
C:\ENVCAD\NEWTOWN\ACT\2016\RETURN-TO\Syrac_ss-NY\B0036728\0001\00003\DWG\CONTRACT-RP\MW 36728_PARCEL III.dwg LAYOUT: S-102 SAVED: 8/9/2016 3:09 PM PLOTSTYLETABLE: --- PLOTTED: 8/9/2016 3:15 PM BY: WASILEWSKI, MATT
XREFS: 36728X01 36728X02 36728X00 36728X03 36728X07 36728X04
IMAGES:

15' 0 15' 30'
1"=15'

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Professional Engineer's Name: TERRY W. YOUNG
Professional Engineer's No.: 074847
State: NY | Date Signed: | Project Mgr.: MJB
Designed by: RPK | Drawn by: BGG/JLH | Checked by: APC

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BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# PARCEL III REMEDIAL EXCAVATION SHORING PLAN AND CONSTRUCTION SEQUENCE

ARCADIS Project No.: B0036728.0001.00003
Date: _____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

S-102

CITY: SYRACUSE, NY DIV/GROUP: ENV/CAD DB: B GETTS, B DECLERQ, L POSENAUER, J HARRIS
C:\ENVCAD\NEWTOWN\ACT\2016\RETURN-TO\Syrac: se-NY\B0036728\0001\00003\DWG\CONTRACT-RP\MW 36728_B.1khead.dwg LAYOUT: S-103 SAVED: 8/9/2016 3:10 PM PLOTSTYLETABLE: --- PLOTTED: 8/9/2016 3:36 PM BY: WASILEWSKI, MATT
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36728X00
36728X01
36728X03
36728X04
36728X08
36728X02

BLOCK 468, LOT 25
(PARCEL IV)
45,888 S.F. OR 1.053 AC.

BLOCK 471, LOT 100
(PARCEL II)
75,008 S.F. OR 1.722 AC.

BLOCK 471, LOT 200
(PARCEL III)
164,875 S.F. OR 3.785 AC.

SEE DRAWING S-107

SEE DRAWING S-106

SEE DRAWING S-105

SEE DRAWING S-104

NEW COMBINATION WALL
503.4 LF

NEW ANCHORED TIEBACK WALL
380.9 LF

CONCRETE WALL

WOOD WALL

CONC. COLUMNS

EDGE OF CONC. PAVEMENT

GARAGE

APPROXIMATE LOCATION OF GAS EASEMENT PER LIBER 684, PG. 1425

DEMOLISHED CONC. FOUNDATION

STEEL AND CONCRETE GAS TUNNEL

APPROXIMATE LOCATION OF STORM SEWER EASEMENT PER LIBER 684, PG. 1425

STORAGE AREA FOR LARGE CONCRETE BLOCKS

7TH STREET AS SHOWN ON BROOKLYN BOROUGH SECTIONAL MAP NO. 23 DATED 8-10-95

APPROXIMATE LOCATION OF REPUTED SEWER EASEMENT

UNKNOWN CONDUIT

GAS SERVICE

CGMW-01D
CGMW-01S
CGMW-01I
CGMW-02S
CGMW-02I
CGMW-04S
CGMW-05S
CGMW-05I
CGMW-06S
CGMW-07S
CGMW-10S
CGMW-12
CGMW-13
CGMW-14
CGMW-15
CGMW-16
CGMW-17
CGMW-18
CGMW-34S
CGMW-34I
CGMW-35
CGMW-36
CGMW-37
CGMW-38
CGMW-39
CGMW-40D
CGMW-41I
CGMW-42I
CGMW-43D
CGPZ-1S
CGPZ-1I
CGPZ-2I
CGPZ-3
CGPZ-4
CGPZ-5S
CGPZ-5I
CGPZ-42S
GC-MW23S
GC-MW23I

1"=50' — 50' 0 50' 100' NOT TO SCALE

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Professional Engineer's Name: **TERRY W. YOUNG**
Professional Engineer's No.: 074847
State: NY | Date Signed: | Project Mgr.:
Designed by: RPK | Drawn by: BGG/JLH | Checked by: APC

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CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

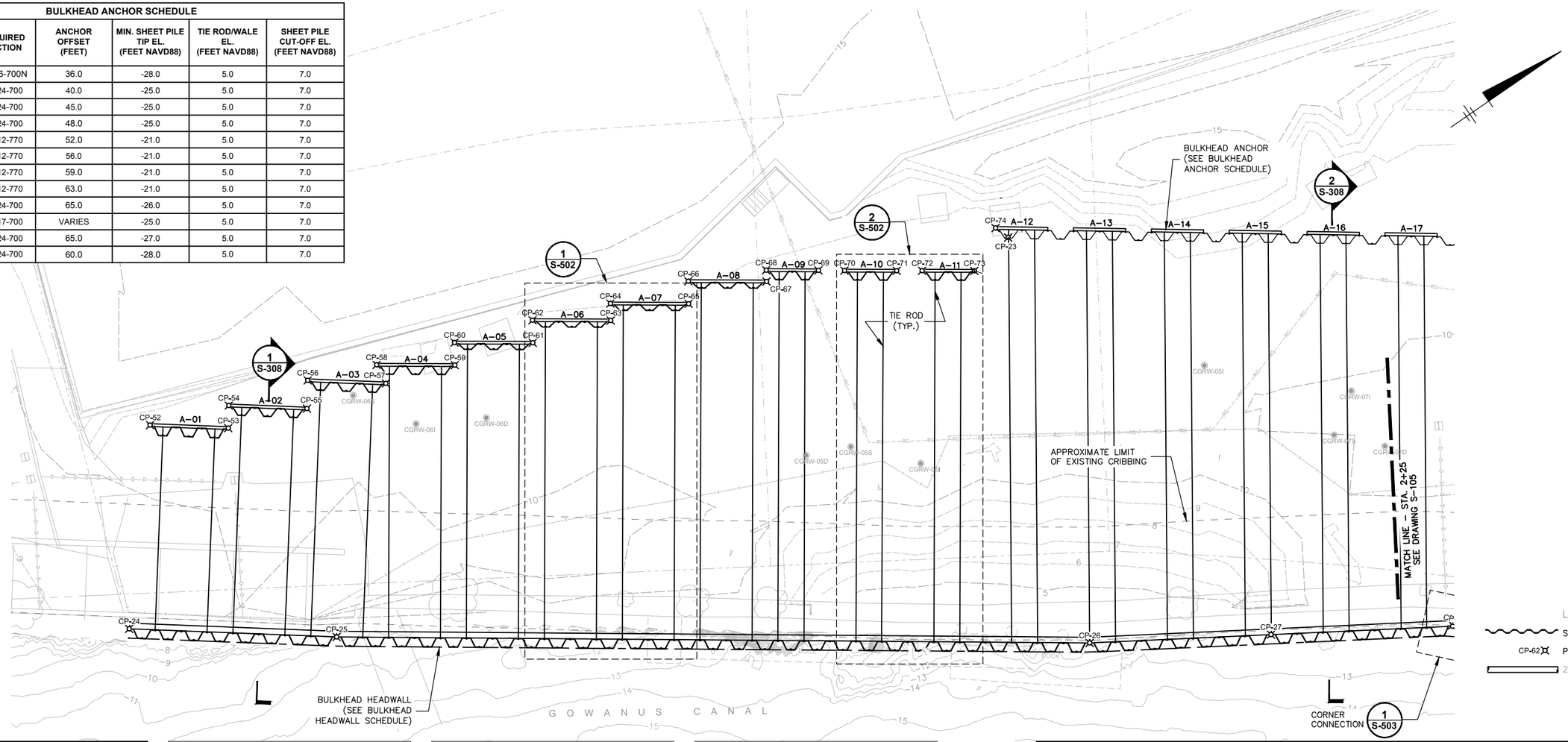
# SITE BULKHEAD BARRIER WALL PLAN

ARCADIS Project No.
B0036728.0001.00003
Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

**S-103**

| BULKHEAD ANCHOR SCHEDULE | | | | | |
|---|---|---|---|---|---|
| ANCHOR NO. | REQUIRED SECTION | ANCHOR OFFSET (FEET) | MIN. SHEET PILE TIP EL. (FEET NAVD88) | TIE ROD/WALE EL. (FEET NAVD88) | SHEET PILE CUT-OFF EL. (FEET NAVD88) |
| A-01 | AZ 36-700N | 36.0 | -28.0 | 5.0 | 7.0 |
| A-02 | AZ 24-700 | 40.0 | -25.0 | 5.0 | 7.0 |
| A-03 | AZ 24-700 | 45.0 | -25.0 | 5.0 | 7.0 |
| A-04 | AZ 24-700 | 48.0 | -25.0 | 5.0 | 7.0 |
| A-05 | AZ 12-770 | 52.0 | -21.0 | 5.0 | 7.0 |
| A-06 | AZ 12-770 | 56.0 | -21.0 | 5.0 | 7.0 |
| A-07 | AZ 12-770 | 59.0 | -21.0 | 5.0 | 7.0 |
| A-08 | AZ 12-770 | 63.0 | -21.0 | 5.0 | 7.0 |
| A-09 TO A-11 | AZ 24-700 | 65.0 | -26.0 | 5.0 | 7.0 |
| A-12 TO A-20 | AZ 17-700 | VARIES | -25.0 | 5.0 | 7.0 |
| A-21 TO A-27 | AZ 24-700 | 65.0 | -27.0 | 5.0 | 7.0 |
| A-28 AND A-29 | AZ 24-700 | 60.0 | -28.0 | 5.0 | 7.0 |




| HEADWALL AND ANCHOR PILE CONTROL POINT SCHEDULE | | |
|---|---|---|
| CONTROL POINT ID | EASTING (FEET NAD83) | NORTHING (FEET NAD83) |
| CP-18 | 631962.30 | 671357.20 |
| CP-19 | 631819.96 | 671725.20 |
| CP-20 | 632072.67 | 671493.86 |
| CP-21 | 632026.37 | 671447.10 |
| CP-22 | 631947.01 | 671211.20 |
| CP-23 | 631969.02 | 671240.61 |
| CP-24 | 632045.50 | 671349.71 |
| CP-25 | 632077.07 | 671400.37 |
| CP-26 | 632185.08 | 671506.45 |
| CP-27 | 632209.89 | 671526.05 |
| CP-28 | 632236.28 | 671543.27 |
| CP-29 | 632252.18 | 671550.98 |
| CP-30 | 632276.69 | 671564.17 |
| CP-31 | 632304.70 | 671578.42 |
| CP-32 | 632333.34 | 671591.26 |
| CP-33 | 632362.57 | 671602.96 |
| CP-34 | 632392.43 | 671612.67 |
| CP-35 | 632422.83 | 671621.01 |

| HEADWALL AND ANCHOR PILE CONTROL POINT SCHEDULE | | |
|---|---|---|
| CONTROL POINT ID | EASTING (FEET NAD83) | NORTHING (FEET NAD83) |
| CP-39 | 632372.60 | 671604.81 |
| CP-40 | 632402.51 | 671614.26 |
| CP-41 | 632433.03 | 671621.40 |
| CP-42 | 632464.21 | 671624.65 |
| CP-43 | 632489.34 | 671626.53 |
| CP-44 | 632514.47 | 671628.30 |
| CP-45 | 632522.48 | 671628.77 |
| CP-46 | 632547.63 | 671630.23 |
| CP-47 | 632572.79 | 671631.74 |
| CP-48 | 632597.95 | 671633.23 |
| CP-49 | 632623.13 | 671632.22 |
| CP-50 | 632648.31 | 671631.19 |
| CP-51 | 632660.90 | 671630.68 |
| CP-52 | 631919.43 | 671234.70 |
| CP-53 | 631927.72 | 671245.78 |
| CP-54 | 631924.48 | 671248.13 |
| CP-55 | 631932.77 | 671259.21 |
| CP-56 | 631928.73 | 671262.16 |

| HEADWALL AND ANCHOR PILE CONTROL POINT SCHEDULE | | |
|---|---|---|
| CONTROL POINT ID | EASTING (FEET NAD83) | NORTHING (FEET NAD83) |
| CP-57 | 631937.02 | 671273.24 |
| CP-58 | 631933.39 | 671273.75 |
| CP-59 | 631941.29 | 671285.12 |
| CP-60 | 631937.97 | 671287.35 |
| CP-61 | 631945.86 | 671298.71 |
| CP-62 | 631942.54 | 671300.95 |
| CP-63 | 631950.44 | 671312.31 |
| CP-64 | 631947.93 | 671313.96 |
| CP-65 | 631955.82 | 671325.33 |
| CP-66 | 631952.51 | 671327.56 |
| CP-67 | 631960.40 | 671338.93 |
| CP-68 | 631958.71 | 671340.01 |
| CP-69 | 631963.99 | 671347.60 |
| CP-70 | 631966.63 | 671351.37 |
| CP-71 | 631971.90 | 671358.97 |
| CP-72 | 631974.45 | 671362.68 |
| CP-73 | 631979.72 | 671370.27 |
| CP-74 | 631975.60 | 671377.67 |

| HEADWALL AND ANCHOR PILE CONTROL POINT SCHEDULE | | |
|---|---|---|
| CONTROL POINT ID | EASTING (FEET NAD83) | NORTHING (FEET NAD83) |
| CP-75 | 632061.91 | 671484.42 |
| CP-76 | 632069.03 | 671484.93 |
| CP-77 | 632075.67 | 671491.36 |
| CP-78 | 632078.93 | 671494.52 |
| CP-79 | 632085.57 | 671500.94 |
| CP-80 | 632088.83 | 671504.10 |
| CP-81 | 632095.47 | 671510.53 |
| CP-82 | 632098.73 | 671513.68 |
| CP-83 | 632105.37 | 671520.11 |
| CP-84 | 632108.63 | 671523.26 |
| CP-85 | 632115.27 | 671529.69 |
| CP-86 | 632118.53 | 671532.85 |
| CP-87 | 632125.18 | 671539.28 |
| CP-88 | 632128.77 | 671535.80 |
| CP-89 | 632135.41 | 671542.23 |
| CP-90 | 632138.68 | 671545.41 |
| CP-91 | 632145.32 | 671551.84 |

| BULKHEAD HEADWALL SCHEDULE | | | | | | |
|---|---|---|---|---|---|---|
| WALL ALIGNMENT | | LENGTH OF WALL (LF) | WALL TYPE | REQUIRED SECTION | MIN. SHEET PILE TIP EL. (FEET NAVD88) | MIN. KING PILE TIP EL. (FEET NAVD88) | PILE CUT-OFF EL. (FEET NAVD88) |
| FROM | TO | | | | | | |
| CP-24 | CP-27 | 202.2 | ANCHORED TIEBACK WALL | AZ 42-700N | -43.0 | -- | 10.0 |
| CP-27 | CP-29 | 146.6 | ANCHORED TIEBACK WALL | AZ 38-700N | -41.0 | -- | 10.0 |
| CP-29 | CP-30 | 32.1 | ANCHORED TIEBACK WALL | AZ 44-700N | -42.0 | -- | 11.0 |
| CP-30 | CP-31 | 18.0 | COMBINATION WALL | HZ 1180M A M-26 / AZ 19-700 | -40.0 | -80.0 | 12.0 |
| CP-31 | CP-33 | 47.0 | COMBINATION WALL | HZ 1180M B M-26 / AZ 19-700 | -40.0 | -80.0 | 12.0 |
| CP-33 | CP-35 | 21.9 | SHEET PILE WALL | AZ 12-770 | -23.5 | -- | 12.0 |
| CP-35 | CP-42 | 219.5 | COMBINATION WALL | HZ 1180M B M-26 / AZ 19-700 | -40.0 | -80.0 | 12.0 |
| CP-42 | CP-45 | 58.4 | COMBINATION WALL | HZ 1180M C M-14 / AZ 19-700 | -40.0 | -78.0 | 10.0 |
| CP-45 | CP-51 | 138.6 | COMBINATION WALL | HZ 1080M D M-14 / AZ 19-700 | -40.0 | -74.0 | 8.0 |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1"=10' NOT TO SCALE
GRAPHIC SCALE

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Professional Engineer's Name
TERRY W. YOUNG
Professional Engineer's No.
074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | | |
| Designed by | Drawn by | Checked by |
| RPK | BGG/JLH | APC |

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FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# BULKHEAD BARRIER WALL PLAN STATION 0+00 TO 2+25

ARCADIS Project No.
B0036728.0001.00003

Date
_____ 2016


ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120


S-104

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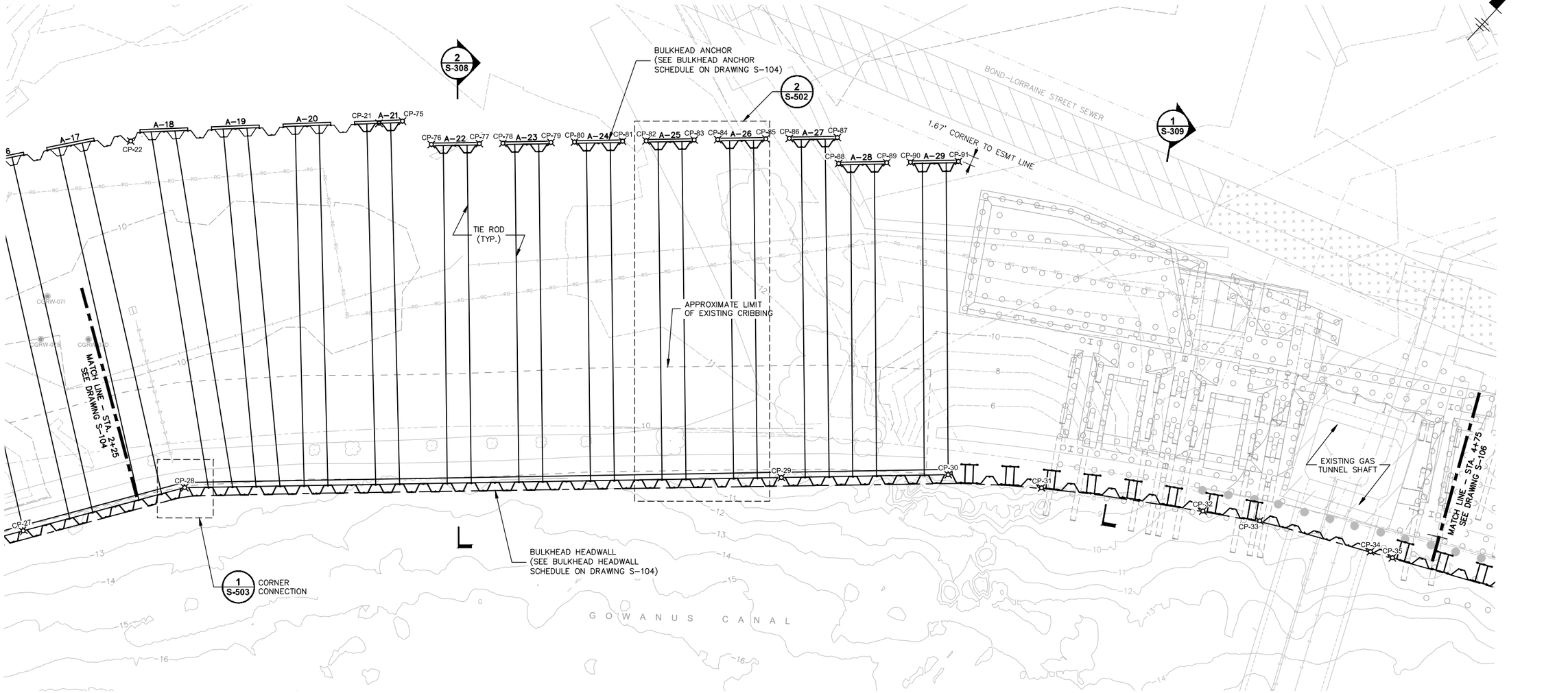


LEGEND:
- SHEET PILE
- KING PILE
- CP-75 PILE CONTROL POINT
- 2MC12x31 DOUBLE WALE

10' 0 10' 20'
1"=10' NOT TO SCALE
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Professional Engineer's Name: **TERRY W. YOUNG**
Professional Engineer's No.: 074847
State: NY | Date Signed: | Project Mgr.:
Designed by: RPK | Drawn by: BGG/JLH | Checked by: APC

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# BULKHEAD BARRIER WALL PLAN STATION 2+25 TO 4+75

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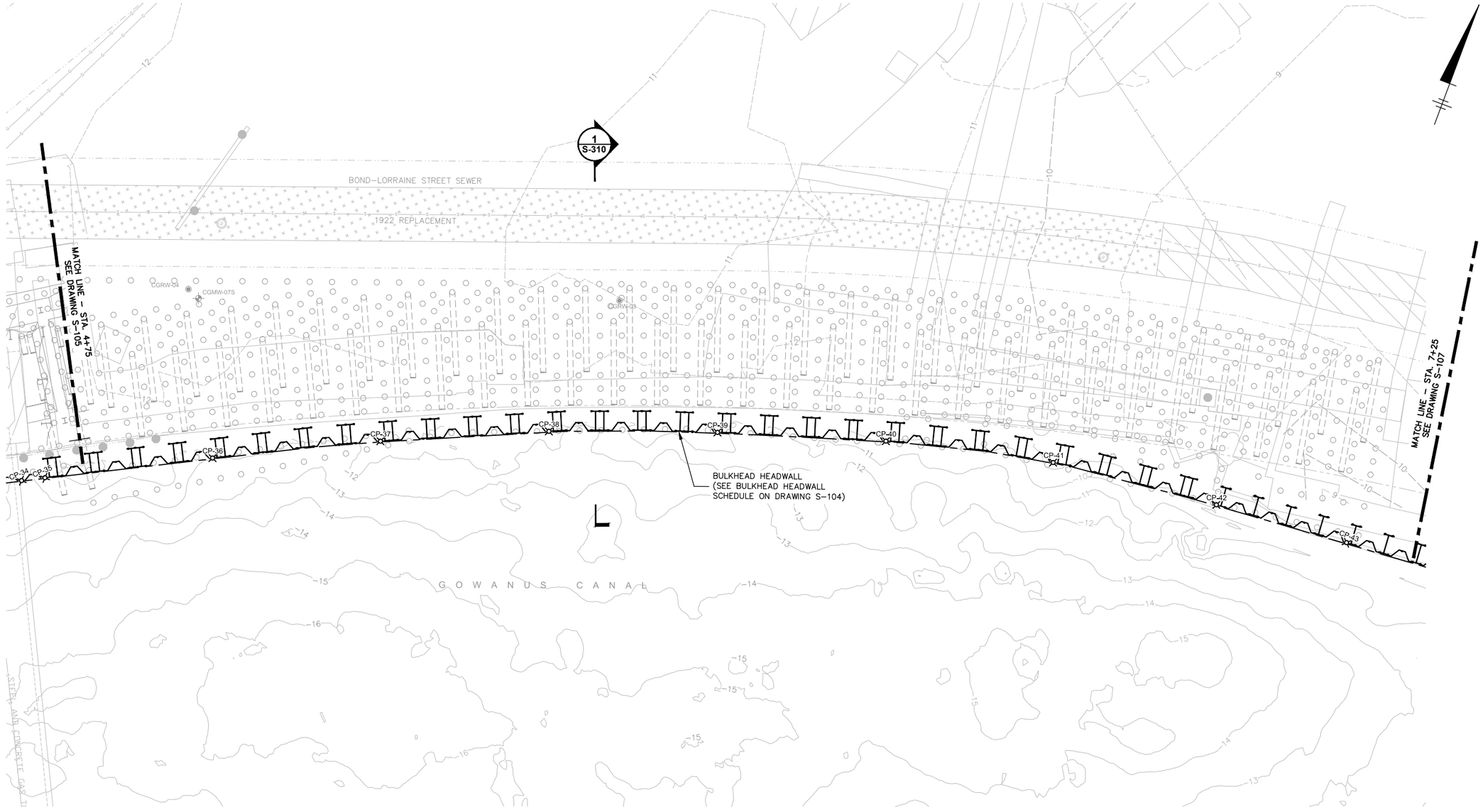
TEL: 315.446.9120

**S-105**




LEGEND:
- SHEET PILE
- KING PILE
- CP-38 PILE CONTROL POINT

CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: B GETTS, B DECLERQ, L POSENAUER, J. HARRIS
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Professional Engineer's No.: 074847
State: NY | Date Signed | Project Mgr.
Designed by: RPK | Drawn by: BGG/JLH | Checked by: APC

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CITY: SYRACUSE_NY DIV/GROUP: ENVCAD DB: B GETTS, B DECLERQ, L POSENAUER, J HARRIS
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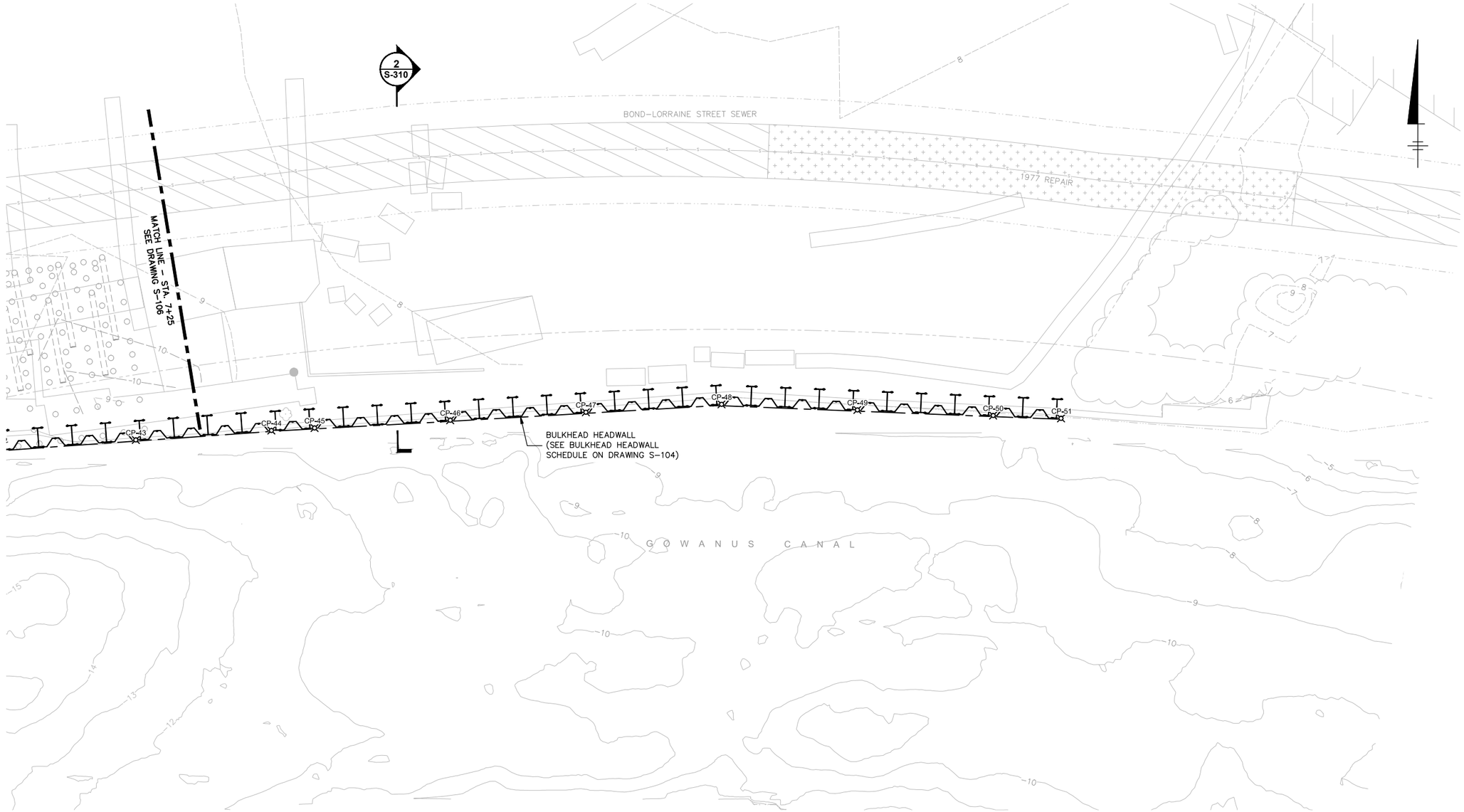


LEGEND:
SHEET PILE
KING PILE
CP-45 PILE CONTROL POINT

1"=10' GRAPHIC SCALE 10' 0 10' 20' NOT TO SCALE

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Professional Engineer's No.: 074847

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# BULKHEAD BARRIER WALL PLAN STATION 7+25 TO 8+85

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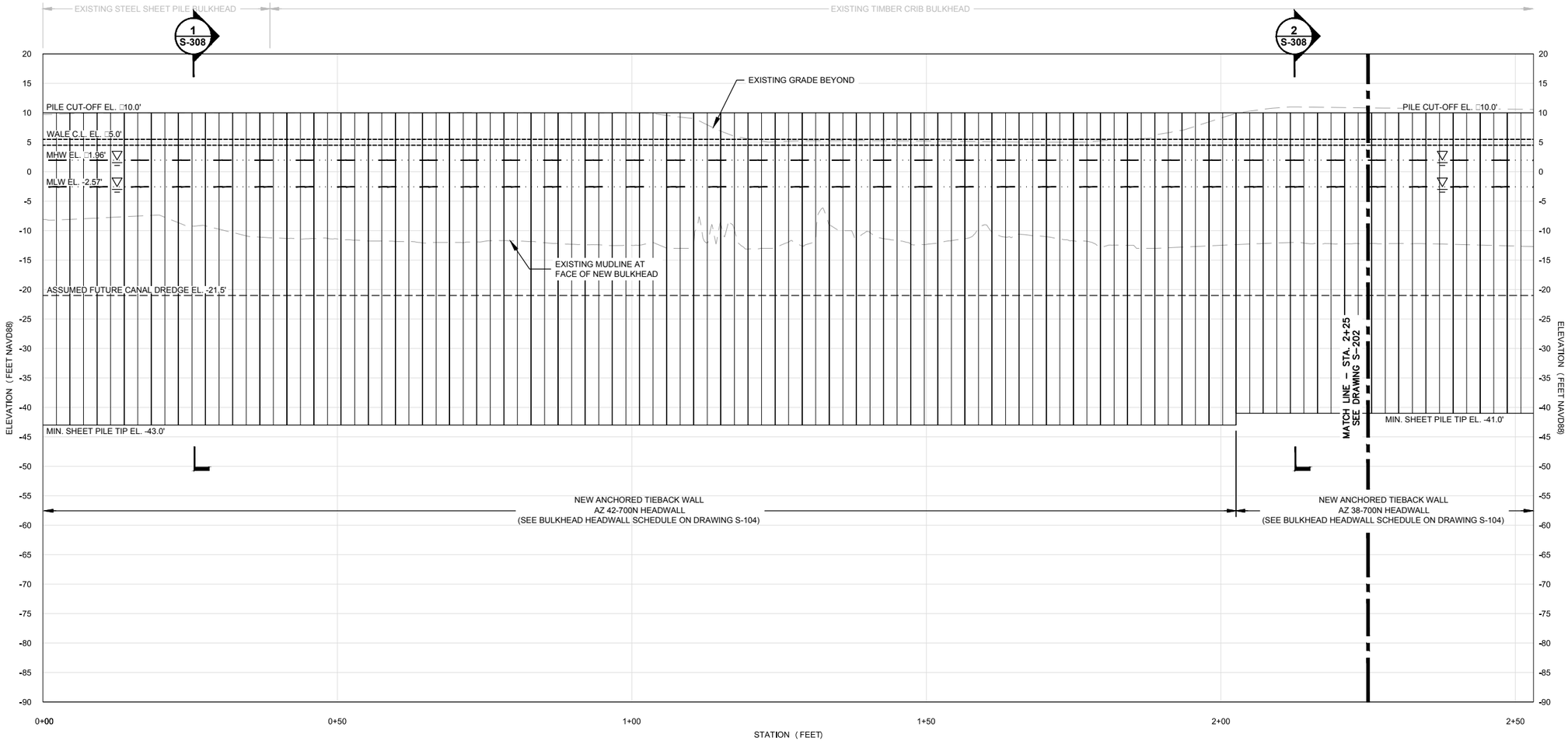


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Professional Engineer's Name
**TERRY W. YOUNG**
Professional Engineer's No.
074847

| State | Date Signed | Project Mgr. |
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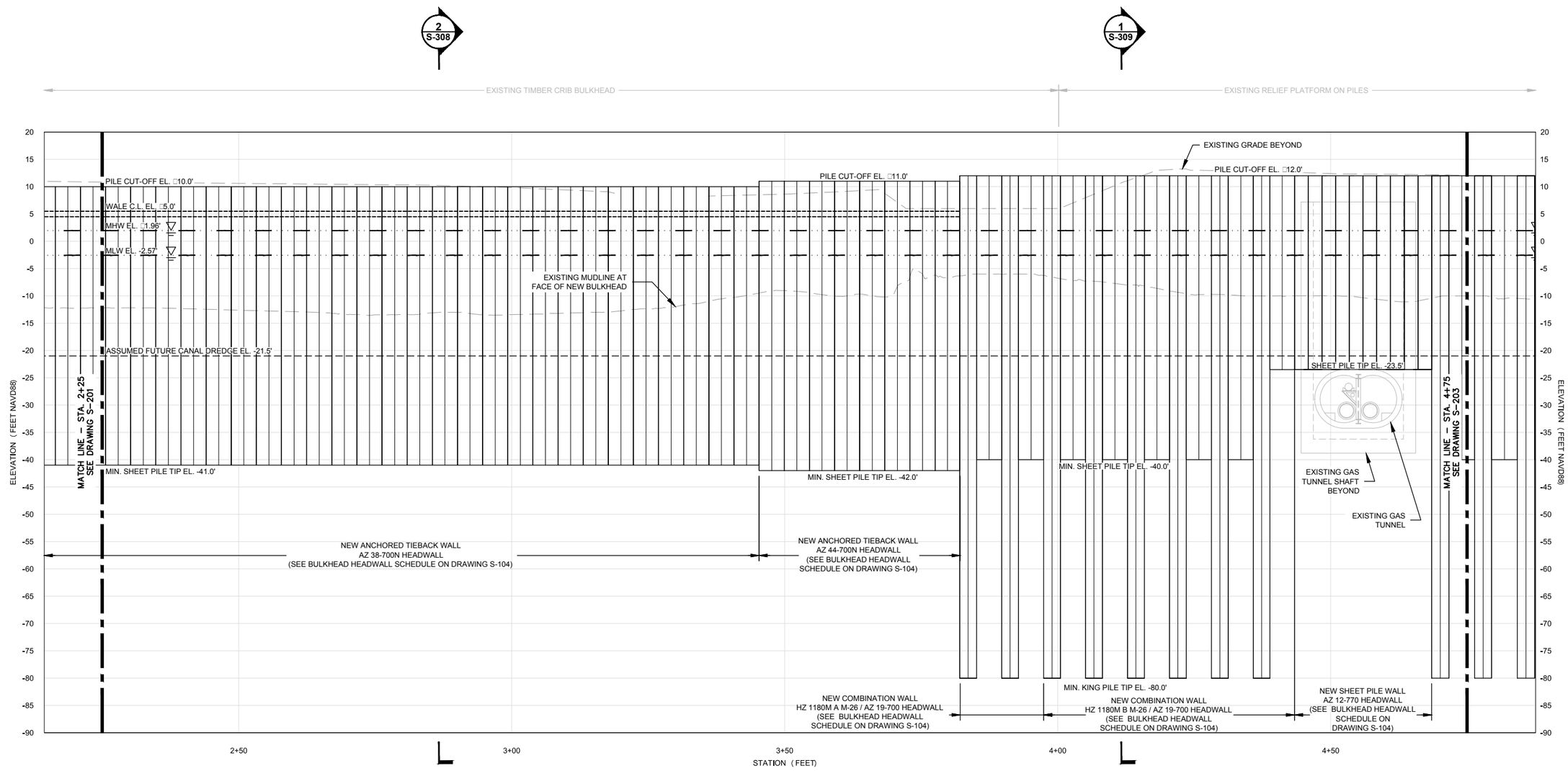


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Professional Engineer's Name: **TERRY W. YOUNG**
Professional Engineer's No.: 074847

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| Designed by: RPK | Drawn by: BGG/JLH | Checked by: APC |

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# BULKHEAD BARRIER WALL PROFILE STATION 2+25 TO 4+75

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**S-202**

CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: B GETTS, B DECLERQ, L POSENAUER, J HARRIS
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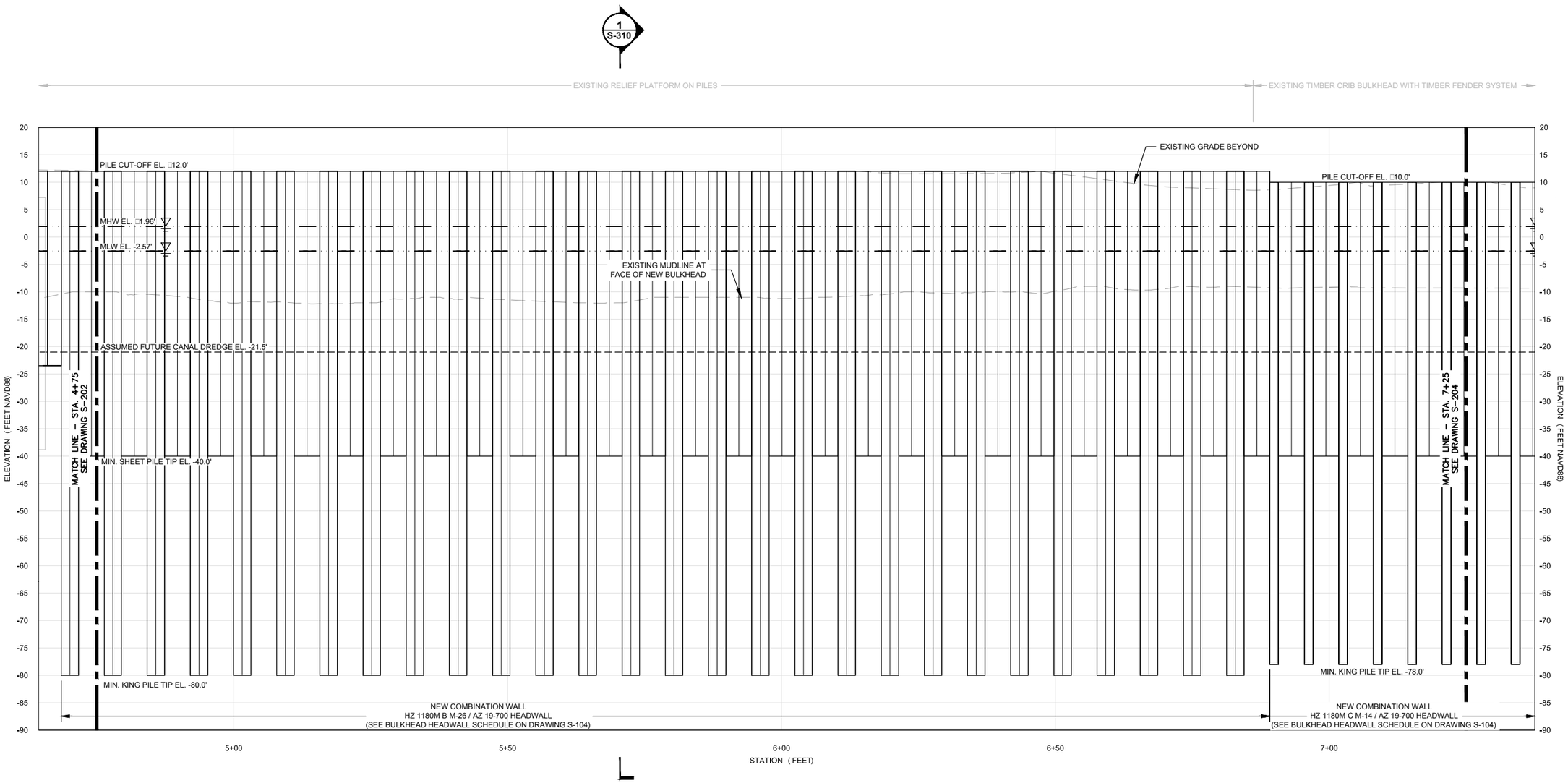


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Professional Engineer's No.
074847

| State | Date Signed | Project Mgr. |
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| NY | | |
| Designed by | Drawn by | Checked by |
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S-203

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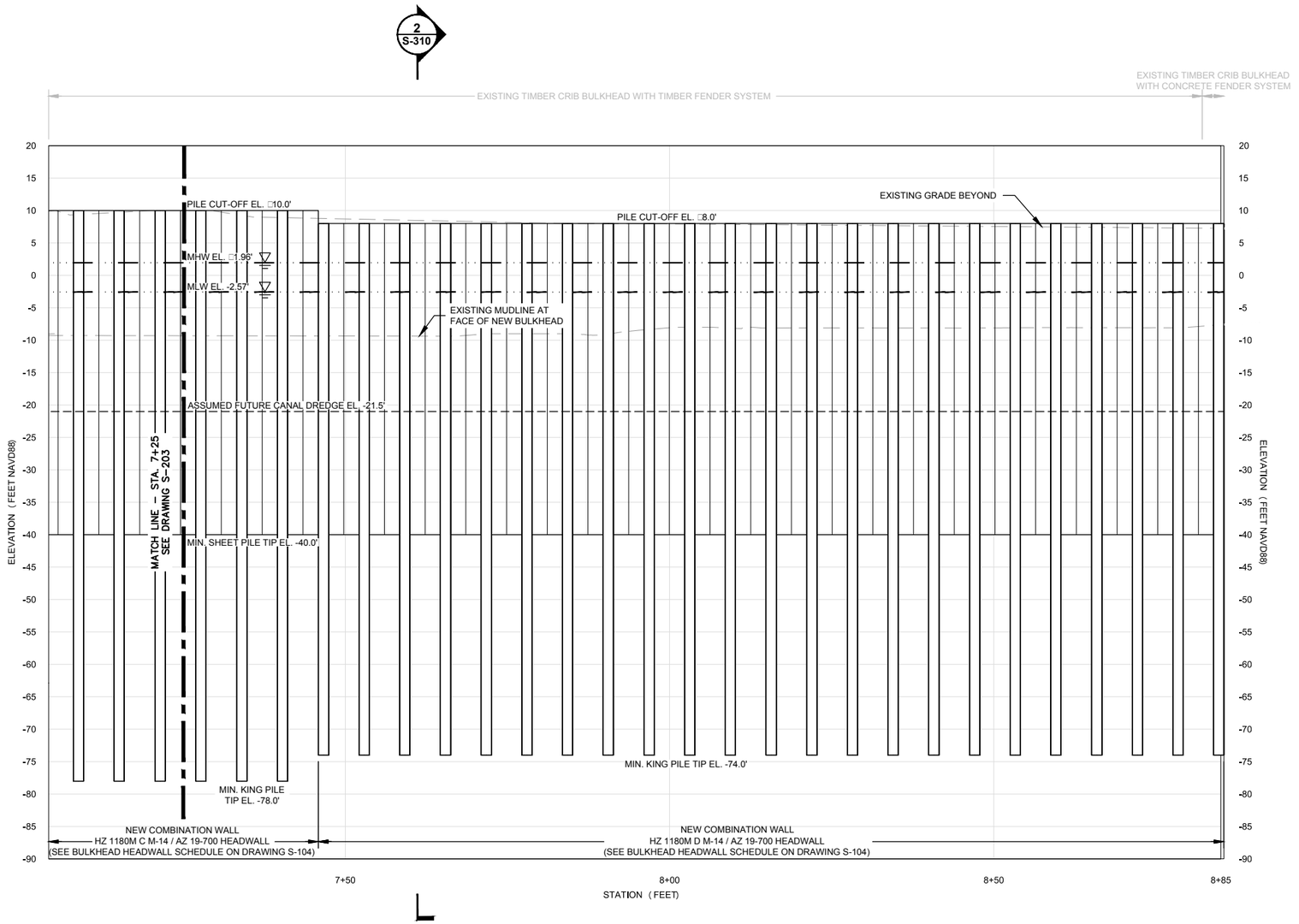


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1"=10' NOT TO SCALE
HORIZONTAL AND VERTICAL SCALE

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Professional Engineer's No.
074847

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|---|---|---|
| NY | | |
| Designed by | Drawn by | Checked by |
| RPK | BGG/JLH | APC |

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# BULKHEAD BARRIER WALL PROFILE STATION 7+25 TO 8+85

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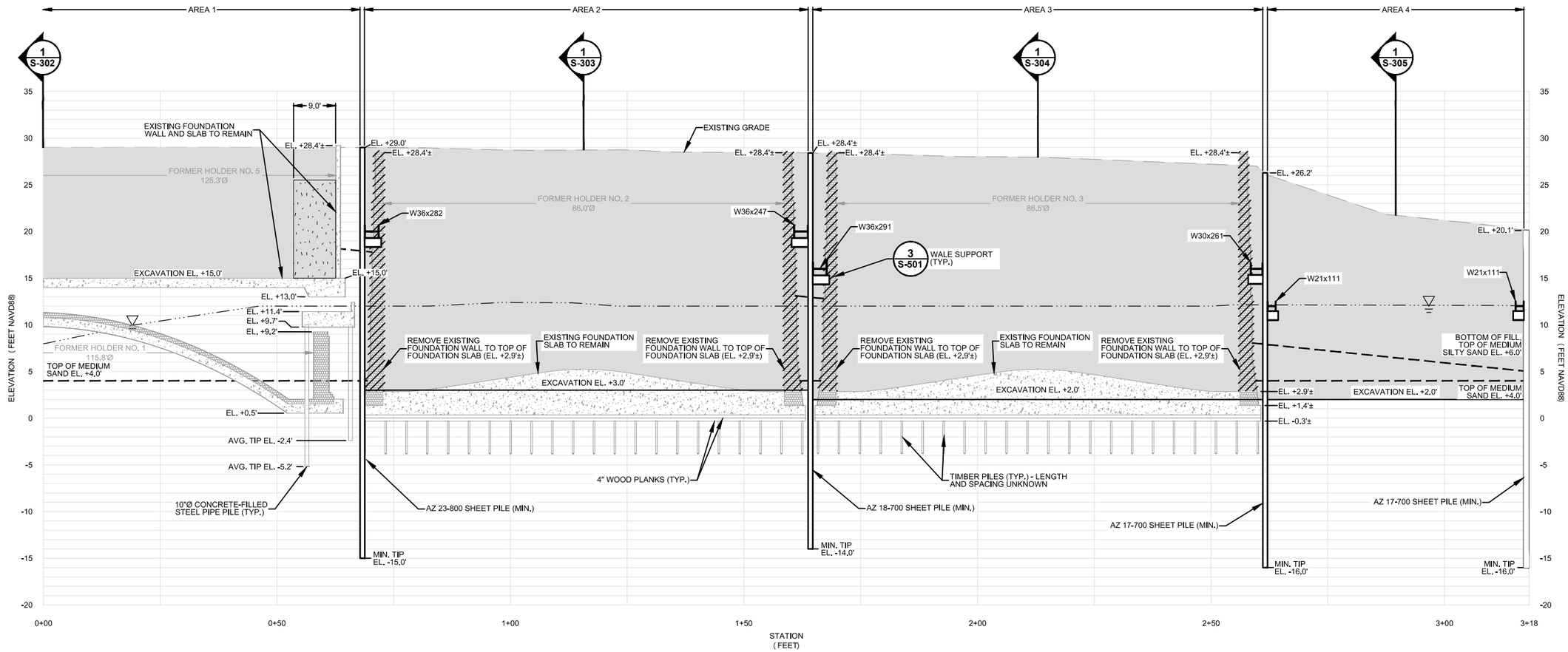


## SECTION 1

LEGEND:

- INTERPOLATED WATER SURFACE (APRIL 4, 2005, HIGH TIDE)
- INTERPOLATED GEOLOGIC CONTACT
- NEW CLSM GRAVITY WALL
- REMEDIAL EXCAVATION AREA
- EXISTING FEATURE TO BE DEMOLISHED/REMOVED

NOTES:

1. SOIL TYPES AND GEOLOGIC CONTACTS ARE APPROXIMATE AND ARE INTERPOLATED BETWEEN SOIL BORING LOCATIONS. ACTUAL SUBSURFACE CONDITIONS MAY BE DIFFERENT THAN THOSE SHOWN OR INDICATED.
2. ADDITIONAL STRUCTURES AND UNDERGROUND FACILITIES MAY BE PRESENT THAT ARE NOT SHOWN OR INDICATED.

REFERENCE DRAWINGS:

1. THE BARTLETT HAYWARD COMPANY. DRAWING NUMBER H–16509, TITLED "PLAN OF PROPOSED FOUNDATION FOR A 800,000 CU. FT. 2 LIFT GAS HOLDER", DATED JUNE 21, 1930, REVISED JULY 9, 1930. PREPARED FOR THE BROOKLYN UNION GAS COMPANY, CITIZENS WORKS, BROOKLYN, NEW YORK.
2. THE BARTLETT HAYWARD COMPANY. DRAWING NUMBER H–16520, TITLED "SECTIONS THRU FOUNDATION FOR A 800,000 CU. FT. 2 LIFT GAS HOLDER", DATED JUNE 21, 1930, REVISED JULY 9, 1930. PREPARED FOR THE BROOKLYN UNION GAS COMPANY, CITIZENS WORKS, BROOKLYN, NEW YORK.
3. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 2F77A, TITLED "REVISED DETAILS OF RELIEF HOLDER AND CONDENSER CONNECTIONS", DATED OCTOBER 19, 1905.
4. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 8887, TITLED "CITIZENS WKS., RELIEF HOLDER NO. 3, DEVELOPMENT & CROSS SECTION OF TANK", DATED SEPTEMBER 5, 1917.
5. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 24–B–93, TITLED "CITIZENS WORKS, NEW RELIEF HOLDER FOUNDATION, SECTION THRU OLD TANK WALL", DATED JUNE 20, 1930.
6. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 24–B–92, TITLED "CITIZENS WORKS, FOUNDATION FOR A 800,000 CU. FT. HOLDER – PILING PLAN", DATED JULY 14, 1930.
7. GEI CONSULTANTS, INC. PLATE NUMBER 8, TITLED "HIGH TIDE SHALLOW, INTERMEDIATE, DEEP, AND JAMECO AQUIFER GROUNDWATER CONTOURS APRIL 4, 2005", DATED OCTOBER 2005. IN "FINAL REMEDIAL INVESTIGATION REPORT". FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE. PREPARED FOR KEYSPAN CORPORATION, BROOKLYN, NEW YORK.

CITY: SYRACUSE, NY DIV/GROUP: ENV/CAD DB: B GETTS, B DEGLERQ, L POSENAUER, J. HARRIS
C:\ENV\CAD\NEWTOWN\ACT\2016\RETURN-TO\Syrac..se-NY\B0036728\0001\00003\DWG\CONTRACT-RP\MW 36728_PARCEL I.dwg LAYOUT: S-301 SAVED: 8/9/2016 2:53 PM PLOTSTYLETABLE: ---- PLOTTED: 8/9/2016 2:53 PM BY: WASILEWSKI, MATT
XREFS:
IMAGES:
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12' 0 12' 24'
1"=12'
HORIZONTAL SCALE: 1" = 12'
VERTICAL EXAGGERATION: 2□

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

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Professional Engineer's Name: TERRY W. YOUNG
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | | MJB |
| Designed by | Drawn by | Checked by |
| RPK | BGG/JLH | APC |

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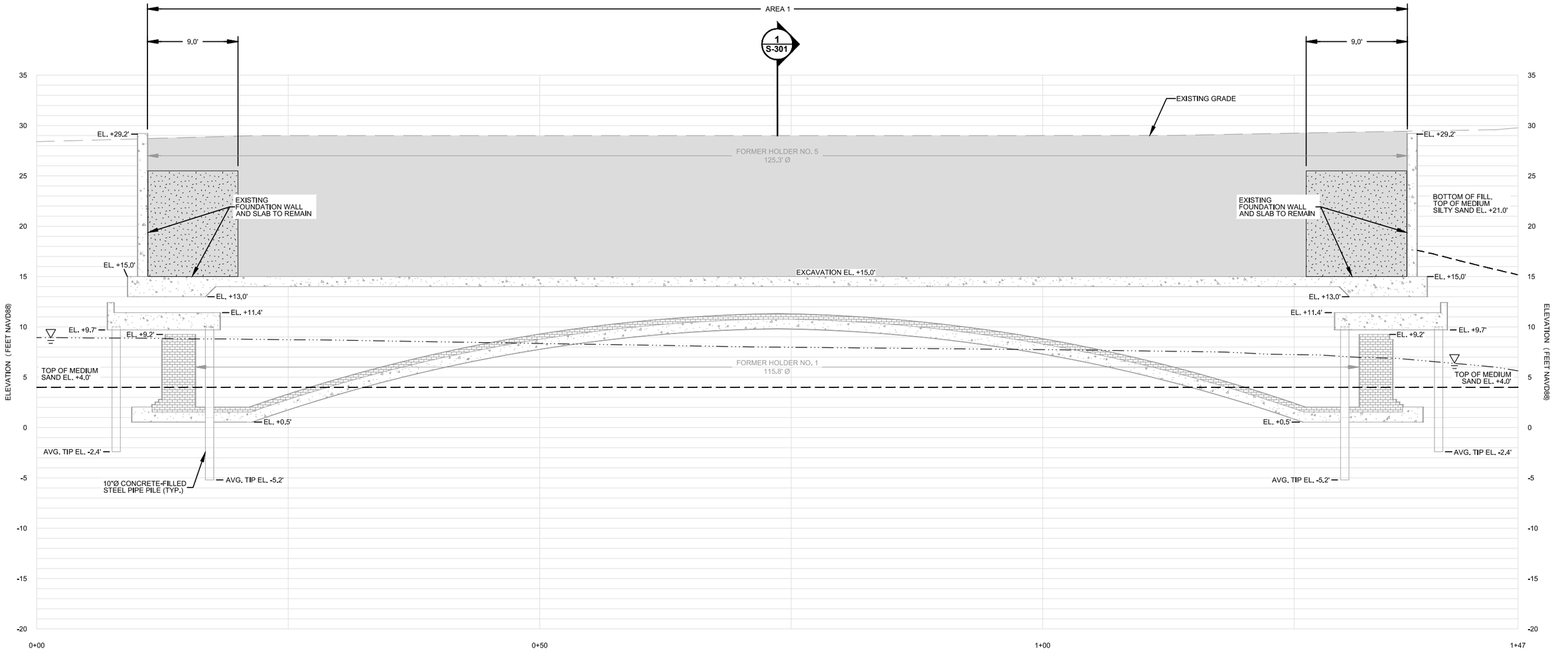
NATIONAL GRID USA • BROOKLYN, NEW YORK
FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# PARCEL I REMEDIAL EXCAVATION SHORING SECTION

ARCADIS Project No.
B0036728.0001.00003
Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

S-301




## SECTION 1

LEGEND:

- INTERPOLATED WATER SURFACE (APRIL 4, 2005, HIGH TIDE)
- INTERPOLATED GEOLOGIC CONTACT
- NEW CLSM GRAVITY WALL
- REMEDIAL EXCAVATION AREA

NOTES:

1. SOIL TYPES AND GEOLOGIC CONTACTS ARE APPROXIMATE AND ARE INTERPOLATED BETWEEN SOIL BORING LOCATIONS. ACTUAL SUBSURFACE CONDITIONS MAY BE DIFFERENT THAN THOSE SHOWN OR INDICATED.
2. ADDITIONAL STRUCTURES AND UNDERGROUND FACILITIES MAY BE PRESENT THAT ARE NOT SHOWN OR INDICATED.

REFERENCE DRAWINGS:

1. THE BARTLETT HAYWARD COMPANY. DRAWING NUMBER H–16509, TITLED "PLAN OF PROPOSED FOUNDATION FOR A 800,000 CU. FT. 2 LIFT GAS HOLDER", DATED JUNE 21, 1930, REVISED JULY 9, 1930. PREPARED FOR THE BROOKLYN UNION GAS COMPANY, CITIZENS WORKS, BROOKLYN, NEW YORK.
2. THE BARTLETT HAYWARD COMPANY. DRAWING NUMBER H–16520, TITLED "SECTIONS THRU FOUNDATION FOR A 800,000 CU. FT. 2 LIFT GAS HOLDER", DATED JUNE 21, 1930, REVISED JULY 9, 1930. PREPARED FOR THE BROOKLYN UNION GAS COMPANY, CITIZENS WORKS, BROOKLYN, NEW YORK.
3. THE BROOKLYN UNION GAS COMPANY. DRAWING NUMBER 24–B–93, TITLED "CITIZENS WORKS, NEW RELIEF HOLDER FOUNDATION, SECTION THRU OLD TANK WALL", DATED JUNE 20, 1930.
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XREFS:
IMAGES:
367 28 X01
367 28 X00
367 28 X03
367 28 X04
367 28 X02
367 28 X07

HORIZONTAL SCALE: 1" = 5'
VERTICAL EXAGGERATION: 1□

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Professional Engineer's Name: TERRY W. YOUNG
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | | MJB |
| Designed by | Drawn by | Checked by |
| RPK | BGG/JLH | APC |

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BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

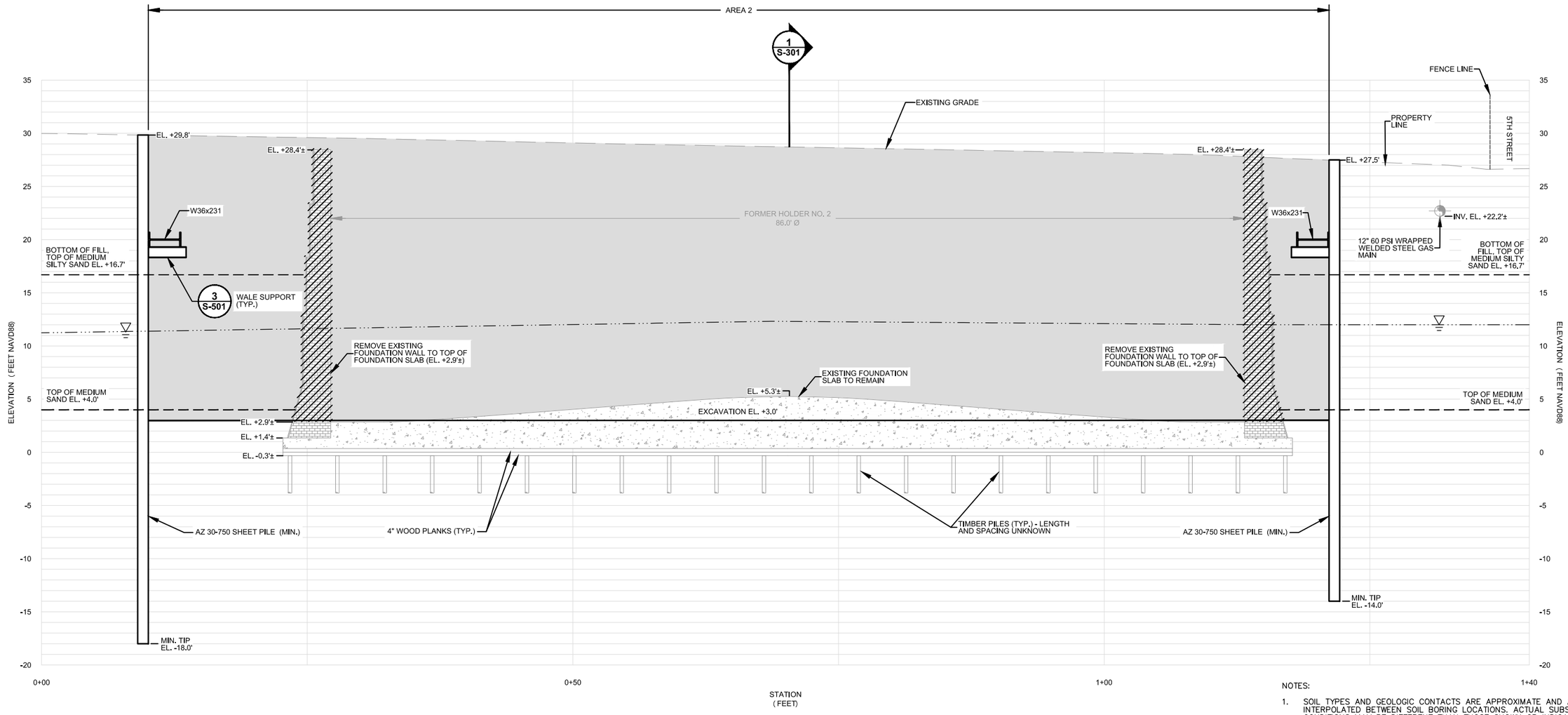
# AREA 1 REMEDIAL EXCAVATION SHORING SECTION

ARCADIS Project No.
B0036728.0001.00003
Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

S-302

CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: B GETTS, B DEGLERQ, L.POSENAUER, J. HARRIS
C:\ENVCAD\NEWTOWN\ACT\2016\RETURN TO\Syrac..se-NY\B0036728\0001\00003\DWG\CONTRACT-RPM\W 36728_PARCEL I.dwg LAYOUT: S-302 SAVED: 8/9/2016 2:58 PM PLOTSTYLETABLE: ---- PLOTTED: 8/9/2016 3:00 PM BY: WASILEWSKI, MATT




## SECTION 1

LEGEND:

- INTERPOLATED WATER SURFACE (APRIL 4, 2005, HIGH TIDE)
- INTERPOLATED GEOLOGIC CONTACT
- REMEDIAL EXCAVATION AREA
- EXISTING FEATURE TO BE DEMOLISHED/REMOVED

NOTES:

1. SOIL TYPES AND GEOLOGIC CONTACTS ARE APPROXIMATE AND ARE INTERPOLATED BETWEEN SOIL BORING LOCATIONS. ACTUAL SUBSURFACE CONDITIONS MAY BE DIFFERENT THAN THOSE SHOWN OR INDICATED.
2. ADDITIONAL STRUCTURES AND UNDERGROUND FACILITIES MAY BE PRESENT THAT ARE NOT SHOWN OR INDICATED.

REFERENCE DRAWINGS:

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CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: B GETTS, B DECLERQ, L POSENAUER, J HARRIS
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1"=5'
HORIZONTAL SCALE: 1" = 5'
VERTICAL EXAGGERATION: 1□

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Professional Engineer's Name: **TERRY W. YOUNG**
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | | MJB |

| Designed by | Drawn by | Checked by |
|---|---|---|
| RPK | BGG/JLH | APC |

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BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

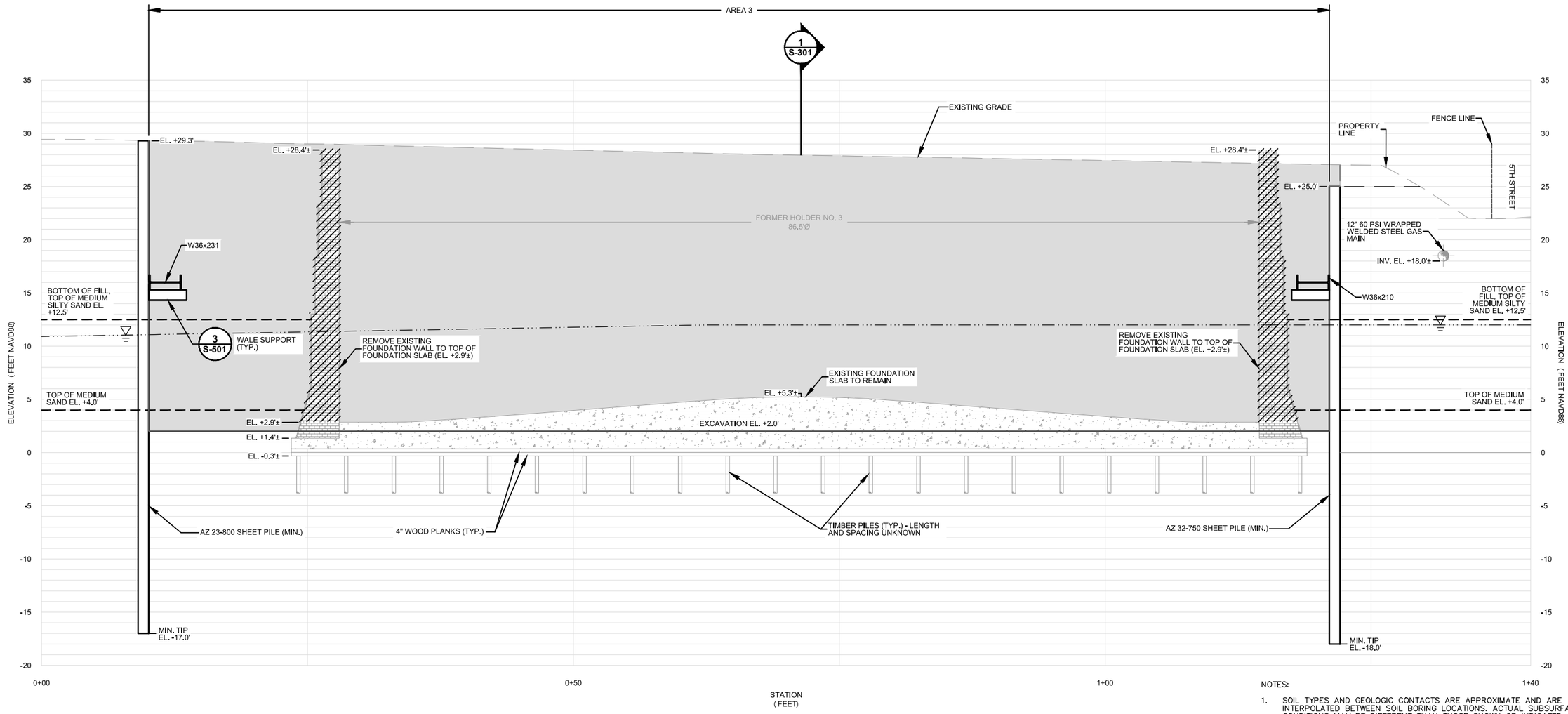
# AREA 2 REMEDIAL EXCAVATION SHORING SECTION

ARCADIS Project No.
B0036728.0001.00003

Date
_____ 2016


ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120


**S-303**




LEGEND:

- INTERPOLATED WATER SURFACE (APRIL 4, 2005, HIGH TIDE)
- INTERPOLATED GEOLOGIC CONTACT
- REMEDIAL EXCAVATION AREA
- EXISTING FEATURE TO BE DEMOLISHED/REMOVED

## SECTION 1

NOTES:

1. SOIL TYPES AND GEOLOGIC CONTACTS ARE APPROXIMATE AND ARE INTERPOLATED BETWEEN SOIL BORING LOCATIONS. ACTUAL SUBSURFACE CONDITIONS MAY BE DIFFERENT THAN THOSE SHOWN OR INDICATED.
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CITY: SYRACUSE, NY DIV/GROUP: ENV/CAD DB: B GETTS, B DECLERQ, L POSENAUER, J. HARRIS
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1"=5'
HORIZONTAL SCALE: 1" = 5'
VERTICAL EXAGGERATION: 1□

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

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| | | |
|---|---|---|
| Professional Engineer's Name: TERRY W. YOUNG | | |
| Professional Engineer's No.: 074847 | | |
| State: NY | Date Signed: | Project Mgr.: MJB |
| Designed by: RPK | Drawn by: BGG/JLH | Checked by: APC |

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BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# AREA 3 REMEDIAL EXCAVATION SHORING SECTION

ARCADIS Project No.
B0036728.0001.00003

Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

S-304

CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: B GETTS, B DECLERQ, L POSENAUER, J HARRIS
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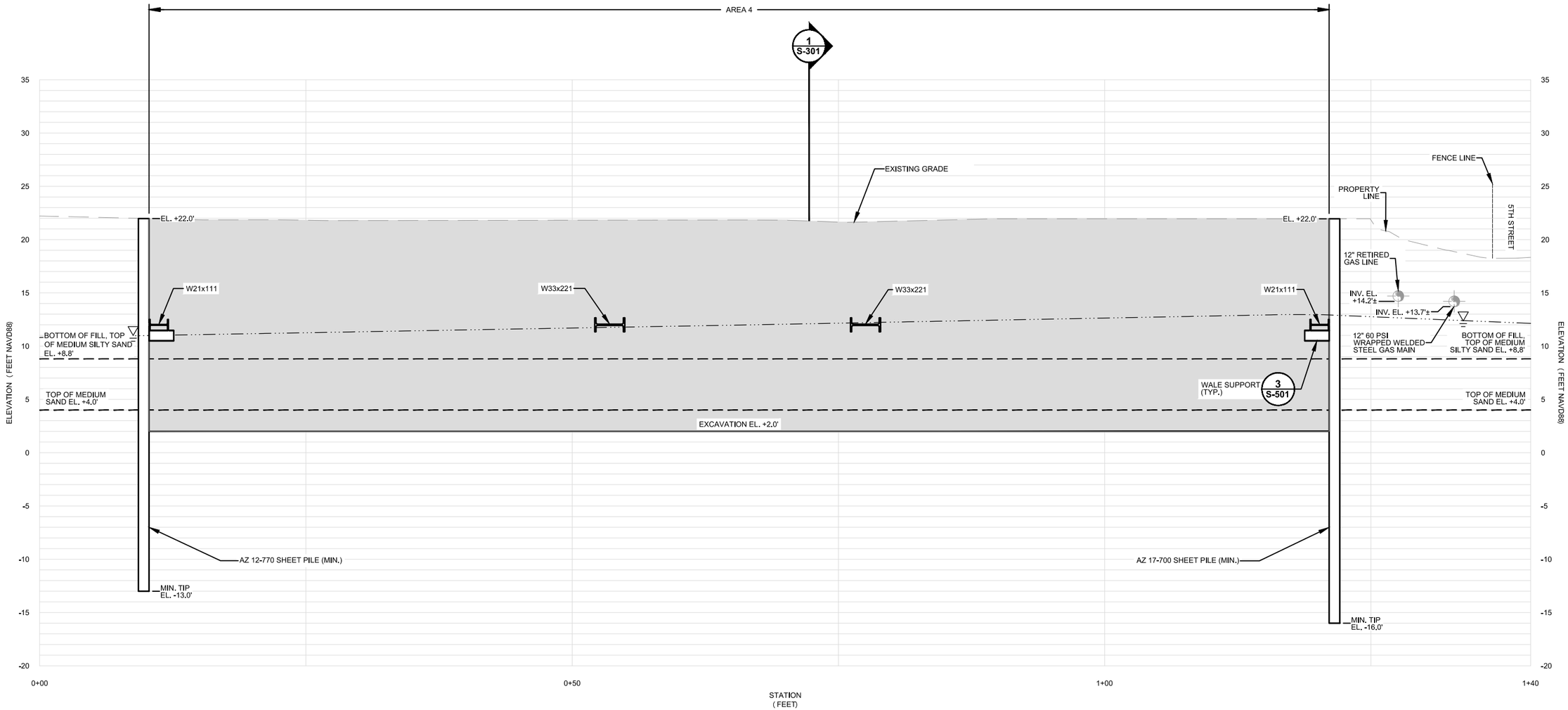


LEGEND:

- INTERPOLATED WATER SURFACE (APRIL 4, 2005, HIGH TIDE)
- INTERPOLATED GEOLOGIC CONTACT
- REMEDIAL EXCAVATION AREA

## SECTION 1

NOTES:

1. SOIL TYPES AND GEOLOGIC CONTACTS ARE APPROXIMATE AND ARE INTERPOLATED BETWEEN SOIL BORING LOCATIONS. ACTUAL SUBSURFACE CONDITIONS MAY BE DIFFERENT THAN THOSE SHOWN OR INDICATED.
2. ADDITIONAL STRUCTURES AND UNDERGROUND FACILITIES MAY BE PRESENT THAT ARE NOT SHOWN OR INDICATED.

REFERENCE DRAWING:

1. GEI CONSULTANTS, INC. PLATE NUMBER 8, TITLED "HIGH TIDE SHALLOW, INTERMEDIATE, DEEP, AND JAMECO AQUIFER GROUNDWATER CONTOURS APRIL 4, 2005", DATED OCTOBER 2005. IN "FINAL REMEDIAL INVESTIGATION REPORT". FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE. PREPARED FOR KEYSPAN CORPORATION, BROOKLYN, NEW YORK.

5' 0 5' 10'
1"=5'
HORIZONTAL SCALE: 1" = 5'
VERTICAL EXAGGERATION: 1□

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:

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Professional Engineer's Name: **TERRY W. YOUNG**
Professional Engineer's No.: 074847
State: NY | Date Signed: | Project Mgr.: MJB
Designed by: RPK | Drawn by: BGG/JLH | Checked by: APC

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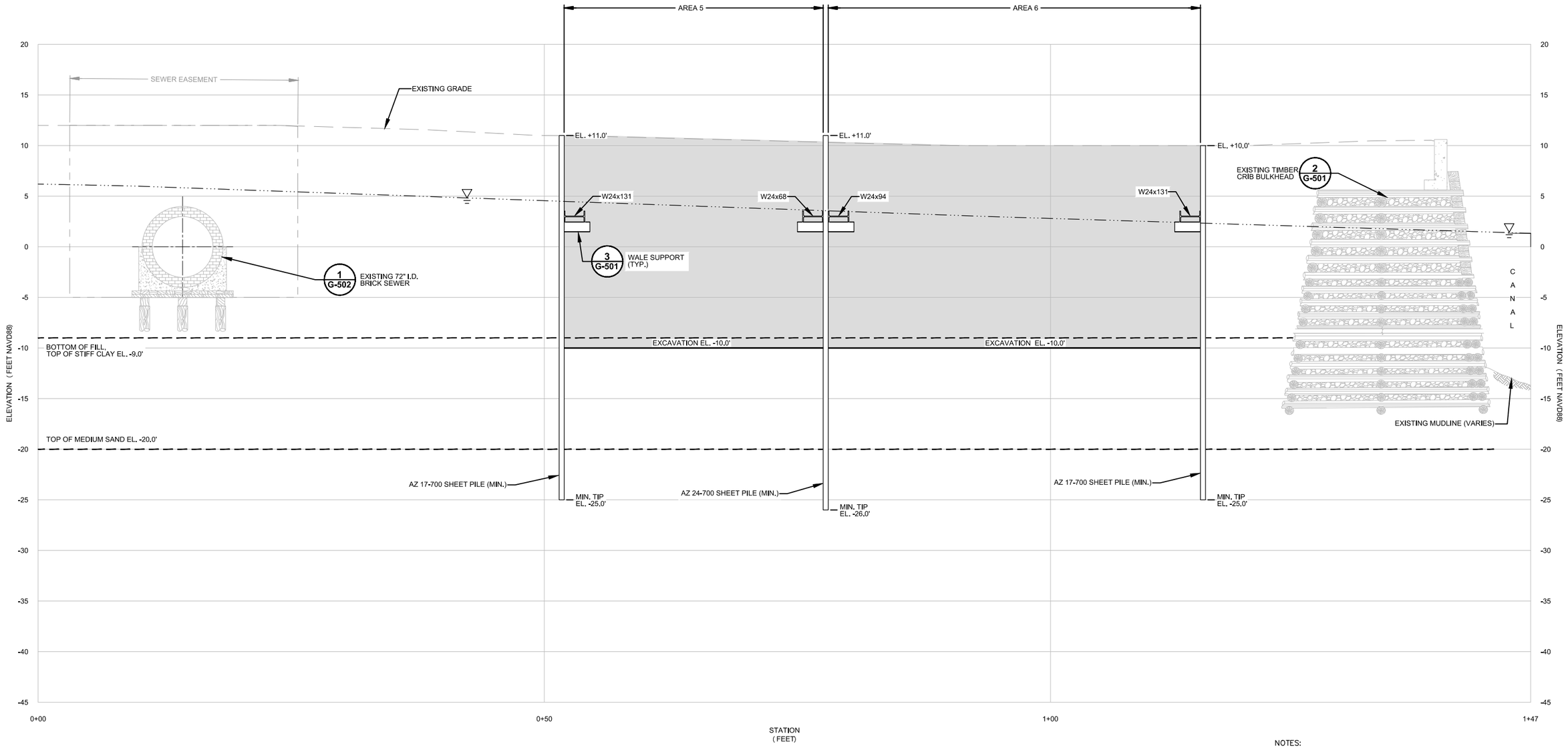
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# AREA 4 REMEDIAL EXCAVATION SHORING SECTION

ARCADIS Project No.
B0036728.0001.00003
Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

**S-305**




## SECTION 1

LEGEND:

- INTERPOLATED WATER SURFACE (APRIL 4, 2005, HIGH TIDE)
- INTERPOLATED GEOLOGIC CONTACT
- REMEDIAL EXCAVATION AREA

NOTES:

1. SOIL TYPES AND GEOLOGIC CONTACTS ARE APPROXIMATE AND ARE INTERPOLATED BETWEEN SOIL BORING LOCATIONS. ACTUAL SUBSURFACE CONDITIONS MAY BE DIFFERENT THAN THOSE SHOWN OR INDICATED.
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REFERENCE DRAWING:

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CITY: SYRACUSE, NY DIVGROUP: ENVCAD DB: B GETTS, B DECLERQ, L POSENAUER, J HARRIS
C:\ENVCAD\NEWTOWN\ACT\2016\RETURN-TO\Syrac_se-NY\B0036728\0001\00003\DWG\CONTRACT-RP\MW 36728_PARCEL III.dwg LAYOUT: S-306 SAVED: 8/9/2016 3:06 PM PLOTSTYLETABLE: --- PLOTTED: 8/9/2016 3:06 PM BY: WASILEWSKI, MATT
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5' 0 5' 10'
1"=5'
HORIZONTAL SCALE: 1" = 5'
VERTICAL EXAGGERATION: 1□

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Professional Engineer's Name: **TERRY W. YOUNG**
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | | MJB |
| Designed by: RPK | Drawn by: BGG/JLH | Checked by: APC |

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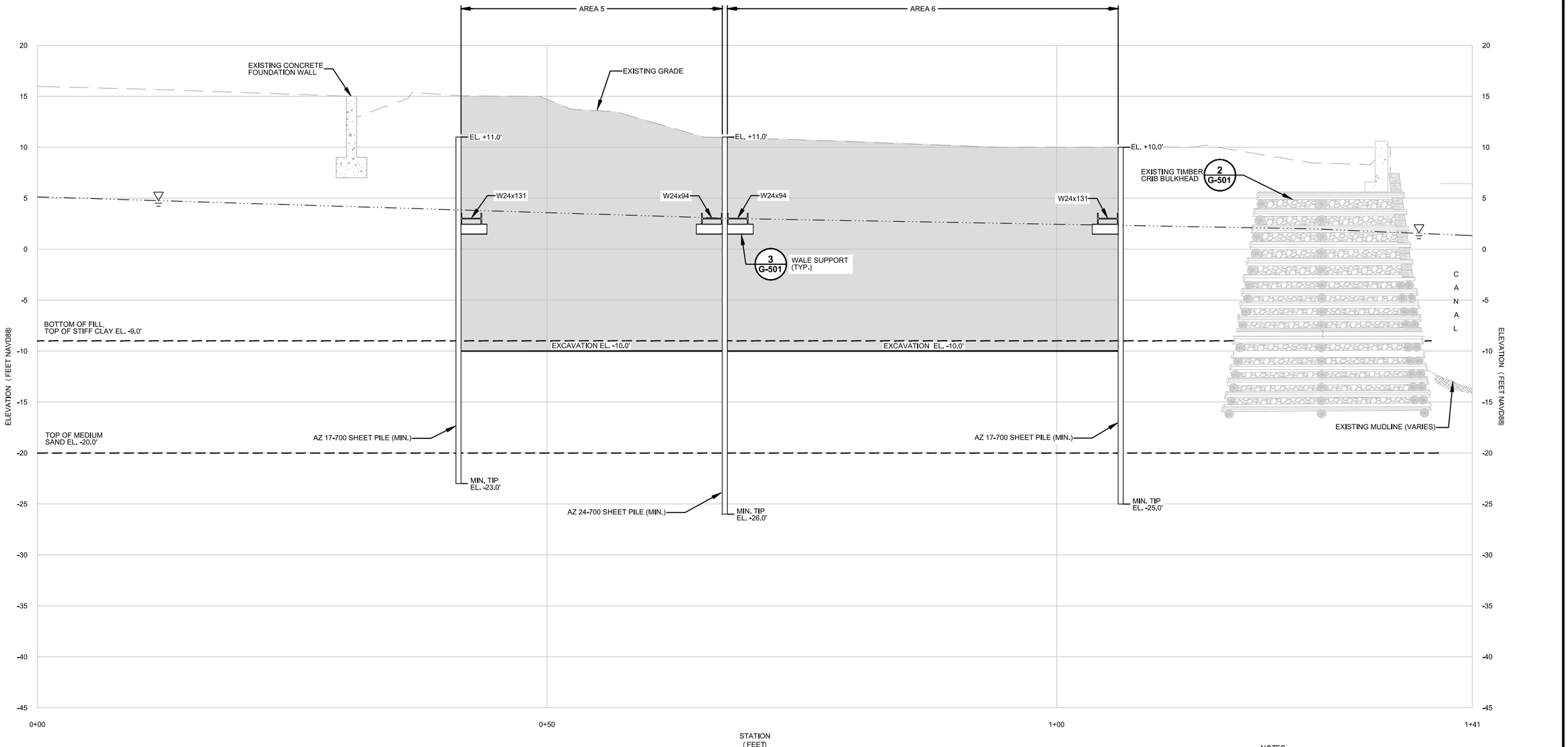
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# PARCEL III REMEDIAL EXCAVATION SHORING SECTION

ARCADIS Project No.: B0036728.0001.00003
Date: _____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

**S-306**




LEGEND:

- INTERPOLATED WATER SURFACE (APRIL 4, 2005, HIGH TIDE)
- INTERPOLATED GEOLOGIC CONTACT
- REMEDIAL EXCAVATION AREA

## SECTION 1

NOTES:

1. SOIL TYPES AND GEOLOGIC CONTACTS ARE APPROXIMATE AND ARE INTERPOLATED BETWEEN SOIL BORING LOCATIONS. ACTUAL SUBSURFACE CONDITIONS MAY BE DIFFERENT THAN THOSE SHOWN OR INDICATED.
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XREFS:
IMAGES:
367 28-X01
367 28-X02
367 28-X00
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CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: B GETTS, B DECLERQ, L POSENAUER, J. HARRIS
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HORIZONTAL SCALE: 1" = 5'
VERTICAL EXAGGERATION: 1□

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Professional Engineer's Name: TERRY W. YOUNG
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | | MJB |
| Designed by | Drawn by | Checked by |
| RPK | BGG/JLH | APC |

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FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

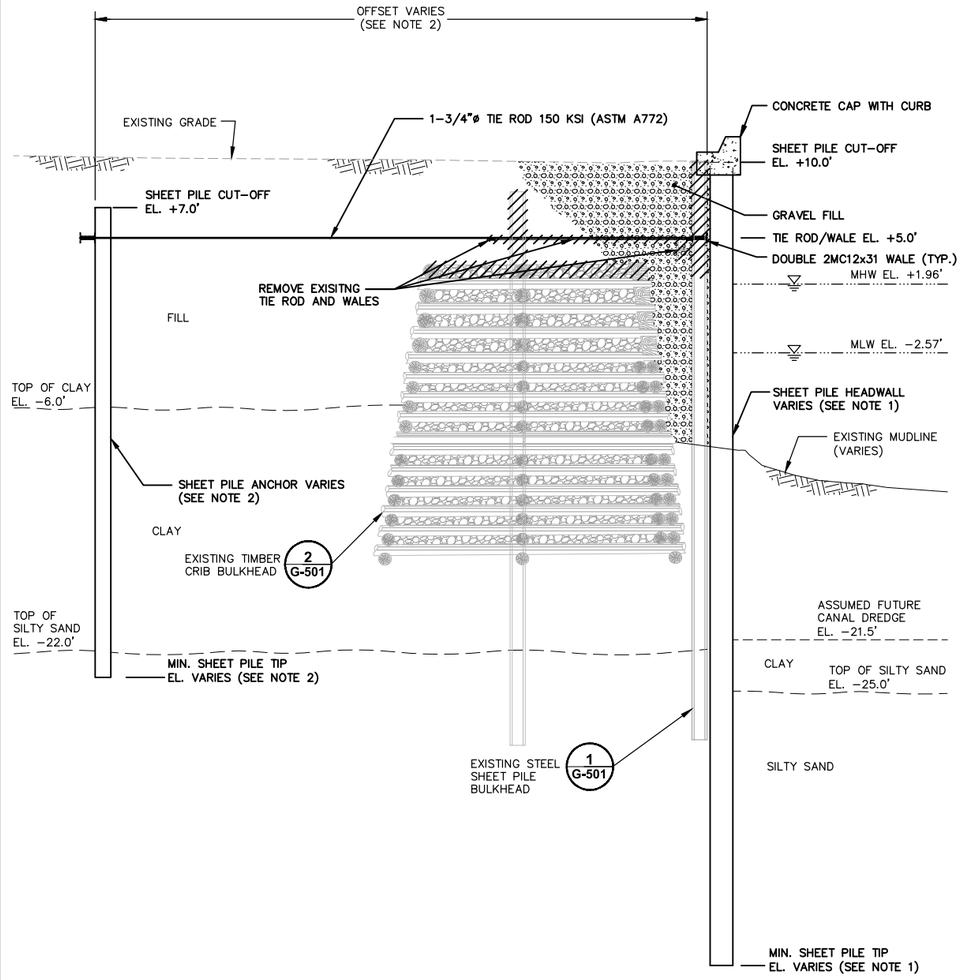
# PARCEL III REMEDIAL EXCAVATION SHORING SECTION

ARCADIS Project No.
B0036728.0001.00003

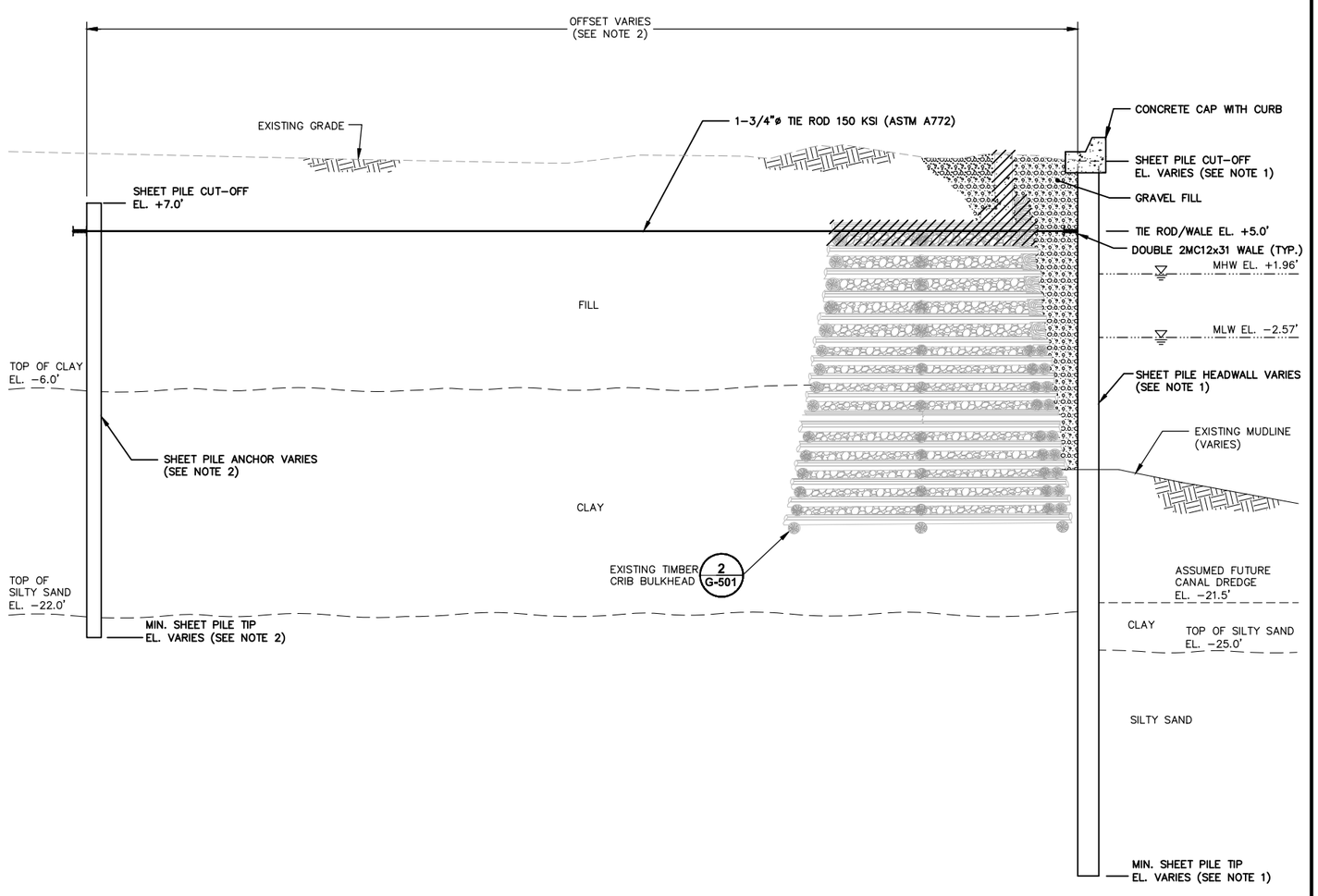
Date
_____ 2016

ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

S-307




## ANCHORED TIEBACK WALL CP-24 TO CP-25 (1)




## ANCHORED TIEBACK WALL CP-25 TO CP-30 (2)

NOTES:

1. REQUIRED SECTION, MINIMUM TIP ELEVATION, AND CUT–OFF ELEVATION VARY. SEE BULKHEAD HEADWALL SCHEDULE ON DRAWING S–104.
2. REQUIRED SECTION, ANCHOR OFFSET, AND MINIMUM TIP ELEVATION VARY. SEE BULKHEAD ANCHOR SCHEDULE ON DRAWING S–104.
3. SOIL TYPES AND GEOLOGIC CONTACTS ARE APPROXIMATE AND ARE INTERPOLATED BETWEEN SOIL BORING LOCATIONS. ACTUAL SUBSURFACE CONDITIONS MAY BE DIFFERENT THAN THOSE SHOWN OR INDICATED.
4. ADDITIONAL STRUCTURES AND UNDERGROUND FACILITIES MAY BE PRESENT THAT ARE NOT SHOWN OR INDICATED.

LEGEND:

— — — INTERPOLATED GEOLOGIC CONTACT

EXISTING FEATURE TO BE DEMOLISHED/REMOVED

0 5' 10'
GRAPHIC SCALE

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Professional Engineer's Name: TERRY W. YOUNG
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | | MJB |
| Designed by: RPK | Drawn by: BGG/JLH | Checked by: APC |

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ARCADIS OF NEW YORK, INC.

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CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# BULKHEAD BARRIER WALL SECTIONS

ARCADIS Project No.
B0036728.0001.00003
Date
_____ 2016
ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

**S-308**

CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: B GETTS, B DECLERQ, L POSENAUER, J HARRIS
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IMAGES:
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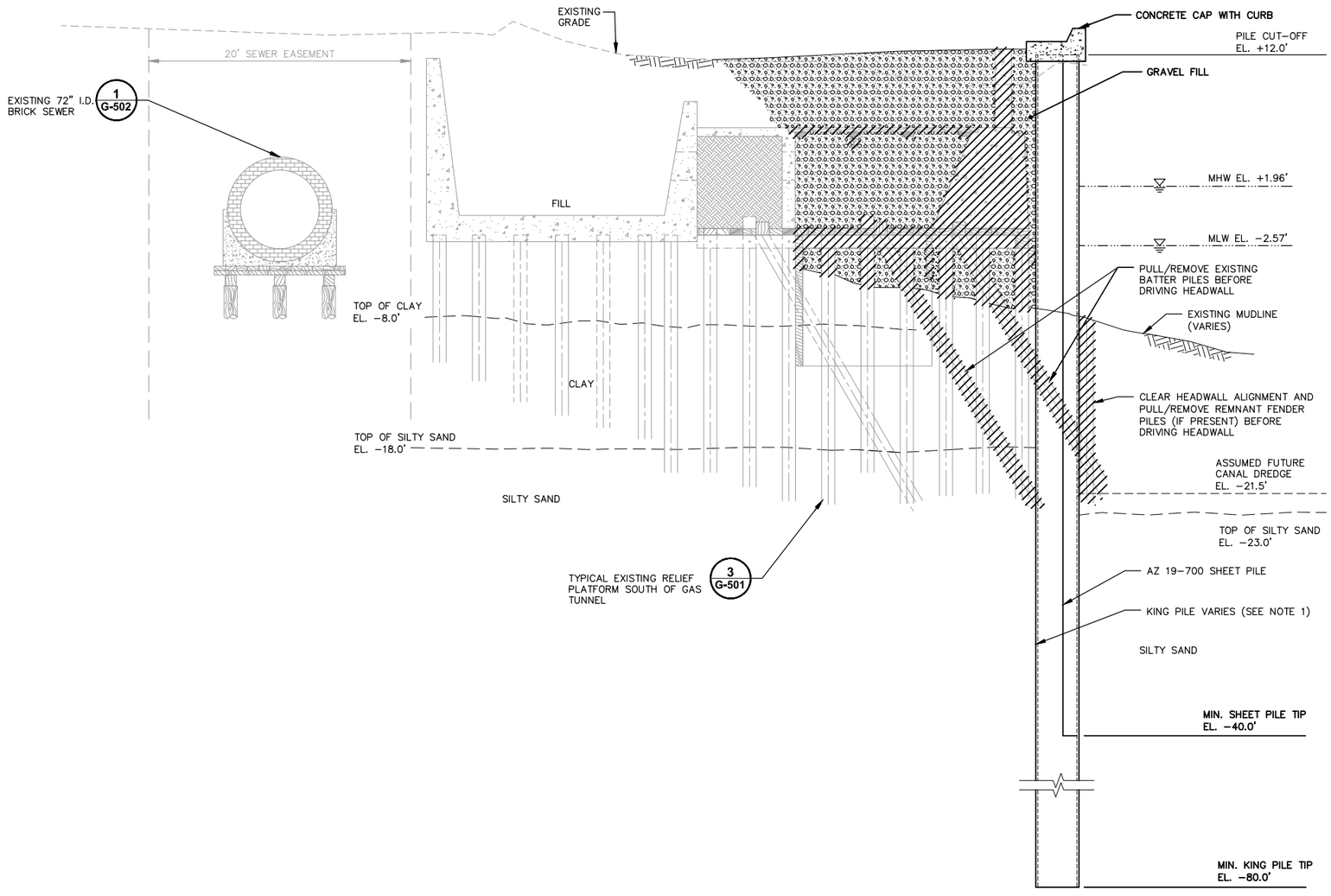


## COMBINATION WALL CP-30 TO CP-33 (1)

NOTES:

1. REQUIRED SECTION VARIES. SEE BULKHEAD HEADWALL SCHEDULE ON DRAWING S−104.
2. SOIL TYPES AND GEOLOGIC CONTACTS ARE APPROXIMATE AND ARE INTERPOLATED BETWEEN SOIL BORING LOCATIONS. ACTUAL SUBSURFACE CONDITIONS MAY BE DIFFERENT THAN THOSE SHOWN OR INDICATED.
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— — — INTERPOLATED GEOLOGIC CONTAC

////// EXISTING FEATURE TO BE DEMOLISHED/REMOVED

CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: B GETTS, B DECLERQ, L POSENAUER, J. HARRIS
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XREFS:
36728X00
IMAGES:

0 5' 10'
GRAPHIC SCALE

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|---|---|---|---|---|

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Professional Engineer's Name: TERRY W. YOUNG
Professional Engineer's No.: 074847
State: NY | Date Signed: | Project Mgr.: MJB
Designed by: RPK | Drawn by: BGG/JLH | Checked by: APC

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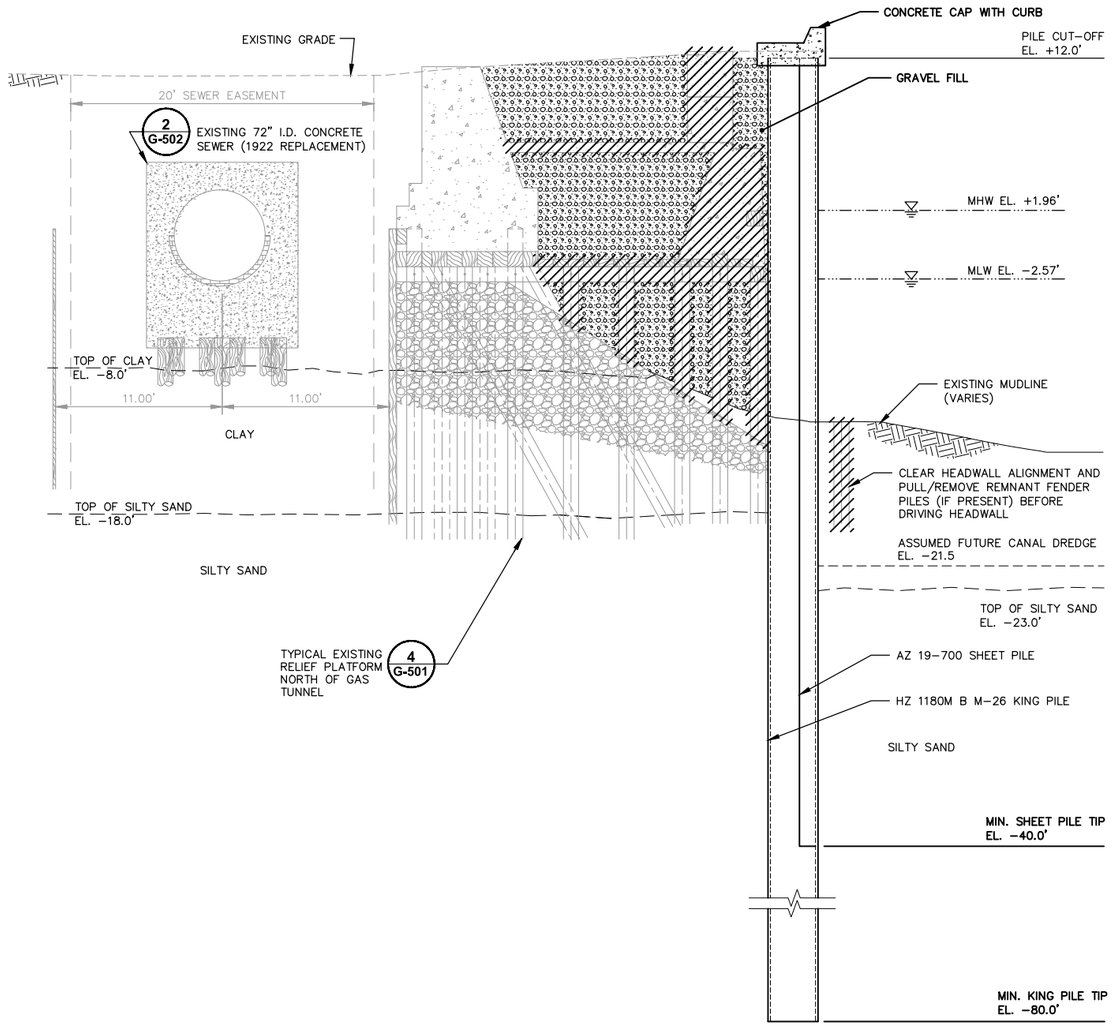
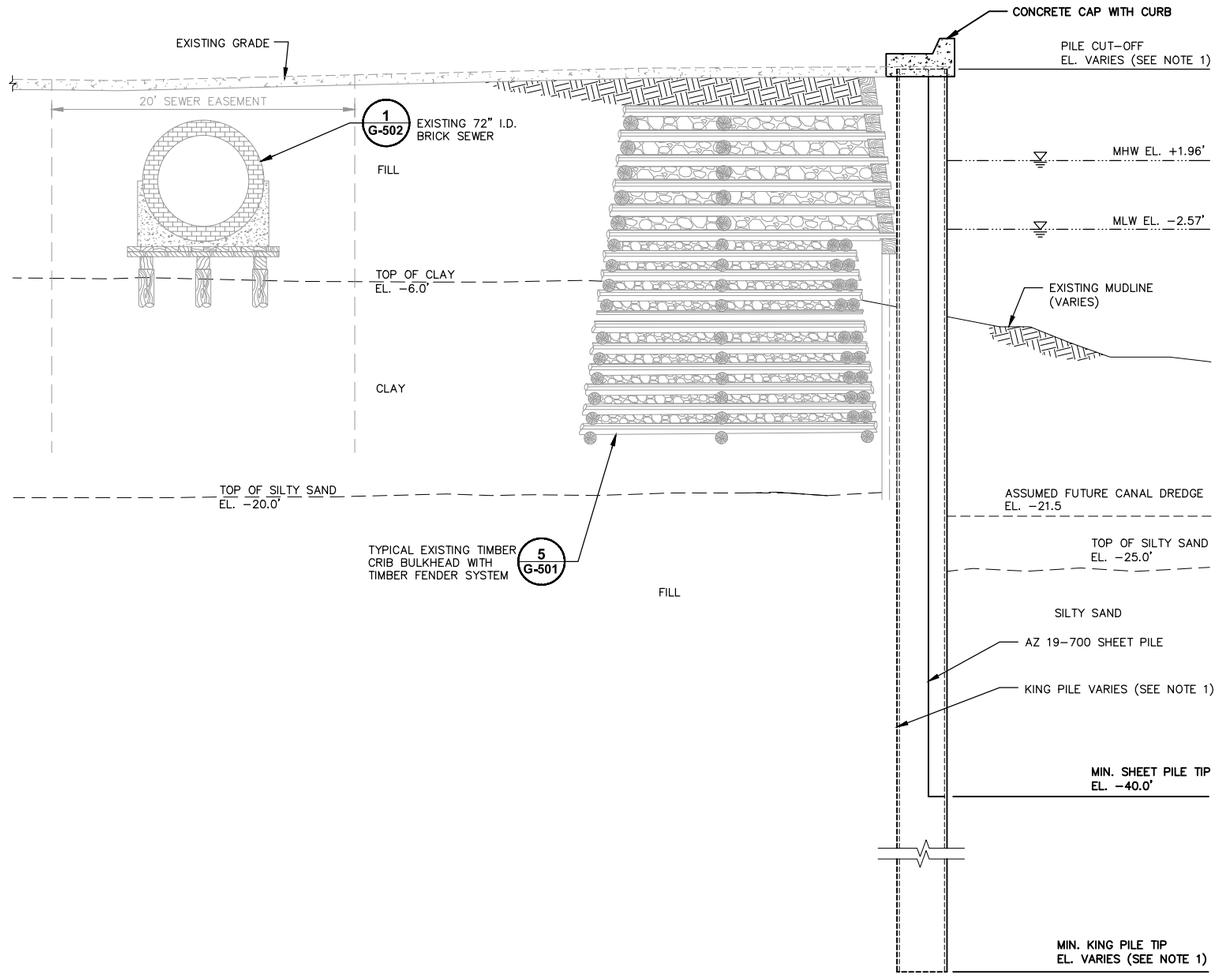
ARCADIS
6723 TOWPATH ROAD
P.O. BOX 66
SYRACUSE, NY 13214-0066
TEL. 315.446.9120

**S-309**




## COMBINATION WALL CP-35 TO CP-42 (1)




## COMBINATION WALL CP-42 TO CP-51 (2)

NOTES:

1. REQUIRED SECTION, MINIMUM TIP ELEVATION, AND CUT−OFF ELEVATION VARY. SEE BULKHEAD HEADWALL SCHEDULE ON DRAWING S−104.
2. SOIL TYPES AND GEOLOGIC CONTACTS ARE APPROXIMATE AND ARE INTERPOLATED BETWEEN SOIL BORING LOCATIONS. ACTUAL SUBSURFACE CONDITIONS MAY BE DIFFERENT THAN THOSE SHOWN OR INDICATED.
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0 5' 10'
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|---|---|---|---|---|

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| | | |
|---|---|---|
| Professional Engineer's Name: TERRY W. YOUNG | | |
| Professional Engineer's No.: 074847 | | |
| State: NY | Date Signed: | Project Mgr.: MJB |
| Designed by: RPK | Drawn by: BGG/JLH | Checked by: APC |

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S-310

CITY: SYRACUSE, NY DIVGROUP: ENVCAD DB: B GETTS, B DECLERQ, L POSENAUER, J HARRIS
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IMAGES:
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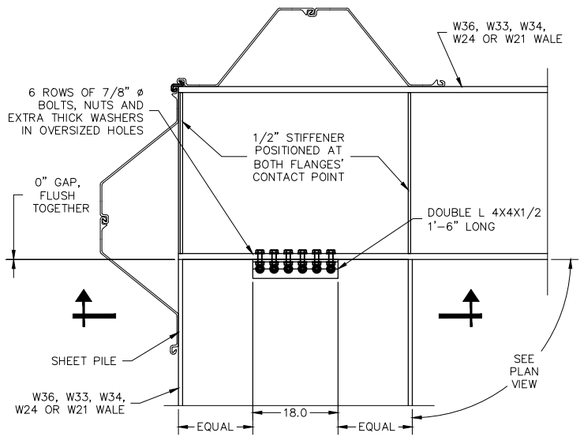
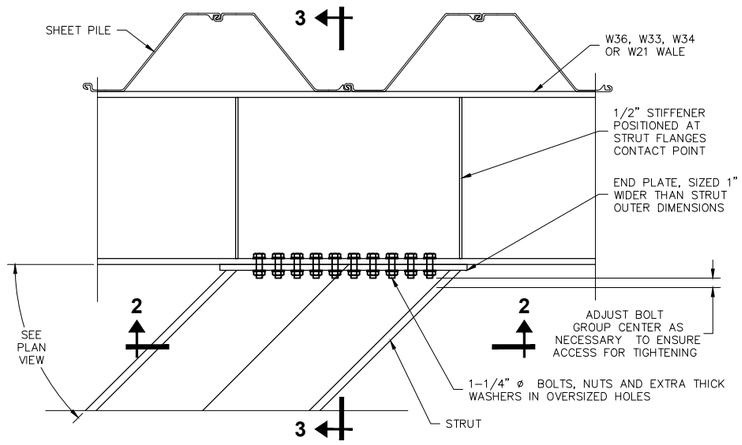
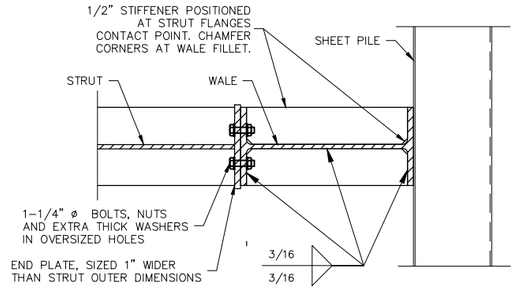



**PLAN**

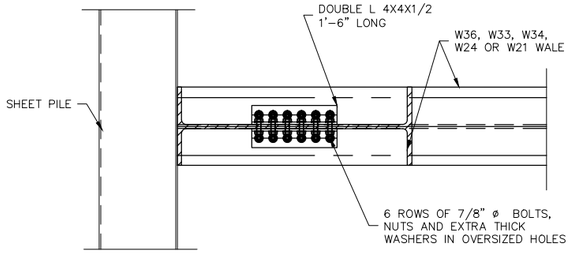



**PLAN**

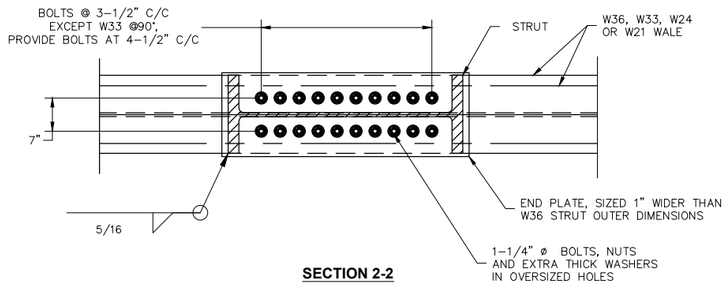



**SECTION 3-3**

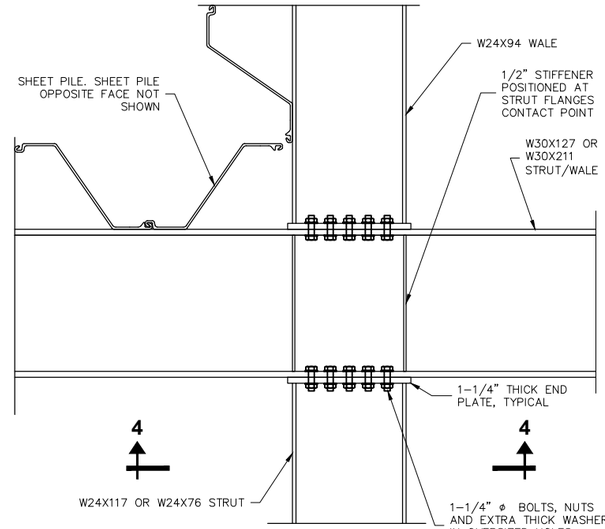
| STRUT TO WALE CONNECTION REQUIREMENTS | | |
|---|---|---|
| STRUT SIZE AND ANGLE | □ OF BOLTS | END PLATE THICKNESS |
| W36 @ 45° | 20 | 0'-1 1/4" |
| W33 @ 90° | 10 | 0'-1 1/2" |
| W30 @ 62° | 10 | 0'-1 1/4" |
| W24 @50° to 90° | 10 | 0'-1 1/4" |
| W21 @ 45° | 12 | 0'-1" |
| W18 @ 45° | 10 | 0'-1" |
| W16 @ 45° | 8 | 0'-1" |
| W16 @ 71° | 6 | 0'-1" |




**SECTION 1-1**



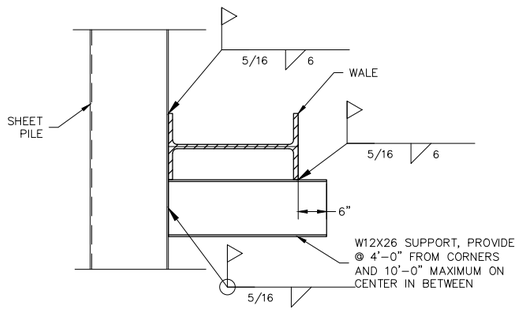

**SECTION 2-2**



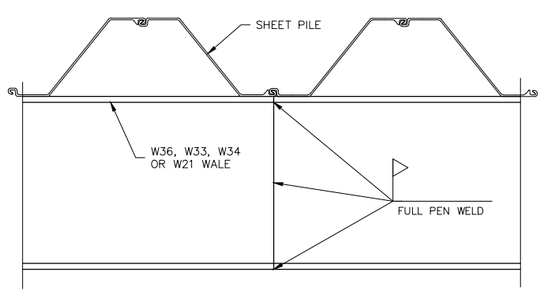

**PLAN**

## WALE TO WALE CONNECTION DETAIL (1)

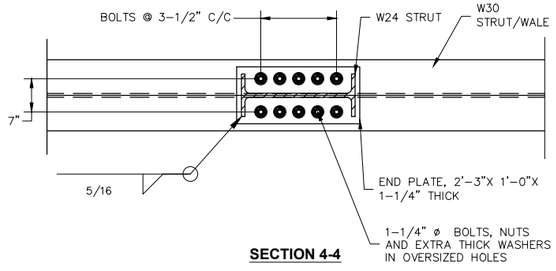
## STRUT TO WALE CONNECTION DETAIL (2)




## WALE SUPPORT DETAIL (3)




## WALE SPLICE DETAIL (4)




**SECTION 4-4**

## STRUT TO WALE INTERSECTION CONNECTION DETAIL (5)

NOTE:

PROVIDE FULL PENETRATION FIELD WELD SPLICES OF WALE BEAMS WHERE NEEDED TO ACCOMMODATE WALE PLACEMENT AND SHIPPING. CONTRACTOR MAY PROVIDE ALTERNATE CONTRACTOR DESIGNED SPLICE DETAIL FOR PARTIAL LOADING. SUBMIT SIGNED AND SEALED CALCULATIONS BY A PROFESSIONAL ENGINEER SHOWING LOAD CAPACITIES FOR ALTERNATE SPLICE DETAIL WITH SHOP DRAWINGS FOR COORDINATION.

CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: B GETTS, B DEGLERQ, L POSENAUER, J. HARRIS
C:\ENVCAD\NEWTOWN\ACT\2016\RETURN-TO\Syrac..se-NY\B0036728\0001\00003\DWG\CONTRACT-RPMW 36728_S-501-2.dwg LAYOUT: S-501 SAVED: 8/7/2016 9:20 AM PLOTSTYLETABLE: --- PLOTTED: 8/9/2016 3:44 PM BY: WASILEWSKI, MATT
XREFS: IMAGES:
36728X00

2' 1' 0 1' 2'
3/4"=1'-0"

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Professional Engineer's Name: **TERRY W. YOUNG**
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | | MJB |
| Designed by | Drawn by | Checked by |
| RPK | BGG/JLH | APC |

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Date
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ARCADIS
6723 TOWPATH ROAD
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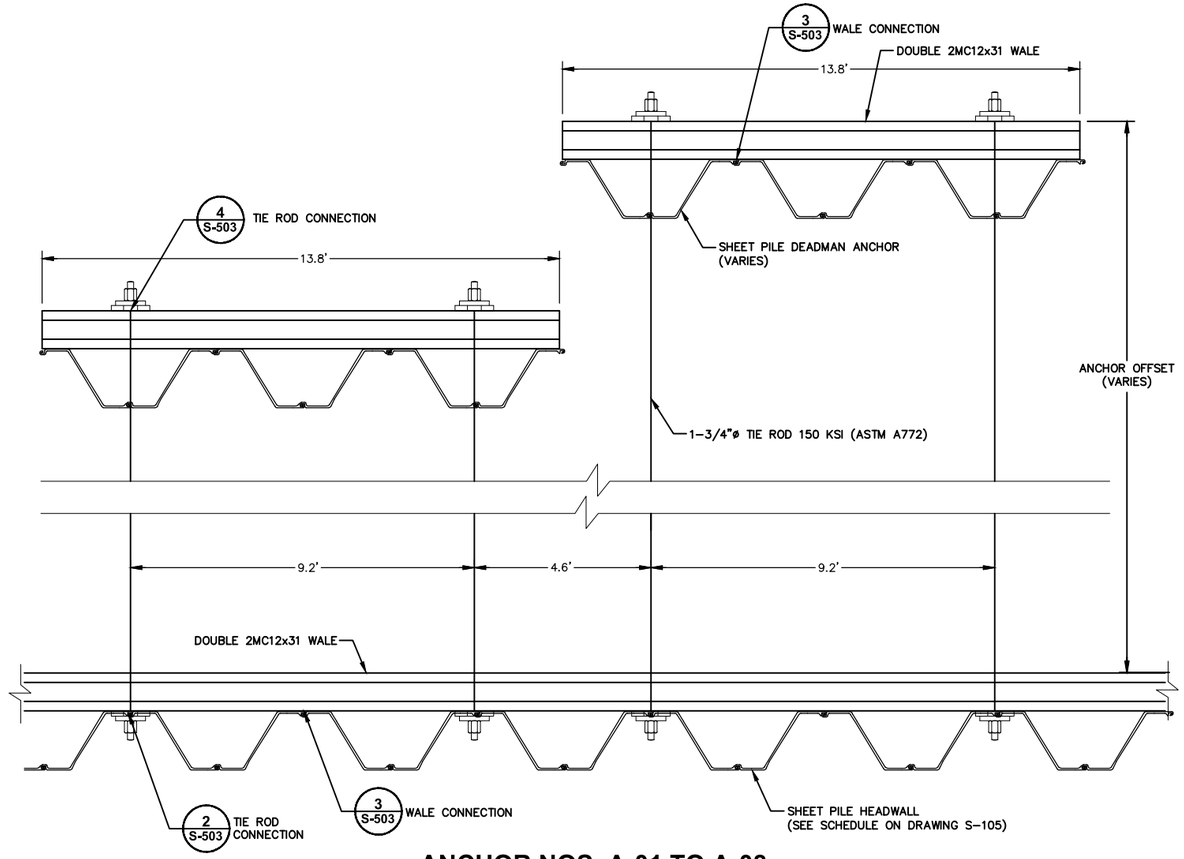
TEL. 315.446.9120

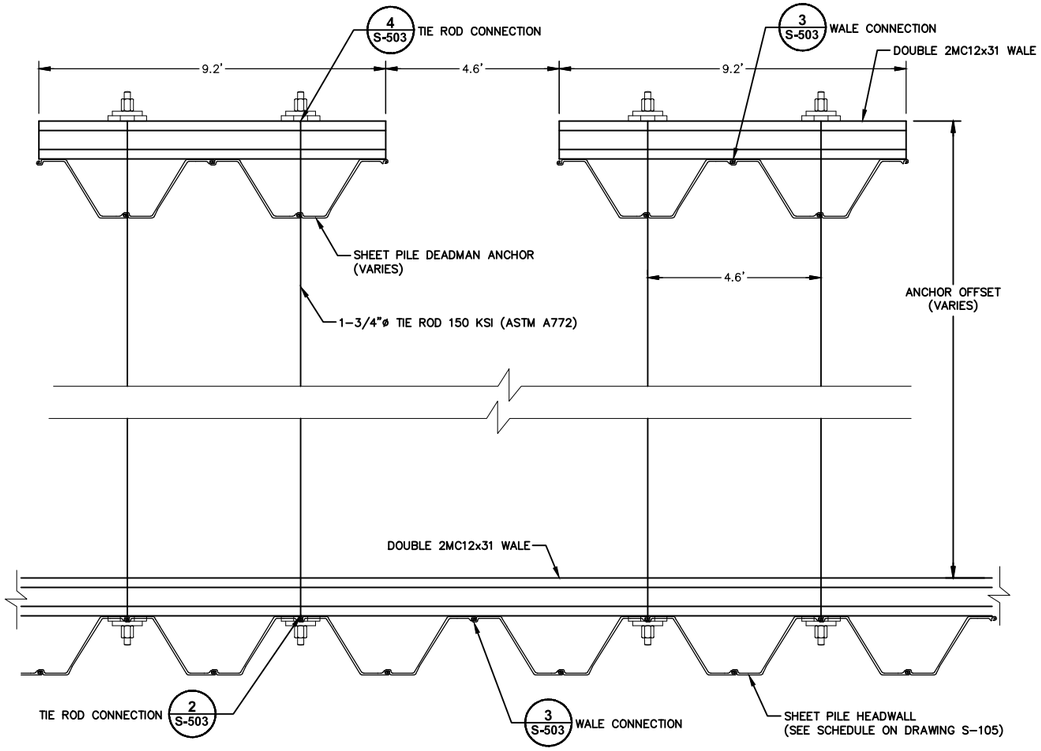
**S-501**




## ANCHOR NOS. A-01 TO A-08
## PARTIAL TIEBACK ANCHOR WALL

1

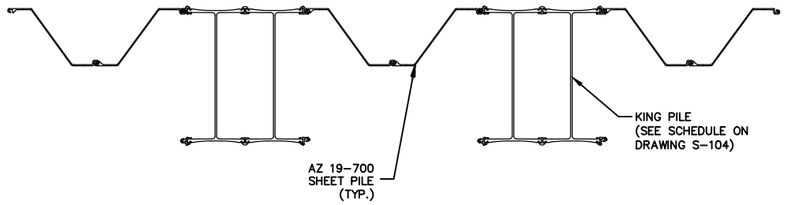
0 2' 4'
GRAPHIC SCALE




## ANCHOR NOS. A-09 TO A-11 AND A-22 TO A-29
## PARTIAL TIEBACK ANCHOR WALL

2

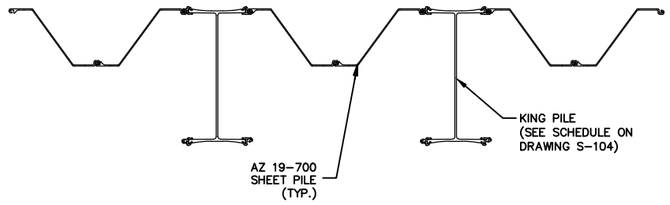
0 2' 4'
GRAPHIC SCALE




## PARTIAL COMBINATION WALL PLAN
## CP-30 TO CP-42

3

0 2' 4'
GRAPHIC SCALE




## PARTIAL COMBINATION WALL PLAN
## CP-42 TO CP-51

4

0 2' 4'
GRAPHIC SCALE

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C:\ENVCAD\NEWTOWN\ACT\2016\RETURN-TO\Syrac.ts-NY\B0036728\0001\00003\DWG\CONTRACT-RP\MW 36728_S-502.dwg LAYOUT: S-502 SAVED: 8/7/2016 6:51 AM PLOTSTYLETABLE: --- PLOTTED: 8/9/2016 3:45 PM BY: WASILEWSKI, MATT
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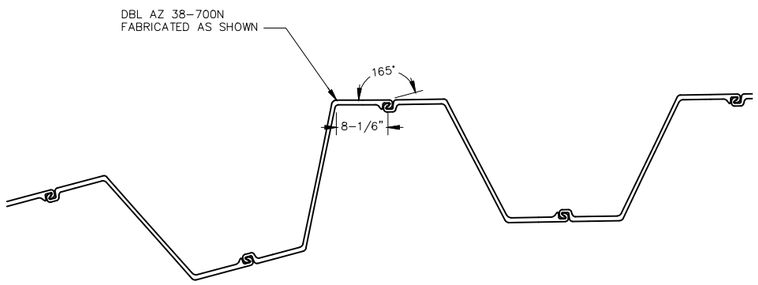
TEL: 315.446.9120

S-502




**PLAN**

## CORNER DETAIL 1

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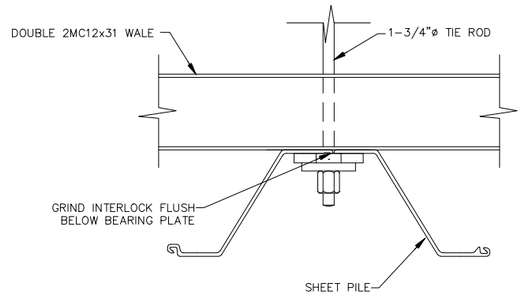
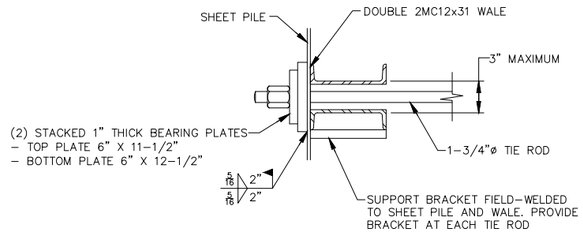
SCALE: 1 IN. = 1 FT.




**PLAN**




**SECTION**

## TIE ROD CONNECTION TO SHEET PILE HEADWALL 2

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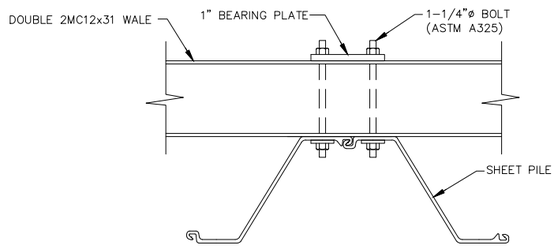
SCALE: 1 IN. = 1 FT.




**PLAN**

## WALE CONNECTION TO SHEET PILE 3

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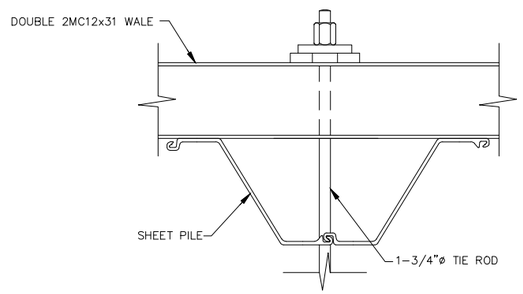
SCALE: 1 IN. = 1 FT.

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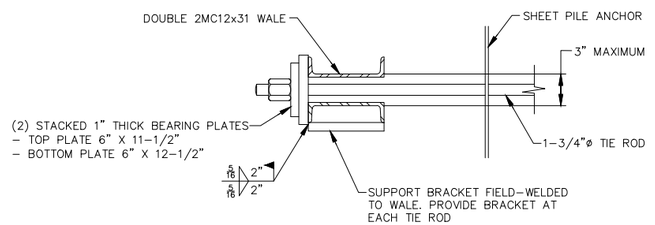


**SECTION**

## TIE ROD CONNECTION TO SHEET PILE ANCHOR 4

0 1 FT. 2 FT.
SCALE: 1 IN. = 1 FT.

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C:\ENVCAD\NEWTOWNACT\2016\RETURN TO\Syrac..\se-NY\B0036728\0001\0003\DWG\CONTRACT-RP\MW 36728_S-503.dwg LAYOUT: S-503 SAVED: 7/26/2016 3:04 PM PLOTSTYLETABLE: ---- PLOTTED: 8/9/2016 3:45 PM BY: WASILEWSKI, MATT
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Professional Engineer's Name: TERRY W. YOUNG
Professional Engineer's No.: 074847

| State | Date Signed | Project Mgr. |
|---|---|---|
| NY | | MJB |
| Designed by | Drawn by | Checked by |
| RPK | BGG/JLH | APC |

DRAFT NOT FOR CONSTRUCTION

ARCADIS Design & Consultancy for natural and built assets
ARCADIS OF NEW YORK, INC.

NO ALTERATIONS PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW

NATIONAL GRID USA • BROOKLYN, NEW YORK
FORMER CITIZENS GAS WORKS MANUFACTURED GAS PLANT SITE
CARROLL GARDENS/PUBLIC PLACE
BOROUGH OF BROOKLYN, KINGS COUNTY, NEW YORK
SITE REMEDIATION

# BULKHEAD BARRIER WALL DETAILS

ARCADIS Project No.
B0036728.0001.00003

Date
_____ 2016

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