WORK CHANGE DIRECTIVE

No. 004 R3

DATE OF ISSUANCE: 04/17/19 EFFECTIVE DATE: 04/01/19

OWNER: NEW YORK STATE ELECTRIC & GAS CORP.
ENGINEER: AECOM

SUBCONTRACTOR: Sevenson

Contract / Work Order:
Name of Site: Penn Yan former MGP Project No. 60430543

You are directed to proceed with the following changes to the Work:

Description:

Construct the remaining bracing for the former MGP structure and conduct the excavation and sampling within the building footprint according to the attached "Building Interior Remediation and Wall Underpinning Design" drawings. Complete the grading and restoration as needed to construct the working platform required for underpinning work. Upon completion of the work the site restoration shall include restoration of the Water Street Wines and Spirits parking lot, parking lot detention pond, and repairs to the dock.

Unless otherwise specified, all Work will be performed in accordance with the requirements of the Contract Documents.

Submit a revised Technical Execution Plan to include the procedures for the dewatering, underpinning, excavation, and backfill, and the equipment and personnel required for the work. Identify and revise any other sections of the Technical Execution Plan required for the work. Submit a revised schedule which includes the additional time for bracing installation. Submit shop drawings for the bracing.

Provide revised prices for all bid items on the attached bid form.

Purpose for Work Change Directive (WCD):
The purpose of this WCD is to address building stabilization issues of the former MGP structure. Settlement occurred during installation of the secant pile wall which resulted in damage to the building. Monitoring has continued and there have been no significant movements since 5/24/16. The south wall and a portion of the east wall were stabilized and underpinned using reinforced concrete grade beams and helical piles in March-May 2017. The changes discussed in this WCD will address the stabilization and underpinning of the remainder of the building, including the interior bearing walls. This WCD also addresses the excavation and sampling requirements for impacted soils under the building.

During preparation excavations, subfloor excavations, and obstruction removal, it was found that the building foundation does not extend as deep as previously observed in certain areas of the building. The attached updated Drawings shall replace the previous set. These include a supplemental plan and cross sections to be used to address such areas of shallow foundations. In these cases where MGP impacts are observed below the existing foundation, these impacted soils

and coal tar will remain between the newly constructed grade beams and it will not be practicable to remove them after underpinning is completed. Therefore, these impacts shall be mapped and addressed during the remedial excavations. These areas shall be remediated using containment within concrete (grade beams and CLSM) in the same manner as "zone 3" soils in Cross-Section 2 on Drawing C-04 (see note 3 and 4). Grouting to fill voids and stiffen soils in this soil area shall be completed after the remedial excavations within/around the former gas house.

~~**In all portions of the building that the foundation is undermined (grade beams extend deeper than masonry wall), it will be necessary to excavate under the wall/grade beams and backfill with CLSM with a minimum compressive strength of 500 psi.**~~

It will be necessary to excavate under the wall/grade beams where gross contamination is present under the wall/grade beams. Documented areas of gross contamination to date exist under the tower and northwest rooms of the former gas house as shown in attached FORMER MGP BUILDING CONFIRMATION SAMPLE LOCATION PLAN. These grossly-contaminated soils will be excavated from below the underpinned foundation. Once a visibly clean bottom of excavation is observed a confirmation sample will be collected from approximately the center of each 10 foot long excavation. Sampling will be via long-handled tooling as it will not be practicable to physically enter the undermining excavation. Where gross contamination is not present, confirmation samples will be collected approximately 6 inches below the bottom of the grade beams to confirm removal of site Contaminants of Concern (COC) as defined in the site Record of Decision (ROD). These will be considered sidewall samples. Sidewall samples will be collected at nominal 10-foot spacing around the perimeter of the rooms; inside and outside the building. Proposed sample locations may be adjusted due to conditions at the time of collection. These samples will be collected from approximately 6 inches below the grade beams. Confirmation samples will also be collected from the bottom of the excavation in each room. The larger rooms will require a minimum of two bottom samples, and the smaller rooms one bottom sample. Bottom sample locations may be adjusted at the time of collection to address areas of deeper excavation. Additional bottom samples will be collected if multiple areas of localized gross contamination require localized deeper excavation. Proposed sampling locations are presented in FORMER MGP BUILDING CONFIRMATION SAMPLE LOCATION PLAN.

Attachments:
Updated Building Interior Remediation and Wall Underpinning Design Drawings
Revised Specifications
Former MGP Building Confirmation Sample Location Plan

If Engineer or Contractor believe that the above change has affected Contract Price, any Claim for a Change Order based thereon will involve one or more of the following methods as defined in the Contract Documents:

___ Unit Prices

___ Lump Sum $_____

___ Cost of the Work

Estimated increase (decrease) in Contract Price: $_____. If the change involves an increase, the estimated amount is not to be exceeded without further authorization.	Estimated increase (decrease) in Contract Times: Substantial Completion:_____ days; Ready for final payment: _____ days.

RECOMMENDED:	ACCEPTED:	APPROVED:
By:_____ Engineer	By:_____ CONTRACTOR	By:_____ NYSEG
Date:_____	Date: _____	Date: _____

Attachment 1

Building Interior Remediation and Wall Underpinning Design Drawings

BUILDING INTERIOR REMEDIATION AND WALL UNDERPINNING DESIGN WATER STREET MANUFACTURED GAS PLANT VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK NYSDEC SITE #8-62-009

DECEMBER 2018

FORMER MGP BUILDING

INDEX OF DRAWINGS

DWG. NO.	DRAWING TITLE	REVISION	DATE
T-01	COVER SHEET	REV. 0	12-03-2018
T-02	GENERAL NOTES AND LEGEND	REV. 0	12-03-2018
C-01	EXISTING CONDITIONS	REV. 0	12-03-2018
C-02	WALL UNDERPINNING BEAM LAYOUT	REV. 0	12-03-2018
C-03	WALL UNDERPINNING PILE LAYOUT	REV. 0	12-03-2018
C-04	TYPICAL SECTION AND DETAILS	REV. 0	12-03-2018
C-05	RUBBLE MASONRY WALL REHABILITATION NOTES AND DETAIL	REV. 0	12-03-2018
C-06	NEW CMU WALL DETAILS	REV. 0	12-03-2018
GB-1	WCD-004 R2 GRADE BEAM DESIGN MODIFICATION - PLAN	REV. 0	12-03-2018
GB-2	WCD-004 R2 GRADE BEAM DESIGN MODIFICATION - DETAILS	REV. 1	12-17-2018
RFI-51	WALL UNDERPINNING TIE ROD EXAMPLE LAYOUT	REV. 0	12-03-2018

Prepared For:

NYSEG

NEW YORK STATE ELECTRIC & GAS Corp.
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Binghamton, New York 13904

Prepared By:

AECOM

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STATE OF NEW YORK · CARSTEN H. FLOESS · 061261 · LICENSED PROFESSIONAL ENGINEER · 12-3-18

12/03/2018

Carsten H. Floess, P.E. — Date
NYSPE Lic. No. 061261

STATE OF NEW YORK · HERBERT E RAMIREZ · 94916 · LICENSED PROFESSIONAL ENGINEER · 12.03.18

12/03/2018

Herbert Ramirez, P.E. — Date
NYSPE Lic. No. 094916

AECOM

60430543

NYSEG
WATER STREET
MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN, YATES COUNTY, NEW YORK
NYSDEC SITE # 8-62-009

ANSI D 22" x 34"

Project Management Initials: Designer:____ Checked:____ Approved:____

GENERAL NOTES

GENERAL

1. DRAWINGS SHALL NOT BE SCALED. USE DIMENSIONS AS GIVEN ON PLANS AND DETAILS.
2. CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2015 INTERNATIONAL BUILDING CODE AS AMMENDED BY THE STATE OF NEW YORK AND ALL OTHER AUTHORITIES HAVING JURISDICTION. IN CASE OF CONFLICTING REQUIREMENTS, USE THE MORE STRINGENT REQUIREMENT.
3. CONTRACTOR SHALL MAKE NO DEVIATION FROM DESIGN DRAWINGS WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.
4. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND ALL OTHER ITEMS REQUIRED FOR THE VARIOUS TRADES AND ALL FIELD CONDITIONS BEFORE COMMENCING WORK. ALL DISCREPANCIES SHALL BE COORDINATED WITH THE ENGINEER.
5. ALL MATERIALS SHALL BE NEW AND OF BEST QUALITY, AND ALL WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE BEST ACCEPTED TRADE PRACTICES AND AS PER MANUFACTURER'S RECOMMENDATIONS.
6. CONTRACTOR SHALL INTRODUCE TEMPORARY BRACING WHEREVER NECESSARY TO SAFELY RESIST ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED INCLUDING EQUIPMENT AND THE OPERATION OF SAME.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING AND PROTECTING ALL WORK DURING CONSTRUCTION AGAINST DAMAGE, BREAKAGE, COLLAPSE AND DISTORTIONS ACCORDING TO CODES AND STANDARDS OF GOOD PRACTICE.
8. ALL MATERIALS, FABRICATION, INSTALLATIONS AND INSPECTION REQUIREMENTS RELATING TO FOUNDATIONS SHALL CONFORM TO CHAPTER 18 OF THE 2015 INTERNATIONAL BUILDING CODE. THE CONTRACTOR SHALL CONFORM TO SAFETY REQUIREMENTS DURING EXCAVATION AND COMPLY WITH SECTION BC 3304 OF THE 2015 INTERNATIONAL BUILDING CODE.
9. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SUBSURFACE AND EXISTING CONDITIONS BEFORE COMMENCING THE WORK.
10. ALL EXISTING STAIRS TO REMAIN THAT NEED TO BE DISMANTLED TO ALLOW FOR UNDERPINNING WORK AND EXCAVATION DURING DECONTAMINATION SHALL BE REINSTALLED, IN COORDINATION WITH THE SCHEDULE OF ACTIVITIES, AT THE SAME LOCATION USING THE SAME SUPPORT CONDITIONS AS ORIGINAL. VERIFY IN FIELD AND DOCUMENT EXISTING CONDITIONS PRIOR AND AFTER DISMANTLING. REPLACE IN KIND ALL ELEMENTS THAT ARE FOUND TO BE INADEQUATE DUE TO FRACTURES OR ROT AND DECAY.

SHOP DRAWINGS

1. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINNER FOR REVIEW AND APPROVAL, INCLUDING:
   a. WALL REINFORCING AND POINTING
   b. DEWATERING
   c. GRADE BEAM REINFORCING AND SEQUENCING
   d. UNDERPINNING PILE INSTALLATION AND SEQUENCING
   e. TIEROD DRILLING, INSTALLATION, AND LOCKOFF
   f. PRESSURE GROUTING
   g. REMEDIATION EXCAVATION SEQUENCING
2. NO CONSTRUCTION SHALL BE STARTED UNTIL THE SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED BY THE ENGINEER.

PRECONSTRUCTION MEETINGS

1. A MANDATORY PRECONSTRUCTION MEETING WILL BE SCHEDULED AT THE PROJECT SITE A MINIMUM OF 1 WEEK PRIOR TO THE START OF THE WORK TO REVIEW WORK ELEMENTS AND SEQUENCING RELATED TO REINFORCING EXISTING BUILDING WALLS AND INSTALLATION OF GRADE BEAMS. ALL OUTSTANDING ISSUES THAT RESULT FROM THE MEETING SHALL BE RESOLVED TO THE SATISFACTION OF THE ENGINEER PRIOR TO THE START OF WORK.
2. A MANDATORY PRECONSTRUCTION MEETING WILL BE SCHEDULED AT THE PROJECT SITE A MINIMUM OF 1 WEEK PRIOR TO THE START OF THE WORK TO REVIEW WORK ELEMENTS AND SEQUENCING RELATED TO INNSTALLATION AND LOAD TESTING OF UNDERPINNING PILES. ALL OUTSTANDING ISSUES THAT RESULT FROM THE MEETING SHALL BE RESOLVED TO THE SATISFACTION OF THE ENGINEER PRIOR TO THE START OF WORK.
3. A MANDATORY PRECONSTRUCTION MEETING WILL BE SCHEDULED AT THE PROJECT SITE A MINIMUM OF 1 WEEK PRIOR TO THE START OF THE WORK TO REVIEW WORK ELEMENTS AND SEQUENCING RELATED TO EXCAVATION AND BACKFILL OF IMPACTED SOILS WITHIN THE BUILDING AND UNDER BUILDING WALLS. ALL OUTSTANDING ISSUES THAT RESULT FROM THE MEETING SHALL BE RESOLVED TO THE SATISFACTION OF THE ENGINEER PRIOR TO THE START OF WORK.

VIBRATION AND SETTLEMENT MONITORING

1. THE ENGINEER WILL MONITOR VIBRATIONS AND SETTLEMENT DURING THE WORK. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST VERSION OF THE PROJECT *VIBRATION AND SETTLEMENT MONITORING PLAN.*
2. CONTRACTOR SHALL SELECT EQUIPMENT AND METHODS TO MINIMIZE VIBRATIONS AND RISK OF BUILDING SETTLEMENT.
3. CONTRACTOR SHALL MAKE EFFORT TO PREVENT EQUIPMENT FROM ACCIDENTLY STRIKING THE BUILDING STRUCTURE.
4. CONTRACTOR SHALL CONSTRUCT RAMPS/BRIDGES OVER DOORWAY THRESHOLDS TO MINIMIZE VIBRATIONS AS EQUIPMENT PASSES THROUGH.

GRADE BEAMS

1. CONSTRUCT CONTINUOUS CONCRETE GRADE BEAMS ON THE INTERIOR AND EXTERIOR OF THE WALLS TO BE UNDERPINNED.
2. CONCRETE FOR FOUNDATION GRADE BEAMS SHALL BE NORMAL WEIGHT STONE CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS AND 3000 PSI AT 7 DAYS.
3. CONCRETE SHALL MEET THE REQUIREMENTS, INCLUDING ALL MATERIALS AND WORKMANSHIP, OF NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION ITEM 555.09 CONCRETE FOR STRUCTURES, CLASS HP. THIS INCLUDES ALL REQUIREMENTS FOR CURING, FORM REMOVAL, AND COLD WEATHER WORK.
4. DO NOT PLACE CONCRETE WITHOUT APPROVED STRUCTURAL SHOP DRAWINGS.
5. EXISTING FOUNDATION WALLS SHALL BE CLEANED OF ALL LOOSE DIRT, DEBRIS AND SOIL AND SHALL BE MOISTENED PRIOR TO CONCRETE PLACEMENT.
6. SAW CUT AND REMOVE CONCRETE FLOOR SLAB AS NEEDED TO CONSTRUCT INTERIOR GRADE BEAM. USE ONLY NON-VIBRATORY METHODS FOR CONCRETE REMOVAL.
7. PRE-EXCAVATE AS NEEDED ALONG BUILDING WALLS SO THAT INTERIOR AND EXTERIOR GRADES MATCH. INTENT IS TO MINIMIZE UNBALANCED LATERAL EARTH PRESSURE ON THE WALLS DURING UNDERPINNING OPERATIONS.
8. USE ONLY NON-VIBRATORY METHODS FOR EXCAVATION AND REMOVAL OF OBSTRUCTIONS.
9. EXCAVATE AND INSTALL GRADE BEAM IN SHORT SEGMENTS NOT EXCEEDING 7.5 FEET.
10. PROTECT BOTTOM OF WALL FOUNDATION AND GRADE BEAM SUBGRADE FROM FREEZING. BACKFILL AT LEAST 24 INCHES BEFORE EXCAVATING/CONSTRUCTING ABUTTING SEGMENTS.
11. CONSTRUCTION OF THE GRADE BEAM CAN OCCUR SIMULTANEOUSLY ON THE INTERIOR AND EXTERIOR OF THE WALL PROVIDED THAT THE WORK LOCATIONS ARE STAGGERED WITH A MINIMUM SEPARATION OF 15 FEET.
12. DO NOT EXCAVATE BELOW BOTTOM OF EXISTING WALL FOUNDATION AT ANY TIME.
13. PLACE CONCRETE ON SAME DAY AS BEAM SEGMENT IS EXCAVATED, DO NOT LEAVE OPEN EXCAVATIONS OVERNIGHT OR ON WEEKENDS / HOLIDAYS.

DEWATERING

1. DEPENDING ON TIME OF YEAR AND PRECIPITATION, EXCAVATIONS FOR GRADE BEAMS AND UNDERPINNING PILES MAY EXTEND BELOW GROUND WATER.
2. THE SILTY SOILS AT THIS SITE ARE MOISTURE SENSITIVE AND MAY BECOME SOFT AND UNSTABLE UNDER FOOT TRAFFIC WHEN SATURATED. TO MITIGATE THIS RISK, INSTALL A DEWATERING SYSTEM CAPABLE OF DEPRESSING THE WATER LEVEL TO AT LEAST 2 FEET BELOW GRADE BEAM SUBGRADE ELEVATION.
3. USE WELLPOINTS OR SIMILAR MEANS TO DEPRESS THE GROUNDWATER, AS APPROVED BY THE ENGINEER.
4. INSTALL AND MONITOR TEMPORARY GROUNDWATER OBSERVATION WELLS TO VERIFY THAT GROUNDWATER LEVELS ARE ADEQUATELY DEPRESSED.
5. THE DEWATERING SYSTEM SHALL BE IN PLACE PRIOR TO BEGINNING GRADE BEAM EXCAVATION UNLESS THE CONTRACTOR CAN DEMONSTRATE THAT GROUNDWATER IS AT LEAST 2 FEET BELOW EXCAVATION SUBGRADE, AS APPROVED BY THE ENGINEER. IN THIS CASE, THE CONTRACTOR SHALL BE PREPARED TO INSTALL AN APPROVED DEWATERING SYSTEM SHOULD GROUNDWATER LEVELS RISE DURING THE WORK DUE TO PRECIPITATION OR SEASONAL FLUCTUATIONS.
6. DESIGN THE DEWATERING SYSTEM WITH APPROPRIATE FILTERS TO PREVENT LOSS OF SOIL FINES. THE INTENT IS TO PREVENT LOSS OF FINES/SOIL FROM UNDER THE BUILDING WALLS, PREVENTING BUILDING SETTLEMENT. IMMEDIATELY STOP PUMPING AND BACKFILL EXCVATIONS SHOULD PUMPED WATER BE TURBID.
7. IMEDIATELY STOP WORK IF GROUNDWATER IS FOUND TO EXTEND ABOVE EXCAVATION SUBGRADE OR IF THE SUBGRADE BECOMES SOFT AND UNSTABLE UNDERFOOT. IN THIS EVENT, IMMEDIATELY BACKFILL THE EXCAVATION AND UPGRADE THE DEWATERING SYSTEM PRIOR TO RESUMING WORK, AS APPROVED BY THE ENGINEER.
8. COLLECT, TREAT, AND DISPOSE ALL COLLECTED WATER.

CONCRETE REINFORCEMENT

1. ALL REINFORCING BARS SHALL BE DEFORMED BILLET STEEL. BARS AND SHALL CONFORM TO ASTM A615 GRADE 60.
2. ALL DETAILING AND FABRICATION OF REINFORCING BARS SHALL COMPLY WITH THE REQUIREMENTS OF ACI 315 AND ACI 318-14.
3. ADDITIONALLY, REINFORCING BARS SHALL MEET THE REQUIREMENTS, INCLUDING ALL MATERIALS AND WORKMANSHIP, OF NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION ITEM 556 .0201 UNCOATED BAR REINFORCEMENT FOR CONCRETE STRUCTURES.
4. BAR COUPLERS, FROM THE NYSDOT APPROVED LIST OF MATERIALS, THAT ACHIEVE THE SAME OR GREATER STRENGTH AS THE REINFORCING STEEL BEING SPLICED, MAY BE USED, AS APPROVED BY THE ENGINEER.

POST TENSIONED TIE RODS

1. DRILL AND INSTALL POST TENSION TIE RODS THROUGH THE RUBBLE WALL AND BOTH "SISTER" GRADE BEAMS.
2. USE CORE BARREL OR SIMILAR MEANS TO DRILL TIEROD HOLE WITH MINIMUM VIBRATION.
3. POST TENSION AND LOCK OFF TIE RODS TO A LOAD OF 10 KIPS AFTER GRADE BEAM CONCRETE ACHIEVES A MINIMUM STRENGTH OF 3,000 PSI (7 DAYS).
4. USE A CALIBRATED TORQUE WRENCH TO MEASURE AND DOCUMENT THE LOCK OFF LOAD.
5. GROUT ANNULUS.

PRESSURE GROUTING

1. PRESSURE GROUT THE LOWER PORTION OF THE MASONRY WALL AFTER THE GRADE BEAMS ARE CONSTRUCTED. THE INTENT OF PRESSURE GROUTING IS TO FILL VOIDS IN THE MASONRY WALL AND TO REPLACE LOST MORTAR IN THE FOUNDATION ZONE BETWEEN THE GRADE BEAMS.
2. DRILL AND INSTALL GROUT HOLES INTO THE MASONRY WALL AT 2.5-FOOT CENTERS (MAX.).
3. USE PORTLAND CEMENT GROUT. THICKEN OR THIN GROUT MIX AND ADD MASONRY SAND AS NEEDED BASED ON FIELD CONDITIONS. ADD GROUT HOLES, IF NECESSARY TO FILL VOID SPACES, AS APPROVED BY THE ENGINEER.
4. INJECT GROUT USING A PUMP CAPABLE OF PROVIDING A STEADY PRESSURE WITHOUT SPIKES. USE A LOW GROUT PRESSURE NOT EXCEEDING 5 PSI UNLESS APPROVED BY THE ENGINEER.

UNDERPINNING PILES

1. USE HELICAL PILES OR SIMILAR AS APPROVED BY THE ENGINEER. PILES SHALL BE DISPLACEMENT PILES WHEREIN NO SOIL IS REMOVED DURING INSTALLATION. INSTALLATION / DRILLING METHODS THAT REMOVE SOIL OR USE AIR PRESSURE ARE NOT ALLOWED.
2. PILES SHALL BE INSTALLED BY A SPECIALTY CONTRACTOR EXPERIENCED WITH HELICAL PILES AND UNDERPINNING.
3. PILES AND PILE COMPONENTS SHALL BE DESIGNED BY THE SPECIALTY CONTRACTOR. SUBMIT PILE DESIGN CALCULATIONS AND SPECIFICATIONS TO THE ENGINEER FOR APPROVAL. THE DESIGN AND CALCULATIONS SHALL BE CERTIFIED BY A NY STATE LICENSED PROFESSIONAL ENGINEER.
4. ALL PILES AND PILE COMPONENTS SHALL BE GALVANIZED.
5. PILES AND PILE COMPONENTS SHALL BE DESIGNED FOR AN ALLOWABLE AXIAL LOAD AS INDICATED ON THE DRAWINGS.
6. USE A MINIMUM SAFETY FACTOR OF 2.5.
7. IT IS ANTICIPATED THAT SOIL WILL BE REMOVED FROM UNDER THE MASONRY WALL DURING FUTURE REMEDIATION. THEREFORE, THE PILES SHALL BE DESIGNED ASSUMING AN EXPOSED (FREE STANDING) LENGTH OF 4 FEET BELOW BOTTOM OF WALL FOUNDATION.
8. MINIMIZE EXCAVATION UNDER THE GRADE BEAM TO THE EXTENT PRACTICABLE DURING PILE INSTALLATION, AS APPROVED BY THE ENGINEER. BACKFILL EXCAVATION UNDER GRADE BEAM WITH SAND.
9. A MINIMUM OF TWO PILES SHALL BE PERFORMANCE TESTED TO EVALUATE LOAD CAPACITY AND LONG TERM CREEP BEHAVIOR. ADDITIONAL LOAD TESTS MAY BE REQUIRED IF TORQUE READINGS ARE INCONSISTENT OR AT THE DISCRETION OF THE ENGINEER.
10. PROVIDE LOAD TEST REPORT INLCUDING RECOMMENDATIONS FOR INSTALLATION TORQUE TO BE USED FOR PRODUCTION PILES. LOAD TEST REPORTS SHALL BE CERTIFIED BY A NY STATE LICENSED PROFESSIONAL ENGINEER.

REMEDIATION EXCAVATION AND BACKFILL

1. EXCAVATE IMPACTED SOILS UNDER BUILDING FOUNDATION (I.E. -EXISTING WALLS WITH COMPLETED UNDERPINNED GRADE BEAMS) USING HAND TOOLS AND SMALL EQUIPMENT, AS APPROVED BY THE ENGINEER. PROTECT UNDERPINNING PILES FROM IMPACT AND DAMAGE.
2. DEWATER AS NECESSARY TO MAINTAIN DRY CONDITIONS WITHIN THE BUILDING LIMITS AND UNDER BUILDING FOUNDATION.
3. EXCAVATION UNDER BUILDING FOUNDATION SHALL NOT EXTEND DEEPER THAN 4 FEET BELOW BOTTOM OF WALL AT ANY TIME.
4. EXCAVATE BELOW BOTTOM OF FOUNDATION IN SEGMENTS NOT EXCEEDING 10 FEET IN LENGTH.
5. EXCAVATION BELOW BUILDING FOUNDATION CAN OCCUR SIMULTANEOUSLY AT VARYING LOCATIONS PROVIDED THAT THESE ARE STAGGERED WITH A MINIMUM SEPARATION OF 15 FEET.
6. PROPOSED REMEDIAL EXCAVATION TYPICALLY EXTENDS TO 5 FEET BELOW GENERAL FLOOR GRADE IN BUILDING (I.E. DOOR THRESHOLD LEVEL), THE UNDERPINNING DESIGN ALLOWS OVEREXCAVATION, AS NEEDED, TO A MAXIMUM DEPTH OF 4.0 FEET BELOW EXISTING BASE OF WALL.
7. ALL EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO BACKFILLING.
8. BACKFILL EXCAVATIONS UNDER BUILDING FOUNDATION USING NYSDOT ITEM 204.01 - CONTROLLED LOW STRENGTH MATERIAL (CLSM) HAVING MINIMUM COMPRESSIVE STRENGTH OF 500 PSI, PROVIDE FORMWORK AS NEEDED.
9. BACKFILL REMAINING EXCAVATION WITHIN THE BUILDING LIMITS AS INDICATED ON THE DRAWINGS. PLACE BACKFILL IN 6-INCH LIFTS AND COMPACT USING ROLLERS OPERATING IN STATIC MODE OR WITH SMALL VIBRATORY COMPACTORS THAT CONFORM TO THE VIBRATION LIMITS ESTABLISHED IN THE *VIBRATION AND SETTLEMENT MONITORING PLAN.*

REPOINTING OF RUBBLE MASONRY WALLS

1. FOR REPOINTING OF RUBBLE MASONRY WALLS NOTES SEE SHEET C-05.

NEW CMU MASONRY

1. FOR NEW CMU MASONRY NOTES SEE SHEET C-06.

LEGEND

	Property Line		Storm Drain Manhole
	Adjoiners Deed Line		Catch Basin
	Interior Deed Line		Sanitary Manhole
	Edge of Gravel		Sign
	Chain Link Fence		Deciduous Tree
	Centerline of Road		Direction Arrow(s)
710	Major Contour	CMP	Corrugated Metal Pipe
709	Minor Contour	HDPE	High-Density Polyethylene
OHE	Overhead Electric	RCP	Reinforced Concrete Pipe
UGE	Underground Electric		Monitor Well
GAS	Gas Line		Found Iron (Pipe, Rebar, et cetera)
W	Water Line		Set 5/8-inch Rebar with 1 1/4-inch Red Plastic Cap Marked "Thew Associates Utica NY"
	Sanitary		Set Mag Nail
	Storm Line	(M)	Measured Distance
	Ordinary High Water (OHW)	(D)	Deeded Distance
	Concrete		Utility Pole
	Rip Rap		Utility Pole with Street Light
FF=721.31	Finish Floor Elevation and Location		Traffic Signal Pole
N-3	Wetland Flag		Guy Anchor
	Direction of Water Flow		Traffic Signal Pull Box
	Design Water Elevation		Electric Pull Box
	Concrete Masonry Unit (CMU)		Area Light Pole
		WV	Water Valve
		GV	Gas Valve

NOTE:

SEE SHEET SPECIFIC KEY FOR ADDITIONAL LEGEND INFORMATION

ABBREVIATIONS

AB	ANCHOR BOLT	LLH	LONG LEG HORIZONTAL
ALT	ALTERNATE	LLV	LONG LEG VERTICAL
APPROX	APPROXIMATELY	LSH	LONG SIDE HORIZONTAL
ARCH	ARCHITECTURAL	LSV	LONG SIDE VERTICAL
BD	BAR DIAMETER	MAX	MAXIMUM
BM	BEAM	MECH	MECHANICAL
BOC	BOTTOM OF CONCRETE	MFR	MANUFACTURER
BOS	BOTTOM OF STEEL	MIN	MINIMUM
CJ	CONSTRUCTION JOINT	MOW	MIDDLE OF WALL
CL	CENTER LINE	NIC	NOT IN CONTRACT
CLR	CLEAR	NO	NUMBER
CMU	CONCRETE MASONRY UNIT	NTS	NOT TO SCALE
COL	COLUMN	NW	NORMAL WEIGHT
COMP	COMPOSITE	OC	ON CENTER
CONN	CONNECTION	OPP	OPPOSITE
CONC	CONCRETE	PL	PLATE
CONT	CONTINUOUS	PLF	POUNDS PER LINEAR FOOT
DET	DETAIL	PSF	POUNDS PER SQUARE FOOT
DIA, ø	DIAMETER	REINF	REINFORCEMENT
DN	DOWN	REQD	REQUIRED
DWG	DRAWING	SCHED	SCHEDULE
EA	EACH	SIM	SIMILAR
EF	EACH FACE	SL	SLOPE(D)
EXP	EXPANSION JOINT	SOG	SLAB-ON-GRADE
ELEV	ELEVATION	STD	STANDARD
EOS	EDGE OF SLAB	T&B	TOP AND BOTTOM
EQ	EQUAL	TOC	TOP OF CONCRETE
EW	EACH WAY	TOF	TOP OF FOOTING
FOUND	FOUNDATION	TOS	TOP OF STEEL
FTG	FOOTING	TYP	TYPICAL
HDG	DOT-DIP GALVANIZED	UON	UNLESS OTHERWISE NOTED
HORIZ	HORIZONTAL	VERT	VERTICAL
JT	JOINT	VIF	VERIFY IN FIELD
KIP (k)	1000 LBS	WP	WORKING POINT
Ls	REBAR SPLICE LENGTH		

AECOM

PROJECT

BUILDING INTERIOR REMEDIATION AND WALL UNDERPINNING DESIGN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN
YATES COUNTY, NEW YORK
NYSDEC SITE 8-62-009

CLIENT

NYSEG
New York State Electric and Gas Corp.
18 Link Drive
P.O. Box 5224
Binghamton, New York 13905

REGISTRATION

ISSUE/REVISION

0	01-09-2018	ISSUED FOR CONSTRUCTION
I/R	DATE	DESCRIPTION

KEY PLAN

SHEET TITLE

GENERAL NOTES AND LEGEND

SHEET NUMBER

T-02

Last saved by: MEISTERK(2018-01-09) Last Plotted: 2018-01-09
Filename: P:\60284725_NYSEG PENN YAN RD\7.2 CADD\500CIVIL\DESIGN\BUILDING\UNDERPIN-2\PENN-YAN_BUILDING_UNDERPIN-PLAN-2.DWG

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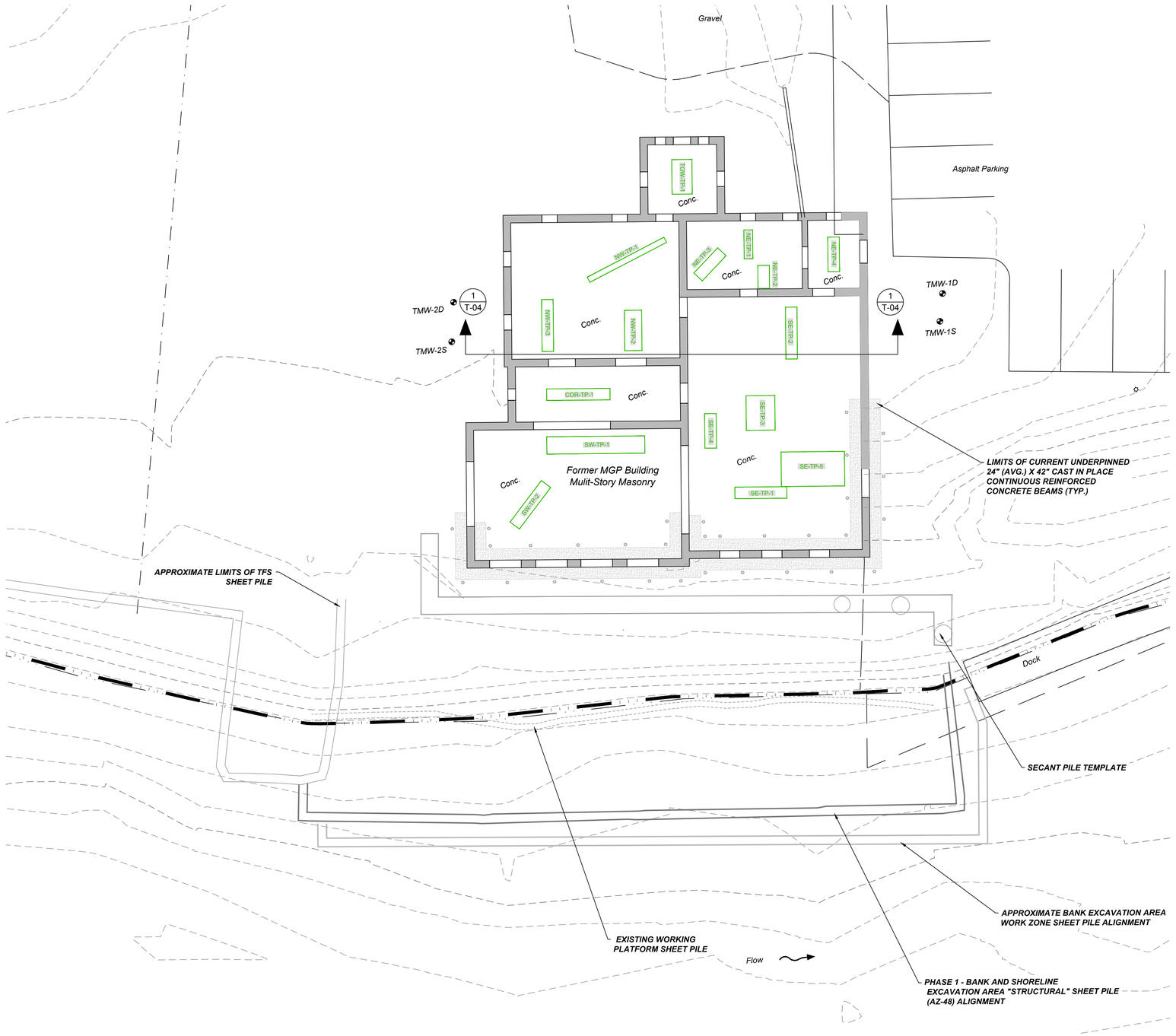


NOTE:

APPROXIMATE CURRENT EXISTING CONDITIONS SHOW AFTER PRO□ECT SHUT DOWN.

Keuka Lake Outlet
Water Elevation 713.6'
Ordinary High Water (OHW) = 713.7'
Winter Water Elevation = 712.0 +/-

AECOM

PROJECT

BUILDING INTERIOR REMEDIATION AND WALL UNDERPINNING DESIGN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN
YATES COUNTY, NEW YORK
NYSDEC SITE □8-62-009

CLIENT

NYSEG
New York State Electric and Gas Corp.
18 Link Drive
P.O. Box 5224
Binghamton, New York 13905

REGISTRATION

ISSUE/REVISION

0	01-09-2018	ISSUED FOR CONSTRUCTION
I/R	DATE	DESCRIPTION

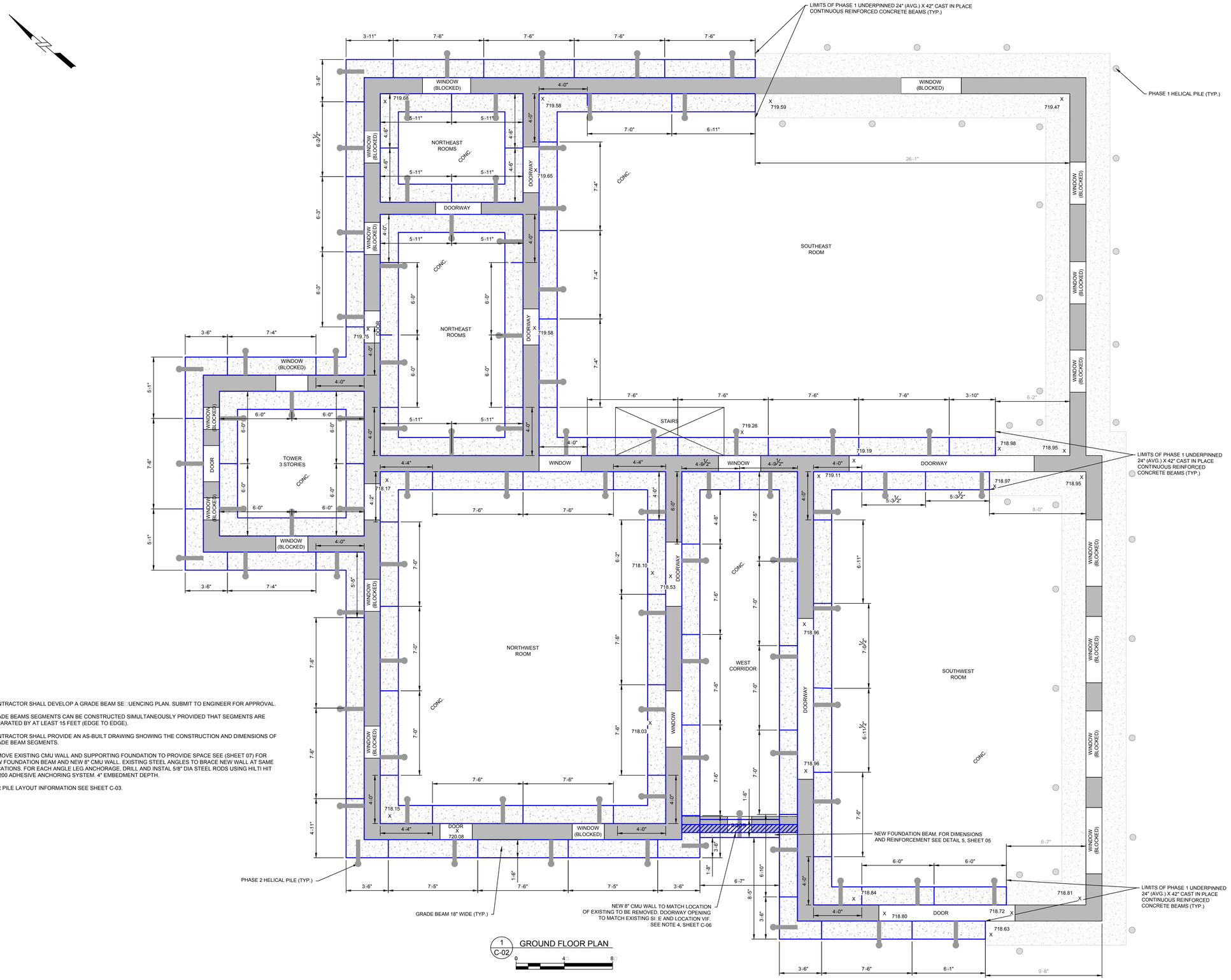
KEY PLAN

SHEET TITLE

EXISTING CONDITIONS

SHEET NUMBER

C-01



NOTES:

1. CONTRACTOR SHALL DEVELOP A GRADE BEAM SEQUENCING PLAN. SUBMIT TO ENGINEER FOR APPROVAL.
2. GRADE BEAMS SEGMENTS CAN BE CONSTRUCTED SIMULTANEOUSLY PROVIDED THAT SEGMENTS ARE SEPARATED BY AT LEAST 15 FEET (EDGE TO EDGE).
3. CONTRACTOR SHALL PROVIDE AN AS-BUILT DRAWING SHOWING THE CONSTRUCTION AND DIMENSIONS OF GRADE BEAM SEGMENTS.
4. REMOVE EXISTING CMU WALL AND SUPPORTING FOUNDATION TO PROVIDE SPACE SEE (SHEET 07) FOR NEW FOUNDATION BEAM AND NEW 8" CMU WALL. EXISTING STEEL ANGLES TO BRACE NEW WALL AT SAME LOCATIONS. FOR EACH ANGLE LEG ANCHORAGE, DRILL AND INSTAL 5/8" DIA STEEL RODS USING HILTI HIT HY 200 ADHESIVE ANCHORING SYSTEM. 4" EMBEDMENT DEPTH.
5. FOR PILE LAYOUT INFORMATION SEE SHEET C-03.

1 C-02 GROUND FLOOR PLAN

0 4 8

Project Management Initials: Designer: Checked: Approved: ANSI D 22" x 34"

Last saved by: MEISTERK (2018-01-09) Last Plotted: 2018-01-09
Filename: I:\60284725_NYSEG PENN YAN RD7.2 CADD\500\CIVIL\DESIGN\BUILDING\UNDERPIN-2\PENN-YAN_BUILDING_UNDERPIN-PLAN-2.DWG

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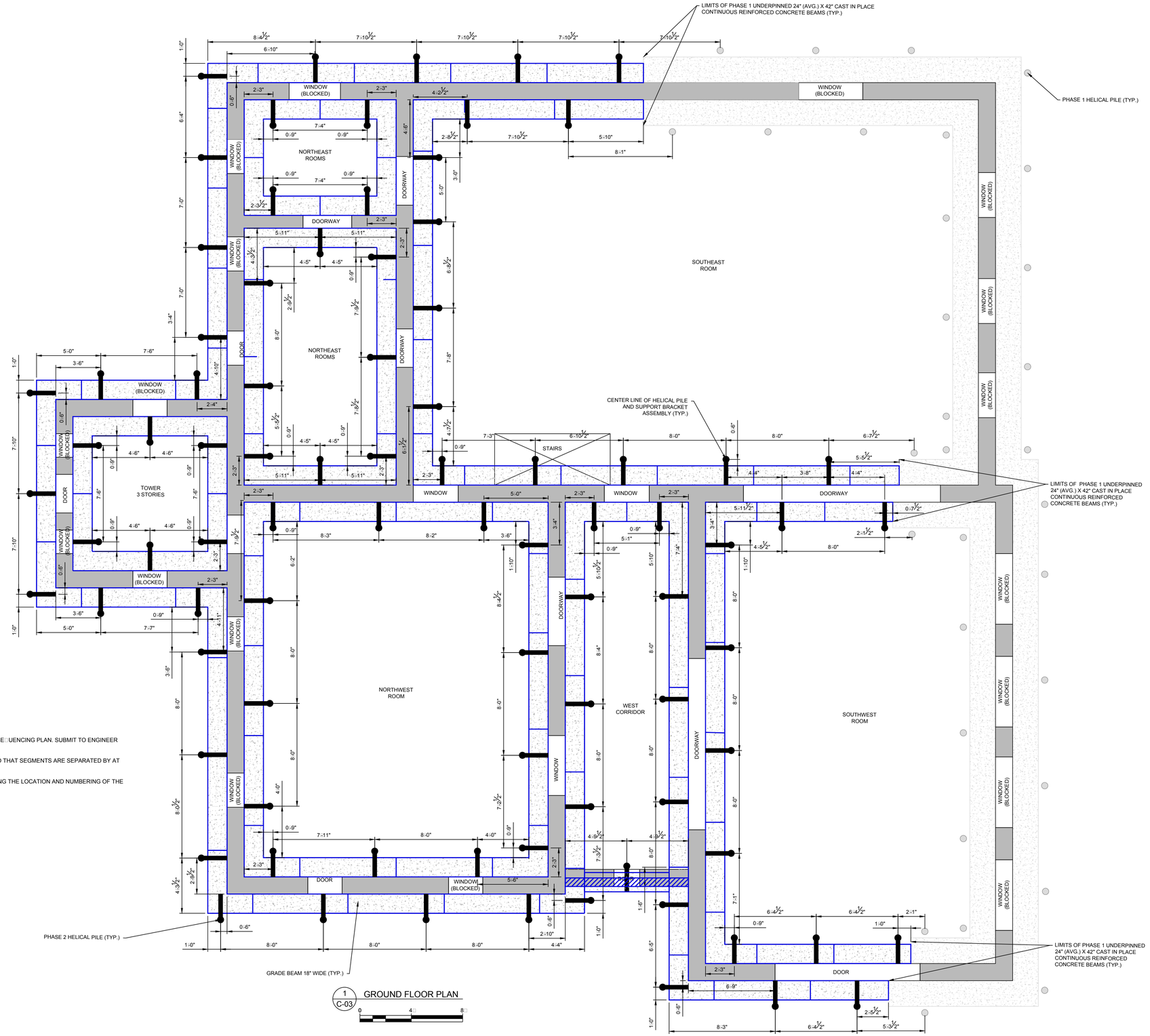
WALL UNDERPINNING BEAM LAYOUT

SHEET NUMBER

C-02



1 C-03 GROUND FLOOR PLAN

0 4 8

NOTES:

1. CONTRACTOR SHALL DEVELOP A HELICAL PILE INSTALLATION SEQUENCING PLAN. SUBMIT TO ENGINEER FOR APPROVAL.
2. HELICAL PILES CAN BE INSTALLED SIMULTANEOUSLY PROVIDED THAT SEGMENTS ARE SEPARATED BY AT LEAST 15 FEET.
3. CONTRACTOR SHALL PROVIDED AN AS-BUILT DRAWING SHOWING THE LOCATION AND NUMBERING OF THE HELICAL PILES.
4. FOR BEAM LAYOUT INFORMATION SEE SHEET C-02.

Project Management Initials: Designer:____ Checked:____ Approved:____ ANSI D 22" x 34"

Last saved by: MEISTERK (2018-01-09) Last Plotted: 2018-01-09
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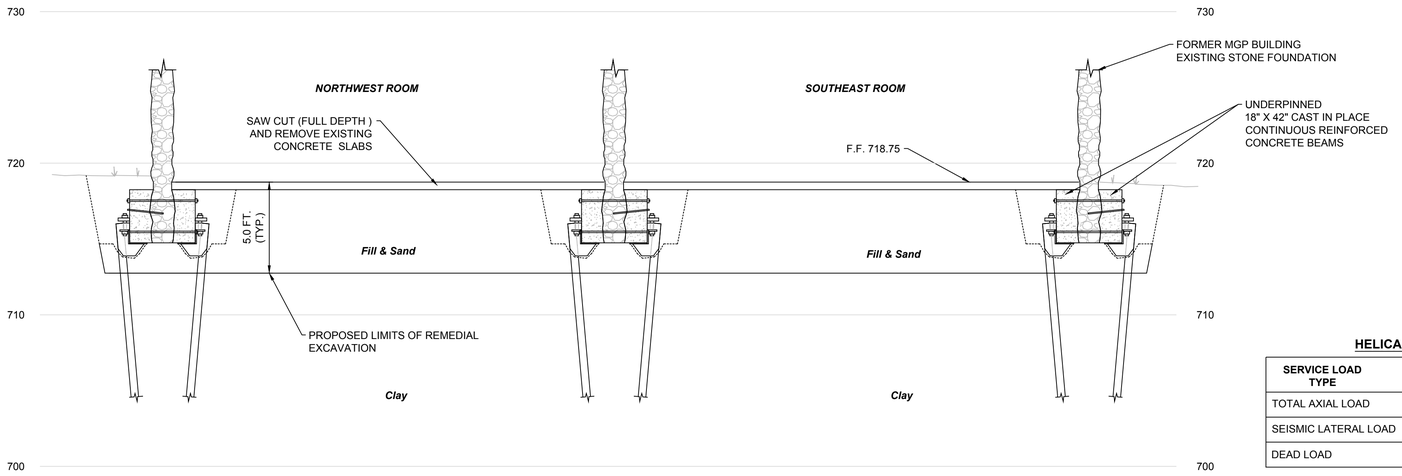
WALL UNDERPINNING PILE LAYOUT

SHEET NUMBER

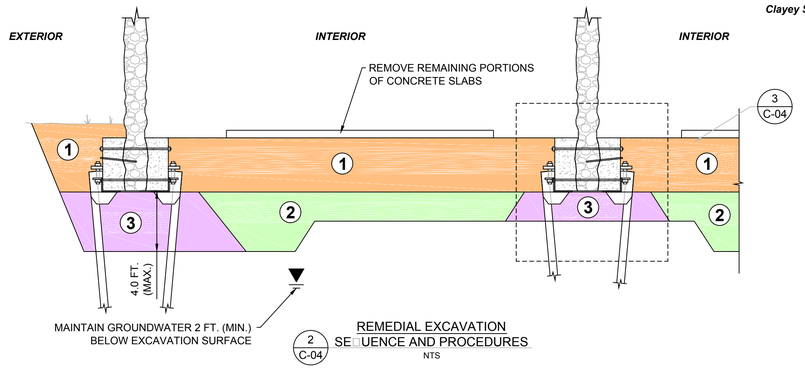
C-03



HELICAL PILE SERVICE DESIGN LOADS

SERVICE LOAD TYPE	LOAD (KIPS)	REMARKS
TOTAL AXIAL LOAD	37	TO BE LOAD TESTED FOR COMPRESSION
SEISMIC LATERAL LOAD	1.0	0.7E FOR LATERAL LOAD COMBINATION
DEAD LOAD	27	1.0D FOR LATERAL LOAD COMBINATION

1 C-04 TYPICAL SECTION
NTS

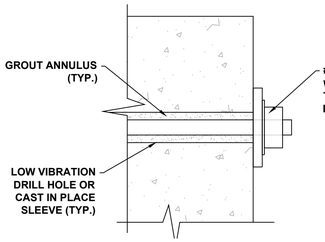


2 C-04 REMEDIAL EXCAVATION SE□UENCE AND PROCEDURES
NTS

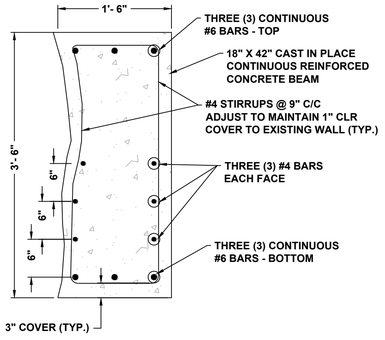
REMEDIAL EXCAVATION SE□UENCE AND PROCEDURES NOTES:

AFTER COMPLETION OF UNDERPINNING:

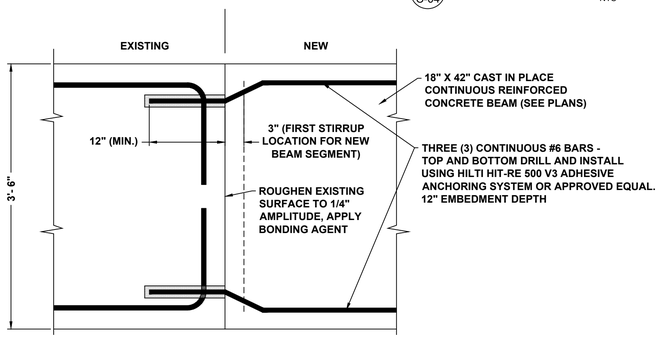
1. PRECUT TO BOTTOM OF GRADE BEAM □/-.
2. EXCAVATE DEEPER AS NEEDED BETWEEN WALLS (4 FT. MAX. BELOW GRADE BEAMS).
3. EXCAVATE UNDER FOUNDATION (I.E. -EXISTING WALLS WITH COMPLETED UNDERPINNED GRADE BEAMS) IN SHORT STAGGERED SEGMENTS.
4. BACKFILL UNDER FOUNDATION WITH NYSDOT ITEM 204.01 - CONTROLLED LOW STRENGTH MATERIAL (CLSM), PROVIDE FORMWORK AS NEEDED. BACKFILL EACH SEGMENT IMMEDIATELY AFTER ACCEPTABLE CONFIRMATION SAMPLE ANALYSIS RESULTS ARE REVIEWED AND APPROVED BY THE ENGINEER.
5. BACKFILL REMAINING EXCAVATION WITH COMPACTED COMMON FILL TO WITHIN 6" OF FINISH GRADE.
6. PROVIDE 6" CRUSHED STONE AS FINISH SURFACE.



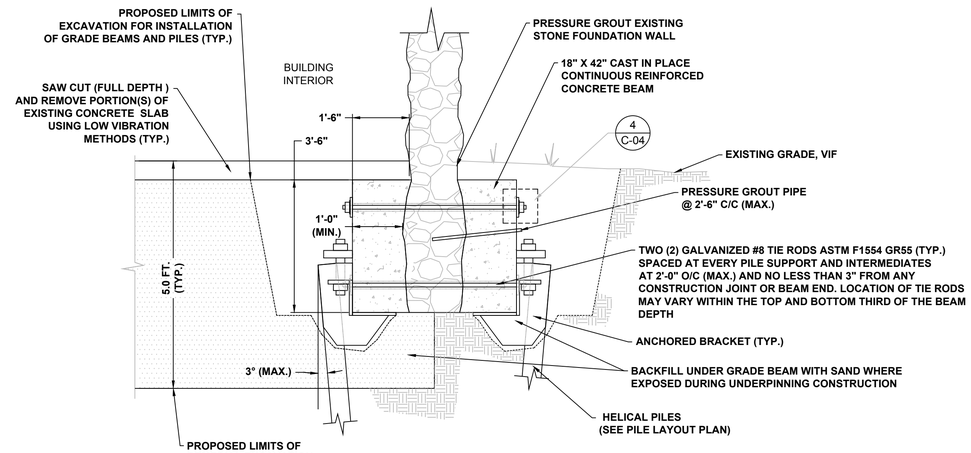
4 C-04 TIE ROD DETAIL
NTS



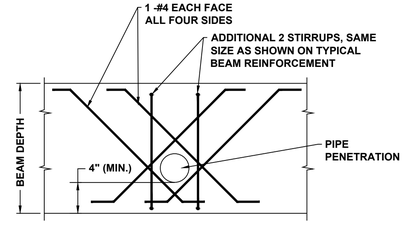
5 C-04 BEAM REINFORCEMENT DETAIL
NTS



6 C-04 NEW BEAM REINFORCEMENT ANCHORAGE TO EXISTING BEAM DETAIL
NTS



3 C-04 TYPICAL UNDERPINNING CONSTRUCTION SECTION
NTS



NOTE:
NO OPENINGS LARGER THAN 4" DIA. SHALL BE PERMITTED IN CONCRETE BEAMS

7 C-04 PIPE PENETRATION THROUGH GRADE BEAM DETAIL
NTS

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TYPICAL SECTION AND DETAILS

SHEET NUMBER

C-04

REPOINTING OF MASONRY WALLS NOTES:

REPOINTING OF MASONRY WALLS SHALL COMPLY WITH THE STANDARD GUIDE FOR REPOINTING HISTORIC MASONRY, ASTM E2260-03, INCLUDING ALL REFERENCED STANDARDS.

DETERMINATION OF THE JOINTS TO BE REPOINTED:
- ALL JOINTS WITHIN DESIGNATED AREAS OF WALLS TO BE REPOINTED AS INDICATED DURING PRELIMINARY EVALUATION AND PER THE FOLLOWING CRITERIA.
- ALL JOINTS WITH LOOSE MATERIAL, THAT ARE CRACKED, DETERIORATED, ERODED, CONTAIN VOIDS OR ARE POORLY BONDED TO THE STONE MASONRY UNITS, SHALL BE REPOINTED.
- IN CASES WHERE SEALANTS OR OTHER INAPPROPRIATE MATERIALS MAY HAVE BEEN USED IN JOINTS OF MASONRY, THESE MATERIALS SHALL BE REMOVED AND THE WALL REPOINTED.

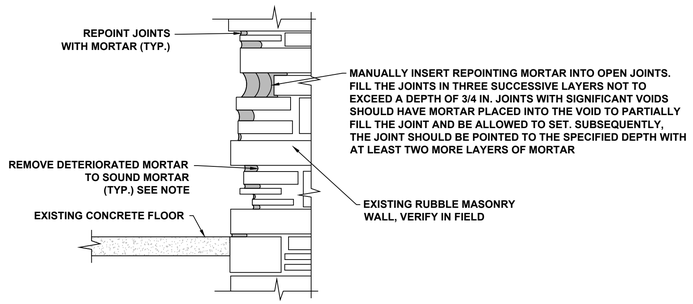
EVALUATION OF IN-SITU MASONRY:
- QUALITATIVE ASSESSMENT DETERMINES THE MASONRY TO BE REPOINTED. REFER TO DESIGNATED AREAS AS DETERMINED DURING INSPECTION BEFORE THE START OF REPOINTING PROCEDURES.

EVALUATION OF TECHNIQUES FOR REMOVAL OF MORTAR:
- PRIOR TO BEGINNING THE WORK, POTENTIAL TECHNIQUES FOR REMOVAL OF MORTAR SHALL BE EVALUATED.
- MORTAR REMOVAL PROCEDURES SHOULD ATTEMPT TO REMOVE ALL MORTAR FROM JOINTS TO THE SPECIFIED DEPTH AND TO PROVIDE A SUBSTRATE TO WHICH THE REPAIR MORTAR CAN PROPERLY ADHERE.
- IT IS RECOMMENDED THAT THE MOST EFFECTIVE AND LEAST DAMAGING TECHNIQUE BE USED AS THE METHOD OF MORTAR REMOVAL.
- TECHNICIANS SHOULD BE EVALUATED WITH REGARD TO THEIR ABILITY TO REMOVE IN-SITU MORTAR WITHOUT DAMAGE TO THE MASONRY UNITS. A DEMONSTRATION OF THEIR ABILITY SHOULD BE CONDUCTED AND APPROVED ON A TEST AREA REPRESENTATIVE OF THE WORK TO BE PERFORMED.

USE OF MORTAR SAMPLES AND TEST AREAS:
- SAMPLES OF THE PROPOSED REPOINTING MORTAR SHOULD BE PREPARED FOR COMPARISON WITH THE ORIGINAL MORTAR FOR COLOR TEXTURE ,AND FINISH PRIOR TO THE REPOINTING WORK.
- SAMPLES SHOULD BE PREPARED PRIOR TO THE REPOINTING WORK TO DETERMINE MORTAR PROPERTIES.
- TEST AREAS SHOULD BE USED TO EVALUATE MORTAR REMOVAL TECHNIQUES, MORTAR FORMULATION, POINTING TECHNIQUES, FINAL CLEANING AND APPEARANCE.
- TEST AREAS SHOULD BE APPROVED PRIOR TO PROCEEDING WITH THE WORK. TEST AREAS SHOULD HAVE THE FOLLOWING CHARACTERISTICS:
  - TEST AREAS SHOULD INCLUDE MATERIALS AND CONDITIONS REPRESENTATIVE OF SURFACES TO BE REPOINTED.
  - TEST AREAS SHOULD PERMIT EVALUATION OF THE EFFECTS OF THE REPOINTING WORK ON MATERIALS, SURFACES, AND SURROUNDINGS.
  - TEST AREAS SHOULD PERMIT VISUAL INSPECTION AND COMPARISON TO ADJACENT MASONRY SURFACES THAT HAVE NOT BEEN REPOINTED.

SELECTION OF REPOINTING MORTAR:
- THE SELECTED REPOINTING MORTAR SHOULD MATCH THE ORIGINAL MORTAR
- MORTAR MATERIALS SHOULD BE CHOSEN IN ACCORDANCE WITH THE APPLICABLE ASTM MATERIAL SPECIFICATIONS. APPROPRIATE PIGMENTS AND ADDITIVES MAY BE PERMITTED IF ANALYSIS OF ORIGINAL MORTAR AND EVALUATION OF THE PROJECT REPOINTING MORTAR REQUIREMENTS INDICATE THAT INCLUSION OF SUCH MATERIALS IS APPLICABLE.

PROCEDURE:
- AREAS TO BE REPOINTED SHALL BE CLEANED OF ANY MATERIAL DELETERIOUS TO THE REPOINTING PROCEDURE, ANY LOOSE MORTAR, AND ANY DEFECTIVE MORTAR THAT CAN BE REMOVED BY MECHANICAL SCRUBBING AND/OR PRESSURE WATER SPRAY. CLEANING TECHNIQUE SHALL BE SELECTED AFTER EFFECTIVENESS OF THE CLEANING SYSTEM IS DETERMINED ON A DESIGNATED TEST AREA.
- MORTAR IN JOINTS WITHIN DESIGNATED AREAS OF WALLS TO BE REPOINTED SHALL BE REMOVED TO A MINIMUM DEPTH BETWEEN 3/4 AND 1- ½ IN.
- ALL JOINTS SHALL BE INSPECTED PRIOR TO REPOINTING.
- JOINTS SHALL BE MOISTEN WITH WATER PRIOR TO REPOINTING TO REDUCE WATER ABSORPTION FROM THE REPOINTING MORTAR BEFORE IS PROPERLY SET. NO STANDING WATER SHOULD BE VISIBLE IN THE JOINT.
- VISUAL INSPECTION OF REPOINTING PROCEDURES AND MATERIALS SHOULD BE REQUIRED AT REGULAR INTERVALS DURING THE EXECUTION OF THE WORK. VISUAL INSPECTION OF COMPLETED AREAS AND COMPARISON TO APPROVED SAMPLES AND TEST AREAS SHOULD BE MADE UNDER SIMILAR LIGHTING AND EXPOSURE CONDITIONS.
- FOLLOW MORTAR PLACEMENT PROCEDURES AS INDICATED ON REPOINTING DETAILS.



1 C-05 TYPICAL EXISTING WALL REPOINTING DETAIL
NTS

NOTE:
SEE PLAN AND GENERAL NOTES FOR DESIGNATED AREAS AND MASONRY WALL REPOINTING PROCEDURES AND REQUIREMENTS.

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KEY PLAN

SHEET TITLE

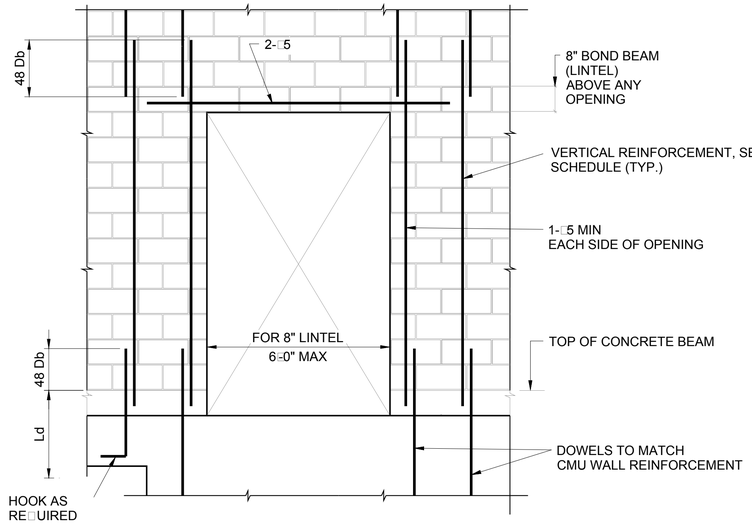
RUBBLE MASONRY WALL REHABILITATION NOTES AND DETAIL

SHEET NUMBER

C-05

MASONRY NOTES

1. MASONRY ELEMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE BUILDING CODE REQUIREMENTS AND SPECIFICATIONS FOR MASONRY STRUCTURES (TMS 402-11/ACI 530-11/ASCE 5-11) AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530.1-11), UNLESS OTHERWISE NOTED.
2. CONCRETE BLOCK MASONRY UNITS: ASTM C90, TYPE I f'c = 3750 (PSI). PRISMS TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH f'm OF 2500 PSI.
3. ALL MASONRY REINFORCING BARS SHALL BE EMBEDED IN GROUT.
4. GROUT USED TO FILL CELLS WITH REINFORCEMENT, BOND BEAMS, OR CMU LINTELS SALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF AT LEAST 2500 PSI.
5. TYPE I OR II PORTLAND CEMENT SHALL BE USED ACCORDING TO ASTM C150.
6. ALL MORTAR SHALL CONFORM TO ASTM C270. THE TYPE OF MORTAR USED FOR THE REINFORCED WALLS SHALL BE TYPE S WITH A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI.
7. CMU UNIT BLOCKS SHALL BE BUILT IN A RUNNING BOND.
8. SUBMIT REINFORCING STEEL SHOP DRAWINGS FOR APPROVAL BEFORE CONSTRUCTION.

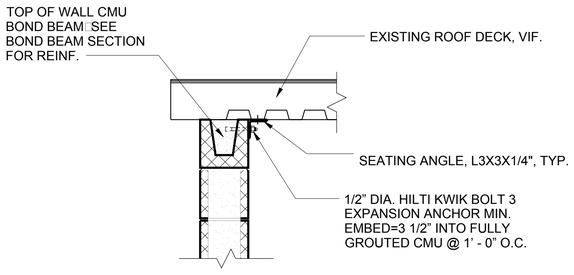


OPENING IN CMU WALL

1 / C-06 CMU OPENING TYPICAL DETAIL
1/2" □ 1-0"

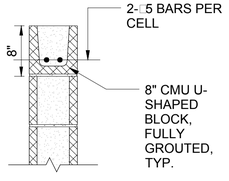
CMU WALL REINFORCING SCHEDULE

CMU NOMINAL THICKNESS	VERT. REINF.	HORIZ. REINF.	BOND BEAM REINFORCEMENT
8"	1□5 AT WALL ENDS AND AT EDGE OF OPENINGS	BOND BEAM □ MID HEIGHT AND AT TOP OF WALL	2 - □5

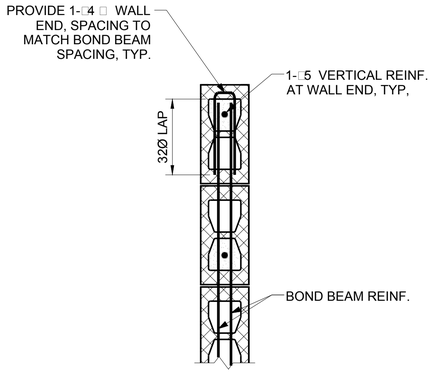


NOTE: FOR CLARITY, CMU WALL REINFORCEMENT NOT SHOWN. SEE CMU REINFORCEMENT SCHEDULE

2 / C-06 ROOF DECK CONNECTION TO MASONRY WALL
1" □ 1-0"



3 / C-06 MASONRY BOND BEAM TYPICAL SECTION
1" □ 1-0"



4 / C-06 MASONRY WALL DETAILS AT WALL END
1" □ 1-0"

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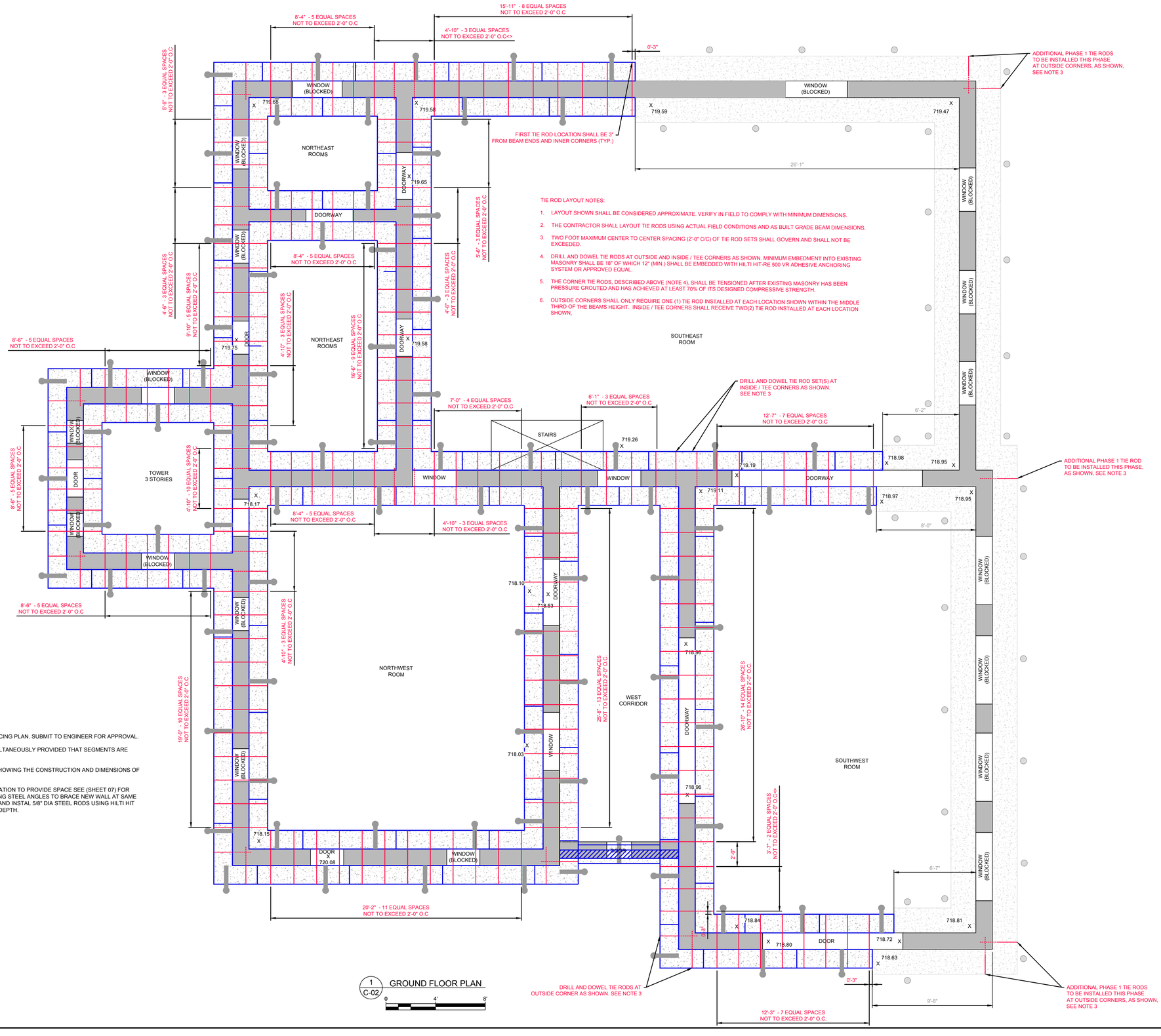
NEW CMU WALL DETAILS

SHEET NUMBER

C-06



1 C-02 GROUND FLOOR PLAN

0 4' 8'

NOTES:

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EXAMPLE

ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

SHEET TITLE

WALL UNDERPINNING
TIE ROD EXAMPLE LAYOUT

SHEET NUMBER

RFI-51

Project Management Initials: Designer: Checked: Approved: ANSI D 22" x 34"

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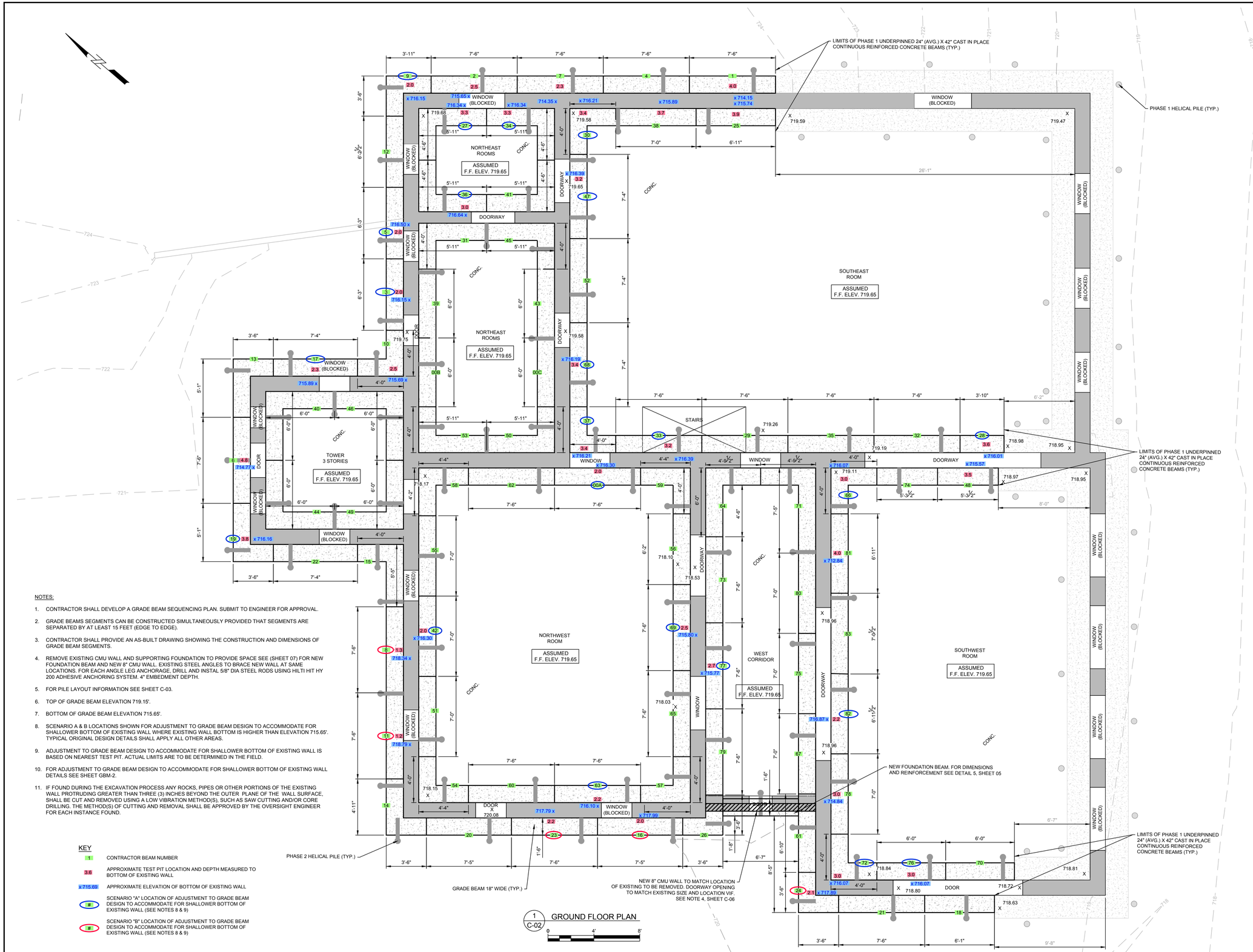

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5. FOR PILE LAYOUT INFORMATION SEE SHEET C-03.
6. TOP OF GRADE BEAM ELEVATION 719.15'.
7. BOTTOM OF GRADE BEAM ELEVATION 715.65'.
8. SCENARIO A & B LOCATIONS SHOWN FOR ADJUSTMENT TO GRADE BEAM DESIGN TO ACCOMMODATE FOR SHALLOWER BOTTOM OF EXISTING WALL WHERE EXISTING WALL BOTTOM IS HIGHER THAN ELEVATION 715.65'. TYPICAL ORIGINAL DESIGN DETAILS SHALL APPLY ALL OTHER AREAS.
9. ADJUSTMENT TO GRADE BEAM DESIGN TO ACCOMMODATE FOR SHALLOWER BOTTOM OF EXISTING WALL IS BASED ON NEAREST TEST PIT. ACTUAL LIMITS ARE TO BE DETERMINED IN THE FIELD.
10. FOR ADJUSTMENT TO GRADE BEAM DESIGN TO ACCOMMODATE FOR SHALLOWER BOTTOM OF EXISTING WALL DETAILS SEE SHEET GBM-2.
11. IF FOUND DURING THE EXCAVATION PROCESS ANY ROCKS, PIPES OR OTHER PORTIONS OF THE EXISTING WALL PROTRUDING GREATER THAN THREE (3) INCHES BEYOND THE OUTER PLANE OF THE WALL SURFACE, SHALL BE CUT AND REMOVED USING A LOW VIBRATION METHOD(S), SUCH AS SAW CUTTING AND/OR CORE DRILLING. THE METHOD(S) OF CUTTING AND REMOVAL SHALL BE APPROVED BY THE OVERSIGHT ENGINEER FOR EACH INSTANCE FOUND.

KEY

1	CONTRACTOR BEAM NUMBER
3.6	APPROXIMATE TEST PIT LOCATION AND DEPTH MEASURED TO BOTTOM OF EXISTING WALL
x 715.69	APPROXIMATE ELEVATION OF BOTTOM OF EXISTING WALL
#	SCENARIO "A" LOCATION OF ADJUSTMENT TO GRADE BEAM DESIGN TO ACCOMMODATE FOR SHALLOWER BOTTOM OF EXISTING WALL (SEE NOTES 8 & 9)
#	SCENARIO "B" LOCATION OF ADJUSTMENT TO GRADE BEAM DESIGN TO ACCOMMODATE FOR SHALLOWER BOTTOM OF EXISTING WALL (SEE NOTES 8 & 9)

1 C-02 GROUND FLOOR PLAN

0 4' 8'

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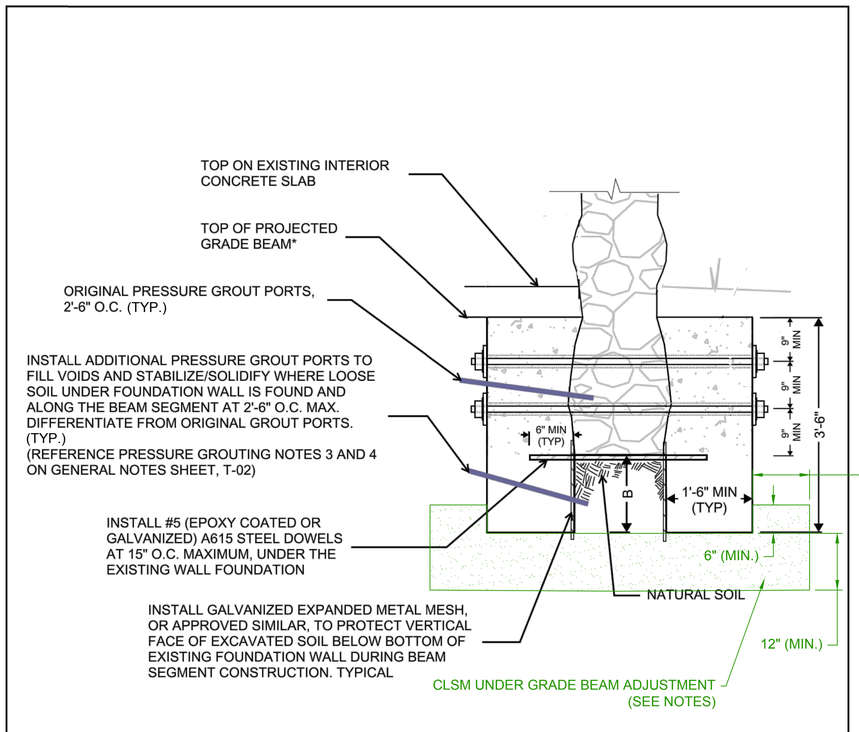
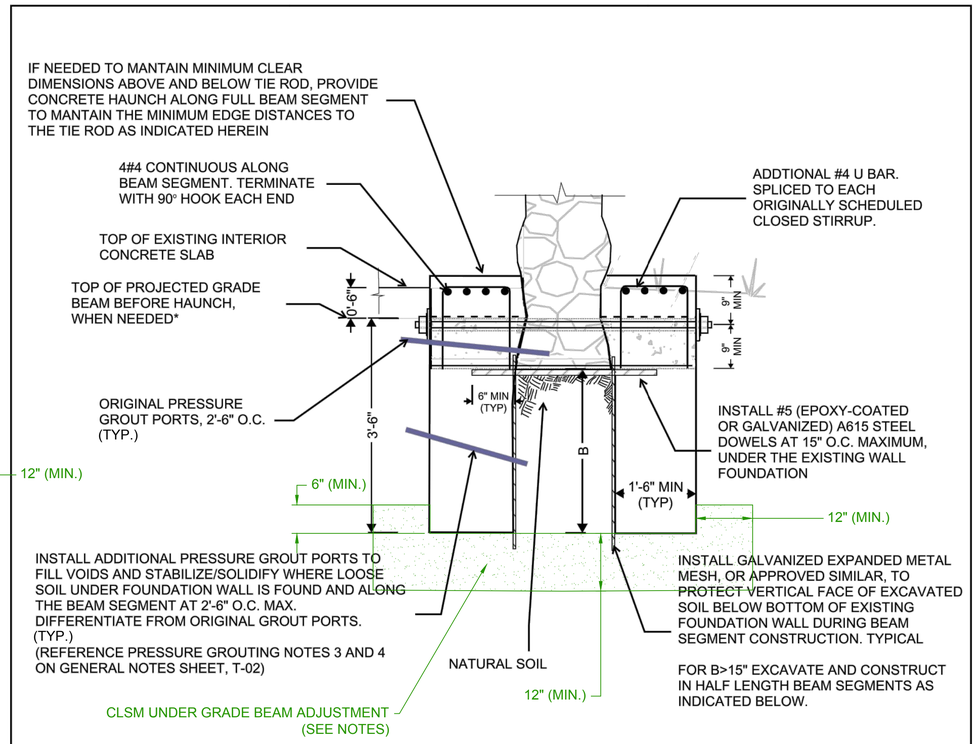
SHEET TITLE

WORK CHANGE DIRECTIVE 004 R2
GRADE BEAM DESIGN MODIFICATION PLAN

SHEET NUMBER

GBM-1





A

AT LOCATIONS WHERE THE BOTTOM OF THE EXISTING WALL FOUNDATION ELEVATION IS HIGHER THAN THE BOTTOM OF THE GRADE BEAM ELEVATION, 0<B<15", OR BOTTOM OF EXISTING FOUNDATION IS AT LEAST 2'-3" BELOW THE TOP OF THE PROJECTED TOP OF GRADE BEAM ELEVATION, PROTECT NATURAL SOIL AS SHOWN ABOVE AND CONSTRUCT GRADE BEAM IN FULL SEGMENTS AND WITH TIE RODS AS ORIGINALLY SCHEDULED ON DESIGN DRAWINGS; PROVIDED THAT EDGE DISTANCES AND SPACING REMAINS WITHIN THE LIMITS SHOWN ABOVE.

B

AT LOCATIONS WHERE THE BOTTOM OF THE EXISTING WALL FOUNDATION ELEVATION IS HIGHER THAN THE BOTTOM OF THE GRADE BEAM ELEVATION , AND 15"<B<30", OR BOTTOM OF EXISTING FOUNDATION IS AT LESS THAT 2'-3" BELOW THE PROJECTED TOP OF GRADE BEAM ELEVATION, PROTECT NATURAL SOIL AS SHOWN ABOVE AND CONSTRUCT GRADE BEAM IN HALF LENGTH SEGMENTS MAXIMUM.
INSTALL ONLY ONE TIE ROD SPACED AT 12" O.C. MAXIMUM, MANTAINING THE EDGE DISTANCES AS SHOWN ABOVE.
IF THE TOP OF GRADE BEAM NEEDS TO BE INCREASED TO MANTAIN THE EDGE DISTANCE TO THE TIE ROD, PROVIDE A CONCRETE HAUNCH ALONG THE BEAM SEGMENT AND REINFORCED AS ALSO INDICATED ABOVE.

*: REFERENCE PROJECTED TOP OF GRADE BEAM ELEVATION FOR EACH ROOM

NOTES:

1. WHERE SCENARIO A & B (ABOVE) ARE APPLIED, THE GRADE BEAMS SHALL BE PERMANENTLY MARKED TO INDICATE THE ACTUAL LENGTH OF THE OCCURRENCE.
2. UPON COMPLETION OF THE UNDERPINNING OPERATION AND DURING THE REMEDIAL EXCAVATION WITHIN THE BUILDING AND ALONG THE OUTER PORTION OF THE STRUCTURE, THESE AREAS SHALL BE UNDERMINED TO A DEPTH NO LESS THAN ONE (1) FOOT BELOW THE BOTTOM OF BOTH BEAMS AND BACKFILLED WITH A CONTROLLED LOW STRENGTH MATERIAL (CLSM) WITH THE INTENT TO ENCAPSULATE THE MATERIAL HELD WITHIN THE GRADE BEAMS.
3. THE CONTROLLED LOW STRENGTH MATERIAL (CLSM) SHALL EXTEND UP ONTO THE BEAMS A DISTANCE OF SIX (6) INCHES AND SHALL EXTEND A MINIMUM OF ONE (1) FOOT BEYOND THE BEAMS IN WIDTH, ON BOTH SIDES OF THE STRUCTURE.
4. THE CONTROLLED LOW STRENGTH MATERIAL (CLSM) SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 500 PSI.

ADJUSTMENT TO ORIGINAL GRADE BEAM DESIGN TO ACCOMODATE FOR SHALLOWER BOTTOM OF EXISTING WALL FOUNDATION ELEVATIONS.

AECOM

PROJECT

BUILDING INTERIOR REMEDIATION AND WALL UNDERPINNING DESIGN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN
YATES COUNTY, NEW YORK
NYSDEC SITE # 8-62-009

CLIENT

NYSEG
New York State Electric and Gas Corp.
18 Link Drive
P.O. Box 5224
Binghamton, New York 13905

REGISTRATION

ISSUE/REVISION

1	12-17-2018	ADDED CLSM TO DETAIL

KEY PLAN

SHEET TITLE

WORK CHANGE DIRECTIVE 004 R2
GRADE BEAM DESIGN MODIFICATION DETAILS

SHEET NUMBER

GBM-2

Attachment 2

Revised Specifications

SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Format
B. Submittal Procedures
C. Quantity Estimates
D. Payment
E. Measurement of Quantities
F. Assessment of Non-Conforming Work
G. Eliminated Items
H. Application for Payment
I. Invoices
J. Substantiating Data
K. Measurement and Payment of Bid Items

1.02 FORMAT:

A. The Bid Form Schedule A, Schedule of Quantities and Prices, submitted by the Successful Bidder, as modified by any executed Change Orders, will be the basis of the Bid Form. The Owner may request further breakdown of certain lump sum items to be included in the schedule of values as deemed necessary by the Owner. The Schedule of Values will serve as the basis for progress payments and will be incorporated into a form of Application for Payment as specified herein.

1. The Supplemental Schedule A1, Schedule of Quantities and Prices, submitted by the Contractor, as modified by any executed Change Orders, will be the basis of the Bid Form for all work included in Work Change Directive 004, Work Change Directive 005 and work to complete remaining work from Schedule A. The Owner may request further breakdown of certain lump sum items to be included in the schedule of values as deemed necessary by the Owner. The Schedule of Values will serve as the basis for progress payments and will be incorporated into a form of Application for Payment as specified herein.

B. Alternate bids submitted by the Remediation Contractor (i.e., incorporating means and methods differing from those presented in the 100% RD, but still meeting the intent of the design) will **not** be considered.

C. The Penn Yan Water Street remediation package is offered for bid in a bundle with the Auburn Clark Street and Auburn McMaster Street remediation packages. The Remediation Contractor shall assume that both the Clark Street and McMaster Street Contractors are awarded to one Remediation Contractor. The Remediation Contractor is

encouraged to provide total project price discounts (i.e., percentages) if awarded both the Auburn Contracts (i.e., Clark Street and McMaster Street) and the Penn Yan Contract.

D. Contractor shall submit one Application for Payment and invoice, covering the Work performed in each calendar month, for each month for the duration of the Work.

E. Contractor shall submit to the Owner an Application for Payment on the specified forms, and attach a separate invoice, for the Work completed in the calendar month covered by that Application for Payment.

1. Contractor's invoice shall be a separate page, or pages, in a form of Contractor's choosing that includes the specified information. Contractor shall submit a separate invoice to NYSEG for each Work Order.

1.03 SUBMITTAL PROCEDURES:

A. Contractor shall submit original Application for Payment and invoice, and one copy, to the NYSEG Work Order Representative for review.

B. Payment Period: Submit invoices at intervals not less than 30 days. Submit an invoice for each month no later than the invoice closing date of the following month as set by NYSEG. The schedule of invoice closing dates will be given to the Contractor prior to mobilization.

C. Contractor shall prepare a final Application for Payment and invoice as specified in Section - 01320 Construction Progress Documentation.

1.04 QUANTITY ESTIMATES:

A. For all Unit Price Work, the Contract Price will include an amount equal to the sum of the unit price for each pay item times the estimated quantity of each item as indicated in the Bid Form. The estimated quantities shown on Bid Form Schedule A are not guaranteed and are solely for the purpose of comparison of bids and determining an initial Contract Price. Quantities and measurements supplied or placed in the Work in accordance with the Specifications and Drawings and verified by the Construction Manager will determine payment.

B. The Construction Manager will determine the actual quantities and classifications of Unit Price Work performed by the Contractor. The Construction Manager will review with the Contractor the Construction Manager's preliminary determinations before rendering a written decision on an Application for Payment.

C. If the actual Work requires more or fewer units than the estimated units indicated on Bid Form Schedule A, Contractor shall provide the required units at the unit prices contracted. Under no circumstances may Contractor exceed stated quantities without prior written approval from the Construction Manager.

1.05 PAYMENT:

A. Payment includes: Full compensation for all required labor, products, tools, equipment, plant, transportation, services, and incidentals; erection, application, or installation of an item of the Work, including overhead and profit.

B. Payment will not be made for any of the following:

1. Products wasted or disposed of in a manner that is not acceptable.

2. Products determined as unacceptable before or after placement.

3. Products not completely unloaded from the transporting vehicle.

4. Products placed beyond the lines and levels of the required work.

5. Loading, hauling, and disposing of rejected materials.

6. Products remaining on hand after completion of work.

7. Additional work undertaken to expedite Contractor's operations.

8. Repair or replacement of monitoring wells, utilities, or any other facilities property located within or adjacent to the Work Area.

C. Payment will be made by the Owner for all Work actually performed during a particular payment period. Payments for lump sum items will be made based on the percent completion of the pay item. Upon approval by the Construction Manager, judgments of percent completion of lump sum items will be made in reference to the Schedule of Quantities and Prices.

1.06 MEASUREMENT OF QUANTITIES:

A. Measurement by Weight:

1. Weigh Scales: Scales shall be certified in accordance with applicable laws and regulations for the state and county in which the scales are located. Certification shall have been made within a period of not more than one year prior to date of use for weighing commodity.

2. The term "ton" will mean the short ton consisting of 2,000 pounds.

3. For shipments to offsite waste management facilities and locations, trucks will be weighed at the receiving facility for the purpose of measuring the quantity of Work for payment.

B. Measurement by Volume:

1. Volumes measured as in-place volumes will be determined by survey approved by the Construction Manager. The Contractor shall retain the services of an

independent land surveyor, licensed or registered in the State of New York, whose determination of in-place volumes shall be authoritative and final for the purpose of measurement for payment. To compute in-place volumes of excavation, the average end area method or other methods acceptable to the Engineer will be used.

C. Measurement by Area: Measured by survey. Area may be measured by square dimension using length and width or radius if approved by the Construction Manager.

D. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord, and verified by the Construction Manager.

E. Measurement by Time: Measure by the actual time rounded to the nearest time unit and verified by the Construction Manager.

1.07 ASSESSMENT OF NON-CONFORMING WORK:

A. Contractor shall replace Work, or portions of the Work, that do not conform to the requirements of the Specifications and Drawings, as assessed by the Construction Manager.

B. If, in the opinion of the Construction Manager, it is not practical to remove and replace the non-conforming Work, the Construction Manager will direct one of the following remedies:

1. The non-conforming Work may remain, but the unit price will be adjusted to a new price at the discretion of the Construction Manager.

2. The non-conforming Work shall be partially repaired to the instructions of the Construction Manager, and the unit price will be adjusted to a new price at the discretion of the Construction Manager.

C. The individual Specification sections may modify these options or may identify a specific formula or percentage price reduction.

D. The authority of the Engineer to assess non-conforming work and identify payment adjustment is final.

1.08 ELIMINATED ITEMS:

A. Should any items contained in the Drawings or Specifications be found unnecessary for the proper completion of the Work, the Construction Manager may, upon written order to the Contractor, eliminate such items from the Work, and such action shall in no way invalidate the Agreement.

B. Contractor will be paid for actual Work done and all documented costs incurred, including mobilization of materials prior to elimination of such items.

1.09 APPLICATION FOR PAYMENT:

A. Contractor shall submit each application for payment in a standardized form approved by NYSEG. A completed copy of this form shall be the cover for each invoice.

B. Applications for Payment shall be executed and certified by signature of authorized officer of Contractor.

C. Contractor shall list original Work Order amount, and each authorized Change Order and Work Change Directive, listing Change Order or Work Change Directive number and dollar amount.

1.10 INVOICES:

A. Each invoice shall be accompanied by the specified Application for Payment form and shall show the following:

1. The date of the Master Services Agreement.

2. Work Order Number.

3. Work Order Date.

4. NYSEG's Project No.

5. The name of the NYSEG Representative named on the Work Order ("Work Order Representative").

6. A description of the Work performed (The description of the Work shall document site location, project code number and detail the actual Work performed and completed).

B. Invoices that include Work performed on a T&M or CP basis shall be supported with copies of daily time sheets, and Contractor shall attach photocopies of receipts for all materials and expenses claimed as T&M or CP Work. Lack of complete documentation for T&M or CP work will be just cause for refusal by NYSEG to pay such claimed costs, pending submittal of required documentation. All documentation shall be submitted and approved prior to invoice submittal. Contractor shall submit backup copies of all required paperwork that was previously submitted as a part of a daily or weekly submittal.

1.11 SUBSTANTIATING DATA:

A. NYSEG may request substantiating data for any claimed payment. When NYSEG requires substantiating data, Contractor shall submit, within 30 days, data justifying quantities of Work and dollar amounts in question. NYSEG may conditionally approve any claimed payment pending submittal of acceptable substantiating data; however, unsubstantiated claims for payment will result in withholding of the unsubstantiated amounts from subsequent payment claims.

B. Contractor shall submit one copy of substantiating data with cover letter for each request for substantiating data. Each submittal of substantiating data shall show Application for Payment number and date, and pay item by number and description.

1.12 MEASUREMENT AND PAYMENT OF BID ITEMS:

A. Bid Form Schedule A, Schedule of Values, lists the Bid Items and Unit Price Items for the Work. Measurement and payment of the Work covered by the Contract Documents is specified herein below.

B. At the direction of the Construction Manager, Contractor may be asked to perform change order work on a T&M basis. Schedule E – List of Equipment, and Schedule G – List of Personnel, shall be the basis for measurement and payment of equipment and labor for Time and Materials Work. Hourly prices for equipment and labor listed on Schedule E and Schedule G shall include Contractor's overhead and profit for such Time and Materials Work.

C. The following paragraphs specify measurement and payment of the Bid Items listed on Bid Form Schedule A (attached to this Specification Package):

Bid Item 1 Mobilization and Demobilization

1. Work required to complete Mobilization and Demobilization includes, but is not limited to:

a. Movement of personnel, equipment, and materials to the site, if such movement is not included in any other Bid item.

b. Preconstruction coordination meetings.

c. Preparation, submittal, and revision of all required pre-mobilization submittals as described in Specifications Section 01330 – Submittal Procedures.

d. Removal of all personnel, equipment, and materials from the Site at the completion of the Work.

2. Mobilization and Demobilization will be measured for payment as one unit, complete as specified.

3. Payment for Mobilization and Demobilization Work will be made on a percent complete basis of the lump sum price for the Bid Item listed on Bid Form Schedule A. Payment of the lump sum price for "Mobilization and Demobilization" shall constitute full compensation for all labor, supervision, materials, equipment, start-up submittals, incidentals and all other costs necessary to complete Mobilization and Demobilization Work, including the transport of all equipment, labor and temporary facilities and materials to and

from the Site. No more than 70% of this Bid item may be invoiced prior to demobilization from the site as substantial completion.

Bid Item 2 Temporary Facilities and Controls

1. Work required to complete the Temporary Facilities and Controls includes, but is not limited to:

a. Implement requirements for environmental protection specified in Specifications Section 01140 – Work Restrictions unless specifically identified as being provided by others.

b. Perform utility mark-outs (DigSafelyNY).

c. Provide and maintain temporary fencing and visual barrier fabric as shown on the Drawings. Fencing shall meet NYSEG specifications for security and grounding.

d. Provide and maintain two Rusmar foam units of sufficient size to cover the impacted areas within 5 minutes (or equivalent) on Project Site for the duration of intrusive operations. Foam expendables will be paid under Bid Item 23.

e. Provide and maintain power-sprayer units of sufficient size to provide continuous Biosolve®-solution misting over active excavations on Project Site for the duration of intrusive operations. Biosolve® expendables will be paid under alternate Bid Item 24.

f. Provide and maintain Piian odor neutralizer system of sufficient size to provide continuous perimeter odor control on Project Site for the duration of intrusive operations. Piian system expendables will be paid under alternate Bid Item 25.

g. Implement health and safety requirements specified in Specifications Section 01415 – Health and Safety Requirements.

h. Install and maintain temporary facilities and controls specified in Specifications Section 01500 – Mobilization and Temporary Facilities and the Drawings unless specifically identified as being provided by others.

i. Implement and maintain temporary erosion and sediment controls shown on the Drawings and/or specified in Specifications Section 01570 – Erosion and Sediment Controls.

j. Cost to provide project management and oversight as specified in Specifications Section 01310 – Project Management and Coordination.

k. Installation, operation and removal of decontamination facilities specified in the Drawings and in Specifications Section 02130 - Decontamination as well as management and disposal of any liquids or residues generated during decontamination.

l. Decontamination of equipment and debris prior to shipment offsite.

m. Maintain and repair all temporary facilities and controls including those provided by Others during the period when Work is taking place at the site. Installation of temporary haul roads, stockpile dewatering and water treatment pads and maintenance of same shall be included.

n. Conduct any surveying needed to control and document the Work.

o. All other one-time and recurring activities required by the Contractor to complete the Work unless included in another pay item or specifically identified as being the responsibility of Others.

2. Temporary Facilities and Controls Work will be measured for payment on a per month basis, as documented by the Construction Manager.

3. Payment for Temporary Facilities and Controls Work will be made on a per month basis for the Bid Item listed on Bid Form Schedule A. Payment of the unit price for "Temporary Facilities and Controls" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Temporary Facilities and Controls Work. No payment for Temporary Facilities and Controls will be made when the Contractor is demobilized from the site.

4. Payment for Temporary Facilities and Controls Work performed during Phase 2 will be made on a per week basis for the Bid Item listed on Supplemental Bid Form Schedule A1. Payment of the unit price for "Temporary Facilities and Controls" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Temporary Facilities and Controls Work. No payment for Temporary Facilities and Controls will be made when the Contractor is demobilized from the site.

Bid Item 3 Asbestos Containing Material (ACM) and Hazardous Material Abatement

1. Work required to complete ACM and Hazardous Material Abatement includes, but is not limited to:

a. Implementation of ACM and Hazardous Material Abatement activities as described in Specifications Section 02801 Removal and Disposal of Asbestos, Specifications Section 02802 Lead Safe Work Practices,

Specifications Section 02840 Removal and Disposal of PCBs, and Specifications Section 02900 Universal Waste.

2. ACM and Hazardous Material Abatement Work will be measured for payment as one unit, complete as specified.

3. ACM and Hazardous Material Abatement Work will be made on a percent complete basis of the lump sum price for the Bid Item listed on Bid Form Schedule A. Payment of the lump sum price for "ACM and Hazardous Material Abatement" shall constitute full compensation for all labor, supervision, materials, equipment, subcontractors, laboratory analysis, incidentals and all other costs necessary to complete ACM and Hazardous Material Abatement Work as specified in the Specifications and as indicated on the Drawings.

Bid Item 4 Demolition

1. Work required to complete Demolition includes, but is not limited to:

a. Excavation, demolition, and sizing for disposal of surface and subsurface structures in accordance with the Drawings.

b. Demolition, removal and disposal of the former railroad bridge decking and piles in accordance with the Drawings.

c. Disposal of concrete and debris not associated with the former railroad bridge will be paid for under the Bid Item for Transportation and Disposal: Debris

2. Demolition work will be measured for payment as one unit, complete as specified.

3. Payment for Demolition Work will be made on a percent complete basis of the lump sum price for the Bid Item listed on Bid Form Schedule A. Payment of the lump sum price for "Demolition" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Demolition Work.

Bid Item 5 Structural Repair and Reinforcement

1. Work required to complete Structural Repair and Reinforcement includes, but is not limited to:

a. Structural Repair and Reinforcement of the Former MGP Building as described in Specifications Section 05110 – Former MGP Building Repair and Reinforcement and as shown on the Drawings.

2. Structural Repair and Reinforcement work will be measured for payment as one unit complete as specified.

3. Payment for Structural Repair and Reinforcement Work will be made on a percent complete basis of the lump sum price for the Bid Item listed on Bid Form Schedule A. Payment of the lump sum price for "Structural Repair and Reinforcement" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Structural Repair and Reinforcement Work.

Bid Item 6 Excavation Shoring

1. Work required to complete excavation shoring includes, but is not limited to:

a. Providing and installing sheet piles, secant piles, temporary cofferdams, and other related excavation support and protection requirements as specified in Specifications Section 02261 – Excavation Support and Protection.

b. Pre-augering and Pre-trenching (if required).

c. Removing, moving, and reinstalling sheet pile in accordance with the construction sequence shown on the drawings or the Contractor's approved Construction Sequence Plan.

d. Materials used in construction of the Secant Pile Wall will be permanently left in the ground.

2. Excavation Shoring Work will be measured for payment as one unit, complete as specified.

3. Excavation Shoring Work will be made on a percent complete basis of the lump sum price for the Bid Item listed on Bid Form Schedule A. Payment of the lump sum price for "Excavation Shoring" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Excavation Shoring work as specified in the Specifications and as indicated on the Drawings.

Bid Item 6S1 Excavation Shoring – Pressed Sheet Pile

1. Work required to complete the Excavation Shoring – Pressed Sheet Pile includes but is not limited to:

a. Providing and installing sheet piles as specified in Specifications Section 02261 – Excavation Support and Protection and as shown on the drawings.

b. Removing and/or abandoning in place sheet pile in accordance with the construction sequence shown on the drawings or in the Contractor's approved Construction Sequence Plan.

2. Excavation Shoring – Pressed Sheet Pile Work will be measured for payment on a linear foot of wall basis, complete as specified.

3. Payment for Excavation Shoring – Pressed Sheet Pile Work will be made on a linear foot basis for the Bid Item listed on the Supplemental Bid Form Schedule A1. Payment of the linear foot price for "Excavation Shoring – Pressed Sheet Pile" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, and all other costs necessary to complete Excavation Shoring – Pressed Sheet Pile work as specified in the Specifications and as indicated on the Drawings.

Bit Item 6S2 Excavation Shoring – Driven Sheet Pile

1. Work required to complete the Excavation Shoring – Driven Sheet Pile includes but is not limited to:

   a. Providing and installing sheet piles as specified in Specifications Section 02261 – Excavation Support and Protection and as shown on the drawings.

   b. Removing sheet pile in accordance with the construction sequence shown on the drawings or in the Contractor's approved Construction Sequence Plan.

2. Excavation Shoring – Driven Sheet pile Work will be measured for payment on a linear foot basis, complete as specified.

3. Payment for Excavation Shoring – Driven Sheet pile Work will be made on a linear foot basis for the Bid Item listed on the Supplemental Bid Form Schedule A1. Payment of the linear foot price for "Excavation Shoring – Driven Sheet pile" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, and all other costs necessary to complete Excavation Shoring – Driven Sheet pile work as specified in the Specifications and as indicated on the Drawings.

Bid Item 6S3 Excavation Shoring – Internal Bracing

1. Work required to complete the Excavation Shoring – Internal Bracing includes but is not limited to:

   a. Providing and installing internal bracing for the bank area cells as specified in Specifications Section 02261 – Excavation Support and Protection and as shown on the drawings.

   b. Removing internal bracing in accordance with the construction sequence shown on the drawings or the Contractor's approved Construction Sequence Plan

2. Excavation Shoring – Internal Bracing Work will be measured for payment on a linear foot basis, complete as specified.

3. Payment for Excavation Shoring – Internal Bracing Work will be made on a linear foot basis for the Bid Item listed on the Supplemental Bid Form Schedule A1. Payment of the linear foot price for "Excavation Shoring – Internal Bracing" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, and all other costs necessary to complete Excavation Shoring – Internal Bracing work as specified in the Specifications and as indicated on the Drawings.

Bid Item 7A Temporary Fabric Structure (TFS) Mobilization and Demobilization

1. Work required to complete TFS Mobilization and Demobilization includes, but is not limited to:

a. Obtain all required permits and approvals.

b. Prepare and submit the structural design for the TFS and stamped and signed by a professional engineer licensed in the State of New York.

c. Provide, construct, maintain, and remove the TFS as specified in Specifications Section 02150 – Odor and Vapor Control and TFS and as Shown on the Drawings.

d. Construct, maintain and remove the material handling area (Asphalt pad Sediment handling bins, drainage system, and other features) required for sediment stockpiling handling.

e. Provide, install, operate, maintain, and monitor, air handling equipment and the Air Treatment System as specified in Specifications Section 02150 – Odor and Vapor Control and TFS.

2. TFS Mobilization and Demobilization Work will be measured for payment as one unit, complete as specified.

3. Payment for TFS Mobilization and Demobilization Work will be made on a percent complete basis of the lump sum price for the Bid Item listed on Bid Form Schedule A. Payment of the lump sum for "TFS Mobilization and Demobilization" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete TFS Mobilization and Demobilization work as specified in the Specifications and as indicated on the Drawings. No more than 70% of this Bid item may be invoiced prior to demobilization from the site as substantial completion.

Bid Item 7B Temporary Fabric Structure and Controls

1. Work to complete Temporary Fabric Structure and Controls work include, but is not limited to:

a. Operation and maintenance of Temporary Fabric Structure and air handling equipment during excavation of impacted materials.

b. Any necessary carbon exchanges during the Work.

c. Maintenance of the materials handling pad and water collection system inside the TFS.

2. Temporary Fabric Structure and Controls Work will be measured for payment on a per month basis, as documented by the Construction Managers logs.

3. Payment for Temporary Fabric Structure and Controls Work will be made on a per month basis for the Bid Item listed on Bid Form Schedule A. Payment of the unit price for "Temporary Fabric Structure and Controls" shall constitute full compensation for all labor, supervision, materials, including incidentals and all other costs necessary to operate Temporary Fabric Structure and Controls including air handling and treatment system as specified in the Specifications including Section 02150 – Odor And Vapor Control And Temporary Fabric Structures and as shown on the Drawings. No payment for Temporary Fabric Structure and Controls work will be made when the Contractor is Demobilized from the site.

Bid Item 8 Excavation in the Dry

1. Work required to complete Excavation in the Dry includes, but is not limited to:

a. Excavation of soil from Upland areas.

b. Excavation of sediment from areas in the Outlet where removal is performed in the dry.

c. Loading excavated sediment onto trucks or barges for transportation to the TFS.

d. Transferring excavated sediment into the TFS for storage and amendment.

e. Loading excavated soil and sediment from excavations or the TFS into trucks for off-site transportation.

f. Coordinating trucking requirements with disposal facilities. Impacted materials must be directed to facility specified by NYSEG.

g. Other activities required to complete the work.

2. Excavation in the Dry will be measured for payment on a unit price basis per in-place cubic yard.

3. Payment for Excavation in the Dry Work will be made on the basis of the quantity of soil or sediment excavated within a pay period as measured by a survey. Payment of the lump sum for "Excavation in the Dry" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Excavation in the Dry work as specified in the Specifications and as indicated on the Drawings.

Bid Item 8S1 Former Gas House Excavation

1. Work required to complete the Former Gas House Excavation includes, but is not limited to:

a. Excavation of soil from the Former Gas House area.

b. Loading excavated soil and sediment from excavations or the material handling pad into trucks for off-site transportation.

c. Coordinating trucking requirements with disposal facilities. Impacted materials must be directed to facility specified by NYSEG.

d. Other activities required to complete the work.

2. Former Gas House Excavation will be measured for payment on a unit price basis per in-place cubic yard.

3. Payment for Former Gas House Excavation Work will be made on a per cubic yard basis for the Bid Item listed on Supplemental Bid Form Schedule A1. Payment of the lump sum for "Former Gas House Excavation" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Former Gas House Excavation work as specified in the Specifications and as indicated on the Drawings.

Bid Item 9 Dredging in the Wet

1. Work required to complete Dredging in the Wet includes, but is not limited to:

a. Removal of debris from the dredging area.

b. Dredging of sediment from areas in the Outlet where removal is performed in the wet.

c. Loading dredged sediment onto barges for transportation to the TFS.

d. Transferring dredged materials into the TFS for storage and amendment.

e. Installation, operation, and maintenance of turbidity curtains and other required Best Management Practices.

f. Coordinating trucking requirements with disposal facilities. Impacted materials must be directed to the facility specified by NYSEG.

g. Other dredging activities required to complete the work.

2. Dredging in the Wet will be measured for payment on a unit price basis per in-place cubic yard.

3. Payment for Dredging in the Wet Work will be made on the basis of the quantity of sediment dredged within a pay period as measured by survey. Payment of the lump sum for "Dredging in the Wet" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Dredging in the Wet Work as specified in the Specifications and as indicated on the Drawings.

Bid Item 10 Soil Amendment

1. Work required to complete Soil Amendment includes, but is not limited to:

a. Furnish additives to be used as the amending material for mixing with impacted sediments.

b. Mix and amend sediments in the TFS.

2. Payment for Soil Amendment Work shall be made on a per ton basis of approved additive.

3. Measurement of Soil Amendment Work shall be made on per ton basis of the unit price listed on Bid Form Schedule A as measured by truck weigh tickets provided by the supplier. Payment for "Soil Amendment" shall constitute full compensation for amendment of soils for moisture reduction at the direction of the Engineer, including all labor, equipment, and incidentals to blend and mix the approved additive with excavated soils. Soil Amendment will be reimbursed only if dewatering system is properly maintained and functioning efficiently and water treatment maximum flows and capacities are being performed to the Engineer's satisfaction and soils still require amendment prior to transportation and disposal.

4. Measurement of Soil Amendment Work performed during Phase 2 shall be made on per ton basis of the unit price listed on Supplemental Bid Form Schedule A1 as measured by truck weigh tickets provided by the supplier. Payment for "Soil Amendment" shall constitute full compensation for amendment of soils for moisture reduction at the direction of the Engineer, including all labor, equipment, and incidentals to blend and mix the approved additive with excavated soils. Soil Amendment will be reimbursed only if dewatering system is properly maintained and functioning efficiently

and water treatment maximum flows and capacities are being performed to the Engineer's satisfaction and soils still require amendment prior to transportation and disposal.

Bid Item 11 Common Fill

1. Work required to complete Common Fill includes, but is not limited to:

a. Providing Common Fill as specified in Specifications Section 02300 – Backfill and Grading.

b. Placement and compaction of Common Fill in areas excavated in the dry, including Upland excavations and the excavation in Cell 6 in the Outlet as shown in the Drawings.

c. Placement and compact**ion of** Common Fill in Upland areas where a soil cover is required as shown on the drawings.

d. Site grading as required to establish final common fill elevations and grades and to prepare the surface for restoration.

2. Payment for Common Fill Work shall be made on a per cubic yard basis of approved Common Fill as directed by Engineer.

3. Payment for Common Fill Work will be made on a per cubic yard basis for the Bid Item listed on Bid Form Schedule A as measured by survey. Payment for "Common Fill" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Common Fill work as specified in the Specifications and as indicated on the Drawings.

4. **Payment for Common Fill Work performed during Phase 2 will be made on a per cubic yard basis for the Bid Item listed on Supplemental Bid Form Schedule A1 as measured by assumed elevations for each cell. Payment for "Common Fill" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Common Fill work as specified in the Specifications and as indicated on the Drawings.**

Bid Item 12 Habitat Fill

1. Work required to complete Habitat Fill includes, but is not limited to:

a. Providing Habitat Fill Material as specified in Specifications Section 02300 – Backfill and Grading.

b. Placement of two feet of Habitat Fill Material below the OHWL in all cells in the Outlet as shown on the Drawings.

c. Site grading as required to establish final site elevations and grades and to prepare the surface for restoration.

2. Payment for Habitat Fill Work shall be made on a per cubic yard basis of approved Habitat Fill as directed by Engineer.

3. Payment for Habitat Fill Work will be made on a per cubic yard basis for the Bid Item listed on Bid Form Schedule A. Payment for "Habitat Fill" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Habitat Fill work as specified in the Specifications and as indicated on the Drawings.

4. Payment for Habitat Fill Work performed during Phase 2 will be made on a per cubic yard basis for the Bid Item listed on Supplemental Bid Form Schedule A1 as measured by assumed elevations for each cell. Payment for "Habitat Fill" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Habitat Fill work as specified in the Specifications and as indicated on the Drawings.

Bid Item 13 Topsoil

1. Work required to complete Topsoil includes, but is not limited to:

a. Providing Topsoil as specified in Specifications Section 02900 - Seeding.

b. Placement of Topsoil in Upland areas where seeding is specified as shown on the drawings.

c. Site grading as required to establish final site elevations and grades and to prepare the surface for restoration.

2. Payment for Topsoil Work shall be made on a per cubic yard basis of approved Topsoil as directed by Engineer.

3. Payment for Topsoil Work will be made on a per cubic yard basis of the lump sum price for the Bid Item listed on Bid Form Schedule A. Payment for "Topsoil" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Topsoil work as specified in the Specifications and as indicated on the Drawings.

4. Payment for Topsoil Work performed during Phase 2 will be made on a per cubic yard basis of the lump sum price for the Bid Item listed on Supplemental Bid Form Schedule A1. Payment for "Topsoil" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Topsoil work as specified in the Specifications and as indicated on the Drawings.

Bid Item 14 Construction Water Management

1. Work required to complete Construction Water Management includes, but is not limited to:

a. Control and collect surface water, stormwater, and groundwater in disturbed areas and from excavated soil and sediment.

b. Remove suspended solids from wet dredging areas.

c. Maintain excavation bottom free of standing water in dry excavation areas.

d. Design, install, and operate extraction dewatering, ~~**depressurization systems**~~ and pumping systems as specified in Specifications Section 02240 Dewatering.

2. Construction Water Management will be measured for payment as one unit, complete as specified.

3. Payment Construction Water Management Work will be made on a percent complete basis of the lump sum price for the Bid Item listed on Bid Form Schedule A. Payment of the lump sum for "Construction Water Management" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Construction Water Management work as specified in the Specifications and as indicated on the Drawings.

4. Payment for Construction Water Management Work performed during Phase 2 will be made on a percent complete basis of the lump sum price for the Bid Item listed on Supplemental Bid Form Schedule A1. Payment of the lump sum for "Construction Water Management" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Construction Water Management work as specified in the Specifications and as indicated on the Drawings.

Bid Item 15 Construction Water Treatment Operation 1

1. Work required to complete Construction Water Treatment Operation 1 includes, but is not limited to:

a. Mobilization, set up and removal of all water treatment system equipment, materials, and personnel

b. Labor, materials, and equipment required for operation of the water treatment system for twelve (12) hours per day, system O&M, data logging, quality control, materials and incidentals for treatment of up to five million (5,000,000) gallons

c. Any disposal fees required for discharge to the locally owned treatment works.

2. Construction Water Treatment Operation 1 work will be measured for payment on a lump sum basis up to 5 million (5,000,000) gallons as documented by treatment system operation logs.

3. Payment for Construction Water Treatment Operation 1 will be made on a percent complete basis of the lump sum price listed on Bid Form Schedule A. Payment for Construction Water Treatment Operation 1 shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to operate and maintain the construction water treatment system as specified in Specifications Section 02245 – Construction Water Treatment. For the purpose of documenting the total volume of "treated construction water" counted in regard to the 5 million gallon lump sum price quantity, the metered value of "discharged" effluent from the effluent storage tank will be used. No construction water requiring re-treatment shall be counted towards the lump sum price quantity.

Bid Item 16 Construction Water Treatment Operation 2

1. Work required to complete Construction Water Treatment Operation 2 includes, but is not limited to labor, materials, and equipment required for operation of the water treatment system for twelve (12) hours per day, system O&M, data logging, quality control, disposal fees, materials and incidentals in excess of the 5,000,000 gallons required under Bid Item 15.

2. Construction Water Treatment Operation 2 work measured for payment on a unit rate basis of one thousand (1,000) gallon units as documented by treatment system operation logs.

3. Payment for Construction Water Treatment Operation 2 will be made on a percent complete basis of the lump sum price listed on Bid Form Schedule A. Payment for Construction Water Treatment Operation 2 shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to operate and maintain the construction water treatment system as specified in Specifications Section 02245 – Construction Water Treatment. For the purpose of documenting the total volume of "treated construction water" the metered value of "discharged" effluent from the effluent storage tank will be used. No construction water requiring re-treatment shall be counted towards the unit rate price quantity.

Bid Item 17 Transportation and Disposal: Debris

1. Work required to complete Transportation and Disposal: Debris includes but is not limited to truck preparation for transport, transportation, and final disposal of excavated impacted debris at NYSEG approved facility.

2. Transportation and Disposal: Debris Work will be measured for payment on a per ton basis, as documented by scale weight tickets.

3. Payment for Transportation and Disposal: Debris Work will be made in accordance with the unit price listed on Bid Form Schedule A. Payment of the unit price for "Transportation and Disposal: Debris" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, approved disposal facility fees and all other costs necessary to complete Transportation and Disposal: Debris Work, as specified in Specifications Section 02120 – Off-site Transportation and Disposal.

Bid Item 18 Transportation and Disposal: Seneca Meadows

1. Work required to complete Transportation and Disposal: Seneca Meadows includes but is not limited to truck preparation for transport, transportation, and final disposal of excavated impacted soil at the Seneca Meadows facility in Waterloo NY.

2. Transportation and Disposal: Seneca Meadows Work will be measured for payment on a per ton basis, as documented by scale weight tickets.

3. Payment for Transportation and Disposal: Seneca Meadows Work will be made in accordance with the unit price listed on Bid Form Schedule A. Payment of the unit price for "Transportation and Disposal: Seneca Meadows" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, approved disposal facility fees and all other costs necessary to complete Transportation and Disposal: Seneca Meadows, as specified in Specifications Section 02120 – Off-site Transportation and Disposal.

4. Payment for Transportation and Disposal: Seneca Meadows Work performed during Phase 2 will be made in accordance with the unit price listed on Supplemental Bid Form Schedule A1. Payment of the unit price for "Transportation and Disposal: Seneca Meadows" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals, approved disposal facility fees and all other costs necessary to complete Transportation and Disposal: Seneca Meadows, as specified in Specifications Section 02120 – Off-site Transportation and Disposal.

Bid Item 19 Site Restoration

1. Work required to complete Site Restoration work includes, but is not limited to;

a. Installation of gravel, structures, and other restoration items located within the site as defined on the Design Drawings.

b. Temporary and final seeding of exposed upland soils and required maintenance.

c. Replacement of the curb and sidewalk under the construction site entrance.

d. Providing a warranty that guarantees 100% coverage of seeded areas after one year.

2. Site Restoration Work will be measured for payment as one unit, complete as specified.

3. Payment for Site Restoration Work will be made on a percent complete basis of the lump sum price for the Bid Item listed on Bid Form Schedule A. Payment of the lump sum price for "Site Restoration" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to furnish, and place/install restoration items as detailed in the Design Drawings.

Bid Item 20 Sub-Aquatic Vegetation (SAV)/Bank Restoration

1. Work required to complete SAV Bank Restoration work includes, but is not limited to,

a. Installation of bank plantings, SAV plantings, and other restoration items located within and adjacent to the Keuka Lake Outlet as shown on the Design Drawings.

b. Providing a warranty that guarantees 100% survival or replacement of bank plantings and 95% survival or replacement of SAV plantings after one year.

2. SAV/Bank Restoration Work will be measured for payment as one unit, complete as specified.

3. Payment for SAV/Bank Restoration Work, as specified in Specifications Section 02300, will be made on a percent complete basis of the lump sum price for the Bid Item listed on Bid Form Schedule A. Payment of the lump sum price for "SAV/ Bank Restoration" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to furnish, and place/install restoration items as detailed in the Design Drawings.

4. **Payment for SAV/Bank Restoration Work, as specified in Specifications Section 02300 performed during Phase 2, will be made on a percent complete basis of the lump sum price for the Bid Item listed on Bid Form Schedule A. Payment of the lump sum price for "SAV/ Bank Restoration" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to furnish, and place/install restoration items as detailed in the Design Drawings.**

Bid Item 21R1 Turbidity Curtain, Impermeable Silt Curtain, Oleophilic Curtain, and Oil Boom

1. Work required to complete **Impermeable Silt Curtain,** Turbidity Curtain**, and Oleophilic Curtain** work includes, but is not limited to:

a. Installation of **impermeable silt curtain,** turbidity curtain**, oleophilic curtain,** and oil booms, where necessary, as identified during construction and as defined on the Design Drawings.

b. **Removing,** moving**, and reinstalling impermeable silt curtain, oleophilic curtain,** turbidity curtain and oil booms as needed to encompass work area **and as needed for Emergency Response Plan procedures**.

c. Monitoring **and maintaining all** turbidity, curtains/ **and** oil booms as needed.

2. **Installation of a steel cable trash net downstream of the work area.**

3. Turbidity Curtain Work will be measured for payment on a linear foot **lump sum** basis, complete as specified.

4. Payment for Turbidity Curtain Work, will be made on a linear foot **lump sum** basis for the Bid Item listed on Bid Form Schedule A. Payment of the linear foot **lump sum** price for "Turbidity Curtain" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to furnish, and place/install turbidity curtain as detailed in the Design Drawings.

Bid Item 22 Odor Control Foam System – Operation

1. Work required to complete Odor Control Foam System – Operation includes providing odor control foam and operating and maintaining equipment required to apply the foam. Costs for providing foam application equipment is included in the lump sum cost for Bid Item 2 – Temporary Facilities and Controls.

2. Odor Control Foam System – Operation will be measured for payment by the gallon of odor suppressant concentrate(s) applied.

3. Payment for Odor Control Foam System – Operation will be made on a per gallon unit price as listed on Bid Form Schedule A. Payment for odor control foam system - operation shall constitute full compensation for all the costs of Odor Control Foam Concentrate and manpower required to apply same.

4. **Payment for Odor Control Foam System – Operation applied during Phase 2 will be made on a per gallon unit price as listed on Supplemental Bid Form Schedule A1. Payment for odor control foam system - operation shall**

constitute full compensation for all the costs of Odor Control Foam Concentrate and manpower required to apply same.

Bid Item 23 Odor Control Sprayer System (Biosolve) - Operation

1. Work required to complete Odor Control Sprayer System – Operation includes providing odor sprayer foam and operating and maintaining equipment required to apply the spray. Costs for providing spray application equipment is included in the lump sum cost for Bid Item 2 – Temporary Facilities and Controls.

2. Odor Control Sprayer System – Operation will be measured for payment by the gallon of odor suppressant concentrate(s) applied.

3. Payment for Odor Control Sprayer System – Operation will be made on a per gallon unit price as listed on Bid Form Schedule A. Payment for odor control sprayer system - operation shall constitute full compensation for all the costs of Odor Control Sprayer System Concentrate, water and manpower required to apply same.

4. Payment for Odor Control Sprayer System – Operation applied during Phase 2 will be made on a per gallon unit price as listed on Supplemental Bid Form Schedule A1. Payment for odor control sprayer system - operation shall constitute full compensation for all the costs of Odor Control Sprayer System Concentrate, water and manpower required to apply same.

Bid Item 24 Perimeter Odor Control Sprayer System (Piian) - Operation

1. Work required to complete Odor Control Sprayer System – Operation includes providing odor control spray and operating and maintaining equipment required to apply the spray. Costs for providing spray application equipment is included in the lump sum cost for Bid Item 2 – Temporary Facilities and Controls.

2. Perimeter Odor Control Sprayer System – Operation will be measured for payment by the gallon of odor neutralizer concentrate(s) applied.

3. Payment for Perimeter Odor Control Sprayer System – Operation will be made on a per gallon unit price as listed on Bid Form Schedule A. Payment for perimeter odor control sprayer system - operation shall constitute full compensation for all the costs of Odor Control Sprayer System Concentrate, water and manpower required to apply same.

Bid Item 25 24 Hour Construction Water Treatment Operation

1. Work required to complete 24 Hour Construction Water Treatment Operation includes, but is not limited to all required labor, materials, and equipment required for operation of the water treatment system, system O&M, data logging, quality control, for hours not covered under Bid Item 15 and 16.

2. Construction Water Treatment Operation work measured for payment on per hour basis as documented by treatment system operation logs.

3. Payment for Construction Water Treatment Operation will be made on a per hour unit price listed on Bid Form Schedule A. Payment for Construction Water Treatment Operation shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to operate and maintain the construction water treatment system as specified in Specifications Section 02245 – Construction Water Treatment.

4. Payment for Construction Water Treatment Operation performed during Phase 2 will be made on a per hour unit price listed on Supplemental Bid Form Schedule A1. Payment for Construction Water Treatment Operation shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to operate and maintain the construction water treatment system as specified in Specifications Section 02245 – Construction Water Treatment.

Alternate Bid Item 1A Demobilization and Remobilization

1. Work required to complete Demobilization and Remobilization will be required if the building stabilization work is completed and the remediation work has not started. The decision to demobilize and remobilize will be made by the Owner based on the building stabilization completion dates. Demobilization and Remobilization includes, but is not limited to:

a. Removal of personnel, equipment, and materials from the Site at the completion of the building stabilization Work included in Bid Item 3 and Bid Item 5.

b. Maintenance of any temporary facilities and controls that will remain at the site between mobilizations.

c. Movement of personnel, equipment, and materials to the site for the remediation work.

d. Disconnection and re-connection of any services included in bid items one and two.

2. Demobilization and Remobilization will be measured for payment as one unit, complete as specified.

3. Payment for Demobilization and Remobilization Work will be made on a percent complete basis of the lump sum price for the Bid Item listed on Bid Form Schedule A. Payment of the lump sum price for "Demobilization and Remobilization" shall constitute full compensation for all labor, supervision, materials, equipment, start-up submittals, incidentals and all other costs necessary to complete Demobilization and Remobilization Work, including the

transport of all equipment, labor and temporary facilities and materials to and from the Site. No more than 50% of this bid item may be invoiced prior to remobilization to the site. Alternative Bid Item 1A and Alternative Bid Item 1B are exclusive to each other, only one of the Demobilization and Remobilization bid items will be paid if demobilization and remobilization is required.

Alternate Bid Item 1B Demobilization and Remobilization

1. Work required to complete Demobilization and Remobilization will be required if the sediment remediation work cannot be completed in a single year. The decision to demobilize and remobilize will be made by the Owner based on the start of sediment remediation. Demobilization and Remobilization includes, but is not limited to:

a. Removal of personnel, equipment, and materials from the Site at the completion of a dredge cell.

b. Removal of ~~sheetpile shoring~~ **impermeable silt curtain, turbidity curtain, oleophilic curtain, and oil boom** in the outlet perpendicular to the water flow which prevents flow from both sides of the ~~sheetpile~~ **curtains**.

c. Maintenance of any temporary facilities and controls and temporary fabric structure and controls that will remain at the site between mobilizations.

d. Movement of personnel, equipment, and materials to the site for the remaining remediation work.

e. Re-placing ~~sheetpile~~ **impermeable silt curtain, turbidity curtain, and oleophilic curtain** shoring to isolate the next dredge cell in the sequence.

f. Disconnection and re-connection of any services included in bid items one and two.

2. Demobilization and Remobilization will be measured for payment as one unit, complete as specified.

3. Payment for Demobilization and Remobilization Work will be made on a percent complete basis of the lump sum price for the Bid Item listed on Bid Form Schedule A. Payment of the lump sum price for "Demobilization and Remobilization" shall constitute full compensation for all labor, supervision, materials, equipment, start-up submittals, incidentals and all other costs necessary to complete Demobilization and Remobilization Work, including the transport of all equipment, labor and temporary facilities and materials to and from the Site. No more than 50% of this bid item may be invoiced prior to remobilization to the site. Alternative Bid Item 1A and Alternative Bid Item 1B

are exclusive to each other, only one of the Demobilization and Remobilization bid items will be paid if demobilization and remobilization is required.

Alternate Bid Item 2 Flocculent

1. Work required to complete Flocculent includes, but is not limited to:

a. Furnish flocculent to be used to reduce turbidity in dredged and backfilled cells as directed by the engineer.

b. Conduct jar testing to determine appropriate application rates.

c. Applying flocculent to the dredged and backfilled cells.

2. Payment for Flocculent Work shall be made on a per pound basis of approved additive.

3. Measurement of Flocculent Work shall be made on per pound basis of the unit price listed on Bid Form Schedule A as measured by invoices provided by the supplier. Payment for "Flocculent" shall constitute full compensation for using flocculent to reduce turbidity at the direction of the Engineer, including all labor, equipment, and incidentals to blend and mix the approved flocculent with turbid water.

Alternate Bid Item 4 Additional Turbidity Curtain

1. **Work required to complete Additional Turbidity Curtain work includes, but is not limited to:**

a. **Installation of additional turbidity curtain, where necessary, as identified during construction and directed by the Engineer.**

b. **Moving additional turbidity curtain as needed to encompass work area.**

c. **Removing and replacing turbidity curtain as required by the Emergency Response Plan.**

d. **Removal and disposal of curtain when work in the Outlet is complete.**

2. **Additional Turbidity Curtain Work will be measured for payment on a linear foot basis, complete as specified.**

3. **Payment for Additional Turbidity Curtain Work, will be made for the quantity completed at the price provided for the Bid Item listed on Bid Form Schedule A. Payment of the linear foot price for "Additional Turbidity Curtain" shall constitute full compensation for all labor, supervision,**

materials, equipment, incidentals and all other costs necessary to furnish, and place/install turbidity curtain as directed by the Engineer.

Alternate Bid Item 5 Additional Impermeable Silt Curtain

1. **Work required to complete Additional Impermeable Curtain work includes, but is not limited to:**

   a. **Installation of additional impermeable silt curtain, where necessary, as identified during construction and directed by the Engineer.**

   b. **Moving additional impermeable silt curtain as needed to encompass work area.**

   c. **Removing and replacing impermeable silt curtain as required by the Emergency Response Plan.**

   d. **Removal and disposal of curtain when work in the Outlet is complete.**

2. **Additional Impermeable Silt Curtain Work will be measured for payment on a linear foot basis, complete as specified.**

3. **Payment for Additional Impermeable Silt Curtain Work, will be made for the quantity completed for the price provided the Bid Item listed on Bid Form Schedule A. Payment of the linear foot price for "Additional Impermeable Silt Curtain" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to furnish, and place/install impermeable silt curtain as directed by the Engineer.**

Turbidity Alternate Bid Item 6 Additional Oleophilic Curtain

1. **Work required to complete Additional Oleophilic Curtain work includes, but is not limited to:**

   a. **Installation of additional oleophilic curtain, where necessary, as identified during construction and directed by the Engineer.**

   b. **Moving additional oleophilic curtain as needed to encompass work area.**

   c. **Removing and replacing oleophilic curtain as required by the Emergency Response Plan.**

   d. **Removal and disposal of curtain when work in the Outlet is complete.**

2. **Additional Oleophilic Curtain Work will be measured for payment on a linear foot basis, complete as specified.**

3. **Payment for Additional Oleophilic Curtain Work, will be made for the quantity completed within a pay period at the price provided the Bid Item listed on Bid Form Schedule A. Payment of the linear foot price for "Additional Oleophilic Curtain" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to furnish, and place/install turbidity curtain as directed by the Engineer.**

Phase 2 Bid Item 1C Remobilization and Demobilization

1. **Work required to complete Remobilization and Demobilization following the temporary project shutdown. Remobilization and Demobilization includes, but is not limited to:**

   a. **Removal of personnel, equipment, and materials from the Site at the completion of the remediation work.**

   b. **Maintenance of any temporary facilities and controls that will remain at the site between mobilizations.**

   c. **Movement of personnel, equipment, and materials to the site for the remediation work.**

   d. **Disconnection and re-connection of any services included in bid items one and two.**

2. **Remobilization and Demobilization will be measured for payment as one unit, complete as specified.**

3. **Payment for Remobilization and Demobilization Work will be made on a percent complete basis of the lump sum price for the Bid Item listed on the Supplemental Bid Form Schedule A1. Payment of the lump sum price for "Remobilization and Demobilization" shall constitute full compensation for all labor, supervision, materials, equipment, start-up submittals, incidentals and all other costs necessary to complete Remobilization and Demobilization Work, including the transport of all equipment, labor and temporary facilities and materials to and from the Site. No more than 50% of this bid item may be invoiced prior to remobilization to the site.**

Phase 2 Bid Item 5A Building Stabilization and Underpinning

1. **Work required to complete the stabilization and underpinning of the Former MGP building includes but is not limited to:**

a. Stabilization of the building walls including repair and reinforcement of the walls using anchored steel plates and grout injection.

b. Providing and installing helical piles as specified in Specifications Section 02464 – Helical Piles.

c. Installation of grade beams and helical piles as shown on the drawings.

2. Building Stabilization and Underpinning will be measured for payment as one unit, complete as specified.

3. Payment for Building Stabilization and Underpinning will be made on a percent complete basis of the lump sum price for the Bid Item listed on Supplemental Bid Form Schedule A1. Payment of the lump sum price for "Building Stabilization and Underpinning" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to furnish, and place/install restoration items as detailed in the Design Drawings and Specifications.

Phase 2 Bid Item 5B Repointing of Masonry Walls

1. Work required to complete the repointing of masonry walls of the Former MGP building includes but is not limited to:

a. Determination of joints to be repointed as defined in the Building Interior Remediation and Wall Underpinning Design Drawing C-05.

b. Testing and approval of mortar mixes prior to full scale repointing.

c. Removal of all temporary steel plate bracing and repointing of affected areas, as needed, after the completion of subgrade remediation.

d. Supplemental repointing as needed during the completion of the work.

2. Repointing of Masonry Walls will be measured for payment on a per square foot basis.

3. Payment for Repointing of Masonry Walls will be made on a per square foot price as listed on Supplemental Bid Form Schedule A1. Payment of the per square foot price for "Repointing of Masonry Walls" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to furnish, and place/install restoration items as detailed in the Design Drawings.

Phase 2 Bid Item 5C Underpinning Work Platform Excavation and Preparation

1. **Work required to complete Underpinning Work Platform Excavation and Preparation work includes, but is not limited to;**

   a. **Excavation of soils from currently existing grades to create a work platform for the underpinning work as defined in the Contractor's Technical Execution Plan.**

   b. **Loading excavated soil onto trucks or barges for transportation to the material handling pad.**

   c. **Transferring excavated soil into the material handling pad for storage and amendment.**

   d. **Furnish additives to be used as the amending material for mixing with excavated soil as required for disposal/transportation.**

   e. **Mix and amend excavated soil on the material handling pad.**

   f. **Loading excavated soil from excavations or the material handling pad into trucks for off-site transportation.**

   g. **Coordinating trucking requirements with disposal facilities. Impacted materials must be directed to facility specified by NYSEG.**

   h. **Providing Crusher Run Backfill Material as specified in Specifications Section 02300 – Backfill and Grading to create a level working platform for the underpinning work.**

   i. **Placement of Crusher Run Backfill Material to create a level working platform for the underpinning work.**

   j. **Other activities required to complete the work.**

2. **Underpinning Work Platform Excavation and Preparation Work will be measured for payment as one unit, complete as specified.**

3. **Payment for Underpinning Work Platform Excavation and Preparation Work will be made on a percent complete basis of the lump sum price for the Bid Item listed on Supplemental Bid Form Schedule A1. Payment of the lump sum price for "Underpinning Work Platform Excavation and Preparation" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to create the working platform as defined in the Contractor's TEP.**

Phase 2 Bid Item 5D Underpinning Work Platform Grading and Restoration

1. **Work required to complete Underpinning Work Platform Grading and Restoration beyond Phase 1 restoration work includes, but is not limited to;**

   a. **Installation of gravel, structures, and other restoration items located within the site as defined on the Design Drawings.**

   b. **Temporary and final seeding of exposed upland soils and required maintenance.**

   c. **Replacement of asphalt, parking spaces, and light posts.**

   d. **Repairs to the dock.**

   e. **Providing a warranty that guarantees 100% coverage of seeded areas after one year.**

2. **Underpinning Work Platform Grading and Restoration Work will be measured for payment as one unit, complete as specified.**

3. **Payment for Underpinning Work Platform Grading and Restoration Work will be made on a percent complete basis of the lump sum price for the Bid Item listed on Supplemental Bid Form Schedule A1. Payment of the lump sum price for "Underpinning Work Platform Grading and Restoration" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to furnish, and place/install restoration items as detailed in the Design Drawings.**

Phase 2 Bid Item 6A Phase 1 Sheet Pile Extraction

1. **Work required to complete the Sheet Pile Extraction includes but is not limited to:**

   a. **Removal of the driven sheet piles installed under the original Remedial Design (i.e. excludes Bank Area revisions).**

2. **Sheet Pile Extraction work will be measured for payment on a lump sum basis, complete as specified.**

3. **Payment for Sheet Pile Extraction Work will be made on a lump sum basis for the Bid Item listed on the Supplemental Bid Form Schedule A1. Payment of the lump sum price for "Sheet Pile Extraction" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Sheet Pile Extraction work as specified in the Specifications and as indicated on the Drawings.**

Phase 2 Bid Item 6B Previously Installed Bank Area Sheet Pile Extraction

1. Work required to complete the Sheet Pile Extraction includes but is not limited to:

   b. Removal of the driven sheet piles installed in the bank area under Field Order S-002 (i.e. added prior to WCDs 4 and 5) as shown on Drawing C-06A.

2. Sheet Pile Extraction work will be measured for payment on a linear foot of sheet pile wall basis, complete as specified.

3. Payment for Sheet Pile Extraction Work will be made on a linear foot basis for the Bid Item listed on the Supplemental Bid Form Schedule A1. Payment of the linear foot price for "Sheet Pile Extraction" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Sheet Pile Extraction work as specified in the Specifications and as indicated on the Drawings.

Phase 2 Bid Item 8 Bank Excavation

1. Work required to complete Bank Excavation includes, but is not limited to:

   a. Excavation of soil and sediments from the bank area and Cell 6B where removal is performed under the Design Modification 004 as detailed in Drawings C-06B and C-06C.

   b. Loading excavated soil/sediment onto trucks or barges for transportation to the sediment handling pad.

   c. Transferring excavated sediment into the sediment handling pad for storage and amendment.

   d. Loading excavated soil and sediment from excavations or the sediment handling pad into trucks for off-site transportation.

   e. Coordinating trucking requirements with disposal facilities. Impacted materials must be directed to facility specified by NYSEG.

   f. Other activities required to complete the work.

2. Bank Excavation will be measured for payment on a unit price basis per in-place cubic yard.

3. Payment for Bank Excavation Work will be made on a per cubic yard basis for the Bid Item listed on Supplemental Bid Form Schedule A1 as measured by assumed elevations for each cell. Payment of the per cubic yard price for "Bank Excavation" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary

to complete Bank Excavation work as specified in the Specifications and as indicated on the Drawings.

Phase 2 Bid Item 11A ~~Alternate Bid Item 7~~ Common Underwater Fill

1. Work required to complete Common Underwater Fill includes, but is not limited to:

a. Providing Common Underwater Fill Material as specified in Specifications Section 02300 – Backfill and Grading.

b. Placement of Common Underwater Fill Material below the Common Fill Material in Cell 6 in the Outlet as shown on the Drawings.

2. Payment for Common Underwater Fill Work shall be made on a per cubic yard basis of approved Common Underwater Fill as directed by Engineer.

3. Payment for Common Underwater Fill Work will be made on a per cubic yard basis for the Bid Item listed on Bid Form Schedule A. Payment for "Common Underwater Fill" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Common Underwater Fill work as specified in the Specifications and as indicated on the Drawings.

4. Payment for Common Underwater Fill Work during Phase 2 will be made on a per cubic yard basis for the Bid Item listed on Bid Form Schedule A as measured by assumed elevations for each cell. Payment for "Common Underwater Fill" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary to complete Common Underwater Fill work as specified in the Specifications and as indicated on the Drawings.

Phase 2 Bid Item 11B Crusher Run Backfill

1. Work required to complete Crusher Run Backfill includes, but is not limited to:

a. Providing Crusher Run Backfill Material as specified in Specifications Section 02300 – Backfill and Grading.

b. Placement of Crusher Run Backfill Material to create a level working platform in the bank area as shown on the Drawings.

2. Payment for Crusher Run Backfill Work will be made on an in-place per cubic yard basis for the Bid Item listed on Supplemental Bid Form Schedule A1 as measured by Contractor-surveyed elevations for each cell. Payment for "Crusher Run Backfill" shall constitute full compensation for all labor, supervision, materials, equipment, incidentals and all other costs necessary

to complete Crusher Run Backfill work as specified in the Specifications and as indicated on the Drawings.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SECTION 02260

EXCAVATION

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Summary
B. References
C. Quality Control
D. Project Conditions
E. Submittals
F. Excavation Requirements
G. Construction Sequence
H. Preparation
I. Excavation

1.02 SUMMARY:

A. Excavation shall include the following activities:

1. Excavation of soil from Upland areas.

2. **Excavation of soil from beneath the MGP building as shown in the BUILDING INTERIOR REMEDIATION AND WALL UNDERPINNING DESIGN Drawings.**

3. Excavation of sediment from areas in the Outlet where removal is performed in the dry.

4. **Excavation of soil and sediment from the bank.**

5. Loading excavated soil onto trucks for transportation to off-site waste management facilities.

6. Loading excavated sediment onto trucks or barges for transportation to the TFS for storage and amendment.

7. Other excavation activities required to complete the work.

1.03 REFERENCES:

A. OSHA Title 29 CFR Part 1926 Subpart P – Excavations.

1.04 QUALITY CONTROL:

A. Excavation Tolerances

1. Horizontal and vertical accuracy of the excavation shall be plus or minus one tenth of a foot (0.1′).

B. Surveys

1. Contractor's Land Surveyor shall stake excavation boundaries indicated on the Drawings and perform initial survey as specified in Specifications Section 01720 - Surveying.

2. Contractor shall perform surveying to record elevations during the course of the excavation Work. During performance of the Work, Contractor shall employ all equipment necessary for control of excavation depths, lines, and grades within required tolerances.

3. Verification of final excavation horizontal limits and depths shall be accomplished by survey provided by Contractor's Land Surveyor and in a manner that is mutually acceptable to the Contractor and the Engineer. During the progress of Work, the Contractor shall provide survey data as the excavation progresses that consist of the following:

a. Horizontal limits of completed excavation in sufficient detail to determine limits of the material removed.

b. Vertical limits of excavation consisting of top of final grade or excavation limit in sufficient detail to verify quadrant elevations and to establish the progress of the completed Work.

1.05 PROJECT CONDITIONS:

A. Existing Utilities:

1. Contractor shall locate existing underground utilities in the areas of the Work. If utilities are to remain in place, provide adequate means of protection during all operations.

2. If unidentified utilities are encountered during excavation, the Owner and Engineer shall be notified immediately.

3. Do not interrupt existing utilities serving facilities occupied and used by the Owner or others, except when permitted in writing by the Owner and then only after acceptable temporary utility services have been provided.

B. Subsurface Information

1. Obstructions:

a. The Contractor is notified that subsurface obstructions including former structures, foundations, piping, concrete, debris, and other material is present in the subsurface in Upland areas.

b. Some of these obstructions are shown on the Drawings but others will be encountered during shoring installation and excavation.

c. These obstructions will interfere with excavation and installation of shoring systems. The Contractor should take these conditions into account when planning, scheduling, and estimating the costs of excavation work.

d. Pre-digging in these locations is included in the Contractor's scope of work.

2. Refer to information and reports provided by the Engineer for data on subsurface conditions.

3. Data provided is not intended as a representation or warranty of continuity of conditions between soil borings nor of groundwater levels at dates and times other than the date and time when measured.

4. Owner and Engineer will not be responsible for interpretations or conclusions drawn there from by Contractor. Data is solely made available for the convenience of Contractor.

5. Additional sediment cores and other exploratory operations may be made by Contractor, at no additional cost to the Owner.

C. Existing Structures:

1. The Drawings show certain underground structures adjacent to the Work. This information has been obtained from existing records. It is not guaranteed to be correct or complete.

1.06 SUBMITTALS:

A. The Contractor's Technical Execution Plan described in Specifications Section 01330 includes a section describing excavation procedures, excavation and equipment. This section shall include the following elements:

1. Equipment, methods, and sequence of excavation Work.

2. Procedures and sequencing for coordination of Excavation with dewatering and excavation support.

3. Excavation production rates in the form of a table of excavation volumes per week for each week of the Project Schedule. In the same table, show the estimated quantities of stockpiling and off-site transportation.

1.07 EXCAVATION REQUIREMENTS:

A. The Contractor shall comply with OSHA Regulations (Title 29 CFR Part 1926 Subpart 651):

1. These regulations include but are not limited to specific excavation requirements including the following:

a. Removal of surface encumbrances.

b. Determination of underground installations.

c. Providing access and egress.

d. Protection of nearby structures.

e. Preventing exposure to vehicular traffic.

f. Preventing exposure to falling loads.

g. Providing a warning system for mobile equipment.

h. Preventing exposures to hazardous atmospheres.

i. Preventing hazards associated with water accumulation.

j. Protection of employees from loose rock or soil.

k. Inspections.

2. The Contractor shall be responsible for meeting requirements for excavation protection in OSHA Title 29 CFR Part 1926 Subpart 652, including providing a "competent person" to classify soils and verify that the excavation slopes shown on the Drawings are protective of worker safety.

B. Contractor shall notify all utility companies and locate all underground utilities prior to starting excavation Work. Contractor shall be responsible for protection of utilities. If Contractor damages any utilities, Contractor shall repair or replace the damaged utility to acceptable construction standards at Contractor's own expense without reimbursement.

C. Excavation Protection

1. Sloping or benching for excavations greater than four feet deep shall be in accordance with the Drawings and Specifications Section 02462 – Excavation

Support and Section 02463 – Secant Pile Wall, unless alternative slopes are deemed appropriate due to site conditions as determined by the Contractor's Competent Person and the Engineer.

2. The Contractor shall inspect excavations daily to verify stability of slopes and benches.

3. Provide temporary construction fencing, barriers to provide protection of equipment and personnel from open excavations greater than four feet deep. Excavations less than four feet shall be protected by visibility tape or other effective marker

D. Confirmatory Sampling:

1. When excavation is complete in each area, the Contractor shall assist the Engineer in collecting confirmation soil samples from the bottom and sidewalls.

2. The Contractor's surveyor shall survey the location and elevation of sample locations.

3. Within seven (7) business days, based on the results of sample laboratory analysis, the Engineer will either provide the Contractor with authorization to backfill or direct them to excavate additional material.

4. Within the footprint of the former MGP building the Engineer will either provide the Contractor with authorization to backfill or direct them to excavate additional material within 72 hours, based on the results of the sample laboratory analysis.

5. If additional excavation is required, the Engineer will collect additional confirmatory samples and the Contractor's surveyor shall survey the new limits of excavation and sample locations. The same requirements for Engineer's authorization will apply as for the initial excavation.

1.08 CONSTRUCTION SEQUENCE:

A. Excavation shall be performed in accordance with the construction sequence shown on the Drawings or the approved Contractor's Construction Sequence.

B. The Contractor shall sequence each individual excavation to meet the excavation support requirements of the approved Contractor's Shoring Design including installation of bracing.

C. The Contractor shall sequence and stage excavation operations to meet the following requirements:

1. Minimize the amount of water generated by excavation dewatering described in Specifications Section 02240 – Dewatering.

2. Balance the rate of excavation with the rates of on-Site material management and off-Site transportation operations.

3. Separate and protect the fill placed for the working surface and grades from the impacted material to prevent cross contamination to the extent possible during the excavation of the bank area.

PART 2 - PRODUCTS

Not Used.

PART 3 – EXECUTION

3.01 PREPARATION:

A. The Contractor's surveyor shall layout the excavation areas as shown on the drawings.

B. Before excavation begins, the Contractor shall install and operate the excavation shoring and dewatering systems as specified in Specifications Section 02240 – Dewatering, 02462 – Excavation Support, and Section 02463 – Secant Pile Wall to provide adequate excavation support as specified in the Contractor's Shoring Design.

C. No sediment excavation shall be performed in the dry in the Outlet until the Depressurization System is installed and depressurization performance requirements have been met as specified in Specifications Section 02240 – Dewatering.

3.02 EXCAVATION:

A. The Contractor shall excavate soil and sediment from the existing grade elevations to the limits of excavation shown on the Drawings. If visible coal tar or staining is present at the depth described on the drawings, additional excavation will take place to the extent practical.

B. Dewater the excavations as described in Specifications Section 02240 – Dewatering to provide a dry excavation at all times **for excavation in the dry.**

C. **Maintain a water elevation of 716 ft (min) during excavation in the wet of the bank area cells.**

D. Soil excavation

1. Soil excavated from Upland areas shall be loaded directly into trucks for off-site transportation and disposal when possible.

2. If direct loading for off-site transportation is not possible, excavated soil shall be placed in stockpiles constructed and managed as specified in accordance with

Specifications Section 02114 – Stockpiling, Amending, and Loading Soil and Sediment.

E. **Excavation in the dry and wet of the fill in the outboard cells in the bank area shall proceed to within 1 ft of the impacted material. Excavated material shall be segregated and stockpiled for reuse as approved by the Engineer. Excavations shall then continue to remove the remaining soils/sediments to the target elevations as shown in the Drawings. Excavated soils/sediments shall be transferred to the sediment handling pad (former TFS location) for processing as specified in Specifications Section 02114 – Stockpiling, Amending, and Loading Soil and Sediment.**

F. **Excavation beneath MGP building shall not extend deeper than four feet below the bottom of the wall. The excavations below the bottom of the wall shall be conducted in segments not exceeding ten feet in length. Multiple segments may be excavated simultaneously; the segments shall be staggered with a minimum separation of fifteen feet. Excavated soils shall be transferred to the sediment handling pad (former TFS location) for processing as specified in Specifications Section 02114 – Stockpiling, Amending, and Loading Soil and Sediment.**

G. Sediment excavated from the Outlet shall be loaded into trucks or a barge and transported to the TFS for processing as specified in Specifications Section 02114 – Stockpiling, Amending, and Loading Soil and Sediment.

H. Unauthorized excavation

1. All excavation outside the lines and grades shown, and which is not approved by the Engineer shall be at Contractor's expense.

2. Unauthorized excavations shall be filled and compacted with backfill by Contractor's at his expense.

END OF SECTION

SECTION 02300

BACKFILLING AND GRADING

PART 1 – GENERAL

1.01 SECTION INCLUDES:

A. Summary
B. References
C. Submittals
D. Quality Control
E. Laboratory Chemical Testing of Earth Materials
F. Common Fill
G. **Common Underwater Fill**
H. Habitat Layer Material
I. **Crusher Run Backfill**
J. Preparation
K. Placement of Backfill
L. Site Grading and Restoration

1.02 SUMMARY:

A. Backfill and grading shall include the following activities:

1. Placement and compaction of Common Fill in areas excavated in the dry including Upland excavations and the excavation in the dry in the Outlet as shown in the Drawings.

2. Place and compact Common Fill in Upland areas **and the bank area** where a soil cover is required as shown on the Drawings.

3. **Placement of Common Underwater Fill in areas of Cell 6 dredged to depths greater than 2 ft and in the bank area as shown on the Drawings.**

4. **Placement of Crusher Run Backfill to create a level working platform for the bank area as shown on the drawings.**

5. Placement of Habitat Restoration Material in all cells in the Outlet **and in the bank area** as shown on the Drawings.

6. Site grading as required to establish final site elevations and grades and to prepare the surface for restoration.

1.03 REFERENCES:

A. American Society for Testing and Materials International (ASTM):

1. ASTM D422, Standard Test Method for Particle-Size Analysis of Soils (Grain Size).

2. ASTM D 698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (Standard Proctor).

3. ASTM D 2487, Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).

4. ASTM D 2922, Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods.

5. ASTM D 3017, Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

B. New York State Department of Environmental Conservation (NYSDEC):

1. NYSDEC Title 6 of the New York Codes, Rules, and Regulation (NYCRR) Part 375, Environmental Remediation Programs.

1.04 SUBMITTALS:

A. The Contractor's Technical Execution Plan described in Specifications Section 01330 includes a section describing backfill procedures and equipment. This section shall include the following elements:

1. Equipment, methods, and sequence of Backfill.

2. Procedures and sequencing for coordination of backfilling with dewatering and excavation support.

B. Contractor shall submit written documentation showing conformance of the materials and constructed work with the Specifications within five days after test results are obtained. The written documentation must include sample results from independent test laboratories which document the physical and chemical conformance of the materials.

C. For backfill, Contractor shall submit written certification, signed by the material supplier, stating that the material meets or exceeds the specified requirements. Information shall be submitted to Engineer for review and approval no less than fourteen (14) calendar days prior to scheduled delivery of specified material to the Site.

D. Contractor shall identify primary and secondary backfill borrow sources in the TEP.

1.05 QUALITY CONTROL:

A. Contractor shall retain the services of a New York State Department of Transportation (NYSDOT) approved soils testing laboratory to document conformance of material type and compaction of backfill and paving materials with the Specifications.

B. Laboratory Testing of earth materials (by the Contractor's QC Firm):

1. Soil Classification (ASTM D 2487) and Grain Size (ASTM D422: Minimum of one test for every 5,000 cubic yards of each earth material and at least one for each borrow source and each visible change in material.

2. Standard Proctor Moisture—Density Curve (ASTM D 698): Minimum of one test for every 5,000 cubic yards (CY) of each earth material and at least one for each borrow source and each visible change in material.

C. Field Testing of Backfill (by the Contractor's QC Firm): In-Place Density (using ASTM D1556, D 2922, or D 2937) and Moisture Content (using ASTM D 3017): One test for every 2,500 square feet for each lift.

D. Verification of the horizontal and vertical limits of fill placement in Upland areas and the Outlet shall be accomplished by survey provided by Contractor's Land Surveyor.

1.06 LABORATORY CHEMICAL TESTING OF EARTH MATERIALS:

A. No laboratory chemical testing is required for earth materials that meet the following requirements:

1. Consists of virgin material from a permitted mine or quarry

2. Has a grain size distribution with less than 10% passing the #80 sieve.

3. Grain size testing to be performed at a frequency of one sample for every 500 CY for the first 1,500 CY and every 5,000 CY thereafter

B. Earth materials which do not meet the grain size requirements:

1. Materials shall be tested for VOCs, SVOCs, inorganics, and PCBs/pesticides at a frequency specified in the table attached to this Section.

2. Soil Cleanup Objectives (SOCs)

a. Common Fill—~~,and~~ **Common Underwater Fill, and Crusher Run Backfill** with a concentration of chemical contaminants less than restricted residential soil cleanup objectives (SCOs) in 6 NYCRR Part 375 shall be placed in locations shown on the Drawings.

b. Habitat Layer Material and Topsoil with a concentration of chemical constituents less than ecological resource SCOs in 6 NYCRR Part 375 shall be placed in locations where Habitat Layer Material and Topsoil placement are specified.

c. SCOs for restricted residential and ecological resources are attached at the end of this Section.

PART 2 – PRODUCTS

2.01 COMMON FILL:

A. Common Fill shall be hard, durable sand and gravel, and shall be free from ice and snow, roots, sod, rubbish, and any other deleterious or organic matter. It shall be chemically clean, in accordance with NYSDEC Title 6 NYCRR Part 375 Subpart 6.7 (d) values, as sampled and analyzed by the Contractor. It shall conform to the following gradation requirements:

Sieve Size	Percent Passing
3-inch	100
2-inch	90-100
1-inch	70-90
No.4	80-30
No. 200	0-15

B. Common Fill shall meet requirements for laboratory chemical testing as specified in Part 1.06 of this section.

C. Fill shall have a concentration of chemical contaminants less than restricted residential soil cleanup objectives (SCOs) in 6 NYCRR Part 375.

2.02 COMMON UNDERWATER FILL

A. **Common Underwater Fill shall be a graded mixture of hard, durable sand, gravel, and cobbles/or crushed stone, free from ice and snow, roots, sod, rubbish, and any other deleterious or organic matter. The mixture shall be graded so that large open voids between larger sized are filled with finer material. It shall be chemically clean, in accordance with NYSDEC Title 6 NYCRR Part 375 Subpart 6.7 (d) values, as sampled and analyzed by the Contractor. It shall conform to the following gradation requirements:**

Sieve Size	Percent Passing
6-inch	100
No. 200	0-8

B. **Common Underwater Fill shall meet requirements for laboratory chemical testing as specified in Part 1.06 of this section.**

C. **Fill shall have a concentration of chemical contaminants less than restricted residential soil cleanup objectives (SCOs) in 6 NYCRR Part 375.**

2.03 HABITAT FILL MATERIAL:

A. Habitat Fill Material shall meet the following requirements:

1 Submerged Aquatic Vegetation Substrate Specifications for Post-remediation Keuka Lake Outlet

Run of the river small cobble	30%
Course and fine run of the river gravel	30%
Fine to course sand	30%
Mix of inorganic and organic fines 0.075 mm and smaller	10%

2 pH (6.5 to 7.5)

3 An organic carbon content of 4 – 12% (7 to 21 percent organic matter) on a dry weight basis

4 Habitat Fill Material shall meet requirements for laboratory chemical testing as specified in Part 1.06 of this Section.

5 Habitat Fill Material shall have a concentration of chemical contaminants less than ecological resource soil cleanup objectives (SCOs) in 6 NYCRR Part 375.

2.04 CRUSHER RUN BACKFILL

A. Crusher Run Backfill shall consist of clean, durable, sharp-angled fragments of rock of uniform quality. The crushed stone used as coarse aggregate for all items shall be obtained from sources conforming to the requirements of the New York State Department of Transportation as to sampling, testing methods, Quarry Reports and any other required procedures. It shall be chemically clean, in accordance with NYSDEC Title 6 NYCRR Part 375 Subpart 6.7 (d) values, as sampled and analyzed by the Contractor. It shall be supplied from a NYSDOT approved facility and conform to the following gradation requirements:

Sieve Size	Percent Passing
3/8-inch	100
No.4	70-90
No.8	45-70
No.16	28-50
No.30	19-34
No.50	12-25
No.100	7-20
No. 200	5-20

PART 3 – EXECUTION

3.01 PREPARATION:

A. Backfilling shall not proceed until Engineer has approved the completion of excavation or dredging in each area of the Site and documented bottom conditions including sampling as required and as-built survey.

B. Backfilling shall not be done when the ground or backfill is frozen or too wet to compact. The Contractor shall dewater the excavations as necessary to allow backfilling to proceed.

3.02 PLACEMENT OF BACKFILL:

A. Upland excavations:

1. Common Fill shall be provided at a moisture content suitable for effective compaction. If the Owner's Representative determines the backfill provided is too wet or too dry, the Contractor shall dry it or add water.

2. The bottom of the excavation shall be prepared by tracking at least three times with a wheeled compactor or tracked earth moving equipment.

3. Place Common Fill to the final grade elevations shown on the Drawings.

4. Common Fill shall be placed in uniform horizontal lifts not exceeding 12 inches loose lift thickness.

5. Common Fill shall be compacted to a minimum of 95% of the material's maximum dry density, and within 3% of optimum moisture as determined by Standard Proctor testing.

6. No backfill shall be place in wet, snowy, or icy conditions. The Contractor shall provide effective dewatering of the excavation.

B. Outlet excavations in the dry:

1. Common Fill placement:

a. Place Common Fill to an elevation one foot below the final grade elevation shown on the Drawings.

b. Common Fill shall be placed in uniform horizontal loose lifts of a maximum of 12 inches and compacted by at least three passes of a wheeled compactor or tracked earth moving equipment.

2. Habitat Fill placement:

a. Place Habitat Fill to the final grade elevations shown on the Drawings.

b. Habitat Fill shall be placed in a loose lifts without compaction.

3. No backfill shall be place in wet, snowy, or icy conditions. The Contractor shall provide effective dewatering of the excavation.

C. Outlet excavations in the wet:

1. **Common Underwater Fill placement:**

a. **Common Underwater Fill shall be placed in the wet using mechanical equipment.**

b. **Common Underwater Fill shall be placed with an excavator bucket or clamshell directly on the bottom so that it is not allowed to fall through the water column.**

c. **Place Common Underwater Fill within a tolerance of plus 0.2 to minus 0.4 foot from the locations, elevations, and grades shown on the Drawings and to horizontal extents as shown on Drawing D-05.**

2. Habitat Fill:

a. Habitat Fill shall be placed in the wet using mechanical equipment.

b. Habitat Fill shall be placed in loose lifts without compaction.

c. Place Habitat Fill to the final grade elevations shown on the Drawings.

3.03 SITE GRADING AND RESTORATION:

A. Contractor shall grade unpaved areas to the contours indicated on the Drawings. The soil surface shall be shaped to provide a smooth transition to existing grade at the limits of the disturbed areas.

B. Contractor shall shape and compact fill with uniform levels or slopes between points where elevations are shown on the Drawings, or between such points and existing grades.

C. Contractor shall smooth the finished surfaces for general site grading within tolerance of two inches above or below the required elevation.

D. Contractor shall grade areas adjacent to structures to achieve drainage away from the structures and to prevent ponding.

END OF SECTION

ATTACHED – NYSDEC REQUIREMENTS FOR BACKFILL TESTING AND SOIL CLEANUP OBJECTIVES FOR RESTRICTED RESIDENTIAL AND ECOLOGICAL RESOURCE

SECTION 02464

HELICAL PILES

PART 1 GENERAL

1.01 WORK INCLUDED:

A. This section covers the construction of helical piles.

1.02 PUBLICATIONS:

A. The publications listed below, latest edition, form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

1. ASTM A123/A123M Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

2. ASTM A153/A153M Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

3. ASTM A307 Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength

4. ASTM A 780 Standard Specification for Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coating

1.03 DELIVERY AND STORAGE:

A. Transport, handle, and store helical piles and associated hardware to prevent deformation and damage. Store pile components and hardware on a clean surface, in accordance with the manufacturer's recommendations. Keep pile components clean and free from mud and foreign matter. Promptly remove damaged pile components and hardware from site.

1.04 QUALITY ASSURANCE:

A. Delivery Inspection List:

1. Field inspect and prepare a verification list of each helical pile and associated hardware.

2. Inspect all piles and components for damage. Do not incorporate materials damaged in transport from plant to site.

3. Submit verification list to the Engineer 1 day after delivery.

1.05 CONTRACTOR DESIGN:

A. Contractor shall design the helical underpinning piles. This includes, but is not limited to, the number and size of helices, minimum depth of helices, shaft configuration and size, bracket size, and other details), as approved by the Engineer.

B. The proposed helical piles shall be designed to support the specified axial and lateral design loads indicated on the drawings. Provide a minimum safety factor of 2.5.

C. Submit design and design calculations, stamped by a Professional Engineer licensed in the State of New York, to the Engineer a minimum of 2 weeks prior to start of pile installation.

PART 2-PRODUCTS

2.01 HELICAL PILE MATERIALS:

A. Helical Piles and Hardware:

1. Helical piles and associated hardware shall be furnished by a manufacturer with an ISO9001 accredited quality control program. Submit ISO9001 documentation to the Engineer a minimum of 2 weeks prior to beginning of pile installation.

2. All helical piles and associated hardware shall conform to the current ICC-ES evaluation report documenting that the pile components can safely support the design loads indicated on the drawings. Submit ICC-ES report to the Engineer a minimum of 2 weeks prior to beginning of pile installation.

3. Zinc Coating: Galvanize all helical underpinning piles, and associated hardware by the hot-dip process in accordance with ASTM A123 or ASTM A153, as applicable. Submit galvanizing documentation to the Engineer a minimum of 2 weeks prior to beginning of helical pile installation.

B. Fasteners:

1. Bolts and nuts shall conform to ASTM A307. Provide bolts with washers under nut and head. Hot-dip galvanize all fasteners and hardware.

C. Installation Torque:

1. Measure installation torque using equipment calibrated to IAS standards within the past 3 months. Submit torque calibration documentation to the Engineer a minimum of 2 weeks prior to beginning of pile installation.

D. Torque Calibration:

1. Submit torque-pile capacity calibration documentation to the Engineer a minimum of 2 weeks prior to beginning of pile installation.

2. Provide data to substantiate the proposed torque-pile capacity calibration.

PART 3 – EXECUTION

3.01 CONSTRUCTION TOLERANCES:

A. Install helical piles to the location, inclination, orientation, elevation, and minimum depth shown on the drawings. A primary concern is pile inclination and orientation so that adequate lateral spacing is provided between piles at the depth of the helices. Tolerances are as follows:

1. Horizontal position: plus or minus 2”

2. Elevation: plus or minus 0.5”

3. Inclination and orientation: plus or minus 1 degree

3.02 INSTALLATION EQUIPMENT:

A. The torque rating of the hydraulic gear motor used to install the helical piles shall be adequate to install the piles to their required capacity. Provide equipment with torque rating a minimum of 50 percent greater than the maximum required installation torque.

B. Installation: Continue rotary installation until both the minimum penetration as indicated on the design drawings and required torque are achieved. Contractor shall determine theoretical torque necessary to achieve the required pile design load, based on the approved torque-pile capacity correlation. Adjust required installation torque, as needed, based on results of pile load tests.

1. Monitor applied torque during installation. Use an electronic torque monitoring instrument that has been calibrated to the specific torque motor being used. Record measured torque at 1-foot intervals of penetration, minimum. Submit torque monitoring record for each helical pile to the Engineer the following day after completion of pile installation.

2. Provide alternative method of measuring torque during installation to verify electronic measurements; for example, by measuring the differential pressure across the ports of the torque motor.

FIELD TREATMENT:

A. Galvanized Surfaces: Repair and recoat zinc coating which has been field or shop cut, burned by welding, abraded, or otherwise damaged to such an extent as to expose the base metal. Thoroughly clean the damaged area by wire brushing and removing traces of welding flux and loose or cracked zinc coating prior to painting. Paint cleaned area with two coats of zinc oxide-zinc dust paint conforming to ASTM A 780.

3.03 LOAD TESTS:

A. A minimum of two (2) helical piles shall be load tested in accordance with ASTM D 1143, Procedure A, Quick Test. The locations of helical piles to be load tested shall be approved by the Engineer. All testing shall be completed prior to installation of remaining production piles. If necessary, modify required pile installation depths and torque based on results of the load tests, as approved by the Engineer.

B. Load tests shall be conducted to a maximum load equal to 250% of the design load indicated on the drawings (i.e., safety factor = 2.5).

C. Calibration of Loading jack and Pressure Gage: Calibrate the loading jack and pressure gage as a set before the start of testing. Recalibrate if pressure movements are suspected of being erratic. Ram travel must be long enough to enable the helical pile to deform.

D. Measure pile test loads using a calibrated load cell. Also measure loads using the calibrated loading jack, providing an independent check on the load cell readings. The calibrated load cell data controls and shall be used for analysis of load test data, unless there is evidence that the load cell did not function properly, in which case the calibrated loading jack data shall be used.

E. Provide suitable temporary reaction frame constructed with steel and timber cribbing to perform performance tests. Submit reaction frame details to the Engineer at least 2 weeks prior to load testing.

F. Measure the downward deflection of the pile to the nearest 0.001 inch with respect to an independent fixed reference point. Provide a minimum of three measuring devices.

G. The jack shall be adjusted as needed in order to maintain a constant load during each load increment.

H. The maximum test load in the load test shall be held for 50 minutes. The jack shall be adjusted as needed so as to maintain a constant load. The load hold period shall start as soon as the maximum test load is applied, and the helical pile movement shall be measured and recorded at 0.5, 1, 2, 5, 10, 20, 30, 40, and 50 minutes.

I. Prepare load test report for each test pile. Include a tabulation of the load test data and a graphical summary of the load-deflection curve. Load test data shall be interpreted in accordance with Davisson's method. Include pile as-built data, photographs of the installation and load test, and conclusions indicating whether the pile meets all acceptance criteria and whether the required installation torque needs to be modified to produce acceptable piles. Submit to the Engineer within 48 hours of the test.

3.04 PROOF TESTS:

A. All helical piles shall be proof tested by measuring installation torque. Adjust required installation torque, if necessary, based on results of performance tests. Submit installation records to the Engineer the following work day.

3.05 ACCEPTANCE CRITERIA:

A. Load Test: A load-tested pile shall be acceptable if: (1) the required torque is achieved, (2) the minimum penetration is achieved, (3) the ultimate capacity of the helical pile exceeds the maximum test load (250% of the design load), and (4) the helical pile resists the maximum test load with a creep rate that does not exceed 2 mm in the last log cycle of time.

B. Proof (Torque) Test: A proof tested pile shall be acceptable if: (1) the required torque is achieved, and (2) the minimum penetration as indicated on the drawings is also achieved.

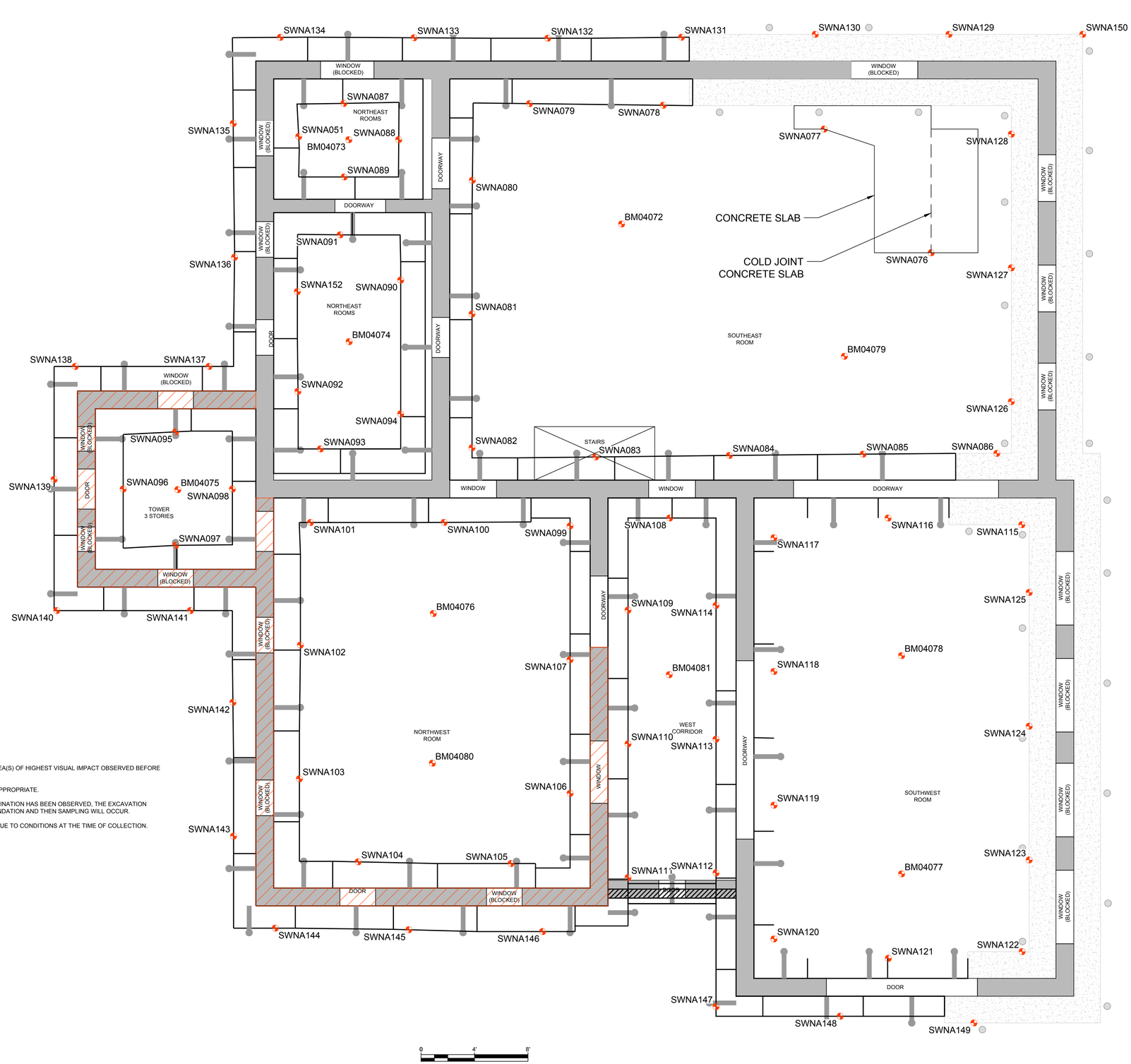
3.06 REPLACEMENT:

A. The failure of any pile to meet the requirements specified herein will result in the rejection of the pile and the installation of another pile or piles at no additional cost at a location to be determined by the Contractor, as approved by the Engineer.

END OF SECTION

Attachment 3

Former MGP Building Confirmation Sample Location Plan



NOTES:

1. BOTTOM SAMPLES WILL BE LOCATED BELOW THE AREA(S) OF HIGHEST VISUAL IMPACT OBSERVED BEFORE EXCAVATION.
2. SAMPLE NAMES WILL BE UPDATED FOR DEPTHS AS APPROPRIATE.
3. IN AREAS OF RED HATCHING WHERE GROSS CONTAMINATION HAS BEEN OBSERVED, THE EXCAVATION WILL EXTEND UNDERNEATH THE UNDERPINNED FOUNDATION AND THEN SAMPLING WILL OCCUR.
4. PROPOSED SAMPLE LOCATIONS MAY BE ADJUSTED DUE TO CONDITIONS AT THE TIME OF COLLECTION.

AECOM

PROJECT

BUILDING INTERIOR REMEDIATION AND WALL UNDERPINNING DESIGN
WATER STREET MANUFACTURED GAS PLANT
VILLAGE OF PENN YAN
YATES COUNTY, NEW YORK
NYSDEC SITE # 8-62-009

CLIENT

NYSEG
New York State Electric and Gas Corp.
18 Link Drive
P.O. Box 5224
Binghamton, New York 13905

REGISTRATION

DRAFT

ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

SHEET TITLE

FORMER MGP BUILDING CONFIRMATION SAMPLE LOCATION PLAN

SHEET NUMBER

Project Management Initials: Designer: Checked: Approved: ANSI D 22" x 34"

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