LANGAN

Technical Memorandum

Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology D.P.C.
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To: Michael MacCabe– NYSDEC

From: Jason Hayes, P.E. – Langan

Info: 144-150 Barrow Street LLC
Jennifer Armstrong, Michael D. Burke - Langan

Date: May 9, 2019

Re: Remedial Design Document 1 – Excavation and Remedial Cover System
Keller Hotel Site (the "site")
144 – 150 Barrow Street
New York, New York
NYSBCP Site Number C231092
Langan Project No.: 170170901

This remedial design plan presents an excavation and remedial cover system strategy for the Keller Hotel Site at 144 – 150 Barrow Street in New York, New York (the "site"). The site is enrolled in the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) as Site No. C23102. The site is approximately 7,300 square feet in area and comprises Lots 1 and 30 on New York City Tax Block 604. Lot 1 is improved with the landmarked Keller Hotel building, a vacant six-story structure constructed in 1920 with a basement level. Lot 30 is vacant and enclosed by construction fencing following the recent demolition of a one-story garage building. A site location plan is provided as Figure 1 and site layout map is provided as Figure 2.

This document supplements the Remedial Work Plan (RWP), dated September 2017, which was approved by NYSDEC on December 19, 2017. Remedial Design 1 pertains to excavation and construction of a temporary engineered cover system. A separate remedial design document will be submitted to update the Draft June 22, 2018 Petroleum Hydrocarbon and Naphthalene Groundwater Treatment Plan following sorption testing underway by Regenesis to evaluate the efficacy of Petrofix® on site groundwater.

This technical memorandum is organized as follows:

- Section 1.0 - Site Background
- Section 2.0 - Remedy Selection and Implementation
- Section 3.0 - Certification

1.0 SITE BACKGROUND

Sidewalk elevations range from about el 9.5 to 8.4 fronting Lot 30 and from 8.3 to 7.3 fronting Lot 1 along Barrow Street (relevant to North American Vertical Datum [NAVD] 1988). A Remedial Investigation (RI) was implemented between July 30 and August 22, 2012 and between November 25 and December 4, 2014 in accordance with NYSDEC DER-10, the NYSDEC Draft BCP Guide (May 2004), and the New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006). The objective of the RI was to characterize subsurface conditions, identify and delineate the extent of soil vapor, soil and groundwater contamination, and to provide data to design and estimate the cost of remedial measures. The RI and a more recent geotechnical evaluation concluded the following:

1. Stratigraphy: The site is generally underlain by historic fill material predominately comprised of gray, black, and brown coarse to fine sand with varying amounts of silt, gravel, concrete, brick, coal, ash, and shell fragments. The fill layer extends to about 12 to 16 feet below grade surface (bgs) and is underlain by a layer of fine brown sand and medium to coarse reddish brown sand. Bedrock was not encountered during the RI.

2. Groundwater: On August 22, 2012, groundwater elevations ranged from el -7.3 to el -7.5, with a calculated flow toward the northeast, in contrast to the presumed westerly flow toward the Hudson River. By October 4, 2012, when groundwater was gauged a second time, groundwater levels were depressed by an additional 6 feet to about el -13.6 and el -13.88 feet) and the depressed groundwater table was presumed to be attributed to an excavation dewatering project at 160 Charles Street, about 420 feet northeast of the site. After installing three additional wells, subsequent gauging on January 26, 2015 showed groundwater elevations ranging from el -3.82 to el -4.3 feet (about 7-10 feet bgs). Based on historic gauging results, groundwater flows toward the east and is influenced by an excavation dewatering project at 160 Charles Street; however, regional groundwater is presumed to flow west towards the Hudson River.

   During a geotechnical evaluation in February and March of 2016, groundwater was identified at 7.5 – 10.5 feet bgs (about el 0 to el -1.5).

3. Historic Fill: Historic fill material contains concentrations of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals at concentrations that exceed their respective Unrestricted Use (UU) and/or Restricted Use – Restricted Residential (RU RR) Soil Cleanup Objectives (SCOs). SVOCs and metals were detected

at concentrations exceeding the SCOs, but at concentrations typical of historic fill material in NYC. Metals are constituents of historic fill material that was placed at the site and are not likely associated with historic site use. The metals found in historic fill material are not a source of groundwater contamination.

4. Petroleum-Impacted Fill: Fill material in the eastern portion of the site is impacted by the petroleum release associated with NYSDEC Spill No. 9400447. Petroleum impacts were first encountered at about 5 feet bgs and extend to about 16 feet bgs (straddling the water table). Petroleum impacts span about 2,400 square feet on-site, were delineated to the west, and were identified at sample locations near the north, east and south property boundaries. Free petroleum product was not observed.

5. Potential Underground Storage Tanks (USTs): Gasoline USTs related to auto repair operations prior to 1983 (last known record of USTs) or a fuel oil UST related to the vacant hotel were not identified.

6. Petroleum-Impacted Groundwater: Petroleum-related VOCs were detected in groundwater throughout most of the site. Concentrations of petroleum-related VOCs were highest in the eastern portion of the site with concentrations decreasing to the west (in the presumed down-gradient flow direction from the source). The highest concentrations were reported in MW-6 located on the Barrow Street sidewalk in front of the eastern portion of the garage on Lot 30. Petroleum-related SVOCs were also detected in groundwater. Petroleum-related VOCs and SVOCs in groundwater are attributed to impacts from Spill No 9400447.

7. Additional Groundwater Impacts: The chlorinated VOC, tetrachloroethene (PCE) was detected above its Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA (drinking water) Ambient Water Quality Standards (AWQS) in MW-4 on the West Street sidewalk. PCE was not detected in site soil or in groundwater at other locations; therefore, it is presumed to be from an off-site source. Concentrations of one or more metals were detected at concentrations exceeding their respective TOGS Class GA AWQS in groundwater samples collected during the RI. Metals in groundwater are attributable to entrained historic fill in samples or regional groundwater quality.

8. Soil Vapor Impacts: Carbon tetrachloride and PCE were detected above the minimum concentrations at which vapor intrusion mitigation is recommended, according to

NYSDOH Decision Matrices. Several other VOCs were detected in soil vapor samples; however, there are no guidance values established for them. VOCs in soil vapor may be related to a combination of the historic petroleum release and potential off-site sources of chlorinated VOCs.

2.0 REMEDY SELECTION AND IMPLEMENTATION

The September 2017 RWP presented the excavation of petroleum-impacted soil to depths of up to 15 feet using a secant wall for excavation support, in-situ groundwater treatment, and installation of a new building foundation on Lot 30. Waterproofing/vapor barriers for both the new building on Lot 30 and the landmarked Keller Hotel were also specified in the RWP. NYSDEC approved the RWP on December 19, 2017.

Since RWP approval, a new partner joined the ownership team and the project is being redesigned. Langan was informed that the redesigned building would not incorporate a secant wall nor require as deep of an excavation. A soldier pile and lagging support of excavation (SOE) system was selected to replace the secant wall. New building plans are not yet available, but remedial excavation and a temporary cover on Lot 30 will be completed to achieve BCP remediation goals. A temporary cover will also be installed within the cellar on Lot 1. New building construction on Lot 30 and subgrade work as part of renovations on Lot 1 would then be completed in accordance with the Site Management Plan (SMP), a draft of which will be submitted to NYSDEC in April 2019.

Excavation extent and SOE for Lot 30 shown on Langan drawings dated January 11, 2019 (Attachment 1) supersede that described in the RWP. The updated drawings include excavation to about el 0 throughout Lot 30 with deeper excavations to about el -1 or -2 (about 1 – 2 feet into groundwater) within the petroleum impacted area, but set back as necessary from heel blocks to be installed as part of SOE. Installation of a dewatering system is not planned. Wet soil, if encountered, will be temporarily stockpiled adjacent to the excavation on polyethylene sheeting and allowed to drain into the excavation prior to loading into trucks for off-site disposal at a permitted facility. If localized dewatering is necessary based on field conditions, dewatered fluids would be containerized and shipped off site to a permitted facility.

Following excavation of petroleum-impacted soil from Lot 30 and the adjoining southern sidewalk, a temporary engineered cover system, consisting of a minimum of 2 feet of 3/4-inch gravel from a virgin source will be placed and left in place until foundation construction starts at

a later date. The cover system will be removed or breached in accordance with the measures described in the forthcoming SMP.

The sidewalk excavation will be backfilled to surrounding grade with a minimum of 2 feet of ¾-inch virgin gravel, followed by soil meeting RU RR SCOs and/or recycled concrete aggregate (RCA). The sidewalk excavation would then be finished concrete sidewalk flags and returned to public use. Lot 30 would remain fenced in and inaccessible to the public.

The basement of the unoccupied Keller Hotel building on Lot 1 contains a concrete slab; however, spalled and cracked concrete was identified at several locations. A temporary cover system will be installed to achieve the remedial action objectives for soil, including prevention of ingestion/direct contact and inhalation of, or exposure to, soil particulates or contaminants volatilizing from contaminated soil (there will be no building on Lot 30 until the new construction begins and the building on Lot 1 will remain vacant until after future renovations). The cover system would consist of a temporary 3-inch thick continuous concrete slab with expansion joints (to minimize cracking) to be placed throughout the cellar, with the exception of above-slab-grade footings for building columns and temporary support. Footings will be patched with grout and concrete as necessary. This temporary slab would remain in place until the newly redesigned renovation project is ready for construction and will be removed or breached in accordance with the procedures outlined in the forthcoming SMP. The building would remain unoccupied until after full building renovations, including the construction of a permanent concrete slab underlain by waterproofing/vapor barrier, as specified in the RWP, are complete.

Groundwater treatment injections (to be discussed in detail in Remedial Design 2) will be implemented after excavation and temporary cover system placement on Lot 30 and either before or after the temporary cover is installed on Lot 1. Remedial Design 2 will be issued as an update to the June 22, 2018 Petroleum Hydrocarbon and Naphthalene Groundwater Treatment Plan, following the sorption testing by Regenesis, which is in progress.

It is anticipated that the excavation and construction of the temporary cover system will be completed between late April/early May and July 2019. The updated groundwater treatment plan would then be implemented in July 2019. A Final Engineering Report (FER) will be issued to NYSDEC after implementation of both Remedial Designs.

Future development that is expected to penetrate the remedial cover system includes potential elevator/mechanical pits on both lots and removal of the temp cover system on Lot 1. This will

Future development that is expected to penetrate the remedial cover system includes potential elevator/mechanical pits on both lots and removal of the temp cover system on Lot 1. This will be followed by construction of the permanent impermeable cap system. It is anticipated that a future cellar/foundation for Lot 30 would not require mass excavation of the temporary gravel cap or extensive dewatering. Future site work will be implemented in accordance with the SMP.

3.0 CERTIFICATION

I, Jason Hayes, PE, certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this Technical Memorandum was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

STATE OF NEW YORK · JASON JAMES HAYES · 089491 · LICENSED PROFESSIONAL ENGINEER

NYS Professional Engineer 089491

5-9-2019
Date

Signature

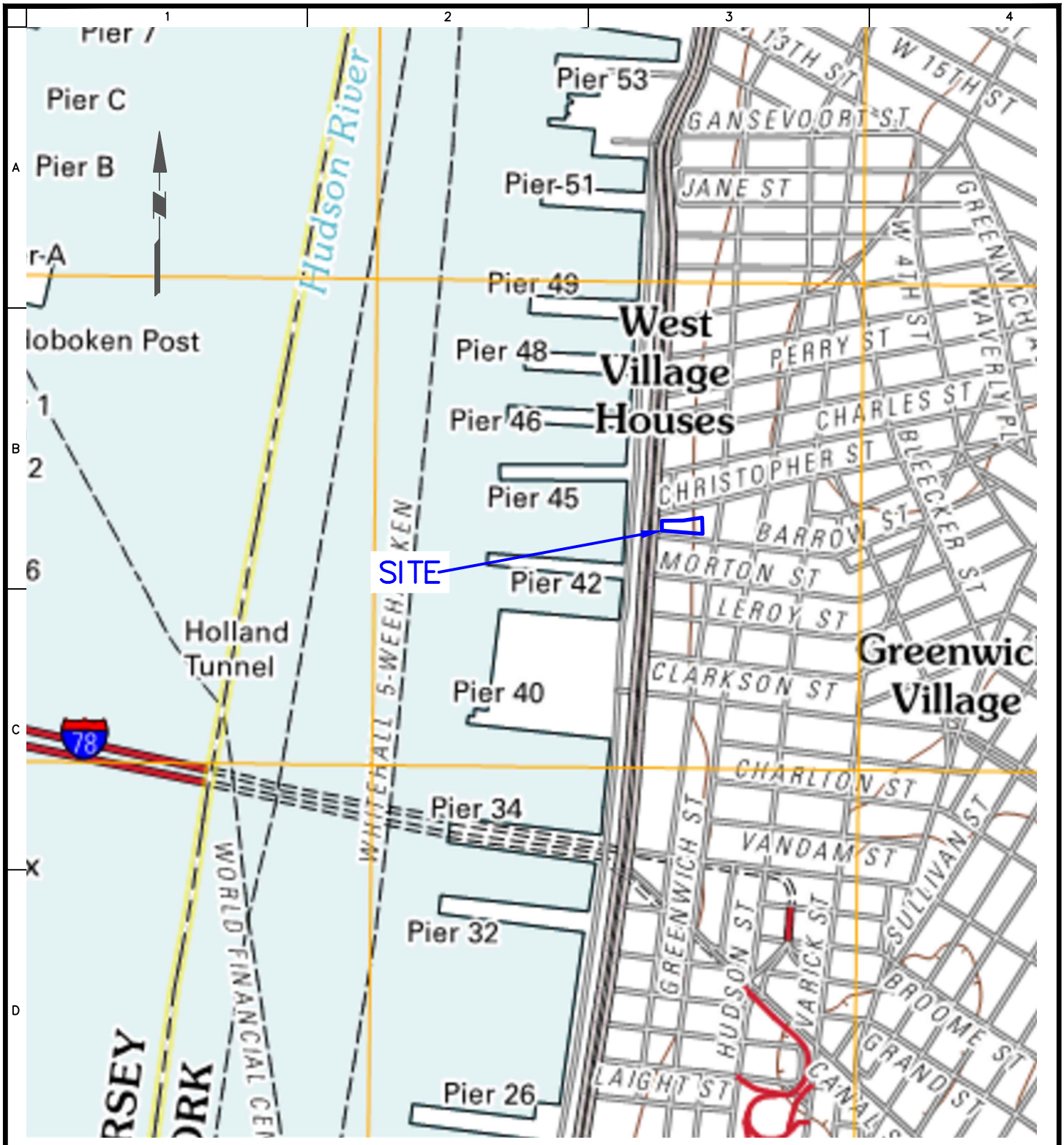
Figures

Figure 1: Site Location Plan

Figure 2: Site Layout and Sample Location Map

Attachments:

Attachment 1: Support of Excavation Drawings



NOTES: BASE MAP IS REFERENCED FROM USGS TOPOGRAPHIC MAPS FOR THE CENTRAL PARK, WEEHAWKEN, BROOKLYN, AND JERSEY CITY QUADRANGLE DATED, JULY 2011.

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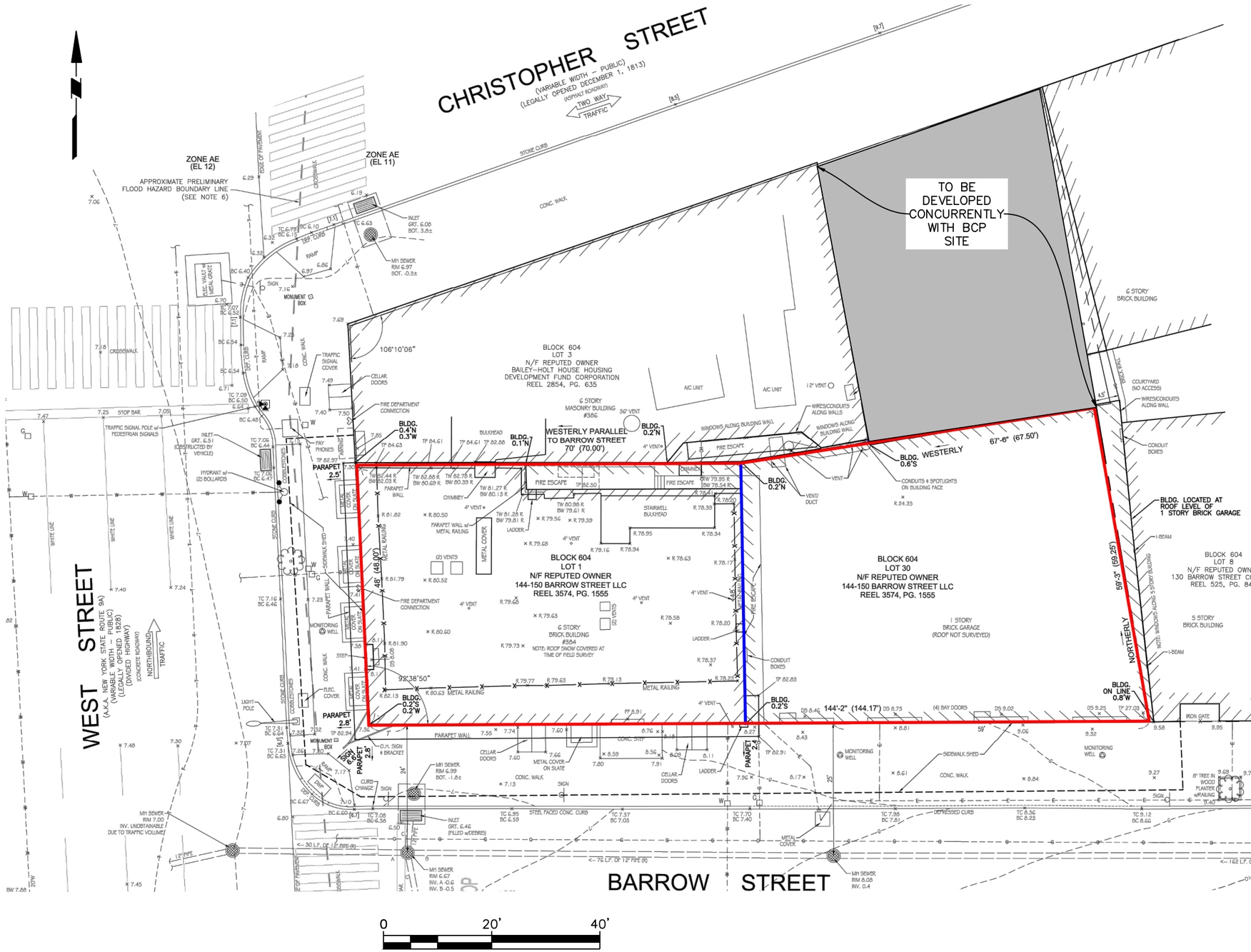
Project	KELLER HOTEL SITE 144-150 BARROW STREET BLOCK No. 604 LOT Nos. 1 and 30 MANHATTAN NEW YORK NEW YORK
Figure Title	SITE LOCATION MAP
Project No.	170170901
Date	4/9/2019
Drawn By	AM
Checked By	JA
Figure No.	1
Sheet	1 of 2

Filename: \\langan.com\data\NYC\data9\170170901\Cadd Data - 170170901\2019 RDs\Figure 1 - Site Location Map.dwg Date: 4/9/2019 Time: 12:18 User: jdonelan Style Table: Langan.stb Layout: ANSIA-BP



LEGEND:

SITE BOUNDARY

LOT BOUNDARY

NOTES:

1. BCP = BROWNFIELD CLEANUP PROGRAM
2. BASE FIGURE REPRODUCED FROM 14 MARCH 2016 SURVEY PREPARED BY GALLAS SURVEYING GROUP
3. ELEVATIONS ARE BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

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Project	KELLER HOTEL SITE 144-150 BARROW STREET BLOCK No. 604, LOT Nos. 1 AND 30 MANHATTAN NEW YORK NEW YORK
Figure Title	SITE PLAN
Project No.	170170901
Date	4/9/2019
Drawn By	VDP
Checked By	JA
Figure No.	2
Sheet	2 of 2

Filename: \\langan.com\data\NYC\data9\170170901\Cadd Data - 170170901\2019 RDs\Figure 2 - Site Plan.dwg Date: 4/9/2019 Time: 12:04 User: jdonelan Style Table: Langan.stb Layout: ANSIB-BL (1)

GENERAL NOTES

1. FOR THE PURPOSES OF THESE DRAWINGS, "ENGINEER OF RECORD" SHALL REFER TO THE ENGINEER OF RECORD FOR SUPPORT OF EXCAVATION UNLESS OTHERWISE NOTED.
2. ALL ELEVATIONS SHOWN HEREIN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

   DATUM CONVERSIONS:
   NGVD29 = NAVD88 +1.1 FEET (PER FEMA)
   BPMD = NAVD88 −1.652 FEET (PER FEMA)
3. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OUTLINED ON THE CONTRACT DRAWINGS AND AS INDICATED IN THE PROJECT SPECIFICATIONS.
4. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE 2014 NEW YORK CITY BUILDING CODE AND THE REQUIREMENTS OF ALL OTHER AGENCIES HAVING JURISDICTION.
5. AS APPLICABLE, THE WORK SHOWN IN THESE DRAWINGS SHALL BE EXECUTED IN CONJUNCTION WITH THOSE OF THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, SITE/CIVIL DRAWINGS AND DRAWINGS OF ALL OTHER DISCIPLINES. DISCREPANCIES BETWEEN THESE DRAWINGS AND THOSE OF OTHER DISCIPLINES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR CLARIFICATION PRIOR TO COMMENCING WORK.
6. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD PRIOR TO COMMENCING WORK. VERIFY ALL DIMENSIONS, ELEVATIONS, AND LOCATIONS OF EXISTING UTILITIES AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND THE FIELD CONDITIONS TO THE ENGINEER OF RECORD FOR CLARIFICATION PRIOR TO COMMENCING WORK.
7. EXISTING UTILITIES AND STRUCTURES TO REMAIN SHALL BE PROTECTED AS REQUIRED.
8. AS APPLICABLE, COORDINATE THE LOCATION OF ALL SUPPORT OF EXCAVATION ELEMENTS WITH THAT OF NEW WORK. CONSTRUCTION SEQUENCING SHALL BE MODIFIED AS REQUIRED FOR EXECUTION OF THIS WORK AND THAT OF NEW FOUNDATIONS.
9. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER OF RECORD PRIOR TO RELOCATING ANY SUPPORT OF EXCAVATION ELEMENT TO FACILITATE EXCAVATION.
10. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF OTHER TRADES, INCLUDING BUT NOT LIMITED TO: SITE UTILITIES, GENERAL EARTHWORK, AND BUILDING FOUNDATION CONSTRUCTION.
11. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE APPROPRIATE AGENCIES PRIOR TO COMMENCING WORK, AS REQUIRED.
12. BENCH CUT OR SLOPE ALL EXCAVATIONS TO COMPLY WITH OSHA STANDARDS UNLESS SUITABLE TEMPORARY SHORING OR BRACING IS PROVIDED.
13. DO NOT OVER−EXCAVATE UNLESS DIRECTED BY THE ENGINEER OF RECORD.
14. REFER TO THE GEOTECHNICAL ENGINEERING STUDY, PREPARED BY LANGAN ENGINEERING, ENVIRONMENTAL, SURVEYING, LANDSCAPE ARCHITECTURE AND GEOLOGY D.P.C., DATED 15 DECEMBER 2017, FOR INFORMATION PERTAINING TO GENERAL SUBSURFACE CONDITIONS.
15. BASED ON THE GEOTECHNICAL ENGINEERING STUDY NOTED ABOVE, GROUNDWATER HAS BEEN ASSUMED TO BE AT ABOUT EL. 0 FEET.
16. REFER TO THE REMEDIAL WORK PLAN, PREPARED BY LANGAN ENGINEERING, ENVIRONMENTAL, SURVEYING, LANDSCAPE ARCHITECTURE AND GEOLOGY D.P.C., DATED SEPTEMBER 2017 FOR INFORMATION PERTAINING TO ENVIRONMENTAL REMEDIATION.

STRUCTURAL STEEL NOTES

1. STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A572 OR A992, GRADE 50, U.O.N.
2. PLATES AND ALL OTHER MISCELLANEOUS STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A572, GRADE 50, U.O.N.
3. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS.
4. FIELD AND SHOP WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE.
5. WELDING ELECTRODES SHALL BE E70XX, U.O.N.
6. SINGLE PASS FILLET WELDS SHALL BE AS NOTED ON THE CONTRACT DRAWINGS.
7. AS APPLICABLE, REFER TO STRUCTURAL DRAWINGS (FO AND S SERIES) AND THE PROJECT SPECIFICATIONS FOR STRUCTURAL STEEL REQUIREMENTS RELATED TO ALL OTHER WORK.

CONCRETE NOTES

1. ALL CONCRETE SHALL BE NORMAL WEIGHT CONTROLLED CONCRETE, U.O.N., AND SHALL COMPLY WITH THE ACI BUILDING CODE AND THE CURRENT NEW YORK CITY BUILDING CODE.
2. CAST−IN−PLACE CONCRETE SHALL HAVE A MINIMUM UNCONFINED COMPRESSIVE STRENGTH AT 28 DAYS (f'c) OF 4,000 PSI, U.O.N.
3. THE CONTRACTOR SHALL SUBMIT MIX DESIGNS FOR ALL PROPOSED CAST−IN−PLACE CONCRETE MATERIALS.
4. MINIMUM CONCRETE COVER SHALL BE IN ACCORDANCE WITH ACI 318.
5. TOLERANCES FOR CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 117.
6. ONE SET OF SEVEN 4−INCH BY 8−INCH CYLINDERS SHALL BE TAKEN BY AN INDEPENDENT TESTING AGENCY FOR EVERY 50 CUBIC YARDS OF CONCRETE PLACED OR A MINIMUM OF ONE SET FOR EACH DAY THAT CONCRETE IS CAST. SAMPLES SHALL BE COMPRESSION TESTED AS FOLLOWS: (1) @ 3 DAYS, (1) @ 7 DAYS, (1) @ 14 DAYS, (2) @ 28 DAYS, AND (2) RESERVE. ADDITIONAL TESTING SHALL NOT BE REQUIRED IF f'c @ 28 DAYS MEETS OR EXCEEDS REQUIREMENTS HEREIN. SAMPLING SHALL BE IN ACCORDANCE WITH ASTM C31 AND ASTM C511. COMPRESSION TESTING SHALL BE IN ACCORDANCE WITH ASTM C39. FIELD TESTING OF SAMPLES SHALL BE IN ACCORDANCE WITH SECTION 1905.6.3.6 OF THE NEW YORK CITY BUILDING CODE.
7. AS APPLICABLE, REFER TO STRUCTURAL DRAWINGS (FO AND S SERIES) AND THE PROJECT SPECIFICATIONS FOR CONCRETE REQUIREMENTS RELATED TO ALL OTHER WORK.

GROUT NOTES

1. GROUT FOR TIEBACKS AND SOLDIER PILES SHALL CONSISTS OF A MIXTURE OF PORTLAND CEMENT (TYPE I, II, OR III) AND WATER. CONTRACTOR SHALL SUBMIT A GROUT MIX DESIGN SUITABLE FOR ACHIEVING A MINIMUM UNCONFINED COMPRESSIVE STRENGTH AT 28 DAYS (f'c) OF 5,000 PSI.
2. GROUT SHALL BE MIXED THOROUGHLY WITH A HIGH SPEED PADDLE MIXER OR MOYNO. READY MIX GROUT SHALL BE AN ACCEPTABLE ALTERNATIVE.
3. GROUT SHALL BE PUMPED USING A HYDRAULIC PUMP AND SHALL BE PLACED BY TREMIE FROM THE BOTTOM UP.
4. ONE SET OF SIX 3"X6" CYLINDERS SHALL BE TAKEN BY AN INDEPENDENT TESTING AGENCY FOR EVERY 50 CUBIC YARDS OF GROUT PLACED OR A MINIMUM OF ONE SET FOR EACH DAY THAT GROUT IS CAST. SAMPLES SHALL BE COMPRESSION TESTED AS FOLLOWS: (1) @ 3 DAYS, (1) @ 7 DAYS, (1) @ 14 DAYS, AND (2) @ 28 DAYS. SAMPLES ATTAINING THE REQUIRED COMPRESSIVE STRENGTH PRIOR TO THE NEXT TESTING INTERVAL SHALL NOT REQUIRE FURTHER TESTING. COMPRESSION TESTING SHALL BE IN ACCORDANCE WITH ASTM C39.

TIMBER NOTES

1. TIMBER FOR GUARDRAILS SHALL BE ROUGH SAWN, FULL SIZE, CONSTRUCTION GRADE LUMBER WITH A MINIMUM ALLOWABLE BENDING STRESS OF 1,500 PSI.
2. TIMBER FOR LAGGING AND SHEETED PITS SHALL BE ROUGH SAWN, FULL SIZE, STRUCTURAL GRADE LUMBER (SOUTHERN YELLOW PINE OR EQUIVALENT) WITH A MINIMUM ALLOWABLE BENDING STRESS PARALLEL TO THE GRAIN OF 850 PSI.
3. ALL TIMBER SHALL BE OF THE MINIMUM SIZES SHOWN ON THE DRAWINGS.

GENERAL PHASING NOTES

1. THE CONTRACTOR SHALL ESTABLISH AND INSTALL ALL REQUIRED MONITORING FOR ADJACENT BUILDINGS AND STRUCTURES.
2. THE CONTRACTOR SHALL VERIFY LOCATION OF, AND CLEAR ALL UTILITIES AND STRUCTURES OVER AND UNDER AREA OF EXCAVATION.
3. VERIFY TYPES, EXTENTS, AND CONDITIONS OF FOUNDATIONS SUPPORTING EXISTING ADJACENT STRUCTURES PRIOR TO PROCEEDING WITH GENERAL EXCAVATION VIA TEST PITS COORDINATED WITH THE ENGINEER OF RECORD.
4. SOLDIER PILES SHALL BE INSTALLED AS PER SEQUENCING AND NOTES PROVIDED HEREIN.
5. PERFORM GENERAL EXCAVATION TO TEMPORARY SUBGRADE ELEVATIONS AND INSTALL TIEBACKS AND BRACING WHERE REQUIRED AS PER SEQUENCING NOTES PROVIDED ON THE CONTRACT DRAWINGS OR AS DIRECTED BY THE ENGINEER OF RECORD.
6. CONTINUE GENERAL EXCAVATION TO FINAL SUBGRADE ELEVATION SHOWN ON THE CONTRACT DRAWINGS OR AS DIRECTED BY THE ENGINEER OF RECORD.
7. PLACE TEMPORARY SITE CAP CONSISTING OF A MINIMUM OF 2 FEET OF VIRGIN GRAVEL AS APPROVED BY THE ENVIRONMENTAL ENGINEER.
8. FOLLOWING INSTALLATION OF VIRGIN GRAVEL CAP, IN SITU GROUNDWATER TREATMENT INJECTIONS WILL BE COMPLETED BY THE ENVIRONMENTAL ENGINEER AND THEIR SUBCONTRACTOR.
9. CONSTRUCT MSE WALL AS PER DETAILS AND NOTES PROVIDED ON THE CONTRACTING DRAWINGS OR AS DIRECTED BY THE ENGINEER OF RECORD.

GENERAL EXCAVATION NOTES

1. SLOPED EXCAVATIONS SHALL BE PERMITTED WHERE ADEQUATE CLEARANCES EXIST.
2. EXCAVATIONS SHALL BE SLOPED IN ACCORDANCE WITH ALL APPLICABLE OSHA AND DOB STANDARDS.
3. SOIL SLOPES SHALL NOT EXCEED AN INCLINATION OF 1.5H:1V. THE INCLINATION SHALL BE DECREASED SHOULD INSTABILITY SUCH AS RAVELING BE OBSERVED OR WHERE WATER IS FOUND FLOWING THROUGH THE SLOPE FACE.
4. STOCKPILING OF EXCAVATED MATERIAL SHALL NOT BE PERMITTED WITHIN 10 FEET OF THE TOP OF SLOPES.
5. UNSUITABLE SOILS SHALL BE REMOVED AS DIRECTED BY THE ENGINEER OF RECORD.
6. EXCAVATION WITHIN 10 FEET OF THE SITE PERIMETER SHALL NOT EXTEND MORE THAN 2 FEET BELOW THE BRACING LEVELS INDICATED ON THE CONTRACT DRAWINGS UNTIL SUCH BRACING HAS BEEN INSTALLED.

BACKFILL NOTES

1. BACKFILL SHALL CONSIST OF CERTIFIED, CLEAN GRANULAR SOIL OR RECYCLED CONCRETE AGGREGATE (RCA), FREE OF ORGANIC MATTER AND OTHER DELETERIOUS MATERIALS, IN ACCORDANCE WITH SECTION 1803.2 OF THE NEW YORK CITY BUILDING CODE, AND MEETING THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
3−INCH	100
1/4−INCH	30 TO 75
NO. 40	5 TO 40
NO. 200	0 TO 10

2. SITE CAP MATERIAL FOR ENVIRONMENTAL REMEDIATION SHALL CONSIST OF VIRGIN GRAVEL HAVING LESS THAN 10 PERCENT PASSING THE NO.80 SIEVE AND BE FROM A PERMITTED MINE OR QUARRY. SITE CAP MATERIAL SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND REMEDIAL WORK PLAN.
3. MOLE ROCK SHALL NOT BE PERMITTED.
4. THE CONTRACTOR SHALL SUBMIT GRADATION TEST RESULTS AND MOISTURE DENSITY RELATIONSHIPS FOR ALL PROPOSED FILL MATERIALS.
5. ALL BACKFILL MATERIALS SHALL BE APPROVED BY THE PROJECT ENVIRONMENTAL AND GEOTECHNICAL CONSULTANTS PRIOR TO DELIVERY OR PLACEMENT.
6. BACKFILL SHALL BE PLACED IN UNIFORM HORIZONTAL LIFTS. THE THICKNESS OF LIFTS PRIOR TO COMPACTION SHALL NOT EXCEED 12 INCHES.
7. BACKFILL SHALL BE COMPACTED TO 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 (MODIFIED PROCTOR).
8. FILL PLACEMENT AND COMPACTION SHALL BE SUBJECT TO SPECIAL INSPECTION IN ACCORDANCE WITH CHAPTER 17 OF THE NEW YORK CITY BUILDING CODE (2014).
9. LEAN CONCRETE AND CONTROLLED LOW STRENGTH MATERIAL (CLSM) SHALL BE ACCEPTABLE ALTERNATES.

SOLDIER PILE AND LAGGING INSTALLATION NOTES

1. ALL PILES SHALL BE INSTALLED IN THE LOCATIONS SHOWN ON THE CONTRACT DRAWINGS UNLESS OTHERWISE APPROVED BY THE ENGINEER OF RECORD.
2. STEEL:
   A. SOLDIER PILE CASING SHALL CONSIST OF 13.375" OUTER DIAMETER, 0.514" THICK WALL, FLUSH JOINT THREADED DRILL PIPE.
   B. THE LEAD CASING LENGTH SHALL CONTAIN A HIGH STRENGTH CARBIDE CUTTING SHOE. CUTTING TEETH OF THE SHOE SHALL NOT EXCEED THE OUTER DIAMETER OF THE CASING BY MORE THAN 0.25 INCHES.
3. INSTALLATION:
   A. DRILLING SHALL BE PERFORMED USING INTERNAL FLUSH DUPLEX METHODS. EXTERNAL FLUSHING SHALL NOT BE PERMITTED. THE CONTRACTOR SHALL BE PREPARED TO ALTER DRILLING METHODS TO PREVENT LOSS OF GROUND, SETTLEMENT, OR LATERAL MOVEMENT OF ADJACENT STRUCTURES. AIR DRILLING AND USE OF A DOWN−THE−HOLE HAMMER SHALL NOT BE ALLOWED, EXCEPT FOR BYPASSING OBSTRUCTIONS.
   B. THE CASING SHALL BE INSTALLED TO THE DESIGNED TIP ELEVATION SHOWN IN SECTIONS. THE DRILL STEM SHALL NOT EXTEND BEYOND THE CASING DURING INSTALLATION UNLESS SPECIFICALLY APPROVED BY THE ENGINEER OF RECORD.
   C. UPON REACHING THE REQUIRED DEPTH INDICATED ON THE CONTRACT DRAWINGS, THE DRILL HOLE SHALL BE FLUSHED OF MUD AND OTHER DELETERIOUS MATERIALS PRIOR TO INSTALLATION OF REINFORCEMENT (IF REQUIRED) AND BEGINNING GROUTING OPERATIONS.
   D. SOLDIER PILES SHALL BE TREMIE GROUTED FROM THE BOTTOM UP UNTIL CLEAN GROUT IS OBSERVED.
4. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR MATERIALS AND INSTALLATION PROCEDURES. ALTERNATES, WHERE PROPOSED, SHALL BE ACCOMPANIED BY ALL ATTENDANT SUPPORTING CALCULATIONS.
5. TIMBER LAGGING BOARDS BETWEEN SOLDIER PILES SHALL CONSIST OF 3"X10" HORIZONTAL TIMBERS AND SHALL BE INSTALLED AS THE EXCAVATION PROGRESS. IN NO CASE SHALL THE EXCAVATION EXTEND MORE THAN 2'−0" BELOW LAGGED SECTIONS OF THE WALL.
6. ALL LAGGING SHALL BE "LOUVERED," THAT IS, LAGGING SHALL BE SPACED 1" APART VERTICALLY TO PERMIT THE FILLING AND BACKPACKING OF ANY VOIDS PRESENT BEHIND THE LAGGING. DISTURBED AREAS, VOIDS AND MATERIAL LOST BEHIND LAGGING SHALL BE BACKFILLED WITH A DRY SOIL/CEMENT MIXTURE. HAY OR FILTER FABRIC SHALL BE USED TO PREVENT MIGRATION OF FINES THROUGH LOUVER OPENINGS.
7. SOLDIER PILES SHALL BE INSTALLED TO WITHIN 3 INCHES OF THE THEORETICAL LOCATION. SOLDIER PILES SHALL NOT DEVIATE MORE THAN 2 PERCENT FROM PLUMB. SOLDIER PILES DRILLED OUTSIDE OF THE ABOVE TOLERANCES SHALL BE EXTRACTED AND REDRILLED.
8. REFER TO SOE−200 SERIES DRAWINGS FOR TYPICAL SECTIONS AND DETAILED EXCAVATION SEQUENCING NOTES.

TIEBACK INSTALLATION AND TESTING NOTES

1. REFER TO SOE−101 FOR TIEBACK LOADS AND TYPE.
2. REFER TO SOE−101 AND SOE−301 FOR SPECIFIC DETAILS REGARDING BEARING PLATE SIZES, ETC.
3. TIEBACK TENDONS SHALL CONSIST OF SINGLE−CORROSION PROTECTED HOLLOW BARS MANUFACTURED BY SKYLINE STEEL OR APPROVED EQUIVALENT. STRESSING LENGTH SHALL BE FULLY COATED WITH A CORROSION INHIBITING GREASE AND THEN ENCAPSULATED BY A SEAMLESS POLYPROPYLENE SHEATH, OR WRAPPED USING PVC TAPE.
4. CARE SHALL BE TAKEN NOT TO DAMAGE THE HOLLOW BARS. THE BARS SHALL BE KEPT FREE OF DIRT OR OTHER DELETERIOUS SUBSTANCES.
5. TIEBACK STEEL BARS SHALL NOT BE WELDED OR USED AS A GROUND FOR WELDING.
6. DRILL HOLLOW BARS AT THE LOCATIONS, INCLINATIONS, AND DRILL HOLE DIAMETERS AS INDICATED ON THESE DRAWINGS. DRILLING SHALL BE PERFORMED AS FOLLOWS:
   A. HOLLOW BARS TO BE DRILLED USING ROTARY−PERCUSSION HAMMERS WITH ROCK DRILL FLUSH HEADS IN ORDER TO PREVENT ISSUES WITH OBSTRUCTIONS.
   B. REQUIRED FREE−STRESSING LENGTH TO BE ESTABLISHED BY INSTALLING SMOOTH PVC PIPE OVER FINAL SECTIONS OF HOLLOW BAR. PVC PIPING SHALL FIT SNUG OVER THE BAR AND BE TAPED TO THE BAR COUPLERS IN ORDER TO MAINTAIN SEATING BETWEEN COUPLERS AND TO PREVENT GROUT FROM PERMEATING INTO THE SLEEVE.
   C. GROUT SHALL BE PUMPED INTO THE DRILL HOLE THROUGH THE CENTER OF THE HOLLOW−STEM THREADBAR.
7. TIE−BACK ANCHOR TESTING:
   A. ONE TIE−BACK ANCHOR SHALL BE PERFORMANCE TESTED. ALL OTHER ANCHORS SHALL BE PROOF TESTED.
   B. PERFORMANCE AND PROOF TESTING SHALL BE AS FOLLOWS:
      PERFORMANCE TEST: AL, .25P
      AL, .25P, .50P
      AL, .25P, .50P, .75P
      AL, .25P, .50P, .75P, 1.00P
      AL, .25P, .50P, .75P, 1.00P, 1.20P
      AL, .25P, .50P, .75P, 1.00P, 1.20P, 1.33P

      HOLD 1.33P FOR CREEP TEST. RECORD MOVEMENTS USING A DIAL INDICATOR CAPABLE OF READING INCREMENTS OF 0.001−INCH. RECORD READINGS AT 0, 1, 2, 3, 4, 5, 6 AND 10 MINUTES. IF THE INCREMENTAL MOVEMENT IS GREATER THAN 0.04−INCH, HOLD FOR AN ADDITIONAL 50 MINUTES AND TAKE READINGS IN 10 MINUTE INTERVALS. RELEASE TO ALIGNMENT LOAD, RE−STRESS TO TRANSFER LOAD, AND LOCK OFF ANCHOR NUT. PERFORM A LIFT−OFF TEST TO CONFIRM THE ACTUAL LOCK−OFF LOAD IS WITHIN 5% OF THE DESIGN LOCK−OFF LOAD.
   C. PROOF TEST SHALL BE AS FOLLOWS: AL, .25P, .50P, .75P, 1.00P, 1.20P, 1.33P. HOLD 1.33P FOR CREEP TEST. RECORD MOVEMENTS USING A DIAL INDICATOR CAPABLE OF READING INCREMENTS OF 0.001−INCH. RECORD READINGS AT 0, 1, 2, 3, 4, 5, 6 AND 10 MINUTES. IF THE INCREMENTAL MOVEMENT IS GREATER THAN 0.04−INCH, HOLD FOR AN ADDITIONAL 50 MINUTES AND TAKE READINGS IN 10 MINUTE INTERVALS. RELEASE TO ALIGNMENT LOAD, RE−STRESS TO TRANSFER LOAD, AND LOCK OFF ANCHOR NUT. PERFORM A LIFT−OFF TEST TO CONFIRM THE ACTUAL LOCK−OFF LOAD IS WITHIN 5% OF THE DESIGN LOCK−OFF LOAD.
   D. ACCEPTANCE: IF THE INCREMENTAL MOVEMENT BETWEEN 0 AND 10 MINUTES IS LESS THAN 0.04−INCH OR THAT BETWEEN 6 AND 60 MINUTES IS LESS THAN 0.08−INCH; AND THE APPARENT FREE TENDON LENGTH IS GREATER THAN 80% OF THE DESIGN FREE LENGTH AND LESS THAN 100% FREE LENGTH PLUS 50% BOND LENGTH; THE ANCHOR SHALL BE ACCEPTED.
   E. REJECTED ANCHORS SHALL BE ABANDONED AND REPLACEMENT ANCHORS DRILLED AT CONTRACTOR'S EXPENSE.
   F. THE LOCK−OFF LOAD FOR ALL ANCHORS SHALL BE AS IMPLICATED ON SOE−101.
   G. THE MAXIMUM TEST LOAD CAN BE REDUCED BY THE SOE ENGINEER OF RECORD BASED ON THE APPLICABLE PTI RECOMMENDATIONS.
8. CENTRALIZERS, SPACERS, AND ANCHOR HEADS SHALL BE AS RECOMMENDED BY THE TIEBACK MANUFACTURER TO ACCOMMODATE GROUTING OPERATIONS REQUIRED FOR EACH TIEBACK.
9. JACKING SHALL BE PERFORMED UTILIZING A CALIBRATED CENTER−HOLE JACK.
10. TIEBACK MOVEMENTS SHALL BE RECORDED WITH A DIAL INDICATOR CAPABLE OF READING TO INCREMENTS OF 0.001−INCH.
11. CONTRACTOR SHALL SUBMIT TIEBACK SHOP DRAWINGS FOR APPROVAL PRIOR TO COMMENCING TIEBACK INSTALLATION. SHOP DRAWINGS SHALL CONTAIN TIEBACK DETAILS, INSTALLATION AND TESTING PROCEDURES.

MSE WALL NOTES

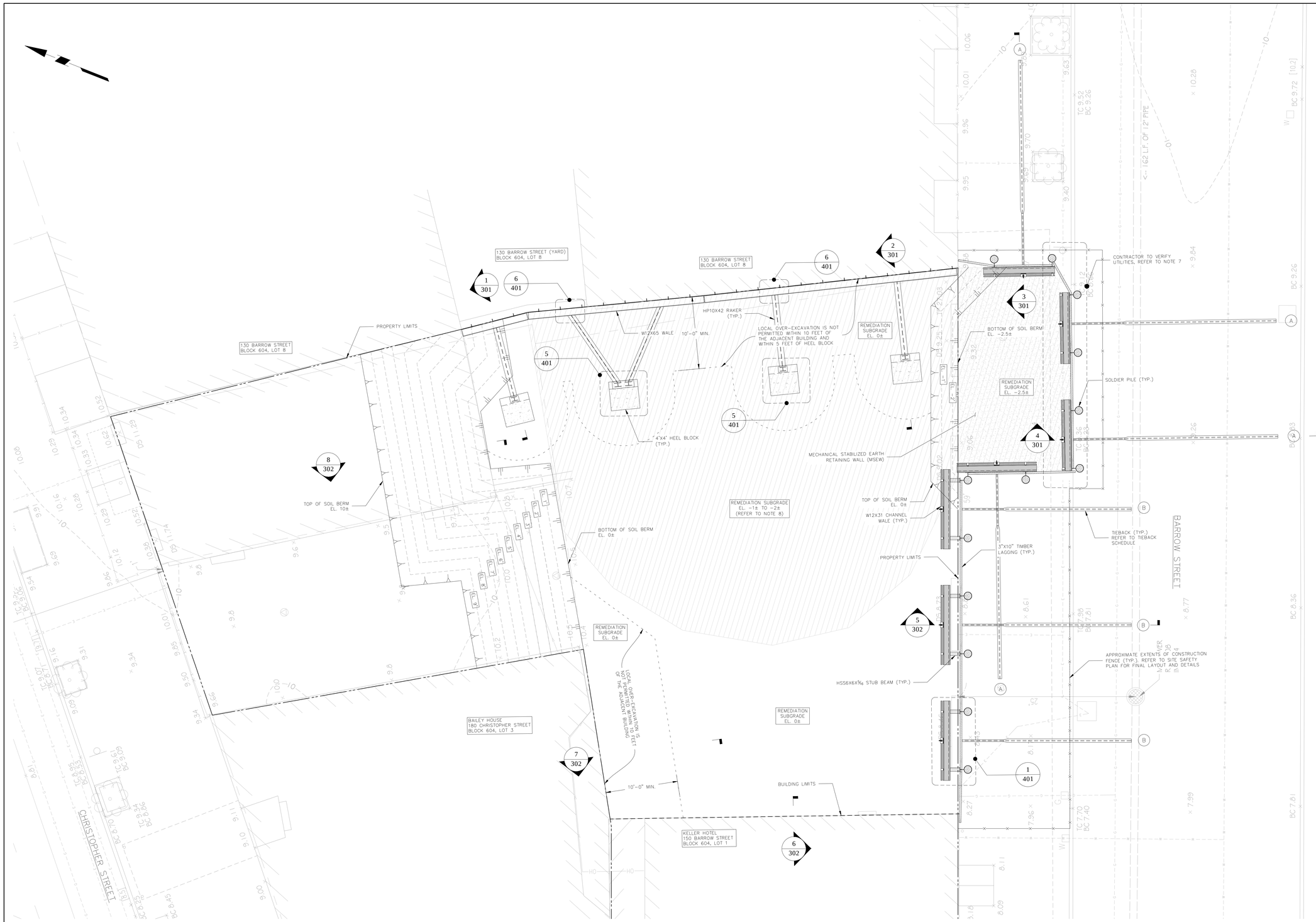
1. GEOGRID SHALL BE COMPRISED OF MIRAFI MIRAGRID 8XT AS MANUFACTURED BY TENCATE, OR APPROVED EQUAL. GEOGRID SHALL BE COMPRISED OF PVC COATED POLYESTER AND SHALL HAVE AN ULTIMATE TENSILE STRENGTH OF 7,400 LB/FT. REQUESTS FOR ALTERNATES SHALL BE MADE IN WRITING. ALTERNATES SHALL BE REVIEWED AND APPROVED BY THE ENGINEER OF RECORD PRIOR TO ORDERING MATERIALS.
2. STRUCTURAL FILL SHALL BE COMPRISED OF CLEAN GRANULAR SOIL, FREE OF ORGANIC MATERIAL AND OTHER DELETERIOUS DEBRIS AND SHALL MEET THE GRADATION REQUIREMENTS SHOWN IN THE BACKFILL NOTES.
3. ADJUST LOCATION OF LOWEST GEOGRID LAYER AS REQUIRED BASED ON FIELD TOPOGRAPHY.
4. VERTICAL SPACING OF GEOGRID LAYERS SHALL NOT EXCEED 18−INCHES. UNREINFORCED SOIL ZONES SHALL NOT EXCEED THE DIMENSIONS SHOWN HEREIN.
5. FILL SHALL BE PLACED FROM THE LOWEST LEVEL IN LOOSE UNIFORM HORIZONTAL LIFTS NOT EXCEEDING 12−INCHES.
6. FILL SHALL BE COMPACTED TO 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D1557. THE SOIL'S WATER CONTENT SHALL BE WITHIN 2 PERCENT OF OPTIMUM AT THE TIME OF COMPACTION.
7. DESIGN PARAMETERS/ASSUMPTIONS:
   - MAXIMUM FILL HEIGHT = 12'−0".
   - ALLOWABLE BEARING PRESSURE OF BASE SOILS IS EQUAL TO 3 TSF.
   - ALL BACKFILL CONSISTS OF FREE DRAINING SAND AND GRAVEL OR RCA WITH A MAXIMUM OF 10 PERCENT PASSING THE NO. 200 SIEVE.
   - INTERNAL FRICTION ANGLE OF REINFORCED SOILS = 34 DEG.
   - COHESION OF REINFORCED SOILS = 0 PSF
   - UNIT WEIGHT OF REINFORCED SOILS = 125 PCF
   - SURCHARGE LOADS CONSIST OF A UNIFORM LIVE LOAD EQUAL TO 600 PSF APPLIED AT THE WORKING SURFACE.
10. THE SOIL SUBGRADE SHALL BE CLEANED OF ALL DEBRIS PRIOR TO PLACEMENT OF STRUCTURAL FILL. STRUCTURAL FILL SHALL BE PLACED AND COMPACTED UNTIL REACHING THE FIRST LAYER OF GEOGRID.
11. GEOGRID SHALL BE INSTALLED AT INTERVALS SHOWN. FRONT FACE OF MSE WALL SHALL BE WRAPPED WITH GEOTEXTILE AND COVERED WITH FACING BASKET.
12. MAINTAIN A MINIMUM CLEARANCE OF 3−INCHES BETWEEN ADJACENT LAYERS OF GEOGRID.

MONITORING NOTES

1. MONITORING SHALL CONFORM TO SECTION 310901 OF THE PROJECT SPECIFICATIONS, TECHNICAL POLICY AND PROCEDURE NOTICE (TPPN) 10/88, AND THE REQUIREMENTS PRESENTED HEREIN.
2. SURVEY MONITORING POINTS SHALL BE INSTALLED AT LOCATIONS DETERMINED IN CONSULTATION WITH THE ENGINEER OF RECORD. MONITORING POINTS SHALL BE INSTALLED AND BASELINE READINGS SHALL BE TAKEN PRIOR TO COMMENCING EXCAVATION ACTIVITIES.
3. A LICENSED SURVEYOR SHALL BE RETAINED TO MONITOR MOVEMENTS OF THE SUPPORT OF EXCAVATION SYSTEM AND ADJOINING GROUND SURFACE.
4. INSTALL SURVEY MONITORING POINTS ON SUBSURFACE STRUCTURES AT MAXIMUM HORIZONTAL INTERVALS OF 25 FEET, BUT NOT LESS THAN TWO POINTS PER WALL. MONITORING POINTS SHALL BE ESTABLISHED AT EACH HORIZONTAL LOCATION NEAR THE BASE OF AND TOP OF BUILDINGS.
5. AT A MINIMUM, SURVEY MONITORING POINTS SHALL BE INSTALLED AT THE SUPPORT OF EXCAVATION SYSTEM AT THE TOP OF EVERY THIRD SOLDIER PILE. INSTALL SURVEY MONITORING POINTS VERTICALLY IN 15 FEET MAXIMUM INTERVALS BEGINNING AT THE TOP OF THE SUPPORT OF EXCAVATION WALL.
6. OPTICAL SURVEY READINGS SHALL BE TAKEN TO AN ACCURACY OF ±0.005 FT (1.5MM). OPTICAL SURVEYING SHALL BE PERFORMED USING EITHER A MANUALLY OPERATED TOTAL STATION OR AN AUTOMATIC TOTAL STATION REFERENCED TO A STABLE BENCHMARK BEYOND THE LIMITS OF THE PROJECT SITE.
7. AT A MINIMUM, SURVEY MONITORING SHALL BE PERFORMED TWICE WEEKLY DURING EXCAVATION. THE FREQUENCY OF MONITORING SHALL BE INCREASED OR DECREASED AS DIRECTED BY THE ENGINEER OF RECORD PENDING THE RESULTS OF RECORDED MONITORING DATA TRENDS.
8. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, OWNER, AND THE DESIGN TEAM IMMEDIATELY IF LATERAL MOVEMENT OF THE SUPPORT OF EXCAVATION SYSTEM EXCEEDS THE THRESHOLDS INDICATED ON SOE−103. THE CONTRACTOR'S MONITORING CONSULTANT SHALL REVIEW THE DATA FOR TRENDS AND SHALL IDENTIFY IF MOVEMENTS ARE ATTRIBUTED TO INSTRUMENT ERROR OR TOLERANCES.
9. IN THE EVENT THAT MONITORING INDICATES MOVEMENT EXCEEDING THE LIMIT LEVELS DESCRIBED HEREIN OR DEFINED IN SECTION 310901, THE CONTRACTOR SHALL CEASE CONSTRUCTION ACTIVITIES. WHERE REQUIRED, THE CONTRACTOR SHALL PROVIDE STABILIZATION OF THE EXCAVATION SUPPORT SYSTEM VIA INSTALLATION OF TEMPORARY EARTHEN BERMS AND/OR ADDITIONAL BRACING. ADDITIONAL EXCAVATION ACTIVITIES SHALL NOT PROCEED WITHOUT THE AUTHORIZATION FROM THE ENGINEER OF RECORD AND ANY OTHER AGENCIES HAVING JURISDICTION.
10. ALL SURVEY MONITORING POINTS SHALL BEAR A UNIQUE IDENTIFICATION. AS−BUILT PLANS SHALL BE PREPARED FOR ALL SURVEY MONITORING POINTS INSTALLED. PLANS SHALL BE AMENDED AS REQUIRED DURING CONSTRUCTION FOR THE ABANDONMENT, REPLACEMENT, OR ADDITION OF NEW SURVEY MONITORING LOCATIONS. ALL MONITORING RESULTS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER, ENGINEER OF RECORD, AND ANY OTHER AGENCIES HAVING JURISDICTION WITHIN 24 HOURS OF TAKING READINGS.
11. SEISMOGRAPHS SHALL BE INSTALLED AT LOCATIONS DETERMINED IN CONSULTATION WITH THE ENGINEER OF RECORD. SEISMOGRAPHS SHALL BE INSTALLED AND BASELINE READINGS SHALL BE TAKEN PRIOR TO COMMENCING EXCAVATION ACTIVITIES.
12. PORTABLE VIBRATION MONITORS/SEISMOGRAPHS SHALL BE INSTALLED ADJACENT TO AREAS WHERE WORK IS TO BE PERFORMED.
   A. THE MAXIMUM PERMISSIBLE PEAK PARTICLE VELOCITY SHALL BE AS INDICATED ON SOE−103..
   B. THE MAX PPV MAY BE REDUCED BY THE ENGINEER OF RECORD IF MOVEMENTS AND/OR CRACKING ARE DETECTED IN ADJACENT BUILDINGS OR THE PERFORMANCE OF THE SUPPORT OF EXCAVATION SYSTEM IS IMPAIRED.
   C. THE MAXIMUM PERMISSIBLE LEVELS SHALL BE CALCULATED AS THE PEAK VECTOR SUM OF VELOCITY MEASUREMENTS TAKEN IN THREE ORTHOGONAL DIRECTIONS.
14. "TELLTALES" SHALL BE INSTALLED ACROSS EXISTING CRACKS AND IN OTHER SENSITIVE AREAS TO MEASURE CHANGES IN CRACK WIDTH. PHOTOGRAPHS SHALL BE TAKEN OF EACH "TELLTALE" ON A WEEKLY BASIS. SUCH PHOTOGRAPHS SHALL BE OF SUITABLE CLARITY TO CLEARLY RECORD ANY MOVEMENT.
15. A MICROMETER SENSITIVE TO 0.001 IN (0.025 MM) SHALL BE USED TO MONITOR CRACK WIDTHS AT LEAST ONCE A DAY.
16. PHOTOGRAPHS SHALL BE TAKEN OF ALL ADJACENT BUILDINGS PRIOR TO CONSTRUCTION. PHOTOGRAPHS SHALL BE TAKEN OF HISTORIC/LANDMARKED BUILDINGS ON A WEEKLY BASIS DURING CONSTRUCTION.
17. RECORDS OF THE MONITORING PROGRAM SHALL BE RETAINED.
18. REFER TO SECTION 310901 FOR ALL REVIEW AND LIMIT LEVELS.
19. REFER TO SECTION 310901 FOR PREPARATION AND SUBMISSION OF INTERPRETIVE MONITORING REPORTS.
20. SUBMIT SHOP DRAWINGS AND CUT SHEET FOR ALL INSTRUMENTATION IN ACCORDANCE WITH SECTION 310901.

NEW YORK CITY BUILDING DEPARTMENT NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OUTLINED IN THE 2014 NEW YORK CITY BUILDING CODE.
2. EXCAVATION AND FILL OPERATIONS SHALL BE CONDUCTED IN SUCH A MANNER THAT LIFE AND PROPERTY ARE NOT ENDANGERED AS PER SECTION 3304.2 OF THE NEW YORK CITY BUILDING CODE.
3. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF BUILDINGS AT LEAST 24 HOURS, BUT NO MORE THAN 48 HOURS PRIOR TO COMMENCING EXCAVATION, OR ON THE LAST BUSINESS DAY BEFORE THE COMMENCEMENT DATE AS PER SECTION 3304.3.1 OF THE NEW YORK CITY BUILDING CODE.
4. THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE TO THE ADJACENT PROPERTY OWNER NOT LESS THAN 10 DAYS PRIOR TO THE SCHEDULED STARTING DATE OF EXCAVATION. THE WRITTEN NOTICE SHALL PROVIDE A DESCRIPTION OF THE WORK TO BE PERFORMED, THE TIMEFRAME AND SCHEDULE, AND THE CONTACT INFORMATION OF THE PERSON CAUSING THE EXCAVATION AND OF THE DEPARTMENT AS PER SECTION 3304.3.2 OF THE NEW YORK CITY BUILDING CODE.
5. ALL SIDES OR SLOPES OF EXCAVATIONS OR EMBANKMENTS SHALL BE INSPECTED AFTER RAINSTORMS, OR ANY OTHER HAZARD−INCREASING EVENT, AND SAFE CONDITIONS SHALL BE RESTORED AS PER S



NOTES:

1. SEE SOE-001 FOR SUPPORT OF EXCAVATION GENERAL NOTES.
2. SEE SOE-102 FOR SUPPORT OF EXCAVATION LAYOUT PLAN.
3. SEE SOE-103 FOR SUPPORT OF EXCAVATION MONITORING PLAN.
4. SEE SOE-200 SERIES FOR TYPICAL SUPPORT OF EXCAVATION SECTIONS.
5. SEE SOE-300 SERIES FOR TYPICAL SUPPORT OF EXCAVATION DETAILS.
6. EXISTING CONDITIONS TAKEN FROM BOUNDARY & TOPOGRAPHIC SURVEY, FILE NO. G160189, PREPARED BY GALLAS SURVEYING GROUP, DATED 14 MARCH 2016.
7. LOCATION AND EXTENTS OF ALL EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO INSTALLATION OF ANY SUPPORT OF EXCAVATION ELEMENTS OR GENERAL EXCAVATION. ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND THE FIELD CONDITIONS AS WELL AS CONFLICTS WITH ANY SUPPORT OF EXCAVATION ELEMENTS SHALL BE REPORTED TO THE OWNER'S ENVIRONMENTAL AND GEOTECHNICAL ENGINEERS FOR CLARIFICATION PRIOR TO COMMENCING WORK.
8. LOCAL OVER-EXCAVATION OF ABOUT 1 TO 2 FEET BELOW THE GENERAL SUBGRADE (EL. 0±) MAY BE REQUIRED WITHIN THE PETROLEUM-IMPACTED AREA AND SHALL BE AS DIRECTED BY THE ENVIRONMENTAL ENGINEER AND IN ACCORDANCE WITH THE REMEDIAL WORK PLAN, DATED SEPTEMBER 2017. LOCAL OVER-EXCAVATION SHALL NOT BE PERMITTED WITHIN 10 FEET OF ADJACENT BUILDINGS AND 5 FEET OF HEEL BLOCKS. SATURATED SOIL SHALL BE STOCKPILED AS NECESSARY TO DRY OUT PRIOR TO TRANSPORT OFFSITE. OVER-EXCAVATION SHALL BE SUSPENDED WHERE DIRECTED BY THE OWNER'S ENGINEER. CARE SHALL BE TAKEN TO MINIMIZE DISTURBANCE OF UNDERLYING SOILS WITHIN OVER-EXCAVATED ZONES.

LEGEND:

- PROPERTY LINE
- APPROXIMATE LOCATION OF CONSTRUCTION FENCE
- APPROXIMATE EXTENTS OF PETROLEUM-IMPACTED AREA
- APPROXIMATE EXTENTS OF MSE WALL

TIEBACK SCHEDULE AND DESIGN LOAD

DESIGNATION	TENDON BAR SIZE	DIP ANGLE (°)	DESIGN LOAD (KIPS)	LOCK-OFF LOAD (KIPS)	MIN. BOND LENGTH (FEET)	MIN. FREE LENGTH (FEET)	DRILL HOLE DIAMETER (INCH)	BEARING PLATE	CHANNEL SIZE	BRACING ELEVATION (NAVD88)
A	T52/26 HOLLOW BAR	45	100	80	30	10	6	10"X10"X1.5"	(2) MC12X31 GRADE 50	EL. 3±
B	T40/16 HOLLOW BAR	45	84	68	25	10	6	10"X10"X1.5"	(2) MC12X31 GRADE 50	EL. 5±

0 3' 6' 12' 18'
GRAPHIC SCALE

144 Barrow Street

178 Christopher Street
New York, NY 10014

MA Morris Adjmi Architects
www.ma.com

KEY PLAN

NYC DOB BSCAN STICKER

DOB STAMP + SIGNATURE

REV NO	DATE	ISSUE
0	01-11-2019	DOB SUBMISSION

OWNER/CLIENT:
William Gottlieb Real Estate
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Fax: -

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HISTORIC PRESERVATION:
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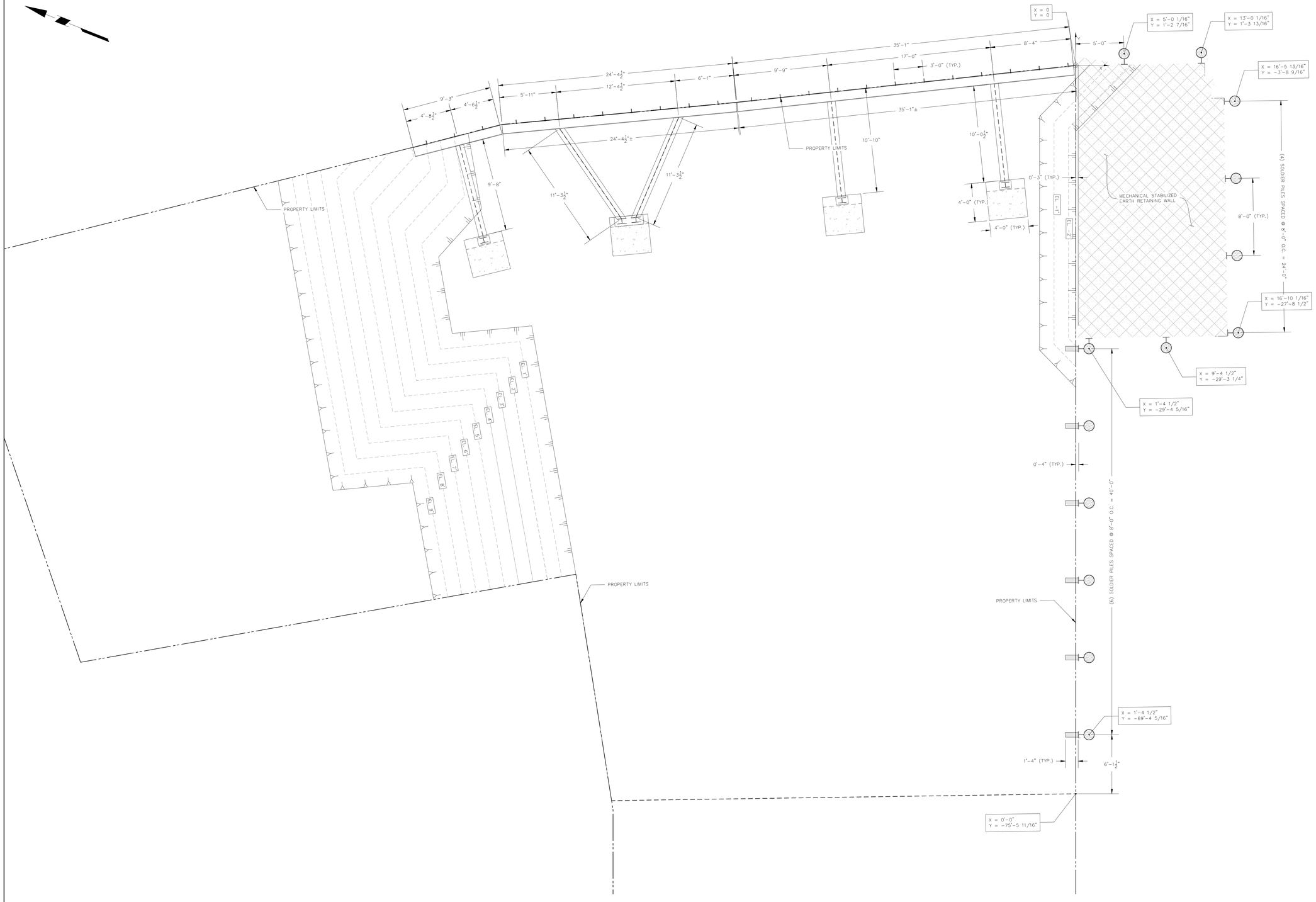
Fax: 212-274-9380

SCALE: 3/16" = 1'-0"

SUPPORT OF EXCAVATION GENERAL PLAN

SOE101.00

MA PROJECT NO:1601 SHEET OF



NOTES:

1. SEE SOE-001 FOR SUPPORT OF EXCAVATION GENERAL NOTES.
2. SEE SOE-101 FOR SUPPORT OF EXCAVATION GENERAL PLAN.
3. SEE SOE-103 FOR SUPPORT OF EXCAVATION MONITORING PLAN.
4. SEE SOE-200 SERIES FOR TYPICAL SUPPORT OF EXCAVATION SECTIONS.
5. SEE SOE-300 SERIES FOR TYPICAL SUPPORT OF EXCAVATION DETAILS.

LEGEND:

PROPERTY LINE

GRAPHIC SCALE 0 2' 4' 8' 12'

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New York, NY 10014

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www.ma.com

KEY PLAN

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Fax: 212-274-9380

SCALE: 1/4" = 1'-0"

SUPPORT OF EXCAVATION LAYOUT PLAN

SOE102.00

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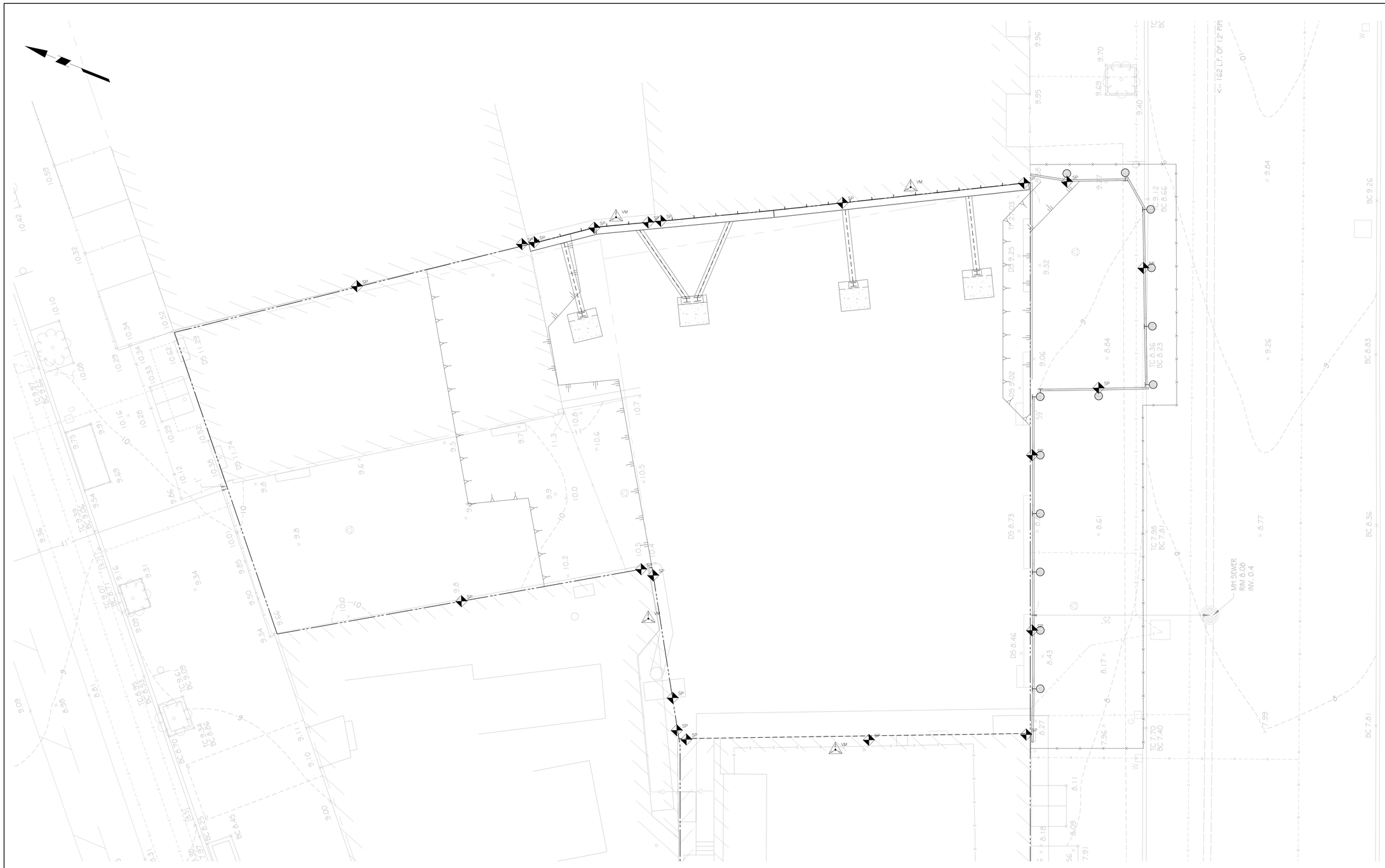


NOTES:

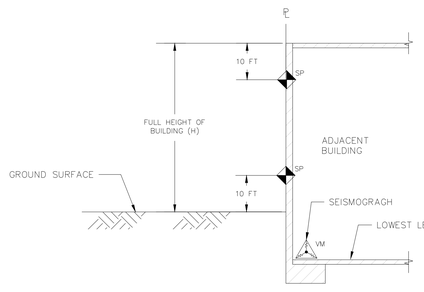
1. SEE SOE-001 FOR SUPPORT OF EXCAVATION GENERAL NOTES.
2. SEE SOE-101 FOR SUPPORT OF EXCAVATION GENERAL PLAN.
3. SEE SOE-102 FOR SUPPORT OF EXCAVATION LAYOUT PLAN.
4. SEE SOE-200 SERIES FOR TYPICAL SUPPORT OF EXCAVATION SECTIONS.
5. SEE SOE-300 SERIES FOR TYPICAL SUPPORT OF EXCAVATION DETAILS.
6. EXISTING CONDITIONS TAKEN FROM BOUNDARY & TOPOGRAPHIC SURVEY, FILE NO. G160189, PREPARED BY GALLAS SURVEYING GROUP, DATED 14 MARCH 2016.
7. MONITORING LOCATIONS ARE SHOWN FOR CONCEPT ONLY. FINAL LOCATIONS OF ALL MONITORING SHALL BE SELECTED BY THE CONTRACTOR IN CONSULTATION WITH THE OWNER'S ENGINEER, PENDING SITE ACCESS.

LEGEND:

- PROPERTY LINE
- APPROXIMATE LOCATION OF CONSTRUCTION FENCE
- SP — SURVEY MONITORING POINT
- VM — VIBRATION MONITORING POINT

MONITORING SUMMARY AND ACTION PROTOCOL

STRUCTURE	MONITORING INSTRUMENT	REVIEW LEVEL	LIMIT LEVEL	PROTOCOL FOR EXCEEDANCE OF REVIEW LEVEL	PROTOCOL FOR EXCEEDANCE OF LIMIT LEVEL
130 BARROW STREET AND 180 CHRISTOPHER STREET	OPTICAL TARGETS	3/16-IN TOTAL MOVEMENT OR 1/8-IN BETWEEN TWO CONSECUTIVE READINGS	1/4-in	CONSTRUCTION MANAGER IS NOTIFIED VIA EMAIL. THE CONSTRUCTION MANAGER WILL ADVISE THE CONTRACTOR TO MODIFY MEANS AND METHODS	CONSTRUCTION MANAGER IS NOTIFIED VIA EMAIL. CONSTRUCTION MANAGER TO STOP WORK IMMEDIATELY AT THE SITE AND METHODS OF CONSTRUCTION WILL BE REVIEWED AND MODIFIED AS NECESSARY TO PREVENT FURTHER EXCEEDANCES
	SEISMOGRAPHS	0.5 in/sec	2 in/sec		
150 BARROW STREET	OPTICAL TARGETS	3/16-IN TOTAL MOVEMENT OR 1/8"-IN BETWEEN TWO CONSECUTIVE READINGS	1/4-in		
	SEISMOGRAPHS	0.25 in/sec	0.5 in/sec		
SOE	OPTICAL TARGETS	FOUR CONSECUTIVE READINGS OF 1/8" OR ONE CONFIRMED READING OF 1/2"	1-in		



TYPICAL MONITORING SECTION
Scale: N.T.S

0 2' 4' 8' 12'
GRAPHIC SCALE

144 Barrow Street

178 Christopher Street
New York, NY 10014

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KEY PLAN

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DOB STAMP + SIGNATURE

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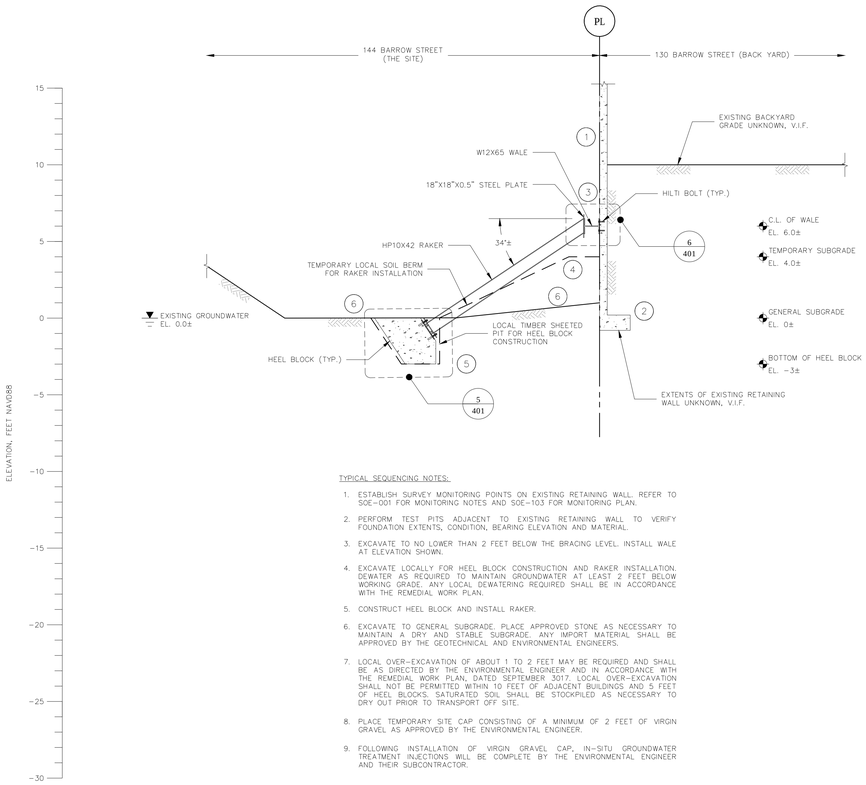
SCALE: 3/16" = 1'-0"

SUPPORT OF EXCAVATION MONITORING PLAN

SOE103.00

MA PROJECT NO:1601 SHEET OF

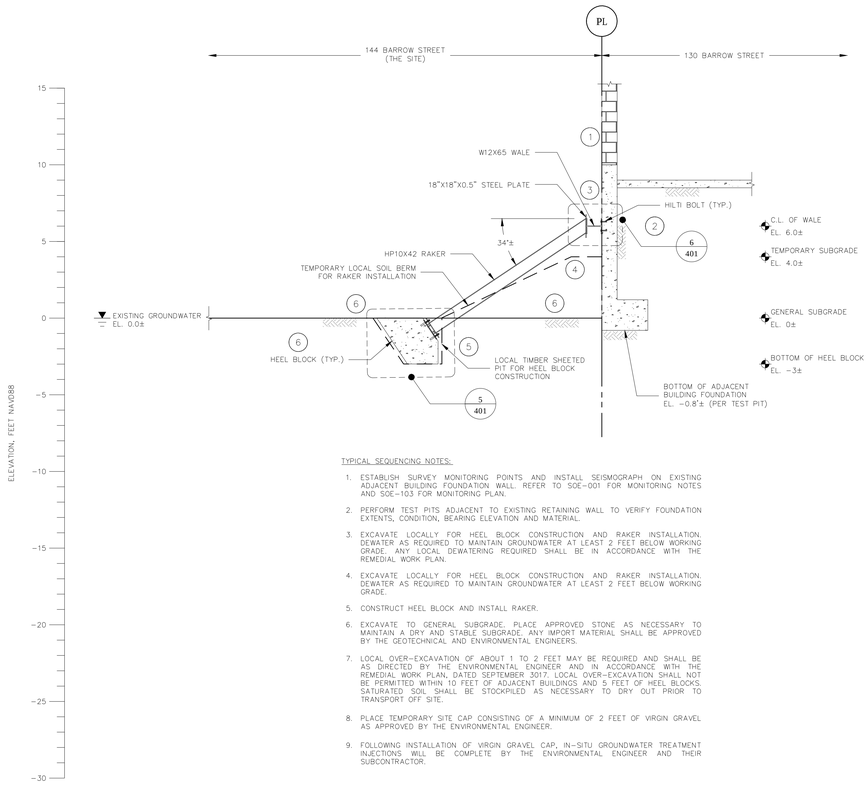


TYPICAL SEQUENCING NOTES:

1. ESTABLISH SURVEY MONITORING POINTS ON EXISTING RETAINING WALL. REFER TO SOE-001 FOR MONITORING NOTES AND SOE-103 FOR MONITORING PLAN.
2. PERFORM TEST PITS ADJACENT TO EXISTING RETAINING WALL TO VERIFY FOUNDATION EXTENTS, CONDITION, BEARING ELEVATION AND MATERIAL.
3. EXCAVATE TO NO LOWER THAN 2 FEET BELOW THE BRACING LEVEL. INSTALL WALE AT ELEVATION SHOWN.
4. EXCAVATE LOCALLY FOR HEEL BLOCK CONSTRUCTION AND RAKER INSTALLATION. DEWATER AS REQUIRED TO MAINTAIN GROUNDWATER AT LEAST 2 FEET BELOW WORKING GRADE. ANY LOCAL DEWATERING REQUIRED SHALL BE IN ACCORDANCE WITH THE REMEDIAL WORK PLAN.
5. CONSTRUCT HEEL BLOCK AND INSTALL RAKER.
6. EXCAVATE TO GENERAL SUBGRADE. PLACE APPROVED STONE AS NECESSARY TO MAINTAIN A DRY AND STABLE SUBGRADE. ANY IMPORT MATERIAL SHALL BE APPROVED BY THE GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS.
7. LOCAL OVER-EXCAVATION OF ABOUT 1 TO 2 FEET MAY BE REQUIRED AND SHALL BE AS DIRECTED BY THE ENVIRONMENTAL ENGINEER AND IN ACCORDANCE WITH THE REMEDIAL WORK PLAN, DATED SEPTEMBER 3017. LOCAL OVER-EXCAVATION SHALL NOT BE PERMITTED WITHIN 10 FEET OF ADJACENT BUILDINGS AND 5 FEET OF HEEL BLOCKS. SATURATED SOIL SHALL BE STOCKPILED AS NECESSARY TO DRY OUT PRIOR TO TRANSPORT OFF SITE.
8. PLACE TEMPORARY SITE CAP CONSISTING OF A MINIMUM OF 2 FEET OF VIRGIN GRAVEL AS APPROVED BY THE ENVIRONMENTAL ENGINEER.
9. FOLLOWING INSTALLATION OF VIRGIN GRAVEL CAP, IN-SITU GROUNDWATER TREATMENT INJECTIONS WILL BE COMPLETE BY THE ENVIRONMENTAL ENGINEER AND THEIR SUBCONTRACTOR.

1 EAST PERIMETER ADJACENT TO 130 BARROW STREET YARD (FACING NORTH)

Scale: 1/4" = 1'-0"

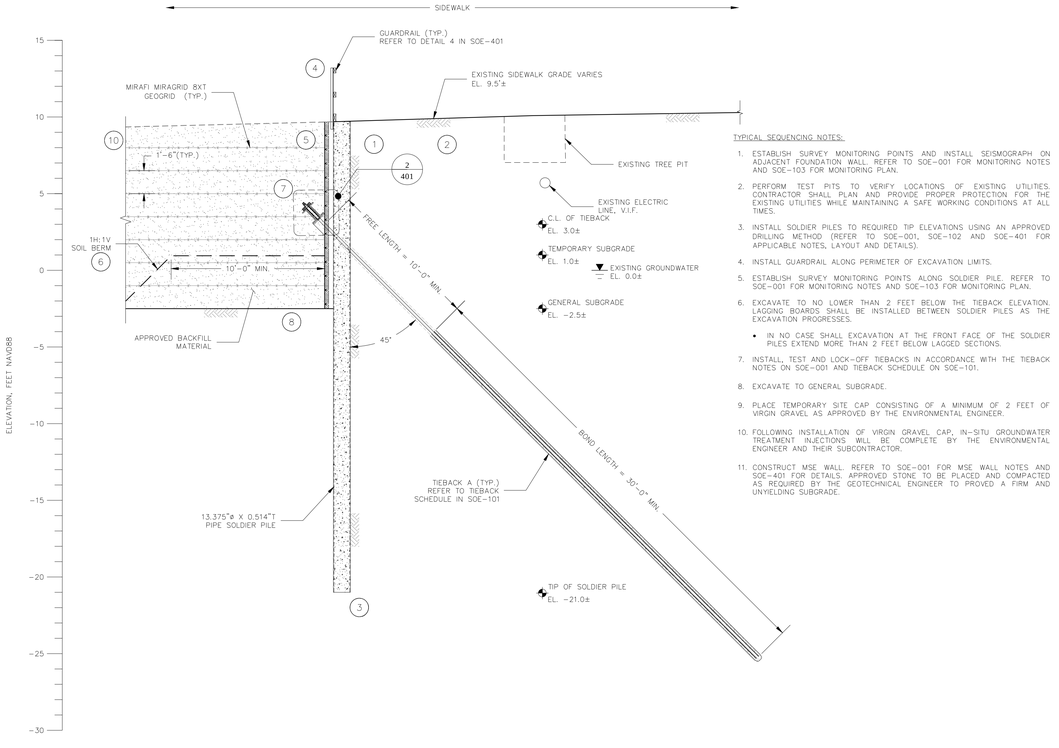


TYPICAL SEQUENCING NOTES:

1. ESTABLISH SURVEY MONITORING POINTS AND INSTALL SEISMOGRAPH ON EXISTING ADJACENT BUILDING FOUNDATION WALL. REFER TO SOE-001 FOR MONITORING NOTES AND SOE-103 FOR MONITORING PLAN.
2. PERFORM TEST PITS ADJACENT TO EXISTING RETAINING WALL TO VERIFY FOUNDATION EXTENTS, CONDITION, BEARING ELEVATION AND MATERIAL.
3. EXCAVATE LOCALLY FOR HEEL BLOCK CONSTRUCTION AND RAKER INSTALLATION. DEWATER AS REQUIRED TO MAINTAIN GROUNDWATER AT LEAST 2 FEET BELOW WORKING GRADE. ANY LOCAL DEWATERING REQUIRED SHALL BE IN ACCORDANCE WITH THE REMEDIAL WORK PLAN.
4. EXCAVATE LOCALLY FOR HEEL BLOCK CONSTRUCTION AND RAKER INSTALLATION. DEWATER AS REQUIRED TO MAINTAIN GROUNDWATER AT LEAST 2 FEET BELOW WORKING GRADE.
5. CONSTRUCT HEEL BLOCK AND INSTALL RAKER.
6. EXCAVATE TO GENERAL SUBGRADE. PLACE APPROVED STONE AS NECESSARY TO MAINTAIN A DRY AND STABLE SUBGRADE. ANY IMPORT MATERIAL SHALL BE APPROVED BY THE GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS.
7. LOCAL OVER-EXCAVATION OF ABOUT 1 TO 2 FEET MAY BE REQUIRED AND SHALL BE AS DIRECTED BY THE ENVIRONMENTAL ENGINEER AND IN ACCORDANCE WITH THE REMEDIAL WORK PLAN, DATED SEPTEMBER 3017. LOCAL OVER-EXCAVATION SHALL NOT BE PERMITTED WITHIN 10 FEET OF ADJACENT BUILDINGS AND 5 FEET OF HEEL BLOCKS. SATURATED SOIL SHALL BE STOCKPILED AS NECESSARY TO DRY OUT PRIOR TO TRANSPORT OFF SITE.
8. PLACE TEMPORARY SITE CAP CONSISTING OF A MINIMUM OF 2 FEET OF VIRGIN GRAVEL AS APPROVED BY THE ENVIRONMENTAL ENGINEER.
9. FOLLOWING INSTALLATION OF VIRGIN GRAVEL CAP, IN-SITU GROUNDWATER TREATMENT INJECTIONS WILL BE COMPLETE BY THE ENVIRONMENTAL ENGINEER AND THEIR SUBCONTRACTOR.

2 EAST PERIMETER ADJACENT TO 130 BARROW STREET (FACING NORTH)

Scale: 1/4" = 1'-0"

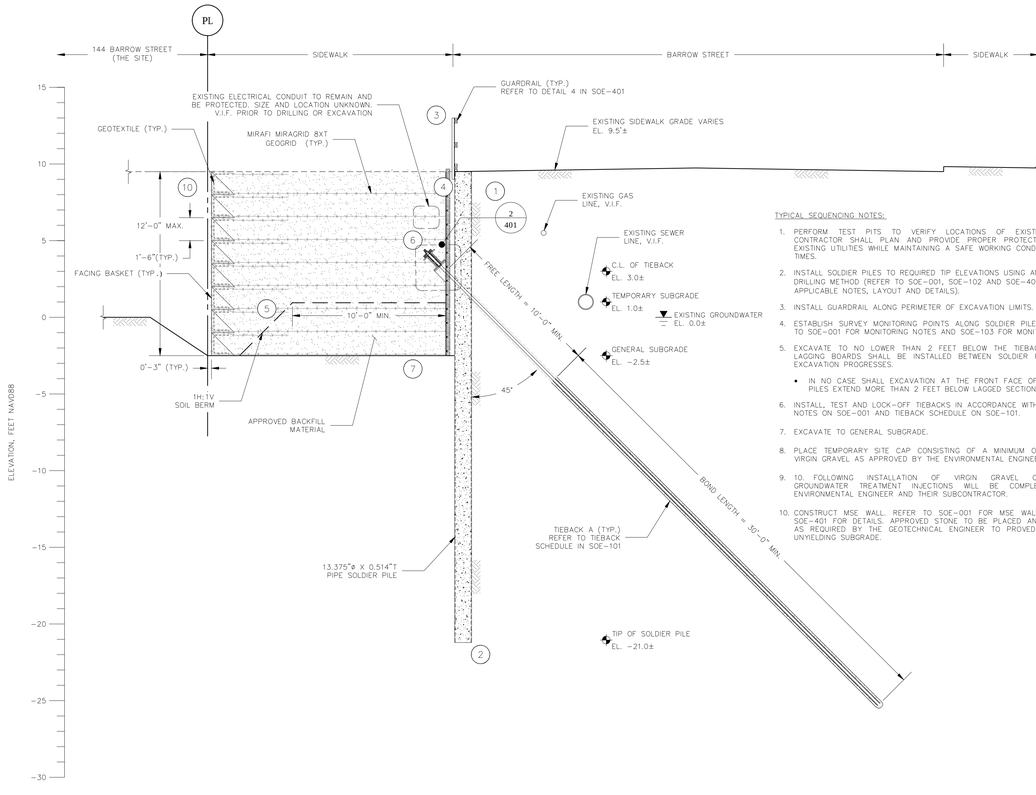


TYPICAL SEQUENCING NOTES:

1. ESTABLISH SURVEY MONITORING POINTS AND INSTALL SEISMOGRAPH ON ADJACENT FOUNDATION WALL. REFER TO SOE-001 FOR MONITORING NOTES AND SOE-103 FOR MONITORING PLAN.
2. PERFORM TEST PITS TO VERIFY LOCATIONS OF EXISTING UTILITIES. CONTRACTOR SHALL PLAN AND PROVIDE PROPER PROTECTION FOR THE EXISTING UTILITIES WHILE MAINTAINING A SAFE WORKING CONDITIONS AT ALL TIMES.
3. INSTALL SOLDIER PILES TO REQUIRED TIP ELEVATIONS USING AN APPROVED DRILLING METHOD (REFER TO SOE-001, SOE-102 AND SOE-401 FOR APPLICABLE NOTES, LAYOUT AND DETAILS).
4. INSTALL GUARDRAIL ALONG PERIMETER OF EXCAVATION LIMITS.
5. ESTABLISH SURVEY MONITORING POINTS ALONG SOLDIER PILE. REFER TO SOE-001 FOR MONITORING NOTES AND SOE-103 FOR MONITORING PLAN.
6. EXCAVATE TO NO LOWER THAN 2 FEET BELOW THE TIEBACK ELEVATION. LAGGING BOARDS SHALL BE INSTALLED BETWEEN SOLDIER PILES AS THE EXCAVATION PROGRESSES.
   - IN NO CASE SHALL EXCAVATION AT THE FRONT FACE OF THE SOLDIER PILES EXTEND MORE THAN 2 FEET BELOW LAGGED SECTIONS.
7. INSTALL, TEST AND LOCK-OFF TIEBACKS IN ACCORDANCE WITH THE TIEBACK NOTES ON SOE-001 AND TIEBACK SCHEDULE ON SOE-101.
8. EXCAVATE TO GENERAL SUBGRADE.
9. PLACE TEMPORARY SITE CAP CONSISTING OF A MINIMUM OF 2 FEET OF VIRGIN GRAVEL AS APPROVED BY THE ENVIRONMENTAL ENGINEER.
10. FOLLOWING INSTALLATION OF VIRGIN GRAVEL CAP, IN-SITU GROUNDWATER TREATMENT INJECTIONS WILL BE COMPLETE BY THE ENVIRONMENTAL ENGINEER AND THEIR SUBCONTRACTOR.
11. CONSTRUCT MSE WALL. REFER TO SOE-001 FOR MSE WALL NOTES AND SOE-401 FOR DETAILS. APPROVED STONE TO BE PLACED AND COMPACTED AS REQUIRED BY THE GEOTECHNICAL ENGINEER TO PROVED A FIRM AND UNYIELDING SUBGRADE.

3 EAST PERIMETER ALONG SIDEWALK (FACING NORTH)

Scale: 1/4" = 1'-0"



TYPICAL SEQUENCING NOTES:

1. PERFORM TEST PITS TO VERIFY LOCATIONS OF EXISTING UTILITIES. CONTRACTOR SHALL PLAN AND PROVIDE PROPER PROTECTION FOR THE EXISTING UTILITIES WHILE MAINTAINING A SAFE WORKING CONDITIONS AT ALL TIMES.
2. INSTALL SOLDIER PILES TO REQUIRED TIP ELEVATIONS USING AN APPROVED DRILLING METHOD (REFER TO SOE-001, SOE-102 AND SOE-401 FOR APPLICABLE NOTES, LAYOUT AND DETAILS).
3. INSTALL GUARDRAIL ALONG PERIMETER OF EXCAVATION LIMITS.
4. ESTABLISH SURVEY MONITORING POINTS ALONG SOLDIER PILE WALL. REFER TO SOE-001 FOR MONITORING NOTES AND SOE-103 FOR MONITORING PLAN.
5. EXCAVATE TO NO LOWER THAN 2 FEET BELOW THE TIEBACK ELEVATION. LAGGING BOARDS SHALL BE INSTALLED BETWEEN SOLDIER PILES AS THE EXCAVATION PROGRESSES.
   - IN NO CASE SHALL EXCAVATION AT THE FRONT FACE OF THE SOLDIER PILES EXTEND MORE THAN 2 FEET BELOW LAGGED SECTIONS.
6. INSTALL, TEST AND LOCK-OFF TIEBACKS IN ACCORDANCE WITH THE TIEBACK NOTES ON SOE-001 AND TIEBACK SCHEDULE ON SOE-101.
7. EXCAVATE TO GENERAL SUBGRADE.
8. PLACE TEMPORARY SITE CAP CONSISTING OF A MINIMUM OF 2 FEET OF VIRGIN GRAVEL AS APPROVED BY THE ENVIRONMENTAL ENGINEER.
9. 10. FOLLOWING INSTALLATION OF VIRGIN GRAVEL CAP, IN-SITU GROUNDWATER TREATMENT INJECTIONS WILL BE COMPLETE BY THE ENVIRONMENTAL ENGINEER AND THEIR SUBCONTRACTOR.
10. CONSTRUCT MSE WALL. REFER TO SOE-001 FOR MSE WALL NOTES AND SOE-401 FOR DETAILS. APPROVED STONE TO BE PLACED AND COMPACTED AS REQUIRED BY THE GEOTECHNICAL ENGINEER TO PROVED A FIRM AND UNYIELDING SUBGRADE.

4 SOUTH PERIMETER ALONG STREET (FACING EAST)

Scale: 1/4" = 1'-0"

0 2' 4' 8' 12'

GRAPHIC SCALE

144 Barrow Street

178 Christopher Street
New York, NY 10014

MA Morris Adjmi Architects
www.ma.com

KEY PLAN

NYC DOB BSCAN STICKER

DOB STAMP + SIGNATURE

REV NO	DATE	ISSUE
0	01-11-2019	DOB SUBMISSION

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Fax: -

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Fax: 212-674-4511

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Fax: 212-479-5444

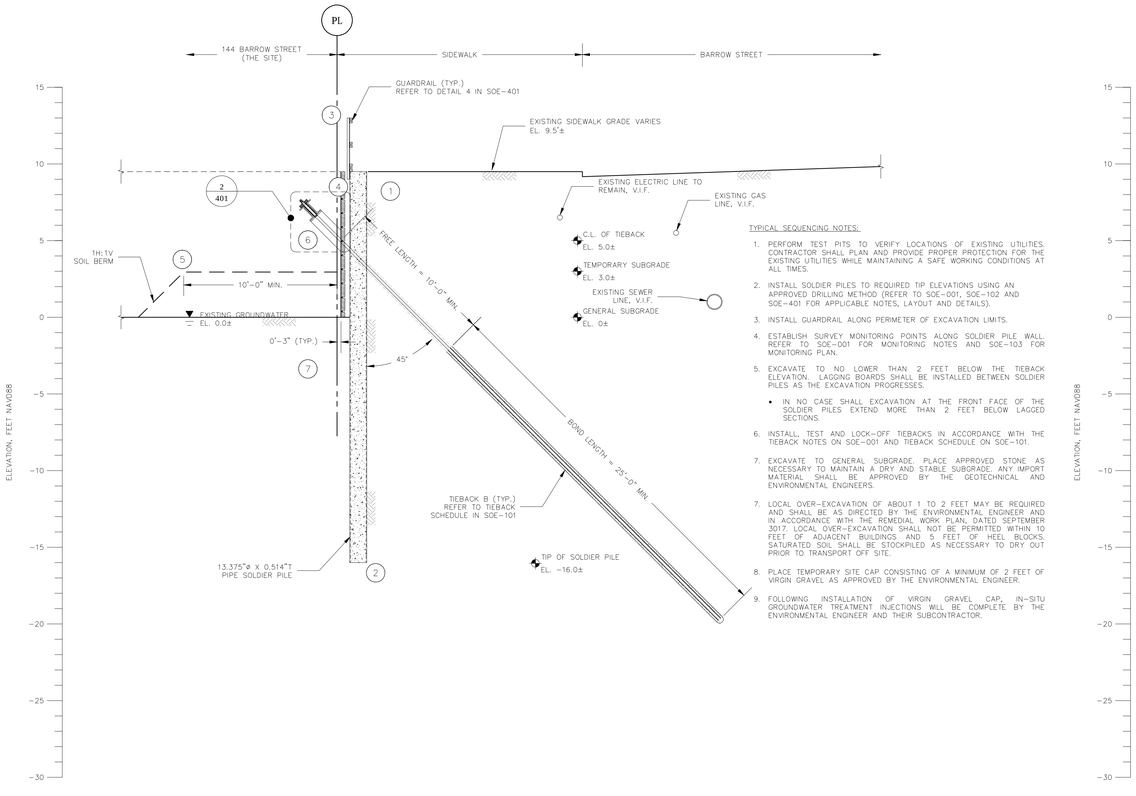
HISTORIC PRESERVATION:
Higgins Quasebarth & Partners, LLC
11 Hanover Square, 16th Floor
New York, NY 10005
Phone: 212-274-9468
Fax: 212-274-9380

SCALE: 1/4" = 1'-0"

SUPPORT OF EXCAVATION
TYPICAL SECTIONS
(SHEET 1 OF 2)

SOE301.00

MA PROJECT NO:1601 SHEET OF



TYPICAL SEQUENCING NOTES:

1. PERFORM TEST PITS TO VERIFY LOCATIONS OF EXISTING UTILITIES. CONTRACTOR SHALL PLAN AND PROVIDE PROPER PROTECTION FOR THE EXISTING UTILITIES WHILE MAINTAINING A SAFE WORKING CONDITIONS AT ALL TIMES.
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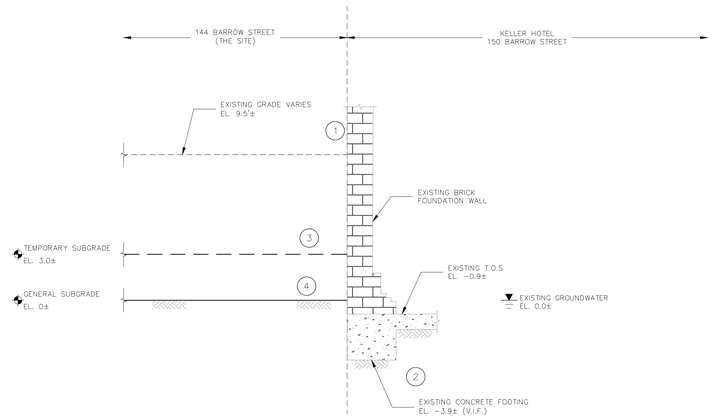
3. INSTALL GUARDRAIL ALONG PERIMETER OF EXCAVATION LIMITS.
4. ESTABLISH SURVEY MONITORING POINTS ALONG SOLDIER PILE WALL. REFER TO SOE-001 FOR MONITORING NOTES AND SOE-103 FOR MONITORING PLAN.
5. EXCAVATE TO NO LOWER THAN 2 FEET BELOW THE TIEBACK ELEVATION. LAGGING BOARDS SHALL BE INSTALLED BETWEEN SOLDIER PILES AS THE EXCAVATION PROGRESSES.
   - IN NO CASE SHALL EXCAVATION AT THE FRONT FACE OF THE SOLDIER PILES EXTEND MORE THAN 2 FEET BELOW LAGGED SECTIONS.
6. INSTALL, TEST AND LOCK-OFF TIEBACKS IN ACCORDANCE WITH THE TIEBACK NOTES ON SOE-001 AND TIEBACK SCHEDULE ON SOE-101.
7. EXCAVATE TO GENERAL SUBGRADE. PLACE APPROVED STONE AS NECESSARY TO MAINTAIN A DRY AND STABLE SUBGRADE. ANY IMPORT MATERIAL SHALL BE APPROVED BY THE GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS.
7. LOCAL OVER-EXCAVATION OF ABOUT 1 TO 2 FEET MAY BE REQUIRED AND SHALL BE AS DIRECTED BY THE ENVIRONMENTAL ENGINEER AND IN ACCORDANCE WITH THE REMEDIAL WORK PLAN, DATED SEPTEMBER 3017. LOCAL OVER-EXCAVATION SHALL NOT BE PERMITTED WITHIN 10 FEET OF ADJACENT BUILDINGS AND 5 FEET OF HEEL BLOCKS. SATURATED SOIL SHALL BE STOCKPILED AS NECESSARY TO DRY OUT PRIOR TO TRANSPORT OFF SITE.
8. PLACE TEMPORARY SITE CAP CONSISTING OF A MINIMUM OF 2 FEET OF VIRGIN GRAVEL AS APPROVED BY THE ENVIRONMENTAL ENGINEER.
9. FOLLOWING INSTALLATION OF VIRGIN GRAVEL CAP, IN-SITU GROUNDWATER TREATMENT INJECTIONS WILL BE COMPLETE BY THE ENVIRONMENTAL ENGINEER AND THEIR SUBCONTRACTOR.

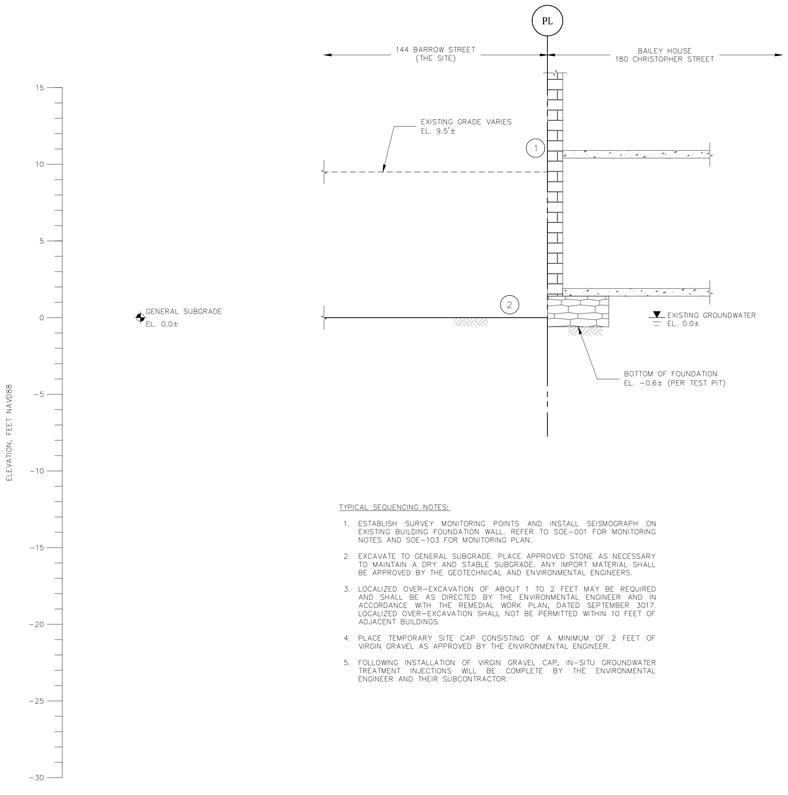
5 SOUTH PERIMETER ALONG BARROW STREET (FACING EAST)
Scale: 1/4" = 1'-0"



TYPICAL SEQUENCING NOTES:

1. ESTABLISH SURVEY MONITORING POINTS EXISTING BUILDING FOUNDATION WALL. REFER TO SOE-001 FOR MONITORING NOTES AND SOE-103 FOR MONITORING PLAN.
2. PERFORM TEST PITS ADJACENT TO THE EXISTING BUILDING TO VERIFY FOUNDATION EXTENTS, CONDITION, BEARING ELEVATION AND MATERIAL.
3. EXCAVATE TO THE TEMPORARY SUBGRADE FOR BRACING INSTALLATION ON OTHER SIDES.
4. EXCAVATE TO GENERAL SUBGRADE. DEWATER AS REQUIRED TO MAINTAIN GROUNDWATER AT LEAST 2 FEET BELOW SUBGRADE LEVEL.
5. LOCALIZED OVER-EXCAVATION OF ABOUT 1 TO 2 FEET MAY BE REQUIRED AND SHALL BE AS DIRECTED BY THE ENVIRONMENTAL ENGINEER AND IN ACCORDANCE WITH THE REMEDIAL WORK PLAN, DATED SEPTEMBER 3017. LOCALIZED OVER-EXCAVATION SHALL NOT BE PERMITTED WITHIN 10 FEET OF ADJACENT BUILDINGS.
6. PLACE TEMPORARY SITE CAP CONSISTING OF A MINIMUM OF 2 FEET OF VIRGIN GRAVEL AS APPROVED BY THE ENVIRONMENTAL ENGINEER.
7. FOLLOWING INSTALLATION OF VIRGIN GRAVEL CAP, IN-SITU GROUNDWATER TREATMENT INJECTIONS WILL BE COMPLETE BY THE ENVIRONMENTAL ENGINEER AND THEIR SUBCONTRACTOR.

6 WEST PERIMETER ADJACENT TO KELLER HOTEL (FACING SOUTH)
Scale: 1/4" = 1'-0"



TYPICAL SEQUENCING NOTES:

1. ESTABLISH SURVEY MONITORING POINTS AND INSTALL SEISMOGRAPH ON EXISTING BUILDING FOUNDATION WALL. REFER TO SOE-001 FOR MONITORING NOTES AND SOE-103 FOR MONITORING PLAN.
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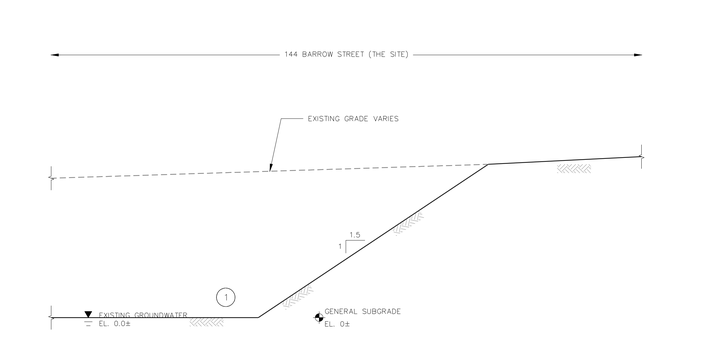
4. PLACE TEMPORARY SITE CAP CONSISTING OF A MINIMUM OF 2 FEET OF VIRGIN GRAVEL AS APPROVED BY THE ENVIRONMENTAL ENGINEER.
5. FOLLOWING INSTALLATION OF VIRGIN GRAVEL CAP, IN-SITU GROUNDWATER TREATMENT INJECTIONS WILL BE COMPLETE BY THE ENVIRONMENTAL ENGINEER AND THEIR SUBCONTRACTOR.

7 NORTH PERIMETER ADJACENT TO 180 CHRISTOPHER STREET (FACING WEST)
Scale: 1/4" = 1'-0"



TYPICAL SEQUENCING NOTES:

1. EXCAVATE TO GENERAL SUBGRADE. PLACE APPROVED STONE AS NECESSARY TO MAINTAIN A DRY AND STABLE SUBGRADE. ANY IMPORT MATERIAL SHALL BE APPROVED BY THE GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS.
2. LOCALIZED OVER-EXCAVATION OF ABOUT 1 TO 2 FEET MAY BE REQUIRED AND SHALL BE AS DIRECTED BY THE ENVIRONMENTAL ENGINEER AND IN ACCORDANCE WITH THE REMEDIAL WORK PLAN, DATED SEPTEMBER 3017. LOCALIZED OVER-EXCAVATION SHALL NOT BE PERMITTED WITHIN 10 FEET OF ADJACENT BUILDINGS.
3. PLACE TEMPORARY SITE CAP CONSISTING OF A MINIMUM OF 2 FEET OF VIRGIN GRAVEL AS APPROVED BY THE ENVIRONMENTAL ENGINEER.
4. FOLLOWING INSTALLATION OF VIRGIN GRAVEL CAP, IN-SITU GROUNDWATER TREATMENT INJECTIONS WILL BE COMPLETE BY THE ENVIRONMENTAL ENGINEER AND THEIR SUBCONTRACTOR.

8 NORTH END OF EXCAVATION (FACING WEST)
Scale: 1/4" = 1'-0"

0 2' 4' 8' 12'
GRAPHIC SCALE

144 Barrow Street

178 Christopher Street
New York, NY 10014

MA Morris Adjmi Architects
www.ma.com

KEY PLAN

NYC DOB BSCAN STICKER

DOB STAMP + SIGNATURE

REV NO	DATE	ISSUE
0	01-11-2019	DOB SUBMISSION

OWNER/CLIENT:
William Gottlieb Real Estate
160 Perry Street
New York, NY 10014
Phone: 646-344-1914
Fax: -

ARCHITECT:
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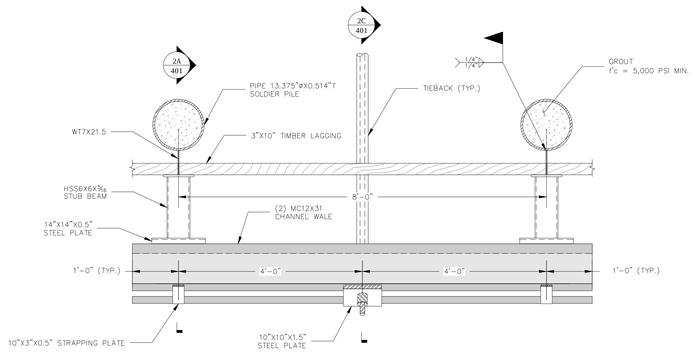
Fax: 212-274-9380

SCALE: 1/4" = 1'-0"

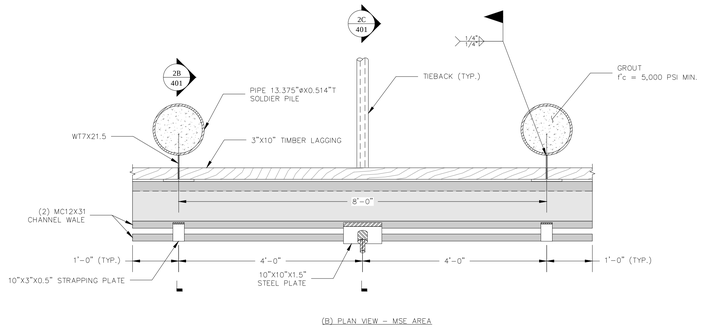
SUPPORT OF EXCAVATION
TYPICAL SECTIONS
(SHEET 2 OF 2)

SOE302.00

MA PROJECT NO:1601 SHEET OF



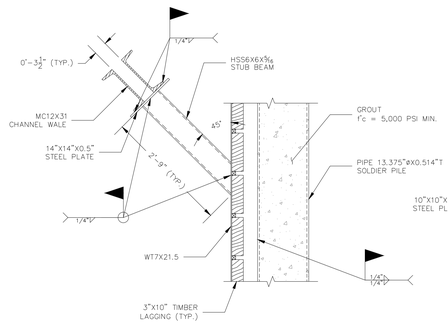
(A) PLAN VIEW – NON-MSE AREA



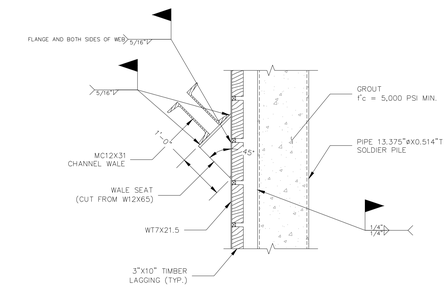
(B) PLAN VIEW – MSE AREA

1 TYPICAL PLANS - SOLDIER PILE AND TIEBACK DETAILS

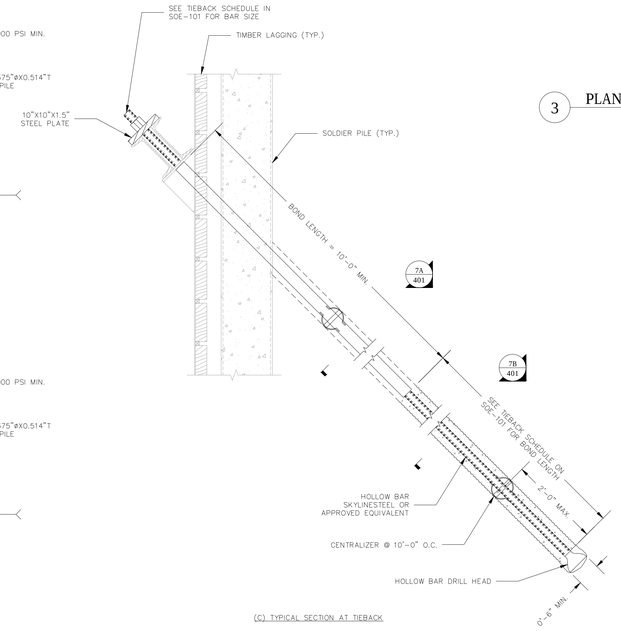
Scale: 3/4" = 1'-0"



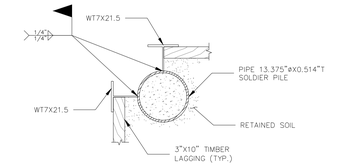
(A) SECTION AT SOLDIER PILE – NON-MSE AREA



(B) SECTION AT SOLDIER PILE – MSE AREA

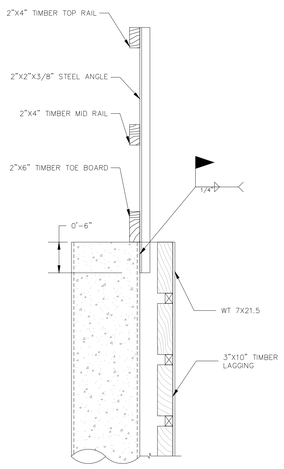


(C) TYPICAL SECTION AT TIEBACK



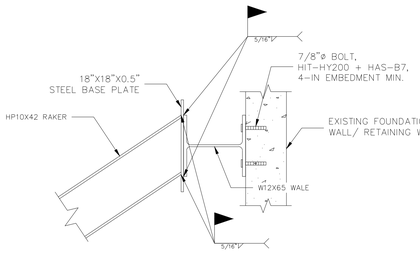
3 PLAN DETAIL - SOLDIER PILE AT CORNER

Scale: 3/4" = 1'-0"

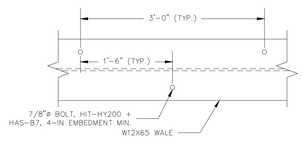


4 SECTION DETAIL - TYPICAL GUARDRAIL

Scale: 1" = 1'-0"



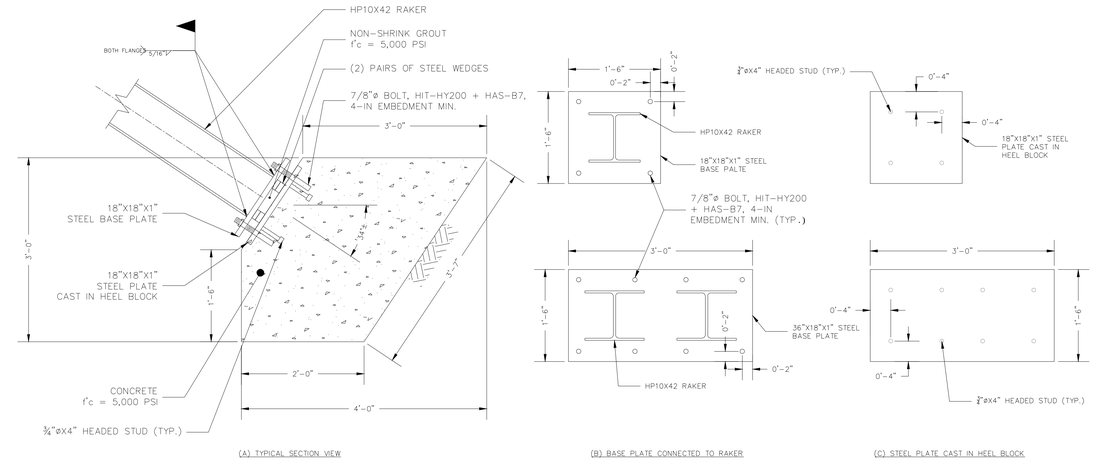
(A) TYPICAL SECTION VIEW



(B) ELEVATION VIEW AT WALE-WALL CONNECTION

6 TYPICAL RAKER - WALE CONNECTION DETAILS

Scale: 1" = 1'-0"



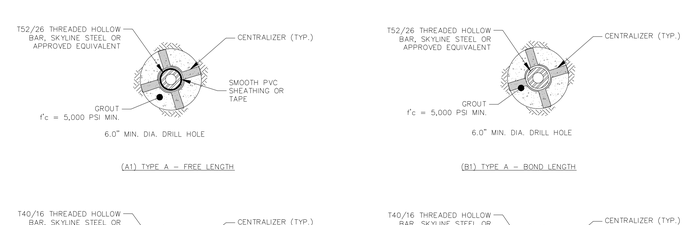
(A) TYPICAL SECTION VIEW

(B) BASE PLATE CONNECTED TO RAKER

(C) STEEL PLATE CAST IN HEEL BLOCK

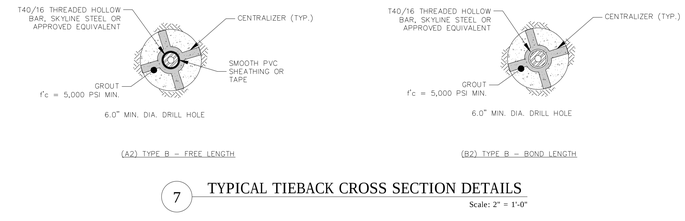
5 TYPICAL RAKER - HEEL BLOCK CONNECTION DETAILS

Scale: 1" = 1'-0"



(A1) TYPE A – FREE LENGTH

(B1) TYPE A – BOND LENGTH



(A2) TYPE B – FREE LENGTH

(B2) TYPE B – BOND LENGTH

7 TYPICAL TIEBACK CROSS SECTION DETAILS

Scale: 2" = 1'-0"

144 Barrow Street

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New York, NY 10014

MA Morris Adjmi Architects
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KEY PLAN

NYC DOB BSCAN STICKER

DOB STAMP + SIGNATURE

REV NO	DATE	ISSUE
0	01-11-2019	DOB SUBMISSION

OWNER/CLIENT:
William Gottlieb Real Estate
160 Perry Street
New York, NY 10014
Phone: 646-344-1914
Fax: -

ARCHITECT:
Morris Adjmi Architects
60 Broad Street, 32nd Fl.
New York, NY 10004
Phone: 212-982-2020
Fax: 212-674-4511

MEP/FP:
EP Engineering LLC
110 William Street, 32nd Floor
New York, NY 10038
Phone: 212-257-6190
Fax: 212-994-8091

STRUCTURAL:
DF a Degree of Freedom
231 W 29th Street Suite 802
New York, NY 10001
Phone: 212-495-9370
Fax: -

GEOTECHNICAL ENGINEER:
Langan
21 Penn Plaza, 360 W 31st Street
8th Floor
New York, NY 10001-2727
Phone: 201-479-5400
Fax: 212-479-5444

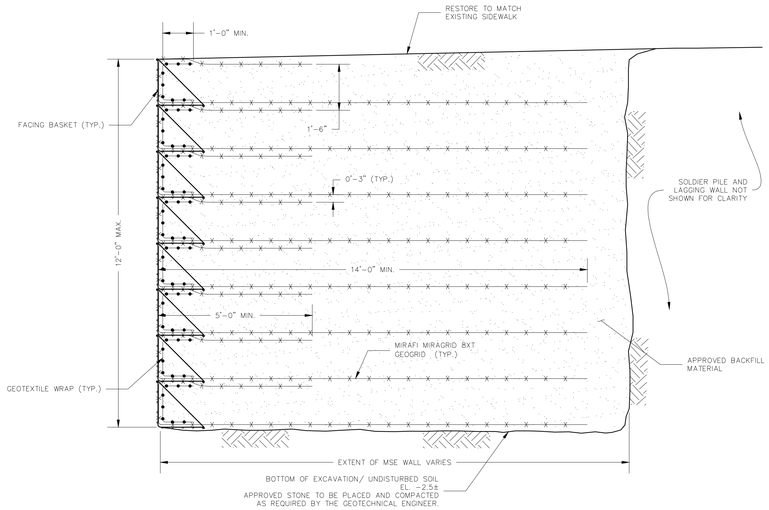
HISTORIC PRESERVATION:
Higgins Quasebarth & Partners, LLC
11 Hanover Square, 16th Floor
New York, NY 10005
Phone: 212-274-9468
Fax: 212-274-9380

SCALE: AS SHOWN

SUPPORT OF EXCAVATION
TYPICAL DETAILS
(SHEET 1 OF 2)

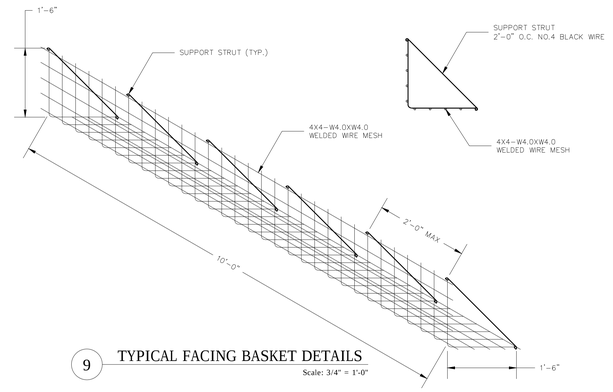
SOE401.00

MA PROJECT NO:1601 SHEET OF



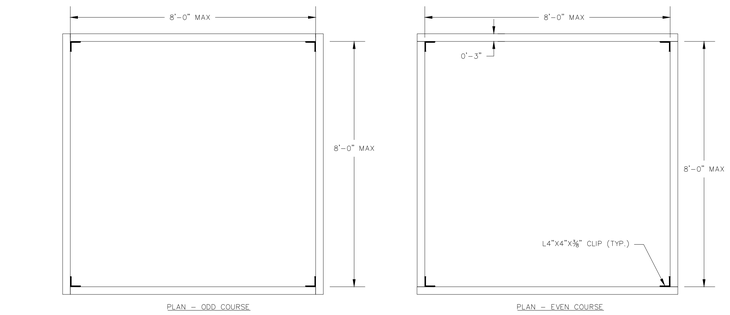
8 SECTION DETAIL - TYPICAL MSE WALL

Scale: 1/2" = 1'-0"



9 TYPICAL FACING BASKET DETAILS

Scale: 3/4" = 1'-0"



10 TYPICAL TIMBER SHEETED PIT DETAILS

Scale: 1/2" = 1'-0"

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New York, NY 10014

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KEY PLAN

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SCALE: AS SHOWN

SUPPORT OF EXCAVATION
TYPICAL DETAILS
(SHEET 2 OF 2)

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