

Rev 5/24



**RETAINING WALL STABILIZATION + FOUNDATIONS UNDERPINNING 417 Catherine Ave.

To Offerors:

The following additions, deductions, changes and corrections to the proposal and specifications for the above referenced project shall hereby be incorporated into the work, and their effect on the proposal shall be reflected in the Offeror's proposal. Offerors shall also verify this fact by indicating the receipt of the addendum in their proposal.

- 1. Contract Drawing Amended attached, please consider the construction bid package amended by the following:
 - a. Sheet C000, Cover Sheet:
 - 1. Revised callout to "EX. STONE RUBBLE REATAINING WALL"".
 - b. Sheet C001, General Notes:
 - 1. Revised General Construction Note 21 to apply only to the "City".
 - 2. Revised General Construction Note 23 to apply to "materials utilized to stabilize the soil".
 - 3. Revised Demolition Note 9 not to reference the SWPPP Plan, Notes, and Details, as there are none.
 - 4. Layout and Paving Note 4 added for Aggregate Base requirements.
 - 5. Layout and Paving Note 5 added for Proposed Chain Link Fence requirements.
 - 6. Layout and Paving Note 7 added to describe Add. Alternate Item #1 for sidewalk replacement.
 - 7. Revised Layout and Paving Note 10 (formerly Note 7) to indicate that it does not apply to the concrete in the Soil Nail Wall as that concrete is specified in the Soil Nail Wall Specifications.
 - 8. Revised General Grading and Drainage Notes not to reference the Erosion Control Plan, as there is none.

c. Sheet C100, Existing Conditions & Demolition Plan:

- 1. Revised Micropile Installation note to refer to Micropiles as "push piers".
- 2. Added proposed wall line and stationing to Demolition Plan.
- 3. Indicated bearing and length of the line of the proposed soil nail wall on the Demolition Plan.
- 4. Indicated on the Demolition Plan that the existing chain link fence is to be removed.
- 5. Indicated Area of Expected LSM Backfill on Demolition Plan.
- 6. On the Demolition Plan, indicated the revised area that the existing retaining wall encroaches on the adjacent property and needs to be removed.
- 7. Added "Walk Detail" to sheet, in support of Add. Alternate #1, Concrete Walk Replacement
- 8. Added "Typical Fence Assembly" detail to sheet in support of the 6' Chain Link Fence with top rail.

Bid No.: 2024-3006 Addendum 1

Rev 5/24



d. Sheet S100, Soil Nail Wall Details:

- 1. On the Profile View, indicated the revised area and stations that the existing retaining wall encroaches on the adjacent property and needs to be removed.
- 2. On the Plan View, indicated the sidewalk area that is to be included with Add. Alternate #1, Concrete Sidewalk with hatch.
- 3. Indicated the hatch as area of Add. Alternate #1 Sidewalk Replacement with Key in Plan View.
- 4. On the Plan View, added key that shows the hatch indicating area of Add. Alternate #1, Concrete Sidewalk.
- 5. Indicated location of proposed 6 ft. chain link fence on Plan View.
- 6. On the Plan View, indicated the revised area and stations that the existing retaining wall encroaches on the adjacent property and needs to be removed.
- 7. Indicated bearing and length of the line of the proposed soil nail wall on the Plan View.
- 8. Indicate Begin Wall and End Wall stationing on Plan View.
- e. Sheet S101, Soil Nail Wall Specifications: no changes.
- f. Sheet S102, Soil Nail Wall Specifications:
 - 1. Re-aligned Table 8.3.1.1: Verification Test Loading Schedule
 - 2. Re-aligned Table E.2: Proof Test Loading Schedule
 - 3. Re-aligned Table E.3: Construction Tolerances for Shotcrete Facing.
- 2. No vendor attended the Pre-Bid Walk Through

End of Addendum 1

PROJECT NARRATIVE

REPAIR AND STABILIZE AN EXISTING FAILING RETAINING WALL AT 417 CATHERINE STREET AND DESIGN AND INSTALL ADJACENT BUILDING UNDERPINNING AND SLAB JACKING.

BENCHMARKS

ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988, ALL ON THE OHIO STATE PLANE (SOUTH) ZONE COORDINATE SYSTEM.

BENCHMARK #

TOP OF NAIL"IN UTILITY POLE THAT IS NORTHEAST OF THE SITE AND ON THE WEST SIDE OF CATHERINE STREET.

ELEV = 790.00

BENCHMARK ;

8" IRON PIN WITH CAP STAMPED "TRAVERSE POINT" THAT IS LOCATED APPROXIMATELY 30' SOUTH OF THE SOUTHERN FACE OF THE BUILDING AT 417 CATHERINE STREET.

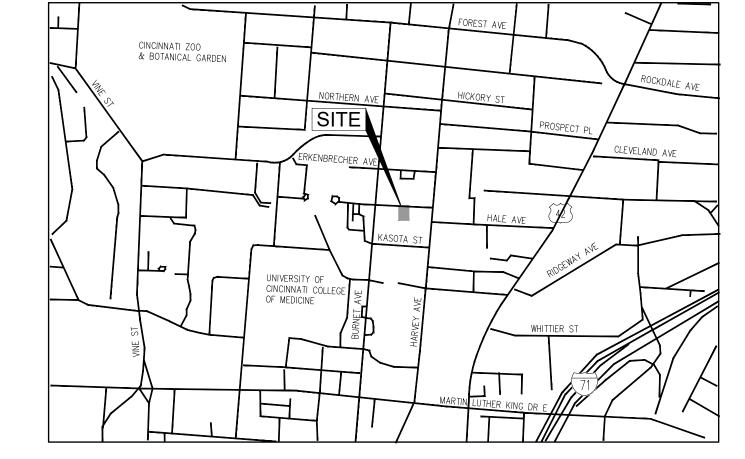
ELEV = 808.45

BASIS OF BEARINGS

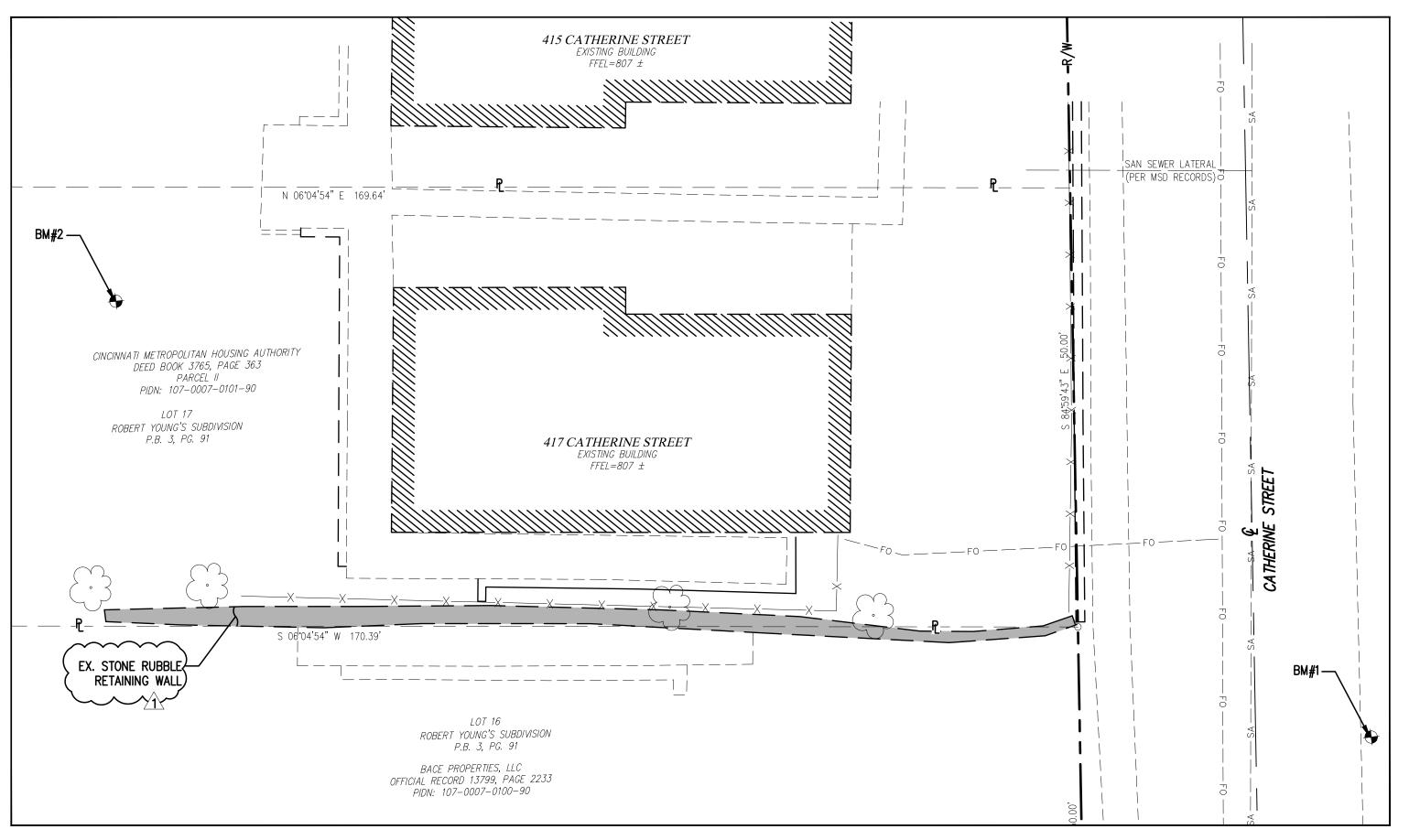
NORTH AND BEARING SYSTEM BASED ON GRID NORTH.
HORIZONTAL DATUM: NAD-83(2011) OHSPCS- SOUTH ZONE
VERTICAL DATUM: NAVD-88

SITE CONSTRUCTION DRAWINGS FOR RETAINING WALL REMEDIATION

417 CATHERINE STREET CINCINNATI, OHIO 2024



LOCATION MAP



INDEX MAP
SCALE: 1"=10'

DEVELOPER:

CINCINNATI METROPOLITAN HOUSING AUTHORITY
1627 WESTERN AVE.
CINCINNATI, OH 45214
CONTACT: RON VELEY
PHONE: 513-333-0670 EXT. 5357

SHEET INDEX

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SOIL NAIL WALL SPECIFICATIONS (CONTINUED)	S102

SITE/CIVIL ENGINEER:



CONTACT:
MAILING ADDRESS:

EMAIL ADDRESS:

AMEEN A. BAKARE
10200 ALLIANCE ROAD, SUITE 135
CINCINNATI, OH 45242-4754
(513) 437-3222
ABAKARE@MANNIKSMITHGROUP.COM

UTILITY CONTACTS

GAS COMPANY DUKE ENERGY MIKE FABENDER PH. 513.287.4718

ELECTRIC COMPANY DUKE ENERGY MIKE FABENDER PH. 513.287.4718

COMMUNICATION
CINCINNATI BELL TELEPHONE
201 E. FOURTH ST
CINCINNATI, OHIO 45201
NANCY MORRIS
PH. 513.566.8039

WATER SERVICE
GREATER CINCINNATI WATER WORKS
4747 SPRING GROVE AVE.
CINCINNATI, OHIO 45232
BILL MORRIS
PH. 513.591.7858

SANITARY SEWER
METROPOLITAN SEWER DISTRICT
OF GREATER CINCINNATI
SHAWN PATTON
PH. 513.244.1390

STORM WATER & INFRASTRUCTURE
METROPOLITAN SEWER DISTRICT
OF GREATER CINCINNATI
SHAWN PATTON
PH. 513.244.1390





NO. DATE BY DESCRIPTION

1 05/08/2024 MAS ISSUED FOR BID

1 05/25/2024 VS ADDENDUM No. 1

124

SG
SG

CINCINNATI, OH 45242-4754
TEL: 513.437.322
FAX: 513.719.0027
PROJECT DATE: 05/02/24
PROJECT NO: 401.2400427
DRAWN BY: SG

TEATIVE SPIRIT.
PROJEC
PROJEC
PROJEC

Mannika Smith

AETROPOLITAN JSING AUTHORTY

7 CATHERINE STREET WALL REMEDIATION

COVER SHEET

C000

GENERAL CONSTRUCTION NOTES:

- 1. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA, FEDERAL, STATE AND LOCAL REGULATIONS. THE CURRENT CITY OF NORWOOD, HAMILTON COUNTY, CINCINNATI WATER WORKS AND METROPOLITAN SEWER DISTRICT OF GREATER CINCINNATI STANDARDS AND SPECIFICATIONS SHALL GOVERN THE MATERIALS AND WORKMANSHIP INVOLVED IN THE IMPROVEMENTS SHOWN ON THESE PLANS.
- 2. ALL CONSTRUCTION WITHIN A DOT RIGHT OF WAY SHALL COMPLY WITH ALL DEPARTMENT OF TRANSPORTATION STANDARDS.
- 3. ALL WORK WITHIN RIGHT OF WAY TO INCLUDE TRAFFIC CONTROL IN ACCORD WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND PER ALL CITY REQUIREMENTS. ROAD MUST REMAIN OPEN AT ALL TIMES. CONTRACTOR SHALL PREPARE A MAINTENANCE OF TRAFFIC PLAN AND SUBMIT TO THE CITY AND OWNER FOR APPROVAL PRIOR TO START OF CONSTRUCTION. CONTRACTOR TO COORDINATE ANY NECESSARY LANE CLOSURES WITH THE CITY.
- 4. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS IN THE FIELD AND CONTACT THE OWNER IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS SO THAT APPROPRIATE REVISIONS CAN BE MADE PRIOR TO CONSTRUCTION. ANY CONFLICT BETWEEN DRAWINGS AND THE SPECIFICATIONS SHALL BE CONFIRMED WITH THE CONSTRUCTION MANAGER PRIOR TO BIDDING.
- 5. EXISTING CONDITIONS AS DEPICTED ON THESE PLANS ARE ILLUSTRATIVE IN NATURE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO EXAMINE THE SITE AND BE FAMILIAR WITH EXISTING CONDITIONS PRIOR TO BIDDING. IF CONDITIONS ENCOUNTERED ARE SIGNIFICANTLY DIFFERENT THAN THOSE SHOWN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
- 6. SHOULD ANY UNCHARTED, OR INCORRECTLY CHARTED, EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, CONSULT THE ENGINEER IMMEDIATELY BEFORE PROCEEDING FURTHER WITH THE WORK IN THIS AREA.
- 7. THE PRICE(S) QUOTED SHALL INCLUDE ALL ITEMS OF LABOR, MATERIALS, TOOLS, EQUIPMENT, INSURANCE AND OTHER COSTS NECESSARY TO FULLY COMPLETE THE WORK PURSUANT TO THE CONTRACT DOCUMENTS. IT IS THE INTENTION OF THE CONTRACT DOCUMENTS TO PROVIDE AND REQUIRE A COMPLETED WORK PROJECT READY FOR OPERATION. ANY WORK ITEMS OMITTED FROM SUCH CONTRACT DOCUMENTS WHICH ARE CLEARLY NECESSARY FOR THE COMPLETION OF SUCH WORK AND ITS APPURTENANCES SHALL BE CONSIDERED A PART OF SUCH WORK ALTHOUGH NOT DIRECTLY SPECIFIED OR CALLED FOR IN THE CONTRACT DOCUMENTS.
- 8. THE CONTRACTOR SHALL NOTIFY THE ENGINEER SHOULD ANY DISCREPANCY REGARDING THE PROPOSED WORK OR UNFORESEEN CONDITIONS ARISE PRIOR TO PROCEEDING FURTHER WITH THE AFFECTED WORK.
- 9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS FOR THE PROJECT AND NOTIFYING THE OWNER AND ENGINEER OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO CONSTRUCTION.
- 10. DO NOT INTERRUPT EXISTING UTILITIES SERVICING FACILITIES OCCUPIED AND USED BY THE OWNER OR OTHERS DURING OCCUPIED HOURS EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE OWNER, LOCAL MUNICIPALITY AND/OR UTILITY COMPANY. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY OR PERMANENT SERVICE HAS BEEN PROVIDED.
- 11. CONTRACTOR TO COORDINATE TEMPORARY UTILITY OUTAGES WITH APPLICABLE UTILITY COMPANY AND CITY AND NOTIFY NEIGHBORING EFFECTED OWNERS NO LESS THAN 72 HOURS PRIOR TO PLANNED OUTAGE. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY CONSTRUCTION PERMITS REQUIRED TO PERFORM ALL THE WORK. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.
- 12. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE AND LOCAL SAFETY REQUIREMENTS INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970. THE CONTRACTOR SHALL EXERCISE PRECAUTION ALWAYS FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT SHALL ALSO BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, INCLUDING THE REQUIREMENTS FOR CONFINED SPACES PER 29 CFR 1910.146.
- 13. THE CONTRACTOR SHALL ABIDE BY ALL OSHA, FEDERAL, STATE AND LOCAL REGULATIONS WHEN OPERATING CRANES, BOOMS, HOISTS, ETC. IN CLOSE PROXIMITY TO OVERHEAD ELECTRIC LINES. IF CONTRACTOR MUST OPERATE EQUIPMENT CLOSE TO ELECTRIC LINES, CONTACT THE POWER COMPANY TO MAKE ARRANGEMENTS FOR PROPER SAFEGUARDS.
- 14. THE CONTRACTOR SHALL RESTORE ANY STRUCTURES, PIPE, UTILITY, PAVEMENT, CURBS, FENCES, SIDEWALKS, LANDSCAPED AREAS, ETC. WITHIN THE SITE OR ADJOINING PROPERTIES DISTURBED DURING DEMOLITION OR CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER, AND TO THE SATISFACTION OF THE OWNER, LOCAL MUNICIPALITY, AND STATE.
- 15. THE CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL AND MAINTAIN TRAFFIC DEVICES FOR PROTECTION OF PEDESTRIANS AND VEHICLES CONSISTING OF DRUMS, BARRIERS, SIGNS, LIGHTS, FENCES AND UNIFORMED TRAFFIC CONTROLLERS IN ACCORDANCE WITH ODOT REGULATIONS AND/OR AS REQUIRED OR DIRECTED BY THE SITE ENGINEER OR CONSTRUCTION MANAGER OR LOCAL GOVERNING AUTHORITIES. CONTRACTOR SHALL MAINTAIN ALL TRAFFIC LANES AND PEDESTRIAN WALKWAYS AT ALL TIMES UNLESS WRITTEN APPROVAL FROM ODOT, LOCAL MUNICIPALITY, COUNTY, OR OTHER GOVERNING AUTHORITY IS RECEIVED.
- 16. THE CONTRACTOR SHALL PROVIDE AS—BUILT RECORDS OF ALL STORM CONSTRUCTION PER HAMILTON COUNTY STANDARDS TO THE OWNER FOLLOWING COMPLETION OF CONSTRUCTION ACTIVITIES.
- 17. THE OWNER AT ITS DISCRETION RESERVES THE RIGHT TO MODIFY THE DETAILS AND STANDARDS OF CONSTRUCTION FOR ALL PRIVATE FACILITIES FROM THAT INDICATED ON THE APPROVED PLAN, PROVIDED THAT THE ALTERNATE STANDARD COMPLIES WITH LOCAL CODE AND/OR UTILITY COMPANY REQUIREMENTS AND THE GENERAL DESIGN INTENT OF THE PROJECT IS NOT COMPROMISED.
- 18. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS, MATERIALS AND PLAN SPECIFICATIONS TO THE OWNER AND LOCAL UTILITY COMPANIES AS REQUIRED FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR DELIVERY TO THE SITE. ALLOW A MINIMUM OF 15 WORKING DAYS FOR REVIEW.
- 19. INFORMATION ON EXISTING UTILITIES HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY COMPANY AND MUNICIPAL RECORD MAPS AND FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES INCLUDING SERVICES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONTACT OHIO UTILITY PROTECTION SERVICE AT 1-800-362-2764 AT LEAST 72 HOURS BEFORE START OF WORK AND VERIFY ALL EXISTING UTILITY LOCATIONS.
- 20. ANY DEFECTS DISCOVERED IN NEW CONSTRUCTION, WORKMANSHIP, EQUIPMENT, OR MATERIALS SHALL BE REPAIRED, OR CORRECTED BY APPROVED METHODS AS DIRECTED BY AND AT NO ADDITIONAL COST TO THE OWNER.
- 21. ALL DISTURBANCE INCURRED TO CITY PROPERTY DUE TO CONSTRUCTION SHALL BE RESTORED TO ITS PREVIOUS CONDITION OR BETTER, TO THE SATISFACTION OF THE CITY.

 22. THE LIMITS OF CLEARING AND GRADING SHALL BE FIELD STAKED 48 HOURS (2 WORKING DAYS) PRIOR TO THE PRE CONSTRUCTION MEETING. AREAS BEYOND THE LIMITS OF
- 23. WHEREVER UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED THAT ARE NOT INDICATED ON THE PLANS, THE WORK SHALL BE DISCONTINUED UNTIL THE PROJECT ENGINEER AND OWNER APPROVE THE METHOD AND MATERIALS TO UTILIZED TO STABILIZE THE SOIL.

CLEARING AND GRADING SHALL NOT BE DISTURBED INCLUDING THE STOCKPILE OF ANY

- 24. ALL ROAD SURFACES, EASEMENTS, OR RIGHT-OF-WAY DISTURBED BY THE CONSTRUCTION OF ANY PART OF THESE IMPROVEMENTS ARE TO BE RESTORED ACCORDING TO THE CITY REQUIREMENTS.
- 25. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER OR ITS REPRESENTATIVE IF SUSPECTED HAZARDOUS MATERIAL OR ANY OTHER MATERIAL THAT MAY CREATE A HEALTH RISK IS DISCOVERED ON SITE.
- 26. ANY TRAFFIC CONTROL REQUESTED OR REQUIRED BY THE CONTRACTOR WILL BE PROVIDED BY THE CONTRACTOR AT NO COST TO THE OWNER.
- 27. IF MUD, SOIL, OR OTHER DEBRIS IS DEPOSITED ON ADJACENT STREETS, ROADS, OR OTHER PROPERTY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF SUCH AT THE END OF EACH WORK DAY, OR AS REQUIRED DURING THE WORK DAY.
- 28. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PLANT TICKETS FOR ALL MATERIALS DELIVERED TO THE SITE. PLANT TICKETS MUST SHOW NET QUANTITY OF DELIVERED MATERIAL. MATERIAL DELIVERED OR PLACED WITHOUT PLANT TICKETS SHALL BE REMOVED AND PROPERLY DISPOSED AT THE EXPENSE OF THE CONTRACTOR.
- 29. THE CONTRACTOR SHALL CONFINE HIS ACTIVITIES TO THE PROJECT SITE UNDER DEVELOPMENT, THE EXISTING RIGHT—OF—WAYS, AND CONSTRUCTION AND PERMANENT EASEMENTS, AND SHALL NOT TRESPASS UPON OTHER PROPERTY WITHOUT THE WRITTEN CONSENT OF THE OWNER.
- 30. WHERE CONFLICT ARISES BETWEEN ALL SPECIFICATIONS (BOOK OR PLAN BASED) INCLUDING CITY REQUIREMENTS, THE MORE STRINGENT SPECIFICATION SHALL PREVAIL.
- 31. FINAL CLEANUP: THE CONTRACTOR SHALL CLEAN—UP ALL DEBRIS AND MATERIALS RESULTING FROM CONSTRUCTION AND SHALL RESTORE ALL SURFACES, STRUCTURES, DITCHES AND PROPERTY TO ITS ORIGINAL CONDITION TO THE SATISFACTION OF THE OWNER AND ALL APPLICABLE GOVERNMENTAL AND REGULATORY AGENCIES.

DEMOLITION NOTES:

- 1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL LOCAL AND STATE PERMITS REQUIRED FOR DEMOLITION WORK.
- 2. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL RUBBISH, TRASH, DEBRIS, AND ORGANIC MATERIAL IN A LAWFUL MANNER
- 3. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE ENGINEER AND OWNER FOR ANY AND ALL INJURIES AND/OR DAMAGES TO PERSONNEL, EQUIPMENT, AND/OR EXISTING FACILITIES OCCURRING IN THE COURSE OF THE DEMOLITION AND CONSTRUCTION DESCRIBED IN THE PLANS AND SPECIFICATIONS.
- 4. ALL UTILITY REMOVAL, RELOCATION, CUTTING, CAPPING, AND/OR ABATEMENT SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANY LISTED ON THE PLANS.
- 5. ALL DEMOLISHED MATERIALS SHALL BE TAKEN FROM THE SITE IMMEDIATELY (UNLESS OTHERWISE NOTED) AND DISPOSED OFF—SITE IN ACCORDANCE WITH ALL LAWS, REGULATIONS AND ORDINANCES. NO BURNING OF ANY MATERIALS WILL BE ALLOWED ON OR OFF SITE. NO CLEARED OR GRUBBED MATERIAL SHALL BE BURIED OR LEFT ON SITE.
- 6. MATERIALS NOTED ON THE PLANS TO BE SALVAGED TO OWNER SHALL BE STORED IN AREAS INDICATED ON THE PLANS, OR TO THE OWNERS SATISFACTION.
- 7. USE SUITABLE METHODS TO LIMIT DUST AND DIRT TO ADJACENT STRUCTURES OR PROPERTY. CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL ADJACENT AREAS TO EXISTING CONDITIONS PRIOR TO THE START OF THE DEMOLITION WORK.
- 8. THE CONTRACTOR SHALL PROTECT TREES, LANDSCAPING, SITE IMPROVEMENTS, AND OTHER ITEMS NOT SCHEDULED FOR CLEARING, OR THAT MIGHT BE DAMAGED BY CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR REPAIRING OR REPLACING ANY ITEMS THAT ARE DAMAGED.
- 9. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY EROSION, POLLUTION, AND DUST CONTROL MEASURES THROUGHOUT THE ENTIRE CONSTRUCTION PROJECT.
- 10. ANY AND ALL DAMAGE TO EXISTING PAVEMENT WITHIN THE LAYDOWN AREA SHALL BE REPAIRED.
- 11. ALL UTILITIES NOT MARKED FOR REMOVAL OR RELOCATION SHALL REMAIN INTACT. THE CONTRACTOR SHALL REPAIR ANY AND ALL DAMAGE TO EXISTING UTILITIES NOT MARKED FOR REMOVAL OR RELOCATION AT THEIR SOLE EXPENSE.
- 12. CONTRACTOR SHALL PERFORM ALL CLEARING, GRUBBING, REMOVAL OF TREES, STUMPS, VEGETATION, AND DEBRIS NECESSARY TO PERFORM THE WORK INDICATED HEREIN. THAT CONTRACTOR SHALL LIMIT LAND DISTURBANCE TO ONLY THAT REQUIRED TO COMPLETE THE PROPOSED IMPROVEMENTS. NO CLEARED OR GRUBBED MATERIAL SHALL BE BURIED OR LEFT ON SITE.

LAYOUT AND PAYING NOTES

- 1. THE CONTRACTOR SHALL MAKE HIS OWN PROVISIONS TO PROVIDE A SITE STAGING AREA AND JOB TRAILER (IF REQUIRED) FOR THE PROJECT IMPROVEMENTS.
- 2. THE CONTRACTOR SHALL REFERENCE ALL IRON PINS OR MONUMENTS. IF ANY PINS OR MONUMENTS ARE DESTROYED OR DAMAGED BY THE CONTRACTOR, THEY SHALL BE ACCURATELY REPLACED BY A REGISTERED SURVEYOR IN THE STATE OF OHIO AT THE COMPLETION OF THE PROJECT.
- 3. ALL SITE DIMENSIONS ARE REFERENCED TO THE FACE OF CURBS OR EDGE OF PAVING UNLESS OTHERWISE NOTED. ALL BUILDING DIMENSIONS ARE REFERENCED TO THE OUTSIDE FACE OF THE STRUCTURE UNLESS OTHERWISE NOTED.
- 4. AGGREGATE BASE USED FOR SIDEWALK CONSTRUCTION SHALL MEET THE MATERIALS REQUIREMENTS OF ODOT ITEM 304.
- THE PROPOSED CHAIN LINK FENCE SHALL BE 6 FT. TALL, WITH A TOP RAIL. ALL STEEL COMPONENTS OF THE CHAIN LINK FENCE, INCLUDING BOLTS, NUTS, AND WASHERS, SHALL BE GALVANIZED. ALL OTHER REQUIREMENTS, INCLUDING MATERIALS REQUIREMENTS, SHALL BE AS PER ODOT ITEM 607, AND THE DETAILS INCLUDED IN THESE DRAWNGS.
- ALL PAVING MATERIALS FURNISHED AND WORK COMPLETED SHALL BE IN STRICT ACCORDANCE WITH ODOT CONSTRUCTION AND MATERIALS SPECIFICATIONS UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL SUBMIT A JOB—MIX FORMULA FOR THE BITUMINOUS PAVEMENT TO THE CONSTRUCTION MANAGER FOR REVIEW AND APPROVAL AT LEAST 14 DAYS PRIOR TO THE PLACEMENT OF BITUMINOUS PAVEMENTS.
- 7. THE CONTRACTOR SHALL INCLUDE AND ADDITIONAL ALTERNATE ITEM #1 FOR SIDEWALK REPLACENT IN HIS BID FOR THIS PROJECT. ANY OF THE EXISTING CONCRETE SIDEWALK ADJACENT TO THE LOW-RISE HOUSING BUILDING THAT IS AMAGED DURING CONSTRUCTION, OR IS DEEMED IN NEED OF REPLACEMENT BY THE OWNER, SHALL BE DEMOLISHED AND REPLACED LIKE—IN—KIND UNDER THE ADD. ALTERNATE ITEM. MATERIAL REQUIREMENTS SHALL BE AS PER ODOT ITEM 608, THESE NOTES, AND DRAWING DETAILS.
- 8. JOINTS OR SCORE MARKS ARE TO BE SHARP AND CLEAN WITHOUT SHOWING EDGES OF JOINTING TOOL.
- 9. CONTRACTOR SHALL SAWCUT TIE-INS AT EXISTING CURBS TO ENSURE SMOOTH TRANSITIONS. CONTRACTOR SHALL SAWCUT AND TRANSITION TO EXISTING PAVEMENT TO ENSURE POSITIVE

10. ALL CONCRETE (WITH THE EXCEPTION OF SOIL NAIL WALL CAST—IN—PLACE CONCRETE AND SHOTCRETE, WHICH ARE SPECIFIED ON SHEETS S101 AND S102) SHALL BE 6% (+/-1½%)

AIR ENTRAINED, 3/4" AGGREGATE AND CONFORM TO A 28 DAY STRENGTH OF 4,000 PSI

MINIMUM AND SHALL HAVE A MAXIMUM W/C OF 0.50. ALL CONCRETE SHALL BE MADE WITH

TYPE I OR TYPE II CEMENT UNLESS OTHERWISE SPECIFIED.

- 11. ALL SIDEWALKS SHALL HAVE A LIGHT BROOM FINISH. VERTICAL FACES SHALL BE FORMED.
- 12. BASE AND ASPHALT THICKNESS SPECIFIED ARE THE MINIMUM REQUIRED.
- 13. ALL CURB RADII ARE 3', UNLESS OTHERWISE NOTED. FOR CURBED ISLANDS SHOWN WITH ONE LABELED RADIUS, THE LABELED RADIUS SHALL APPLY TO ALL FOUR CORNERS OF THE ISLAND
- 14. ALL CONCRETE FOR CURBS SHALL BE AIR ENTRAINED TO BE 6% (+/-1½%), MADE WITH SAND AND GRAVEL AGGREGATE AND SHALL CONFORM TO A TWENTY EIGHT (28) DAY STRENGTH OF 4,500 PSI MINIMUM, SHALL HAVE A MAXIMUM W/C OF 0.40 AND 130 LBS/LF.
- 15. CONTRACTOR SHALL INSTALL ALL CURBING IN A TRUE LINE AND PROPER GRADE IN ACCORDANCE WITH THE APPROVED SITE PLANS AND APPROPRIATE STATE DOT SPECIFICATIONS. CURVED CURB SECTIONS SHALL BE USED FOR RADII LESS THAN 30'. ALL CURBING SHALL BE BACKFILLED WITH CLEAN AGGREGATE.
- 16. CONTRACTOR SHALL REPAIR ANY CURB DAMAGED DURING CONSTRUCTION ACTIVITIES.
- 17. ALL CURBS SHALL BE FULL DEPTH CONCRETE CURB WITH 6" REVEAL, UNLESS OTHERWISE
- 18. CONTRACTOR TO INSTALL ALL UTILITY PIPING, SEWERS, CONDUIT PRIOR TO PAVING OPERATIONS. CONTRACTOR TO COORDINATE ALL SITE UTILITIES WITH UTILITY PLAN, AND MEP PLANS

GENERAL GRADING & DRAINAGE NOTES:

- 1. TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR USE IN FINAL LANDSCAPING.
- 2. MANHOLE RIMS AND CATCH BASIN GRATES SHALL BE SET TO ELEVATIONS SHOWN. SET ALL EXISTING MANHOLE FRAMES AND COVERS, CATCH BASIN GRATES, VALVE BOXES, ETC., TO BE RAISED OR LOWERED, TO PROPOSED FINISHED GRADE, FLUSH WITH THE ADJACENT GRADE.
- 3. UNDERDRAINS MAY BE ADDED, IF DETERMINED NECESSARY BY THE ENGINEER OR CONSTRUCTION MANAGER, AFTER SUBGRADE IS ROUGH GRADED.
- 5. THE CONTRACTOR SHALL COMPACT FILL IN 8" MAXIMUM LIFTS UNDER ALL PARKING,
 BUILDING, AND DRIVE AREAS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY
- BUILDING, AND DRIVE AREAS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 (MODIFIED PROCTOR TEST), OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.

 6. THE CONTRACTOR SHALL BE ADVISED THAT ALL EXCAVATION IS CONSIDERED UNCLASSIFIED

THE CONTRACTOR SHALL PRESERVE EXISTING VEGETATION WHERE POSSIBLE AND/OR AS

- AND THAT IT SHALL BE RESPONSIBLE FOR ALL MEANS, METHODS, AND MATERIALS OF CONSTRUCTION TO COMPLETE CONSTRUCTION AS DESIGNED. ADDITIONALLY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE OFF—SITE DISPOSAL OF ANY AND ALL EXCESS OR UNSUITABLE MATERIAL UNABLE TO BE PLACED ON SITE AND THE IMPORTATION OF ANY BORROW MATERIAL NECESSARY TO COMPLETE THE JOB.
- 7. CLEAN HARD FILL MATERIAL SHALL MEET THE REQUIREMENTS OF OAC 3745-4000-05 AND ALL REQUIREMENTS OF THE OHIO EPA. ANY PERSON USING CLEAN HARD FILL ON A SITE OTHER THAN THE SITE OF GENERATION MUST PROVIDE A WRITTEN NOTICE OF INTENT TO FILL TO THE LICENSING AUTHORITY(IES) WHERE THE CLEAN HARD FILL IS TO BE PLACED AT LEAST SEVEN DAYS PRIOR TO PLACING.
- 8. SITE GRADING SHALL BE PERFORMED TO PROVIDE POSITIVE DRAINAGE TO CATCH BASINS AND TO PRECLUDE THE PONDING OF WATER ON SITE.
- 9. VERIFY REQUIRED SPOT ELEVATIONS/GRADING IN THE VICINITY OF THE BUILDINGS WITH THE ARCHITECTURAL PLANS.
- 10. SPOT ELEVATIONS SHOWN DEPICT THE PROPOSED PAVEMENT OR GROUND SURFACE OR PAVEMENT ELEVATION AT FACE OF CURB, UNLESS OTHERWISE NOTED. TOP OF ALL CONCRETE CURBING IS 6—INCHES ABOVE SPOT ELEVATIONS UNLESS OTHERWISE NOTED.
- 11. IT IS THE CONTRACTORS OBLIGATION AND RESPONSIBILITY TO CONFIRM/CONCUR WITH THE EXISTING GRADES SHOWN HEREIN. THE CONTRACTOR MUST CONFIRM ALL EXISTING GRADES PRIOR TO ANY/ALL EXCAVATION.
- 12. THE CONTRACTOR MUST DOCUMENT EXISTING GRADE DISPUTES BY PROVISION OF A TOPOGRAPHIC SURVEY BY A STATE OF OHIO REGISTERED PROFESSIONAL SURVEYOR, PRIOR TO ANY EARTH DISTURBING ACTIVITIES. IN THE ABSENCE OF THE PROVISION OF TOPOGRAPHIC SURVEY BY THE CONTRACTOR, THE GRADES SHOWN HEREON WILL BE THE "TOPOGRAPHY OF RECORD" FOR ANY AND ALL SOIL VOLUME DISPUTES.
- 13. THE CONTRACTOR IS RESPONSIBLE FOR ALL SOIL IMPORT/EXPORT NECESSARY TO ACHIEVE THE PROPOSED GRADES.
- 14. ALL EXCAVATION UNDER OR NEAR EXISTING OR FUTURE PAVEMENT (INCLUDING SIDEWALKS), SUBJECT TO SETTLEMENT, WILL BE BACK FILLED WITH PREMIUM BACKFILL AS DEFINED HEREIN. AT QUESTIONABLE AREAS THE DECISION OF THE ENGINEER, OR HIS REPRESENTATIVE, WILL PREVAIL.
- 15. PAVEMENT EXCAVATION AND EMBANKMENT SHALL BE IN ACCORDANCE WITH ITEM 203.12 OF OHIO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS. THE CONTRACTOR MAY BE REQUIRED TO MAKE COMPACTION TESTS. TESTS SHALL BE TAKEN BY A TESTING COMPANY APPROVED BY THE ENGINEER. THE COST OF THESE TESTS SHALL BE PAID BY THE CONTRACTOR. "PROOF" ROLLING WILL BE REQUIRED PRIOR TO PAVING AND SHALL BE CONDUCTED PRIOR TO PLACEMENT OF AGGREGATE BASE AND PERFORMED WITH THE OWNER'S INSPECTOR PRESENT AND PAID FOR BY THE CONTRACTOR.

GENERAL UTILITY NOTES:

- 1. PROPER COORDINATION WITH THE RESPECTIVE UTILITY COMPANIES SHALL BE PERFORMED BY THE CONTRACTOR TO INSURE THAT ALL UTILITY COMPANY, LOCAL MUNICIPALITY, AND LOCAL COUNTY STANDARDS FOR MATERIALS AND CONSTRUCTION METHODS ARE MET.
- 2. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY THE ELEVATION AND LOCATION OF ALL UTILITIES BY VARIOUS MEANS PRIOR TO BEGINNING ANY EXCAVATION. TEST PITS SHALL BE DUG AT ALL LOCATIONS WHERE SEWERS CROSS EXISTING UTILITIES, AND THE HORIZONTAL AND VERTICAL LOCATIONS OF THE UTILITIES SHALL BE DETERMINED. THE CONTRACTOR SHALL CONTACT THE CONSTRUCTION MANAGER IN THE EVENT OF ANY UNFORESEEN CONFLICTS BETWEEN EXISTING AND PROPOSED UTILITIES SO THAT AN APPROPRIATE MODIFICATION MAY BE MADE.
- 3. THE CONTRACTOR SHALL ARRANGE FOR AND COORDINATE WITH THE RESPECTIVE UTILITY COMPANIES FOR SERVICE INSTALLATIONS AND CONNECTIONS AND MAIN AND SERVICE RELOCATIONS. THE CONTRACTOR SHALL COORDINATE THE WORK TO BE PERFORMED BY THE VARIOUS UTILITY COMPANIES AND SHALL SECURE ALL PERMITS AND PAY ALL FEES FOR CONNECTIONS, DISCONNECTIONS, RELOCATIONS, INSPECTIONS, AND DEMOLITION, AS NECESSARY
- 4. RELOCATION OF ANY UTILITY COMPANY FACILITIES TO BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY COMPANY AND LOCAL MUNICIPALITY.
- 5. ALL WATER MAINS, WATER SERVICES AND SANITARY SEWER LATERALS SHALL CONFORM TO THE OHIO ENVIRONMENTAL PROTECTION AGENCY, APPLICABLE COUNTY AND LOCAL DEPARTMENTS, AND APPROPRIATE UTILITY COMPANY SPECIFICATIONS.
- 6. THE CONTRACTOR SHALL MAINTAIN ALL FLOWS AND UTILITY CONNECTIONS TO EXISTING BUILDINGS, ETC. WITHOUT INTERRUPTION UNLESS/UNTIL AUTHORIZED TO DISCONNECT BY THE OWNER, UTILITY COMPANIES, AND GOVERNING AUTHORITIES. THE CONTRACTOR SHALL INSTALL AS NECESSARY, TEMPORARY SITE LIGHTING, GAS, SANITARY, WATER, STORM, ELECTRIC, TELEPHONE, AND CABLE SERVICES TO SERVICE BUILDING(S) TO REMAIN OPEN.
- 7. ALL EXISTING PAVEMENT WHERE UTILITY PIPING IS TO BE INSTALLED SHALL BE SAW CUT AND REPLACED IN ACCORDANCE WITH THE PAVEMENT REPAIR REQUIREMENTS OF LOCAL MUNICIPALITY AND THE DETAILS CONTAINED HEREIN.

- 8. ALL PIPES SHALL BE LAID ON STRAIGHT ALIGNMENTS AND EVEN GRADES USING A PIPE LASER OR OTHER ACCURATE METHOD.
- 9. SANITARY LATERAL AND STORM SEWERS SHALL MAINTAIN 10—FOOT MIN. HORIZONTAL AND 1.5—FOOT MIN. VERTICAL SEPARATION DISTANCE FROM WATER LINES. A 1—FOOT MIN. CLEARANCE SHALL BE MAINTAINED BETWEEN WATER LINES AND OTHER UTILITIES INCLUDING GAS, ELECTRICAL AND TELEPHONE. ADDITIONAL PROTECTION MEASURES INCLUDING, BUT NOT LIMITED TO, CONCRETE PIPE ENCASEMENT MAY BE REQUIRED IF INDICATED CLEARANCES ARE NOT MET.
- 10. THE CONTRACTOR SHALL COMPACT PIPE BACKFILL IN MAX. 8" LOOSE LIFTS TO 95% OF THE MAXIMUM DRY DENSITY PER ASTM D1557, ACCORDING TO THE PIPE BEDDING DETAILS. TRENCH BOTTOM SHALL BE STABLE IN HIGH GROUNDWATER AREAS. A PIPE FOUNDATION SHALL BE USED IN AREAS OF ROCK EXCAVATION.
- 11. CONTRACTOR TO PROVIDE SLEEVES UNDER FOOTINGS OR THROUGH FOUNDATIONS FOR UTILITY CONNECTIONS.
- 12. CONTRACTOR SHALL PROVIDE ALL BENDS, FITTINGS, ADAPTERS, ETC. AS REQUIRED FOR PIPE CONNECTIONS TO BUILDING/CANOPY STUB—OUTS, INCLUDING ROOF/FOOTING DRAIN CONNECTIONS TO ROOF LEADERS AND TO STORM DRAINAGE SYSTEM.
- 13. UTILITY CONDUIT PIPE SHALL BE SCHEDULE 80 PVC AND/OR AS REQUIRED BY THE LOCAL UTILITY COMPANY. SERVICES MAY BE INSTALLED IN A COMMON TRENCH WITH 12" CLEAR SPACE BETWEEN SERVICES. MINIMUM COVER SHALL BE 36" ON ELECTRIC CONDUITS AND 24" ON TELEPHONE AND CABLE CONDUITS. SERVICES SHALL BE MARKED WITH MAGNETIC LOCATOR TAPE. GALVANIZED STEEL ELECTRICAL CONDUIT SHALL BE USED AT POLE AND TRANSFORMER LOCATIONS. INSTALL HAND HOLES AS REQUIRED.
- 14. ALL UTILITY CONSTRUCTION IS SUBJECT TO INSPECTION PRIOR TO APPROVAL FOR BACKFILL, IN ACCORDANCE WITH THE APPROPRIATE UTILITY COMPANY, LOCAL MUNICIPALITY, AND/OR LOCAL COUNTY REQUIREMENTS.
- 15. MANHOLE RIMS AND CATCH BASIN GRATES SHALL BE SET TO ELEVATIONS SHOWN. SET ALL EXISTING MANHOLE FRAMES AND COVERS, CATCH BASIN GRATES, VALVE BOXES, ETC., TO BE RAISED OR LOWERED, TO PROPOSED FINISHED GRADE, FLUSH WITH THE ADJACENT GRADE. ALL TOP OF CASTING ELEVATIONS SHOWN IN THE PLANS FOR CURB INLETS ARE AT THE TOP OF CURB.
- 16. THE CONTRACTOR MAY SUBSTITUTE MASONRY STRUCTURES FOR PRECAST STRUCTURES IF APPROVED BY THE CONSTRUCTION MANAGER AND IF ALLOWED BY THE CITY AND/OR COUNTY ENGINEERS.
- 17. THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION OF WATER MAINS & SERVICES TO A POINT 5' OUTSIDE OF EACH BUILDING. THE INDIVIDUAL BUILDING CONTRACTORS SHALL BE RESPONSIBLE FOR ALL CONNECTIONS TO INTERIOR PLUMBING.
- 18. IN THE EVENT OF CONFLICT OF ANY REQUIREMENTS OR PROVISIONS OF THE WORK INDICATED HEREON, THE SITE ENGINEER SHALL BE NOTIFIED FOR A DETERMINATION OF THE PLAN REQUIREMENTS AND INTENT THEREOF.
- ELECTRICAL WORK.

 20. CONTRACTOR TO SEE MEP SITE PLAN FOR ALL ELECTRICAL AND COMMUNICATION CONDUIT

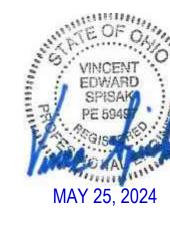
19. REFERENCE SITE ELECTRICAL PLAN FOR LOCATION OF ELECTRIC CONDUIT FOR ALL SITE

RUNS PRIOR TO START OF CONSTRUCTION.

- 21. ALL UTILITIES SHALL BE CONSTRUCTED, INSPECTED, AND TESTED IN ACCORDANCE WITH CITY STANDARDS AND REGULATIONS. THE CITY ENGINEERING DEPARTMENT SHALL BE NOTIFIED A
- 22. PROPOSED ELEVATIONS SHOWN SHALL NOT BE CHANGED WITHOUT APPROVAL OF THE CITY ENGINEERING DEPARTMENT AND THE CONSTRUCTION MANAGER.

MINIMUM OF 48 HOURS IN ADVANCE FOR SCHEDULING OF AN INSPECTOR.

- 23. THE LOCATION, SIZE, AND DEPTH OF THE EXISTING SANITARY LATERAL OR MAIN SHALL BE VERIFIED IN THE FIELD IN THE PRESENCE OF THE CITY INSPECTOR. THE SLOPE OF THE LATERAL TO THE BUILDING WILL THEN BE DETERMINED. THE CITY MUST APPROVE THE TYPE AND LOCATION OF ANY CONNECTION PRIOR TO INSTALLATION. THE EXISTING SANITARY LATERAL SHALL BE TELEVISED PRIOR TO INSTALLATION OF ANY SANITARY SEWER SYSTEM COMPONENTS. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER IS THE EXISTING LATERAL IS NOT FOUND TO BE IN GOOD CONDITION.
- 24. ALL BACK FLOW PREVENTION DEVICES SHALL BE APPROVED BY THE CITY'S UTILITY DEPARTMENT.
- 25. ALL FIRE SERVICE MAINS SHALL BE INSTALLED BY AN INDIVIDUAL WITH APPROPRIATE CERTIFICATION BY THE STATE OF OHIO.
- 26. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.
- 27. IN THOSE AREAS WHERE IT IS REQUIRED TO LOWER THE WATER LINE TO CLEAR AN OBSTACLE AND THE DEFLECTION WILL BE GREATER THAN 18", THE USE OF BENDS WILL BE REQUIRED TO CLEAR THE OBSTACLE AND BRING THE WATER MAIN UP TO THE STANDARD FOUR (4) FEET OF COVER.
- 28. CONTRACTOR TO INSTALL SHORING AND/OR TEMPORARY STRUCTURES TO PROVIDE SUPPORT TO ANY AND ALL EXISTING AFFECTED UTILITIES PER UTILITY PROVIDER'S MINIMUM STANDARDS.
- 29. CONTRACTOR TO COORDINATE ALL UTILITY CONNECTIONS, ELECTRICAL AND TELECOMMUNICATIONS CONDUIT, AND GAS LINES WITH M.E.P. PLANS PRIOR TO START OF CONSTRUCTION.



1 05/08/2024 MAS ISSUED FO ADDENDUM

SUITE 135
INCINNATI, OH 45242-4754
TEL: 513.437.3222
FAX: 513.719.0027

SJECT DATE: 05/02/24

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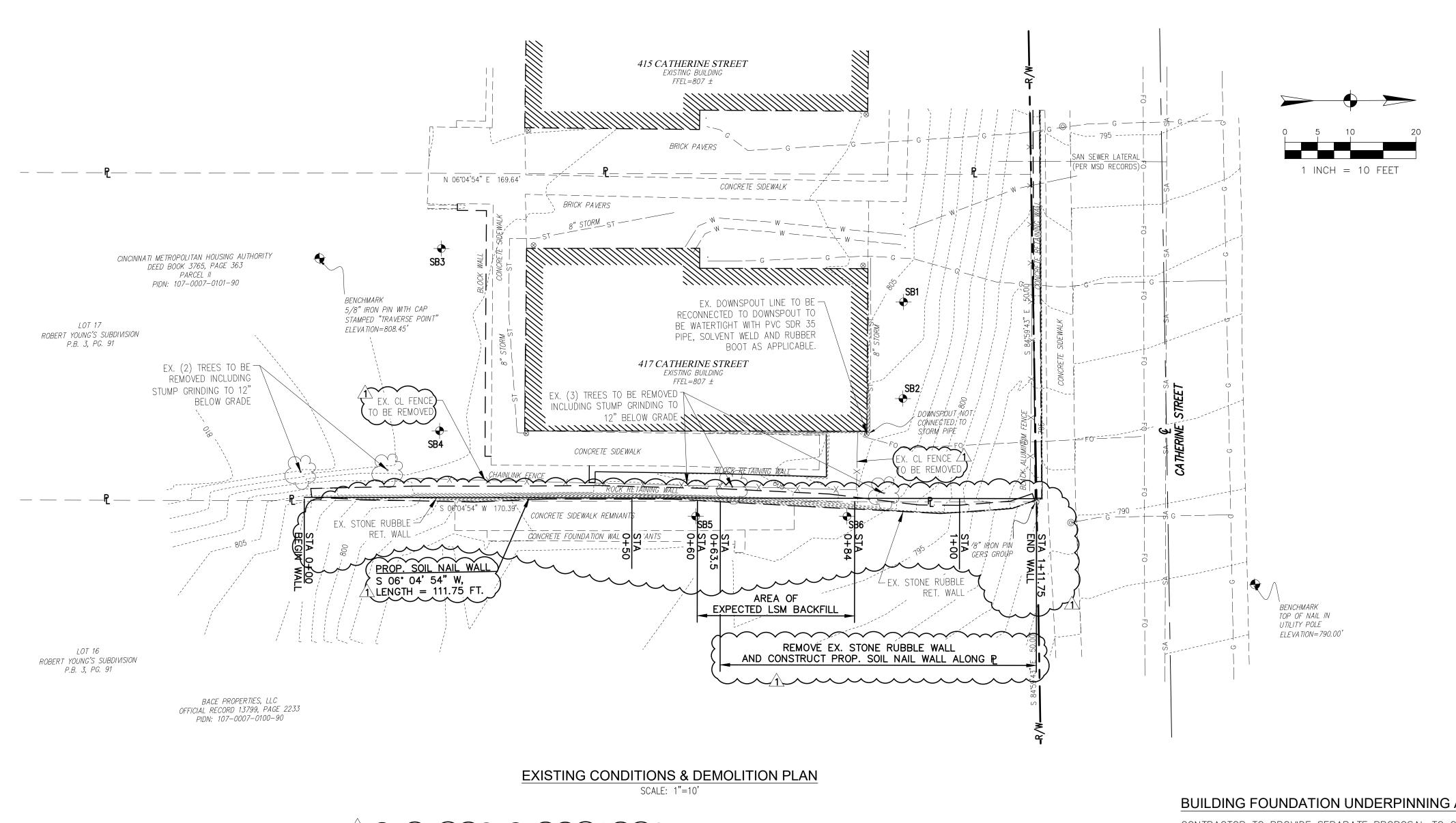
MannitsmithGroup.com

CINCINNATI
ETROPOLITAN
SING AUTHORTY

HERINE STREET REMEDIATION

ENERAL NOTES

C001



<u>LEGEND</u>

——— G ————	EX NATURAL GAS LINE
——— ST —— ——	EX STORM LINE
w	EX WATER LINE
XX	EX FENCE
——————————————————————————————————————	EX SANITARY LINE
	EX OH ELECTRICAL LIN
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F	EX POWER/COMM POLE
<i>,</i>	EX LIGHT POLE
/	

BENCHMARKS

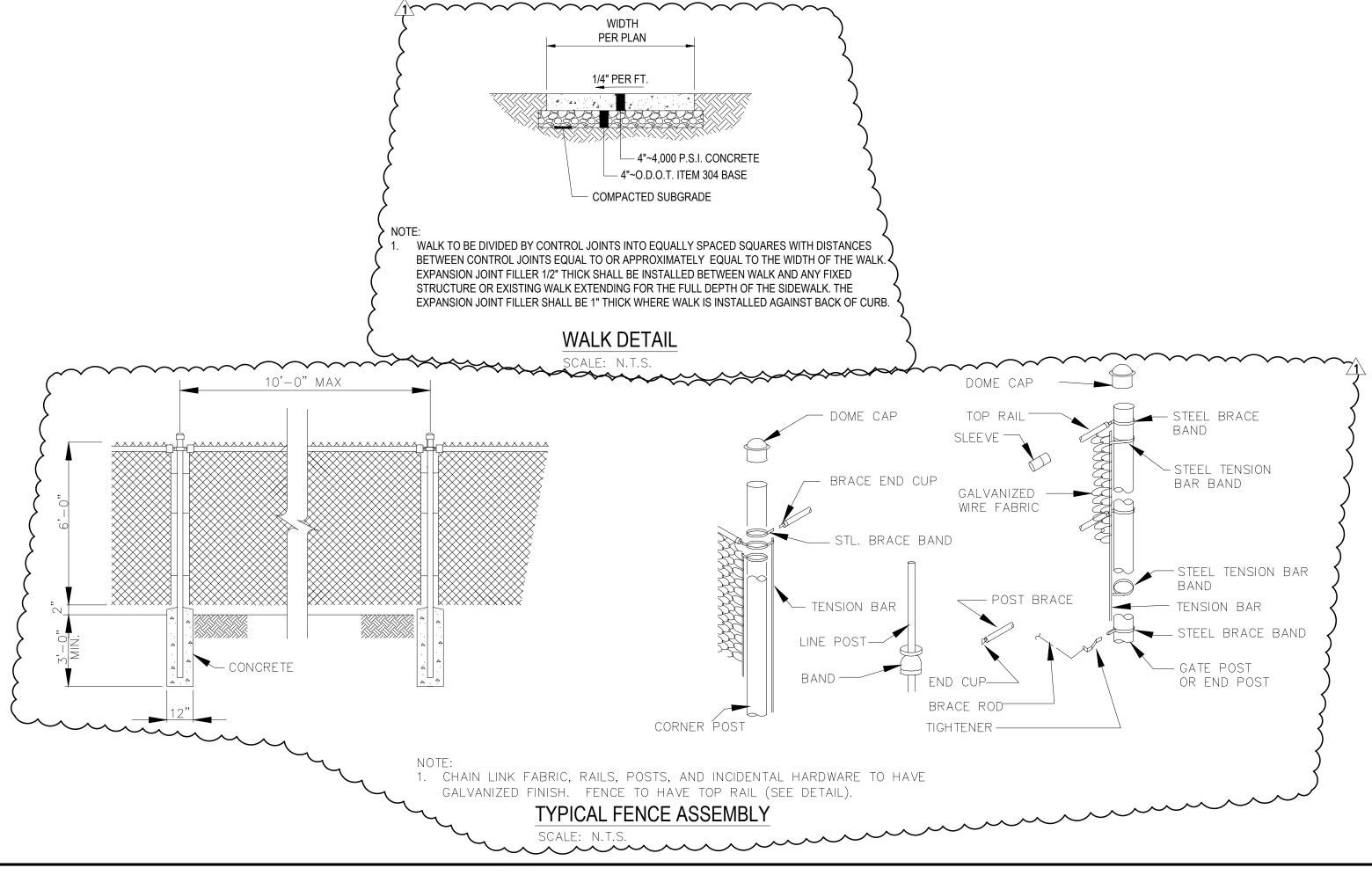
BENCHMARK #1 TOP OF NAIL IN UTILITY POLE THAT IS NORTHEAST OF THE SITE AND ON THE WEST SIDE OF CATHERINE STREET. ELEV = 790.00

BENCHMARK #2 §" IRON PIN WITH CAP STAMPED "TRAVERSE POINT" THAT IS LOCATED APPROXIMATELY 30' SOUTH OF THE SOUTHERN FACE OF THE BUILDING AT 417 CATHERINE STREET.

ELEV = 808.45

EXISTING PLAN INFORMATION PROVIDED

BY SURVEY DRAWING FROM: WEBSTER LAND SURVEY, LLC 2940 HEBRON PARK DR. SUITE 210 HEBRON, KY 41048 TEL: 859.760.7794 DATED: 10/06/2020



BUILDING FOUNDATION UNDERPINNING AND SLAB JACKING

CONTRACTOR TO PROVIDE SEPARATE PROPOSAL TO OWNER FOR FOUNDATION UNDERPINNING TO STABLIZE FOUNDATION SETTLEMENT AND SLAB JACKING TO LEVEL INTERIOR FIRST FLOOR SLABS. INCLUDE PROPOSED DESIGN LAYOUT AND APPROACH WITH PROPOSAL. THE CONTRACTOR SHOULD ALSO INCLUDE THE SUBMITTAL AND PERMIT COSTS FOR A PERMIT TO INSTALL THE UNDERPINNING WORK WITH THE CINCINNATI PERMITS DEPARTMENT.

MICROPILE INSTALLATION

- 1. INSTALL PUSH PIER UNDERPINS USING MATERIALS AS SHOWN AND DESCRIBED BELOW. THIS WORK IS TO UNDERPIN THE EXISTING TWO STORY BUILDING AT 417 CATHERINE STREET, CINCINNATI OHIO 45229. CONTRACTOR IS RESPONSIBLE FOR CLEARING OVERHEAD UTILITIES AND PROVIDING ACCESS FOR EQUIPMENT.
- 2. THE FOUNDATION UNDERPINNING CONSISTS AN ESTIMATED 18 PUSH PIERS BASED ON A MAXIMUM SPACING OF 6'O.C. AROUND THE PERIMETER THREE SIDES (TWO SIDES AND REAR) OF THE BUILDING. AVOID PLACING PUSH PIERS UNDER WINDOWS AND DOORS. ATTACH PUSH PIERS TO THE EXISTING FOOTINGS USING THE STEEL BRACKETS NOTED BELOW. CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION. APPROXIMATE EMBEDMENT DEPTHS VARY FROM APPROXIMATELY 5' TO 15' BASED ON THE GEOTECHNICAL REPORT. ACTUAL EMBEDMENT DEPTHS WILL BE BASED ON ACTUAL FIELD CONDITIONS AND HITTING REFUSAL WITH EACH PUSH PIER
- 3. FOUNDATION UNDERPINNING DESIGNED BASED ON THE DESIGN LOADS AS VERIFIED BY THE CONTRACTOR-PROVIDED STRUCTURAL ENGINEER.
 - PIÈRS\SHALL MAINTAIN A PLUMBNESS DEVIATION OF A MAXIMUM OF 1" IN 10 FT. VERTICAL HEIGHT.
- 5. THE CONTRACTOR SHALL MAINTAIN A RECORD OF EACH PUSH PIER INSTALLED, WHICH WILL INCLUDE AS A MINIMUM: PILE NUMBER; PILE TIP ELEVATION; RAM PRESSURE; PILE LENGTH, DATE INSTALLED; AND WEATHER CONDITIONS. PROVIDE INFORMATION IN A PDF DRAWING FORMAT TO OWNER AT PROJECT CLOSE-OUT.

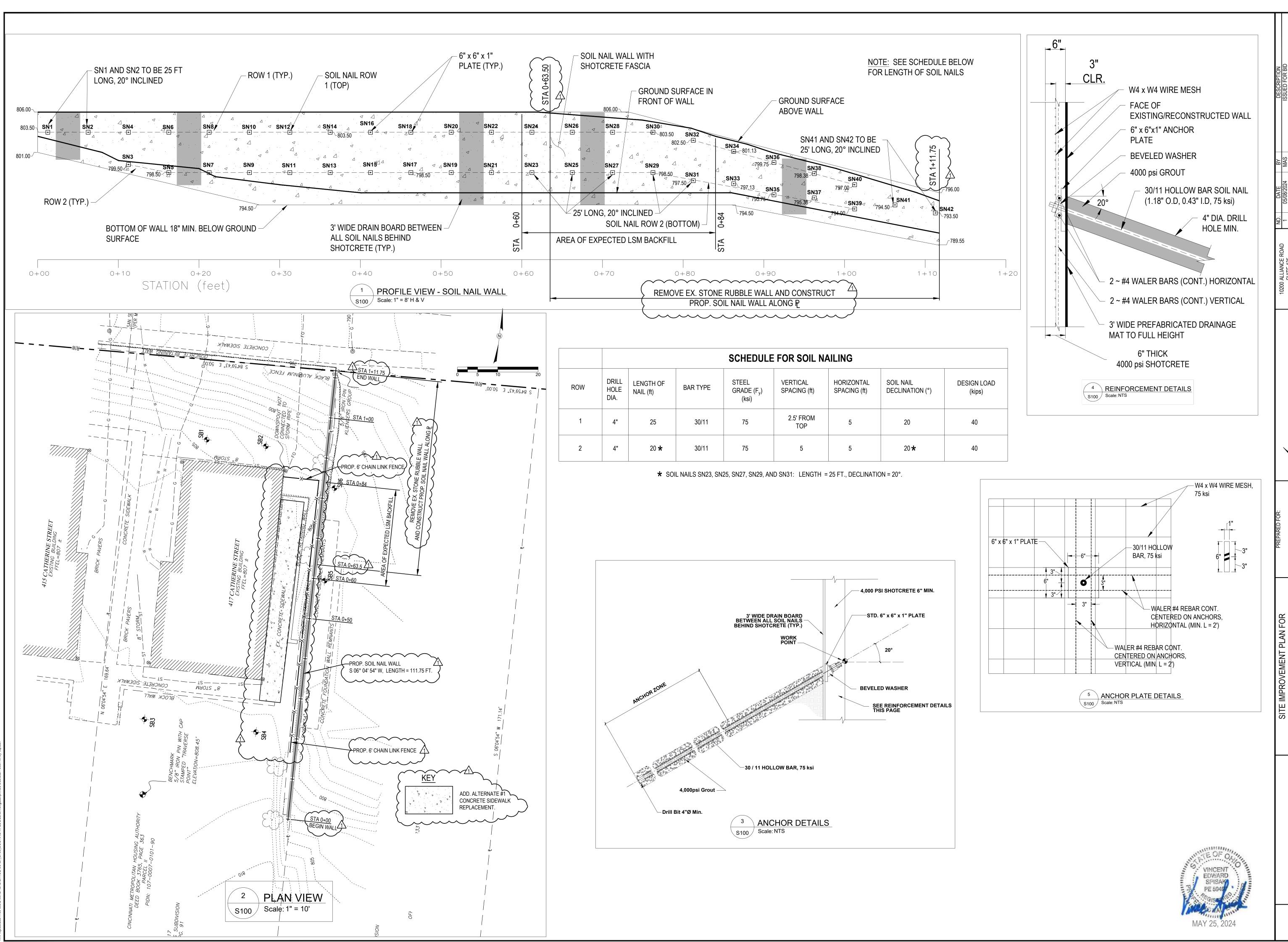
INSTALLATION PROCEDURE AND MATERIALS

- 1. COORDINATE PUSH PIER LOCATIONS WITH SOIL NAIL CONTRACTOR TO AVOID CONFLICTS.
- 2. CORE FOOTING AS NEEDED FOR INSTALLATION OF PUSH PIER WITH REVERSE ANGLE BRACKET.
- 3. PREPARE THE EXISTING FOUNDATION BY TRIMMING FOOTING SECTION FLUSH WITH FOUNDATION WALL FOR PLATE BRACKET CONNECTION.
- 4. ATTACH BRACKETS TO FOUNDATION WALL ACCORDING TO MANUFACTURER SPECIFICATIONS AND AISC CODE SECTION 7-13.
- 5. UNDERPIN THE EXISTING FOOTINGS WITH MAGNUM MP.313 AND MP325 PUSH PIERS ATTACHED USING A MAGNUM MP1002-3, MP1005-3, OR MP1006-3 FOR ISOLATED COLUMN FOOTINGS AND MAGNUM MPI00I-3 PLATE BRACKET FOR EXTERIOR CONTINUOUS FOOTINGS. PUSH PIERS BY MAGNUM PIERING, CINCINNATI OHIO OR APPROVED EQUAL.
- 6. INSTALL PUSH PIERS AS RECOMMENDED BY MANUFACTURER.
- 7. REPAIR OR REPLACE ANY REMOVED OR DAMAGED PAVEMENT OR DISTURBED GROUND SURFACE EQUAL OR BETTER THAN EXISTING CONDITIONS AND TO OWNER SATISFACTION.



CINCINNATI METROPOLITAN HOUSING AUTHORT

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CATHERINE STREE

SOIL NAIL WALL DETAILS

S100

SOIL NAIL WALL SPECIFICATIONS

DESCRIPTION

THIS WORK CONSISTS OF CONSTRUCTING A PERMANENT SOIL NAIL WALL AS SPECIFIED HEREIN AND AS SHOWN ON THE CONTRACT DRAWINGS (ALSO REFERRED TO AS CONTRACT PLANS). THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO COMPLETE THE WORK. THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT PLANS, THE REQUIRED CONTRACTOR SUBMITTALS, AND THESE SPECIFICATIONS. THE WORK CONSISTS OF THE FOLLOWING ELEMENTS: REPAIRING ERODED SURFACES OF THE EXISTING BACKFILL WITH FORMED LOW STRENGTH MORTAR BACKFILL; DRILLING SOIL NAIL DRILL HOLES TO THE DIAMETER AND LENGTH REQUIRED; GROUTING OF SOIL NAILS; SUPPLYING AND INSTALLING THE SPECIFIED DRAINAGE FEATURES; SUPPLYING AND INSTALLING BEARING PLATES, WASHERS, NUTS, AND OTHER REQUIRED HARDWARE AND MISCELLANEOUS MATERIALS; AND CONSTRUCTING THE INITIAL AND FINAL SOIL NAIL WALL FACING.

CONTRACTOR: THE SPECIALTY FIRM WHO IS RESPONSIBLE FOR CONSTRUCTION OF THE SOIL NAIL WALL.

ENGINEER: THE OWNER'S PROJECT ENGINEER, PROJECT MANAGER, OR OTHER REPRESENTATIVE.

INSPECTOR: THE OWNER'S FIELD REPRESENTATIVE ON THE PROJECT SITE. OWNER: THE AGENCY RESPONSIBLE FOR THE PROJECT.

CONTRACT DRAWINGS [OR CONTRACT DRAWINGS]: DRAWINGS DEVELOPED BY THE ENGINEER AND PROVIDED BY THE OWNER FOR BIDDING

PROJECT MANAGER: AN EMPLOYEE OF THE CONTRACTOR SUPERVISING THE WORK AND WHO HAS A MINIMUM OF THREE YEARS OF EXPERIENCE WITH SOIL NAIL PROJECTS OF SIMILAR SIZE AND SCOPE.

3. MATERIALS

FACING MATERIALS SHALL CONFORM TO THE FOLLOWING SECTIONS AND SUBSECTIONS.

3.1.1. LOW STRENGTH MORTAR (LSM) BACKFILL LSM BACKFILL SHALL MEET THE MATERIAL AND CONSTRUCTION REQUIREMENTS OF ODOT ITEM 613.

3.1.2. CAST-IN-PLACE CONCRETE: CAST-IN-PLACE (CIP) CONCRETE SHALL MEET THE REQUIREMENTS OF ACI 301 SPECIFICATIONS. COMMENTARY: SUITABLE ACI SPECIFICATIONS OR EQUIVALENT MAY BE USED INSTEAD.

3.1.3. REINFORCING STEEL REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF ASTM A615 SPECIFICATIONS.

3.1.4. INITIAL SHOTCRETE ALL MATERIALS, METHODS, AND CONTROL PROCEDURES FOR INITIAL SHOTCRETE SHALL BE SUBMITTED TO THE OWNER'S ENGINEER FOR

REVIEW AND APPROVAL. 3.1.5. FINAL SHOTCRETE

FINAL SHOTCRETE SHALL MEET THE REQUIREMENTS OF ACI 506.2-13 (18).

3.1.6. ARCHITECTURAL SURFACE FINISHES ARCHITECTURAL SURFACE FINISHES MAY INCLUDE TEXTURED SURFACES OR A SURFACE FINISH WITH COLOR/STAIN APPLICATION.

3.2. SOIL NAILS

3.2.1. SOIL NAIL HOLLOW BAR (TENDON)

TENDONS SHALL MEET THE REQUIREMENTS OF ASTM A615 FOR GRADE 60 OR 75 STEEL BARS, AND ASTM A722 FOR GRADE 150 STEEL. TENDONS SHALL BE CONTINUOUS WITHOUT SPLICES OR WELDS, NEW, STRAIGHT, UNDAMAGED, BARE, EPOXY COATED, GALVANIZED, OR ENCAPSULATED AS SHOWN ON THE CONTRACT DRAWINGS. THE LENGTH OF THE THREADED PORTION OF THE BAR AT THE WALL ANCHORAGE SHALL BE AS NEEDED TO ALLOW PROPER ATTACHMENT OF THE BEARING PLATE AND NUT. IF THREADS ARE CUT INTO A TENDON, THE CONTRACTOR SHALL VERIFY THAT THE BAR MEETS THE MINIMUM CAPACITY REQUIRED AT THE THREADED SECTION. 3.2.2. BAR COUPLERS

BAR COUPLERS SHALL DEVELOP THE FULL NOMINAL TENSILE CAPACITY OF THE TENDON AS CERTIFIED BY THE MANUFACTURER.

3.2.3. FUSION-BONDED EPOXY COATING FUSION-BONDED EPOXY COATING SHALL MEET THE REQUIREMENTS OF ASTM A775 AND HAVE A MINIMUM THICKNESS OF 12 MILS (12 THOUSANDTHS OF AN INCH) UP TO A MAXIMUM OF 17 MILS AS APPLIED ELECTROSTATICALLY. BEND TEST REQUIREMENTS ARE WAIVED. THE COATING AT THE WALL ANCHORAGE END OF EPOXY-COATED BARS MAY BE OMITTED OVER THE LENGTH PROVIDED FOR THREADING

ZINC GALVANIZED COATING SHALL MEET THE REQUIREMENTS OF ARTICLE 11.10.6.4.2A (AASHTO 2014 OR CURRENT EDITION) AND HAVE A MINIMUM OF 2.0 OZ/FT2 OR 3.4 MIL THICKNESS APPLIED IN ACCORDANCE WITH ASTM A123 FOR BARS AND STRUCTURAL STEEL SHAPES, AND ASTM A153 FOR NUTS, PLATES, AND OTHER HARDWARE. [ASTM A767/A767M CAN ALSO BE USED AS A REFERENCE.]

3.2.5. ENCAPSULATION BAR ENCAPSULATION SHALL BE A MINIMUM 0.04-IN. THICK, CORRUGATED, HDPE TUBE CONFORMING TO AASHTO M252, OR CORRUGATED PVC TUBE CONFORMING TO ASTM D1784, CLASS 13464 B FILLED WITH NEAT CEMENT GROUT.

3.3. OTHER SOIL NAIL COMPONENTS

THE NUT AGAINST THE BEARING PLATE.

3.3.1. CENTRALIZERS

CENTRALIZERS SHALL BE MANUFACTURED FROM SCHEDULE 20 OR 40 PVC PIPE OR OTHER MATERIALS NOT DETRIMENTAL TO THE SOIL NAIL STEEL BAR. WOOD SHALL NOT BE USED. CENTRALIZERS SHALL BE SECURELY ATTACHED TO THE TENDON AND SHALL BE SIZED TO ALLOW: (I) POSITIONING OF THE SOIL NAIL BAR WITHIN 1 IN. OF THE CENTER OF THE DRILL HOLE; (II) TREMIE PIPE INSERTION TO THE BOTTOM OF THE DRILL HOLE; AND, (III) GROUT TO FREELY FLOW UP THE DRILL HOLE. THEY SHALL BE INSTALLED AT REGULAR INTERVALS NOT TO EXCEED 10 FT ALONG THE LENGTH OF THE NAIL AND A DISTANCE OF 2 FEET FROM EACH END OF THE NAIL.

3.3.2. GROUT GROUT SHALL BE NEAT CEMENT OR SAND/CEMENT MIXTURE WITH A MINIMUM 3-DAY COMPRESSIVE STRENGTH OF 2,500 PSI AND A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI, MEETING THE REQUIREMENTS OF AASHTO T106/ASTM C109. THE SPECIFIC GRAVITY OF THE FRESHLY PREPARED NEAT CEMENT GROUT SHALL RANGE BETWEEN 1.8 AND 1.9.

3.3.3. SAND SAND FOR GROUT AND/OR SHOTCRETE SHALL MEET THE REQUIREMENTS OF AASHTO M6/ASTM C33.

3.3.4. PORTLAND CEMENT PORTLAND CEMENT FOR GROUT AND/OR SHOTCRETE SHALL MEET THE REQUIREMENTS OF AASHTO M85/ASTM C150, TYPES I, II, III, V, OR TYPE I/II AND SHALL BE THE PRODUCT OF ONE MANUFACTURER. IF THE BRAND OR TYPE OF CEMENT IS CHANGED DURING THE PROJECT, ADDITIONAL GROUT MIX TESTS SHALL BE CONDUCTED TO ENSURE CONSISTENCY OF QUALITY AND PERFORMANCE IN SITU.

3.3.5. ADMIXTURES IF ADMIXTURES ARE USED, THEY SHALL MEET THE REQUIREMENTS OF AASHTO M194/ASTM C494. ADMIXTURES SHALL BE COMPATIBLE WITH THE GROUT AND MIXED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ACCELERATORS SHALL NOT BE PERMITTED. EXPANSIVE ADMIXTURES SHALL NOT BE PERMITTED EXCEPT WHERE THE GROUT IS USED ASPART OF CORROSION PROTECTING ENCAPSULATION.

3.3.6. FILM PROTECTION POLYETHYLENE FILM FOR MOISTURE LOSS CONTROL SHALL MEET THE REQUIREMENTS OF AASHTO M171.

3.4. CONNECTION COMPONENTS

3.4.1. BEARING PLATES

BEARING PLATES SHALL MEET THE REQUIREMENTS OF AASHTO M183/ASTM A36 OR ASTM A572 GRADE 50 (GRADE 350 IN SI UNITS). 3.4.2. NUTS

NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291/ASTM A563, GRADE B, HEXAGONAL, AND FITTED WITH BEVELED WASHER OR SPHERICAL SEAT TO PROVIDE UNIFORM BEARING. 3.4.3. SHEAR CONNECTORS

SHEAR CONNECTORS OF THE SOIL NAIL HEAD SHALL CONSIST OF HEADED-STUDS OR ANCHOR BOLTS.

3.5. WELDED-WIRE MESH

WELDED WIRE MESH (WWM) SHALL MEET THE REQUIREMENTS OF AASHTO M55/ASTM A185 OR A497.

REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF AASHTO M31/ASTM A615, GRADE 60, DEFORMED.

3.7. GEOCOMPOSITE STRIP DRAIN

GEOCOMPOSITE STRIP DRAIN SHALL BE MANUFACTURED WITH A DRAINAGE CORE (E.G., GEONET) AND A FILTRATION GEOTEXTILE ATTACHED TO OR ENCAPSULATING THE CORE. DRAINAGE CORE SHALL BE MANUFACTURED FROM LONG-CHAIN SYNTHETIC POLYMERS COMPOSED OF AT LEAST 85 PERCENT BY MASS OF POLYPROPYLENES, POLYESTER, POLYAMINE, POLYVINYL CHLORIDE, POLYOLEFIN, OR POLYSTYRENE, AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 40 PSI WHEN TESTED IN ACCORDANCE WITH ASTM D1621 PROCEDURE A. THE DRAINAGE CORE SHALL HAVE A MINIMUM FLOW RATE OF 0.1 GALLONS PER SECOND PER FOOT OF STRIP WIDTH UNDER A GRADIENT OF 1.0 TESTED IN ACCORDANCE WITH ASTM D4716.

3.8. UNDERDRAIN ELEMENTS

UNDERDRAIN AND PERFORATED PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785 SCHEDULE 40 PVC SOLID AND PERFORATED WALL; CELL CLASSIFICATION 12454-B OR 12454-C, WALL THICKNESS SDR 35, WITH SOLVENT WELD OR ELASTOMERIC JOINTS.

FITTINGS FOR UNDERDRAIN AND PERFORATED PIPE SHALL MEET THE REQUIREMENTS OF ASTM D3034, CELL CLASSIFICATION 12454-B OR 12454-C, WALL THICKNESS SDR 35, WITH SOLVENT OR ELASTOMERIC JOINTS.

4. CONTRACTOR EXPERIENCE

THE SOIL NAILING CONTRACTOR SHALL MEET THE FOLLOWING EXPERIENCE REQUIREMENTS:

4.1. HAVE COMPLETED AT LEAST THREE PERMANENT SOIL NAIL WALL PROJECTS DURING THE PAST THREE YEARS TOTALING AT LEAST 10,000 FT2 OF SOIL NAIL WALL FACE AREA AND AT LEAST 500 PERMANENT SOIL NAILS.

4.2. PROVIDE A REGISTERED PROFESSIONAL ENGINEER WITH EXPERIENCE IN THE DESIGN OF PERMANENT SOIL NAIL WALLS WITH AT LEAST THREE COMPLETED PROJECTS OVER THE PAST THREE YEARS.

4.3. PROVIDE ON-SITE SUPERVISORS AND DRILL OPERATORS WITH EXPERIENCE INSTALLING PERMANENT SOIL NAIL WALLS ON AT LEAST THREE PROJECTS OVER THE PAST THREE YEARS.

4.4. SUBMIT A BRIEF DESCRIPTION OF AT LEAST THREE PROJECTS, INCLUDING THE OWNER'S NAME, ADDRESS, AND CURRENT PHONE NUMBER; LOCATION OF PROJECT; PROJECT CONTRACT VALUE; AND SCHEDULED COMPLETION DATE AND COMPLETION DATE FOR THE PROJECT.

5. SUBMITTALS 5.1. PERSONNEL EXPERIENCE

AT LEAST 45 CALENDAR DAYS BEFORE STARTING SOIL NAIL WORK, SUBMIT NAMES OF THE PROFESSIONAL ENGINEER. ON-SITE SUPERVISORS, AND DRILL OPERATORS ASSIGNED TO THE PROJECT, AND A SUMMARY OF EACH INDIVIDUAL'S EXPERIENCE. ONLY THOSE INDIVIDUALS DESIGNATED AS MEETING THE EXPERIENCE REQUIREMENTS SHALL BE USED FOR THE PROJECT. THE CONTRACTOR CANNOT SUBSTITUTE FOR ANY OF THESE INDIVIDUALS WITHOUT WRITTEN APPROVAL OF THE OWNER OR THE OWNER'S ENGINEER. THE OWNER'S ENGINEER SHALL APPROVE OR REJECT THE CONTRACTOR QUALIFICATIONS AND STAFF 7 CALENDAR DAYS FOLLOWING RECEIPT OF THE SUBMISSION. WORK SHALL NOT BE STARTED NOR MATERIALS ORDERED UNTIL THE CONTRACTOR'S QUALIFICATIONS HAVE BEEN APPROVED BY THE OWNER'S ENGINEER. THE OWNER'S ENGINEER MAY SUSPEND THE WORK IF THE CONTRACTOR SUBSTITUTES UNAPPROVED PERSONNEL FOR APPROVED PERSONNEL DURING CONSTRUCTION. IF WORK IS SUSPENDED DUE TO THE SUBSTITUTION OF UNAPPROVED PERSONNEL, THE CONTRACTOR SHALL BE FULLY LIABLE FOR ALL ADDITIONAL COSTS RESULTING FROM THE SUSPENSION OF WORK, AND NO ADJUSTMENT IN CONTRACT TIME RESULTING FROM THE SUSPENSION OF THE WORK SHALL BE ALLOWED. 5.2. SITE SURVEYS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE NECESSARY SURVEY AND ALIGNMENT CONTROLDURING THE EXCAVATION FOR EACH LIFT, LOCATING DRILL HOLES AND VERIFYING LIMITS OF THE SOIL NAIL WALL INSTALLATION.

5.3. CONSTRUCTION PLAN AT LEAST 30 CALENDAR DAYS BEFORE STARTING SOIL NAIL WORK, THE CONTRACTOR SHALL SUBMIT A CONSTRUCTION PLAN TO THE

OWNER'S ENGINEER THAT INCLUDES THE FOLLOWING: 5.3.1. PROJECT START DATE AND PROPOSED DETAILED WALL CONSTRUCTION SEQUENCE.

5.3.2. DRILLING AND GROUTING METHODS AND EQUIPMENT, INCLUDING THE DRILL HOLE DIAMETER PROPOSED TO ACHIEVE THE SPECIFIED NOMINAL PULLOUT RESISTANCE VALUES SHOWN ON THE CONTRACT DRAWINGS.

5.3.3. NAIL GROUT MIX DESIGN, INCLUDING COMPRESSIVE STRENGTH TEST RESULTS (PER AASHTO T106/ASTM C109) SUPPLIED BY A QUALIFIED INDEPENDENT TESTING LAB VERIFYING THE SPECIFIED MINIMUM 3-DAY AND 28-DAY GROUT COMPRESSIVE STRENGTHS. FOR NEAT CEMENT GROUT INCLUDE SPECIFIC GRAVITY TEST RESULTS OF THE FRESH GROUT USED FOR COMPRESSIVE TESTING. 5.3.4. NAIL GROUT PLACEMENT PROCEDURES AND EQUIPMENT.

5.3.5. TEMPORARY SHOTCRETE MATERIALS AND METHODS, INCLUDING MIX AND ANTICIPATED STRENGTH MEETING THE MINIMUM COMPRESSIVE STRENGTHS.

5.3.6. SOIL NAIL TESTING METHODS AND EQUIPMENT SETUP.

5.3.7. IDENTIFICATION NUMBER AND CERTIFIED CALIBRATION RECORDS FOR EACH TEST JACK, PRESSURE GAUGE, DIAL GAUGE AND LOAD CELL TO BE USED. JACK AND PRESSURE GAUGE SHALL BE CALIBRATED AS A UNIT. CALIBRATION RECORDS SHALL INCLUDE THE DATE TESTED, THE DEVICE IDENTIFICATION NUMBER, AND THE CALIBRATION TEST RESULTS, AND SHALL BE CERTIFIED FOR AN ACCURACY OF AT LEAST 2 PERCENT OF THE APPLIED CERTIFICATION LOADS BY A QUALIFIED INDEPENDENT TESTING LABORATORY WITHIN 90 CALENDAR

DAYS OF SUBMITTAL. 5.3.8. MANUFACTURER CERTIFICATES OF COMPLIANCE FOR MATERIALS INCLUDING: THE TENDON ULTIMATE STRENGTH, WELDED WIRE MESH STEEL, REBAR STEEL, COUPLERS, BEARING PLATES, EPOXY COATING, AND ENCAPSULATION.

5.3.9. PRODUCT INFORMATION, DETAILS, AND CUT SHEETS OF PRODUCTS TO BE USED IN THIS PROJECT, INCLUDING, BUT LIMITED TO: GEOCOMPOSITE STRIP DRAINS, CENTRALIZERS, COUPLERS, AND GEOTEXTILES.

5.3.10. PROCEDURES AND MATERIAL FOR REPAIRING CORROSION PROTECTION COATINGS IN THE FIELD AND FOR APPLYING EPOXY FINISH

COATINGS ON END HARDWARE. 5.3.11. SHOP DRAWINGS THAT SHALL INCLUDE ALL DETAILS, DIMENSIONS, QUANTITIES, GROUND PROFILES, AND CROSS-SECTIONS NECESSARY TO CONSTRUCT THE WALL. THE CONTRACTOR SHALL VERIFY THE LIMITS OF THE WALL AND GROUND SURVEY DATA BEFORE PREPARING THE SHOP DRAWINGS. THE WORKING DRAWINGS SHALL BE PREPARED TO THE OWNER'S STANDARDS THE OWNER'S ENGINEER WILL APPROVE OR REJECT THE CONTRACTOR'S SUBMITTALS WITHIN 14 CALENDAR DAYS OF THE RECEIPT OF THE COMPLETE SUBMISSION. APPROVAL OF THE CONSTRUCTION PLANS DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY FOR THE SUCCESSFUL COMPLETION OF THE WORK. THE CONTRACTOR SHALL NOT BEGIN CONSTRUCTION OR INCORPORATE MATERIALS INTO THE WORK UNTIL THE SUBMITTAL REQUIREMENTS ARE SATISFIED AND FOUND ACCEPTABLE TO THE OWNER'S ENGINEER.

6. STORAGE AND HANDLING

SOIL NAIL BARS SHALL BE STORED AND HANDLED IN A MANNER TO AVOID DAMAGE OR CORROSION. SOIL NAIL BARS EXHIBITING ABRASIONS, CUTS, WELDS, WELD SPLATTER, CORROSION, OR PITTING SHALL BE REPLACED. BARS EXHIBITING DAMAGE TO ENCAPSULATION OR EPOXY COATING SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST. REPAIRED EPOXY COATING AREAS SHALL HAVE A MINIMUM 12-MIL. THICK COATING. DAMAGED GALVANIZATION SHALL BE REPAIRED BY COATING THE DAMAGED AREA WITH A FIELD GRADE, ZINC-RICH PAINT.

7. EXECUTION 7.1. PRE-EXCAVATION

IN THE PERIOD OF TIME BETWEEN THE DESIGN OF THE SOIL NAIL WALL AND THE AWARD OF THE CONSTRUCTION CONTRACT, THERE HAVE BEEN MINOR LOCALIZED FAILURES OF THE EXISTING RUBBLE AND MORTAR RETAINING WALL, WHICH HAVE INCLUDED THE LOSS AND SUBSEQUENT EROSION OF THE IN-SITU BACKFILL SOIL. THE APPROXIMATE LOCATIONS OF THE THESE LOCAL FAILURES HAVE BEEN INDICATED ON THE PLAN VIEW AND PROFILE VIEW OF THE WALL ON SHEET S100. PRIOR TO EXCAVATION AND DRILLING OF SOIL NAILS, THE CONTRACTOR SHALL BRING THESE ERODED LOCATIONS BACK TO PLANE OF THE BACK OF THE PROPOSED SHOTCRETE WALL FACING (EQUAL TO THE PLANE OF THE PROPOSED DRAINAGE MATS AND THE SOIL NAIL BEVELED WASHERS) WITH FORMED LSM BACKFILL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FORMING AND PLACING THE LSM BACKFILL PRIOR TO EXCAVATION AND SOIL NAIL INSTALLATION.

7.2. EXCAVATION

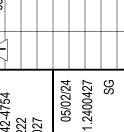
THE HEIGHT OF THE EXPOSED UNSUPPORTED FINAL EXCAVATION FACE CUT SHALL BE ESTABLISHED BY THE CONTRACTOR AND SHALL NOT EXCEED THE VERTICAL NAIL SPACING PLUS THE REQUIRED REINFORCING LAP OR THE SHORT-TERM STAND-UP HEIGHT OF THE GROUND, WHICHEVER IS LESS. EXCAVATION TO THE FINAL WALL EXCAVATION LINE AND SHOTCRETE APPLICATION SHALL BE COMPLETED IN THE SAME WORK SHIFT, UNLESS OTHERWISE APPROVED BY THE OWNER'S ENGINEER. EXCAVATION OF THE NEXT-LOWER LIFT SHALL NOT PROCEED UNTIL SOIL NAIL INSTALLATION, INITIAL REINFORCED SHOTCRETE PLACEMENT, ATTACHMENT OF BEARING PLATES AND NUTS, AND NAIL TESTING HAVE BEEN COMPLETED AND ACCEPTED IN THE CURRENT LIFT. NAIL GROUT AND SHOTCRETE SHALL HAVE CURED FOR AT LEAST 72 HOURS, OR ATTAINED THEIR SPECIFIED 3-DAY COMPRESSIVE STRENGTH, BUT NOT LESS THAN 2,500 PSI BEFORE EXCAVATING THE NEXT UNDERLYING LIFT.

7.3. SOIL NAIL INSTALLATION

THE SOIL NAIL LENGTH AND DRILL HOLE DIAMETER NECESSARY TO DEVELOP THE LOAD CAPACITY AND TO SATISFY THE ACCEPTANCE CRITERIA FOR THE DESIGN LOAD REQUIRED SHALL BE PROVIDED, BUT NOT LESS THAN THE LENGTHS OR DIAMETERS SHOWN IN THE CONTRACT DRAWINGS. DRILL HOLES FOR THE SOIL NAILS SHALL BE DRILLED AT THE LOCATIONS, ELEVATIONS, ORIENTATIONS, AND LENGTHS SHOWN ON THE CONTRACT DRAWINGS. THE DRILLING EQUIPMENT AND METHODS SHALL BE SELECTED TO BE SUITABLE FOR THE GROUND CONDITIONS AND IN ACCORDANCE WITH THE ACCEPTED INSTALLATION METHODS SUBMITTED BY THE CONTRACTOR. IF CAVING GROUND IS ENCOUNTERED, CASED DRILLING METHODS OR OTHER SUITABLE MEANS SHALL BE USED TO SUPPORT THE SIDES OF THE DRILL HOLES. SOIL NAIL BARS SHALL BE PROVIDED AS SHOWN IN THE CONTRACT DRAWINGS. CENTRALIZERS SHALL BE PROVIDED AND SIZED TO POSITION THE SOIL NAIL BARS TO WITHIN 1 IN. OF THE CENTER OF THE DRILL HOLE. CENTRALIZERS SHALL BE POSITIONED AS SHOWN ON THE CONTRACT DRAWINGS SO THAT THEIR MAXIMUM CENTER-TO-CENTER SPACING DOES NOT EXCEED 10 FT, AND SHALL BE LOCATED TO WITHIN 2 FEET FROM EACH END OF THE NAIL BAR.

7.4. GROUTING

THE DRILL HOLE SHALL BE GROUTED AFTER INSTALLATION OF THE SOIL NAIL BAR AND WITHIN 2 HOURS OF COMPLETION OF DRILLING. THE GROUT SHALL BE INJECTED AT THE LOWEST POINT OF EACH DRILL HOLE THROUGH A GROUT TUBE, CASING, HOLLOW-STEM AUGER, OR DRILL RODS. THE OUTLET END OF THE CONDUIT SHALL DELIVER GROUT BELOW THE SURFACE OF THE GROUT AS THE CONDUIT IS WITHDRAWN TO PREVENT THE CREATION OF VOIDS. THE DRILL HOLE SHALL BE FILLED IN ONE CONTINUOUS OPERATION. COLD JOINTS IN THE GROUT COLUMN SHALL NOT BE ALLOWED EXCEPT AT THE TOP OF THE TEST BOND LENGTH OF PROOF-TESTED PRODUCTION NAILS. THE SPACE ABOVE THE BOTTOM ELEVATION OF THE INCLINED DRILL HOLE OPENING, CALLED A "BIRD'S BEAK" DUE TO ITS SHAPE, SHALL BE FILLED UP WITH ADDITIONAL GROUT AFTER A TEMPORARY COVER IS PLACED IN FRONT OF THE DRILL HOLE, OR FILLED WITH SHOTCRETE.





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SOIL NAIL WALL SPECIFICATIONS



1. SOIL NAIL TESTING 1.1.GENERAL

THE CONTRACTOR SHALL PERFORM BOTH VERIFICATION AND PROOF TESTING OF DESIGNATED TEST SOIL NAILS. VERIFICATION TESTS ON SACRIFICIAL TEST NAILS SHALL BE CONDUCTED AT LOCATIONS ESTABLISHED BY CONTRACTOR AND VERIFIED BY ENGINEER OF RECORD. PROOF TESTS ON PRODUCTION NAILS SHALL BE CONDUCTED AT LOCATIONS SELECTED BY THE OWNER'S ENGINEER. TESTING OF ANY NAIL SHALL NOT BE PERFORMED UNTIL THE NAIL GROUT AND SHOTCRETE FACING HAVE CURED FOR AT LEAST 72 HOURS, OR ATTAINED THEIR SPECIFIED 3-DAY COMPRESSIVE STRENGTH, OR AT LEAST 1,500 PSI. DO NOT APPLY LOADS GREATER THAN 80 PERCENT OF THE MINIMUM GUARANTEED ULTIMATE TENSILE STRENGTH OF THE TENDON FOR GRADE 150 BARS, OR 90 PERCENT OF THE YIELD STRENGTH OF THE TENDON FOR GRADE 60 OR 75

TESTING EQUIPMENT SHALL INCLUDE DIAL GAUGES, DIAL GAUGE SUPPORT, JACK AND PRESSURE GAUGE, LOAD CELL, AND A REACTION FRAME. THE PRESSURE GAUGE SHALL BE GRADUATED IN 50 PSI INCREMENTS OR LESS. THE DIAL GAUGES SHALL BE SUPPORTED BY A FRAME THAT IS INDEPENDENT FROM THE JACKING AND WALL. NAIL HEAD MOVEMENT SHALL BE MEASURED WITH A MINIMUM OF 2 DIAL GAUGES CAPABLE OF MEASURING TO 0.001 IN.

1.3. VERIFICATION TESTING THE CONTRACTOR SHALL PERFORM AT LEAST 2 (TWO) VERIFICATION TESTS ON SACRIFICIAL SOIL NAILS TO 200% OF THE DESIGN LOAD AS ESTABLISHED BY THE CONTRACTOR. VERIFICATION TESTING SHALL BE CONDUCTED PRIOR TO INSTALLATION OF PRODUCTION SOIL NAILS ON SACRIFICIAL SOIL NAILS TO CONFIRM THE APPROPRIATENESS OF THE CONTRACTOR'S DRILLING AND INSTALLATION METHODS, AND TO VERIFY THE REQUIRED NAIL PULLOUT RESISTANCE.

1.3.1. SCHEDULE

VERIFICATION TESTS SHALL BE CONDUCTED BY INCREMENTALLY LOADING THE VERIFICATION TEST NAILS TO PULLOUT OR A MAXIMUM TEST LOAD VTL IN ACCORDANCE WITH THE LOADING SCHEDULE PRESENTED BELOW. THE CONTRACTOR SHALL RECORD SOIL NAIL MOVEMENTS AT EACH LOAD INCREMENT AND AT EACH TIME STEP. DIAL GAUGES SHALL BE SET TO "ZERO" AFTER THE ALIGNMENT (AL) LOAD HAS BEEN APPLIED. LOAD LEVELS BEYOND VTL ARE OPTIONAL, FOLLOWING APPLICATION OF VTL, THE MAXIMUM LOAD SHALL BE REDUCED TO THE AL AND THE PERMANENT SET SHALL BE RECORDED. EACH LOAD INCREMENT SHALL BE HELD FOR AT LEAST 10 MINUTES. THE VERIFICATION TEST NAIL SHALL BE MONITORED FOR CREEP AT A LOAD OF 0.75 VTL. NAIL MOVEMENTS SHALL BE MEASURED AND RECORDED DURING THE CREEP PORTION OF THE TEST IN INCREMENTS OF 1 MINUTE, 2, 3, 5, 6, 10, 20, 30, 50, AND 60 MINUTES. THE LOAD SHALL BE MAINTAINED DURING THE CREEP TEST TO WITHIN 2 PERCENT OF THE INTENDED LOAD BY USE OF A LOAD CELL. REPUMP JACK AS NEEDED TO MAINTAIN LOAD DURING HOLD TIMES.

TABLE 8.3.1.1: VERIFICATION TEST LOADING SCHEDULE

LOAD	HOLD TIME (MINUTES) ⁽²⁾		
AL ⁽¹⁾	1		
0.13 VTL	10 (RECORD SOIL NAIL MOVEMENT AT 1, 2, 5, 10)		
0.25 VTL	10 (RECORD SOIL NAIL MOVEMENT AT 1, 2, 5, 10)		
0.38 VTL	10 (RECORD SOIL NAIL MOVEMENT AT 1, 2, 5, 10)		
0.50 VTL	10 (RECORD SOIL NAIL MOVEMENT AT 1, 2, 5, 10)		
0.63 VTL	10 (RECORD SOIL NAIL MOVEMENT AT 1, 2, 5, 10)		
0.75 VTL (CREEP TEST)	60 (RECORD AT 1, 2, 5, 10, 20, 30, 50, 60)		
0.88 VTL	10		
1.00 VTL	10		
AL	1(3)		

(1) ALIGNMENT LOAD SHALL BE 0.025 VTL.

(2) MEASURE SOIL NAIL MOVEMENT AFTER EACH LOAD INCREMENT HAS BEEN ACHIEVED AND AT EACH TIME STEP INDICATED ABOVE (3) RECORD PERMANENT SOIL NAIL MOVEMENT.

STEPPED UNLOADING IS OPTIONAL. CONSIDER BETWEEN 1 TO 7 INTERMEDIATE STEPS IN STEPPED UNLOADING. IF STEPPED UNLOADING IS CONDUCTED, HOLD EACH LOAD STEP UNTIL THE READINGS IN GAUGES ARE STABLE.

1.4. PROOF TESTING

SUCCESSFUL PROOF TESTING TO 150% OF THE DESIGN LOAD SHALL BE DEMONSTRATED ON AT LEAST 5 PERCENT OF PRODUCTION SOIL NAILS IN EACH NAIL ROW OR A MINIMUM OF ONE PER ROW. THE OWNER'S ENGINEER SHALL DETERMINE THE LOCATIONS AND NUMBER OF PROOF TESTS PRIOR TO NAIL INSTALLATION IN EACH ROW. VERIFICATION TESTS SHALL NOT BE COUNTED TOWARDS THE MINIMUM OF 5 PERCENT OF

1.4.1. SCHEDULE

PROOF TESTS SHALL BE CONDUCTED BY INCREMENTALLY LOADING THE PROOF TEST NAIL ACCORDING TO THE TEST LOADING SCHEDULE

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	TABLE E.2: PROOF TEST LOAD	ING SCHEDULE
	LOAD	HOLD TIME (MINUTES)(3)
	AL ⁽¹⁾	1
	0.17 PTL	UNTIL MOVEMENT STABILIZES
	0.33 PTL	UNTIL MOVEMENT STABILIZES
	0.50 PTL	UNTIL MOVEMENT STABILIZES
	0.67 PTL	UNTIL MOVEMENT STABILIZES
	0.83 PTL	UNTIL MOVEMENT STABILIZES
	1.0 PTL (CREEP TEST) ⁽²⁾	10 (RECORD SOIL MOVEMENT AT 1, 2, 5, 6, 10)
	AL	1
NIOTEO		

1) AL = ALIGNMENT LOAD SHALL BE AL = 0.025 PTL.(2) IF THE NAIL MOVEMENT MEASURED BETWEEN 1 AND 10 MINUTES EXCEEDS 0.04 IN., PTL SHALL BE MAINTAINED FOR 50 MORE MINUTES AND MOVEMENTS SHALL BE RECORDED AT 20, 30, 50, AND 60 MINUTES. RECORD PERMANENT SOIL MOVEMENT.

(3) MEASURE TIMES AFTER THE TARGET LOAD HAS BEEN ATTAINED IN EACH INCREMENT. (4) IF THE SOILS REINFORCED WITH NAILS ARE RELATIVELY SUSCEPTIBLE TO DEFORMATION OR CREEP, IT IS RECOMMENDED TO HOLD EACH LOAD INCREMENT FOR 10 MINUTES AND TO RECORD THE SOIL NAIL MOVEMENT AT 1, 2, 5, AND 10 MINUTES. HOLD EACH LOAD INCREMENT UNTIL STABILIZED AND RECORD SOIL NAIL MOVEMENTS AT EACH LOAD INCREMENT AND TIME INTERVAL SHOWN IN THE SCHEDULE. ALL LOAD INCREMENTS SHALL BE MAINTAINED TO WITHIN 5 PERCENT OF THE INTENDED LOAD. REPUMP JACK AS NEEDED TO MAINTAIN LOAD DURING HOLD TIMES. DIAL GAUGES SHALL BE SET TO "ZERO" AFTER THE ALIGNMENT LOAD HAS BEEN APPLIED. PERFORM CREEP TESTS AT 1.00 PTL. CREEP TESTING SHALL START AS SOON AS PTL IS APPLIED. SOIL NAIL MOVEMENT SHALL BE MEASURED AND RECORDED AT 1 MINUTE, 2, 3, 5, 6 AND 10 MINUTES. IF THE NAIL MOVEMENT MEASURED BETWEEN 1 MINUTE AND 10 MINUTES EXCEEDS 0.04 IN., THE MAXIMUM TEST LOAD SHALL BE MAINTAINED FOR 50 ADDITIONAL MINUTES, AND SOIL NAIL MOVEMENTS SHALL BE RECORDED AT 20 MINUTES, 30, 50, AND 60 MINUTES.

2. ACCEPTANCE CRITERIA OF TEST SOIL NAILS

2.1 VERIFICATION TESTS

CONSIDERING THAT PULLOUT IS DEFINED AS THE LOAD AT WHICH ATTEMPTS TO FURTHER INCREASE THE TEST LOAD INCREMENTS SIMPLY RESULT IN CONTINUED MOVEMENT OF THE TESTED NAIL, A TEST NAIL SHALL BE CONSIDERED ACCEPTABLE WHEN ALL OF THE FOLLOWING CRITERIA ARE

- 2.0.1. THE TOTAL CREEP MOVEMENT IS LESS THAN 0.08 IN. BETWEEN THE 6- AND 60-MINUTE READINGS, AND THE CREEP RATE IS LINEAR OR DECREASING THROUGHOUT THE CREEP TEST LOAD HOLD PERIOD.
- 2.0.2. THE TOTAL MOVEMENT (VTL) MEASURED AT VTL EXCEEDS 80 PERCENT OF THE THEORETICAL ELASTIC ELONGATION OF THE UNBONDED LENGTH (LUB) OF THE TEST NAIL, OR:
- 2.0.3. PULLOUT DOES NOT OCCUR BEFORE ACHIEVING 1.0 x VTL.

THE CREEP TEST LOAD HOLD PERIOD.

2.1. PROOF TEST

- 2.1.1. THE CREEP MOVEMENT BETWEEN THE 1- AND THE 10-MINUTE READINGS IS LESS THAN 0.04 IN. 2.1.2. IN CASES WHEN THE CREEP MOVEMENT BETWEEN THE 1- AND THE 10-MINUTE READINGS IS GREATER THAN 0.04 IN., THE CREEP MOVEMENT BETWEEN THE 6- AND THE 60-MINUTE READINGS IS LESS THAN 0.08 IN., AND THE CREEP RATE IS LINEAR OR DECREASING THROUGHOUT
- 2.1.3. THE TOTAL SOIL NAIL MOVEMENT (.PTL) MEASURED AT PTL EXCEEDS 80 PERCENT OF THE THEORETICAL ELASTIC ELONGATION OF THE UNBONDED LENGTH.
- 2.1.4. PULLOUT DOES NOT OCCUR BEFORE THE TEST LOAD IS 1.0 x PTL.
- 2.1.5. THE TEMPORARY UNBONDED TEST LENGTH IN PROOF TESTS IS SUCCESSFULLY MAINTAINED FOR SUBSEQUENT SATISFACTORY GROUTING. IF THE UNBONDED TEST LENGTH OF PRODUCTION PROOF TEST NAILS CANNOT BE SATISFACTORILY GROUTED AFTER TESTING, THE PROOF TEST NAIL SHALL BECOME SACRIFICIAL, AND SHALL BE REPLACED WITH AN ADDITIONAL PRODUCTION NAIL INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

3. REJECTION OF TEST SOIL NAILS

3.1. VERIFICATION TEST SOIL NAILS THE OWNER'S ENGINEER WILL EVALUATE THE RESULTS OF EACH VERIFICATION TEST. INSTALLATION METHODS THAT DO NOT SATISFY THE NAIL TESTING REQUIREMENTS SHALL BE REJECTED. THE CONTRACTOR SHALL PROPOSE ALTERNATIVE METHODS FOR REVIEW BY THE OWNER'S ENGINEER AND SHALL INSTALL REPLACEMENT VERIFICATION TEST NAILS.

3.2. PROOF TEST SOIL NAILS FOR PROOF TEST NAILS, THE OWNER'S ENGINEER MAY REQUIRE THE CONTRACTOR TO REPLACE SOME OR ALL OF THE INSTALLED PRODUCTION NAILS BETWEEN A FAILED PROOF TEST SOIL NAIL AND THE ADJACENT PASSING PROOF TEST NAIL. ALTERNATIVELY, THE OWNER'S ENGINEER MAY REQUIRE THE INSTALLATION AND TESTING OF ADDITIONAL PROOF TEST NAILS TO VERIFY THAT ADJACENT PREVIOUSLY INSTALLED PRODUCTION NAILS HAVE SUFFICIENT NOMINAL PULLOUT RESISTANCE.

4. WALL DRAINAGE NETWORK

4.1. GENERAL ALL ELEMENTS OF THE SOIL NAIL WALL DRAINAGE NETWORK SHALL BE INSTALLED AND SECURED AS SHOWN ON THE CONTRACT DRAWINGS. THE DRAINAGE NETWORK SHALL CONSIST OF GEOCOMPOSITE DRAIN STRIPS, PVC CONNECTION PIPES, SOIL NAIL WALL FOOTING DRAINS, AND WEEPHOLES, AS SHOWN ON THE CONTRACT DRAWINGS. THE DRAINAGE NETWORK SHALL PROVIDE A CONTINUOUS AND UNRESTRICTED FLOW PATH TO DISCHARGE THE WATER COLLECTED BEHIND THE WALL FACE. EXCLUSIVE OF THE WALL FOOTING DRAINS, ALL ELEMENTS OF THE DRAINAGE NETWORK SHALL BE INSTALLED PRIOR TO SHOTCRETING.

4.2. GEOCOMPOSITE DRAIN STRIPS GEOCOMPOSITE DRAIN STRIPS SHALL BE CENTERED BETWEEN THE COLUMNS OF SOIL NAILS, AS SHOWN ON THE CONTRACT DRAWINGS. DRAIN STRIPS SHALL BE AT LEAST 36 IN. WIDE AND PLACED WITH THE GEOTEXTILE SIDE AGAINST THE GROUND. STRIPS SHALL BE SECURED TO THE EXCAVATION FACE. CONTAMINATION OF THE GEOTEXTILE WITH SHOTCRETE SHALL BE PREVENTED. DRAIN STRIPS SHALL BE VERTICALLY

CONTINUOUS. 4.3. FOOTING DRAINS

FOOTING DRAINS SHALL BE INSTALLED AT THE BOTTOM OF THE WALL, AS SHOWN ON THE CONTRACT DRAWINGS. THE DRAINAGE GEOTEXTILE SHALL ENVELOPE THE FOOTING DRAIN AGGREGATE AND PIPE AND SHALL CONFORM TO THE DIMENSIONS OF THE TRENCH. THE DRAINAGE GEOTEXTILE SHALL OVERLAP ON TOP OF THE DRAINAGE AGGREGATE AS SHOWN ON THE CONTRACT DRAWINGS. DAMAGED OR DEFECTIVE DRAINAGE GEOTEXTILE SHALL BE REPAIRED OR REPLACED.

5. SHOTCRETE

5.1. GENERAL SHOTCRETE FOR INITIAL AND FINAL FACING SHALL BE PROVIDED AS SHOWN ON THE CONTRACT DRAWINGS. WHERE SHOTCRETE IS USED TO COMPLETE THE TOP UNGROUTED ZONE OF THE SOIL NAIL DRILL HOLE NEAR THE FACE, THE NOZZLE SHALL BE POSITIONED INTO THE MOUTH OF THE DRILL HOLE TO COMPLETELY FILL THE VOID.

5.2. FINAL FACE FINISH SHOTCRETE FINISH SHALL BE EITHER AN UNDISTURBED GUN FINISH AS APPLIED FROM THE NOZZLE OR A ROD, BROOM, WOOD FLOAT, RUBBER FLOAT, STEEL TROWEL; OR ROUGH SCREEDED FINISH AS SHOWN ON THE CONTRACT DRAWINGS.

5.3. ATTACHMENT OF NAIL HEAD BEARING PLATE AND NUT A BEARING PLATE, WASHERS, AND NUT SHALL BE ATTACHED TO EACH NAIL HEAD AS SHOWN ON THE CONTRACT DRAWINGS. WHILE THE SHOTCRETE CONSTRUCTION FACING IS STILL PLASTIC AND BEFORE ITS INITIAL SET, THE PLATE SHALL BE UNIFORMLY SEATED ON THE SHOTCRETE BY HAND-WRENCH TIGHTENING THE WHERE UNIFORM CONTACT BETWEEN THE PLATE AND THE SHOTCRETE CANNOT BE PROVIDED, THE PLATE SHALL BE SET IN A BED OF GROUT. AFTER GROUT HAS SET FOR 24 HOURS, RE-TIGHTEN THE NUT BY HAND WITH A WRENCH. THE BEARING PLATES WITH HEADED STUDS SHALL BE LOCATED WITHIN THE TOLERANCES SHOWN ON THE CONTRACT DRAWINGS.

5.4. SHOTCRETE FACING TOLERANCES CONSTRUCTION TOLERANCES FOR THE SHOTCRETE FACING FROM PLAN LOCATION AND PLAN DIMENSIONS SHALL BE AS FOLLOWS:

TABLE E.3: CONSTRUCTION TOLERANCES FOR SHOTCRETE FACING

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ITEM	TOLERANCE	
HORIZONTAL LOCATION OF WELDED WIRE MESH, REINFORCING BARS, AND HEADED STUDS	3/8 IN.	
LOCATION OF HEADED-STUDS ON BEARING PLATE	1/4 IN. \	
SPACING BETWEEN REINFORCING BARS	1 IN.)	
REINFORCING LAP	1 IN.)	
THICKNESS OF SHOTCRETE, IF TROWELED OR SCREEDED	9/16 IN. [APPROXIMATION OF 0.6 IN.]	
THICKNESS OF SHOTCRETE, IF LEFT AS SHOT	$1-1/8$ in. [APPROXIMATION OF 1.2 IN.] \langle	
> PLANENESS OF FINISH FACE SURFACE, GAP UNDER 10-FT STRAIGHTEDGE, IF TROWELED OR SCREEDED	9/16 IN. [APPROXIMATION OF 0.6 IN.] \langle	
PLANENESS OF FINISH FACE SURFACE, GAP UNDER 10-FT STRAIGHTEDGE, IF LEFT AS SHOT	1-1/8 in. [APPROXIMATION OF 1.2 IN.]	
NAIL HEAD BEARING PLATE DEVIATION FROM PARALLEL TO WALL FACE:	10 DEGREES	

6. REINFORCING STEEL

THE CONTRACTOR SHALL SUBMIT ALL ORDER LISTS AND REINFORCEMENT BENDING DIAGRAMS TO THE OWNER'S ENGINEER. AND SHALL FABRICATE REINFORCING STEEL, SHIP AND PROTECT MATERIAL, PLACE, FASTEN, AND SPLICE REINFORCING STEEL AS REQUIRED BY THE CONTRACT DRAWINGS.

7. STRUCTURAL CONCRETE

THE CONTRACTOR SHALL DESIGN THE CONCRETE MIX, STORE, HANDLE, BATCH, AND MIX MATERIAL AND DELIVER CONCRETE, PROVIDE QUALITY CONTROL, AND CONSTRUCT CONCRETE FACING TO MEET THE CONCRETE RESISTANCE AND CHARACTERISTICS CONTAINED IN THE SPECIFICATIONS.

8. ARCHITECTURAL SURFACE FINISHES

[IF APPLICABLE] TEXTURED FORM LINERS SHALL BE FURNISHED, FORM LINERS INSTALLED, AND A SURFACE FINISH (COLOR/STAIN APPLICATION) APPLIED THAT WILL DUPLICATE THE ARCHITECTURAL SURFACE FINISH SHOWN ON THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF THE FORM LINER FOR APPROVAL BY THE OWNER'S ENGINEER AT LEAST 7 CALENDAR DAYS BEFORE FORM LINER WORK BEFORE PRODUCTION WORK BEGINS, A 3-FT HIGH, 10-FT LONG TEST PANEL SHALL BE CONSTRUCTED ON SITE USING THE SAME FORMING METHODS, PROCEDURES, FORM LINER, TEXTURE CONFIGURATION, EXPANSION JOINT, CONCRETE MIXTURE AND COLOR/STAIN APPLICATION PROPOSED FOR THE PRODUCTION WORK. ONE TEST PANEL PER WALL FINISH TYPE SHALL BE FURNISHED.

9. BACKFILLING BEHIND UPPER CANTILEVER OF WALL FACING

IF BACKFILLING IS REQUIRED BEHIND AN EXTENSION OF THE WALL FACING AT THE TOP OF A SOIL NAIL WALL, COMPACTION OF THE SOIL BACKFILL WITHIN 3 FT OF THE WALL EXTENSION SHALL BE PERFORMED USING LIGHT MECHANICAL TAMPERS.

10. CORROSION PROTECTION

SOIL NAILS AND SOIL NAIL HEAD COMPONENTS SHALL BE PROTECTED AGAINST CORROSION CONSISTENT WITH THE GROUND AND GROUNDWATER CONDITIONS AT THE SITE AND THE MINIMUM CLASS OF CORROSION PROTECTION SHOWN ON CONTRACT DRAWINGS. OWNER MUST PERFORM CORROSIVITY TESTING ON REPRESENTATIVE SOIL SAMPLES AS DESCRIBED IN CHAPTER 4 TO DETERMINE REQUIREMENTS FOR THE MINIMUM CLASS OF CORROSION PROTECTION OF THE SOIL NAILS, BEFORE THE PREPARATION OF BID DOCUMENTS. THE OWNER SHOULD ALWAYS PROVIDE THE RESULTS OF CORROSIVITY TESTING TO THE CONTRACTOR. THE CONTRACTOR MAY ALSO ELECT TO PROVIDE A HIGHER CORROSION CLASS THAN SPECIFIED AS A SUBSTITUTION.]

11. ACCEPTANCE

MATERIAL FOR SOIL NAIL RETAINING WALL WILL BE ACCEPTED BASED ON THE MANUFACTURER'S PRODUCTION CERTIFICATION OR FROM PRODUCTION RECORDS, CONSTRUCTION OF SOIL NAIL RETAINING WALL WILL BE ACCEPTED BASED ON VISUAL INSPECTION AND THE EXAMINATION OF RELEVANT PRODUCTION TESTING RECORDS BY THE OWNER'S ENGINEER.



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WALL TIONS SOIL NAIL