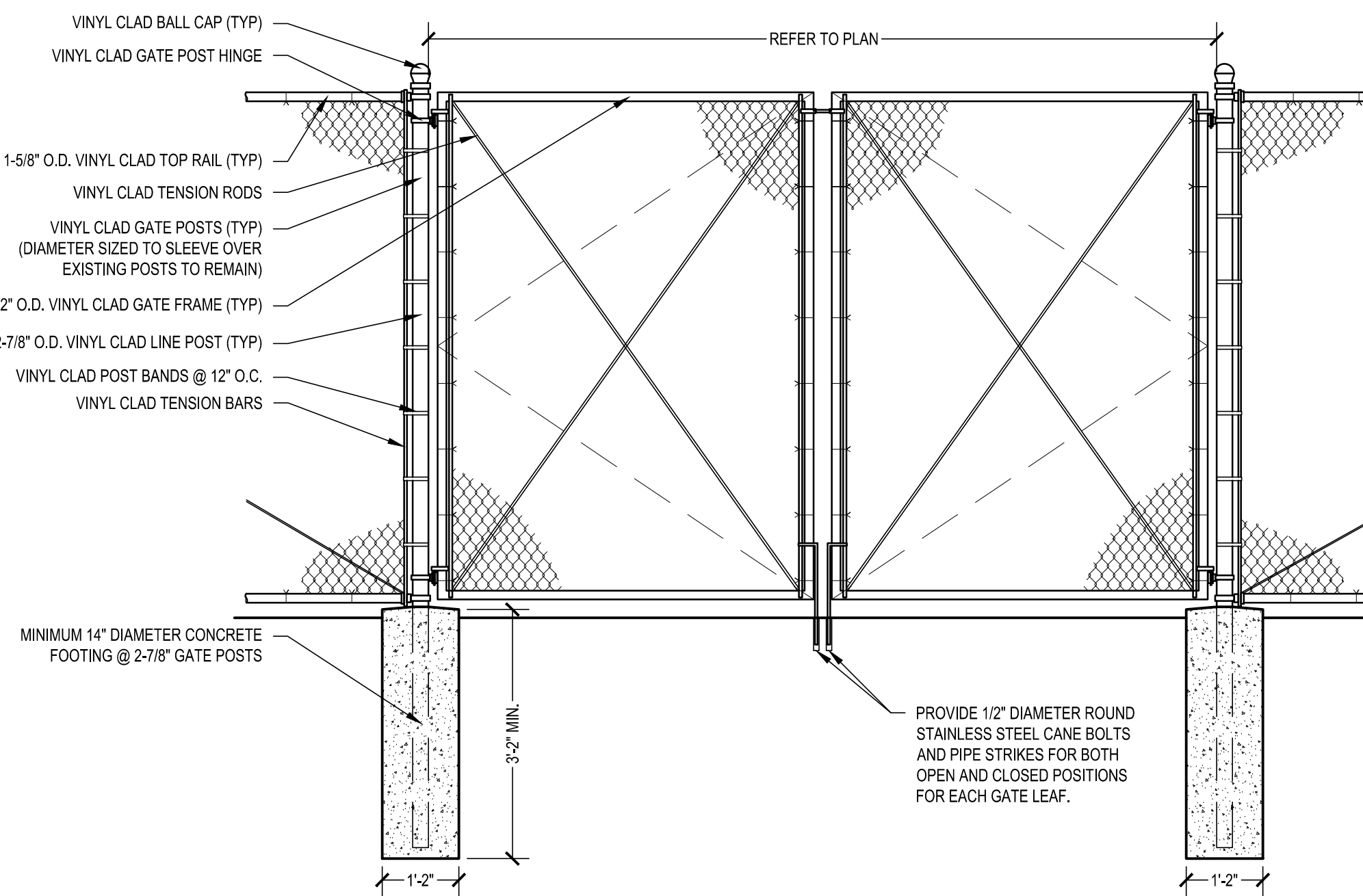
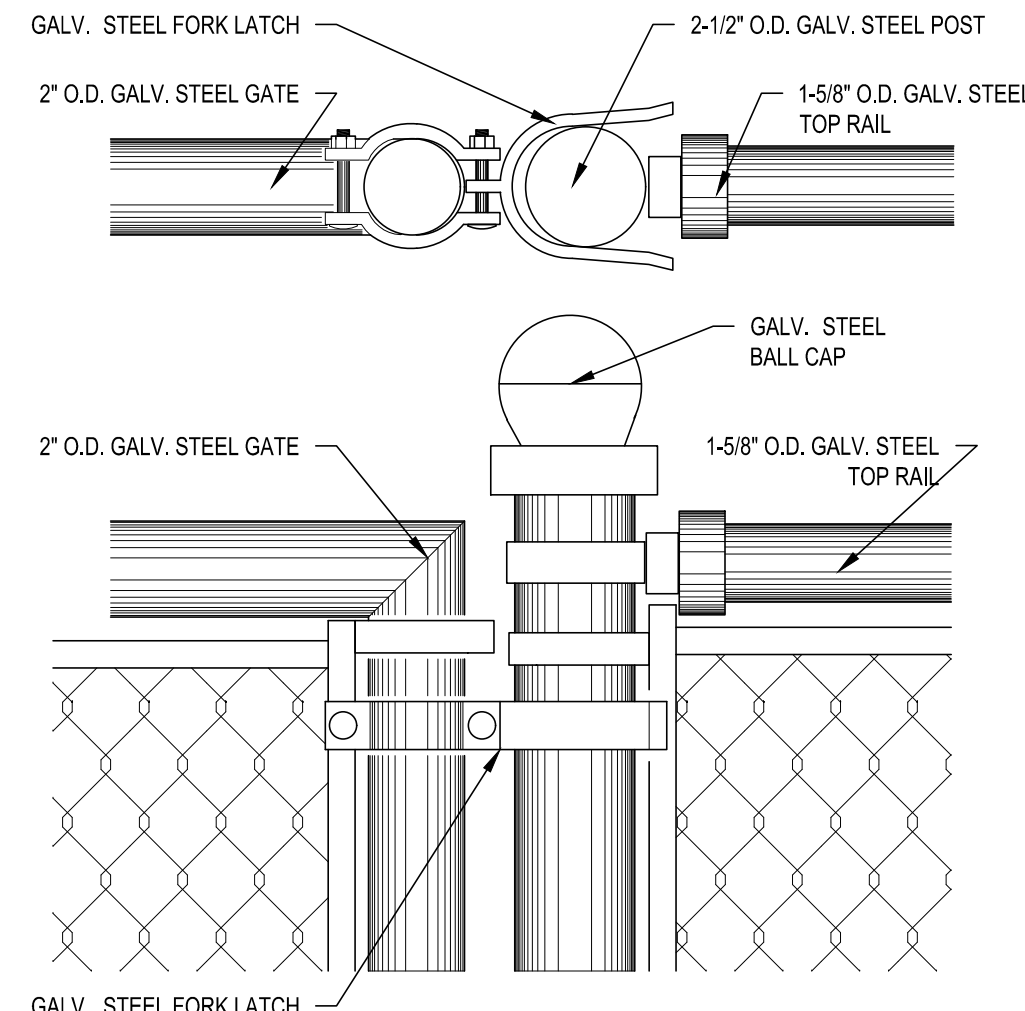


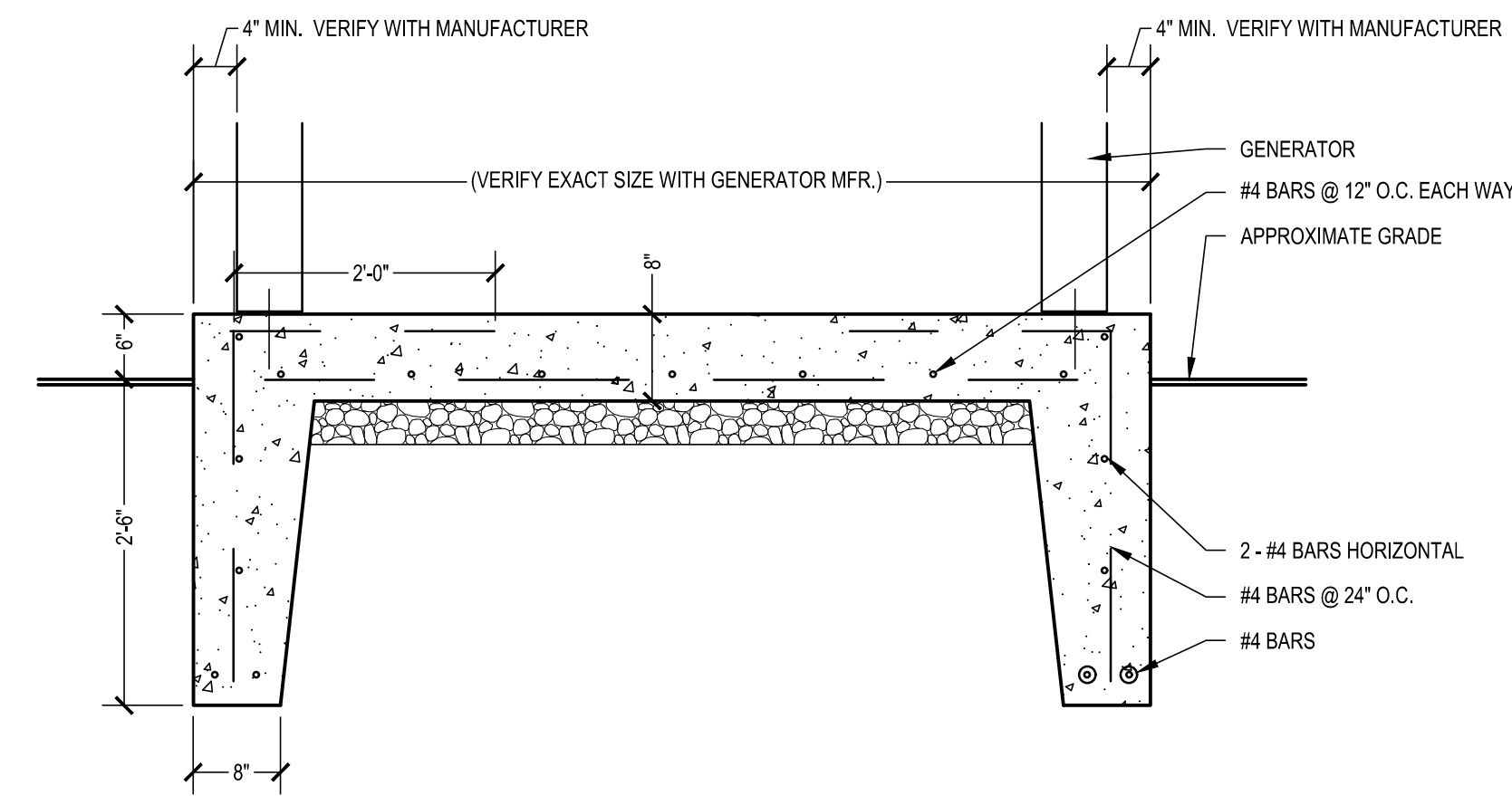
1 TYPICAL 8' FENCE DETAIL
SCALE: 1/2" = 1'-0"



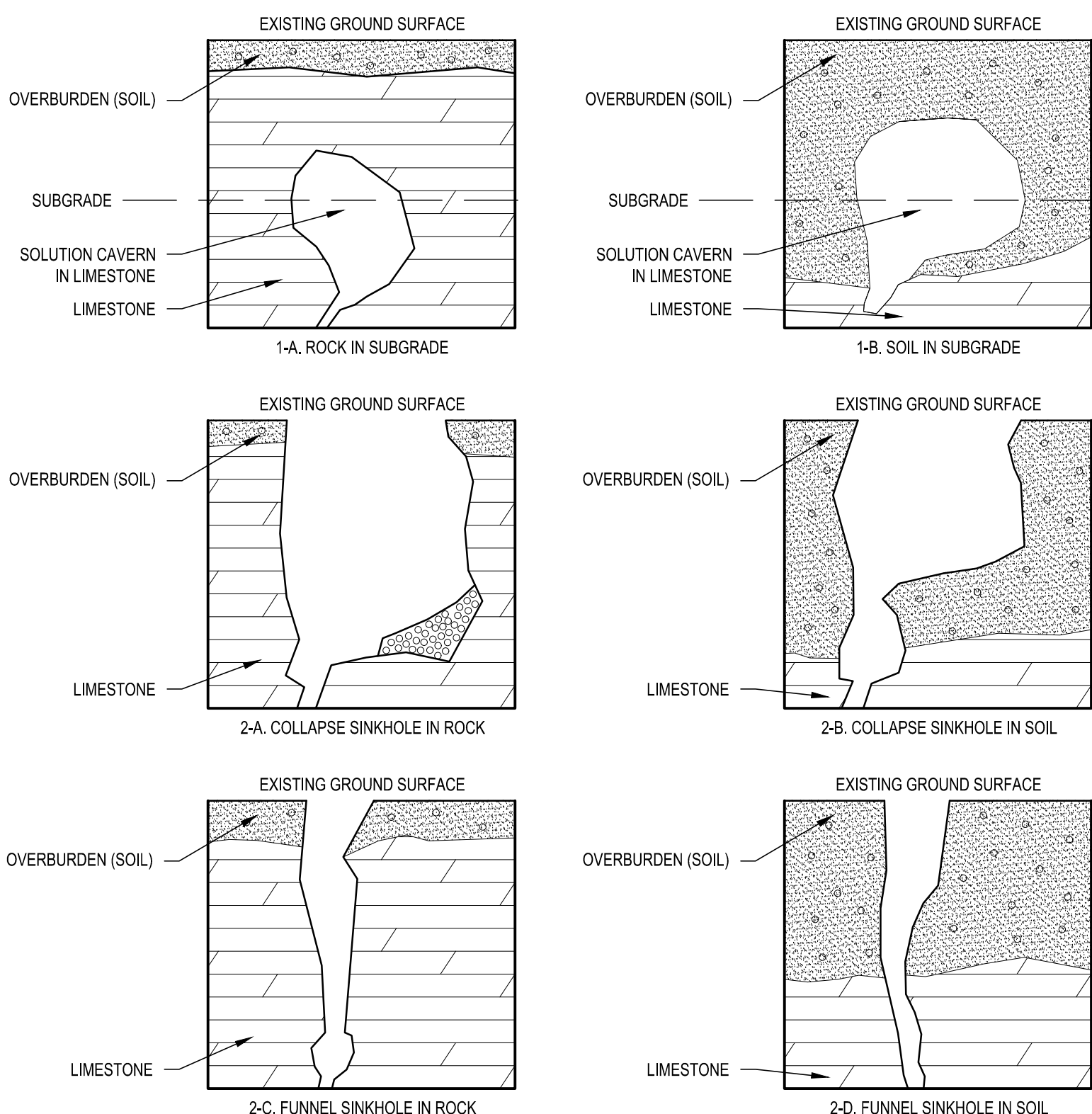
2 DOUBLE FENCE GATE DETAIL
SCALE: 1/2" = 1'-0"



3 LATCH DETAIL
SCALE: 3/4" = 1'-0"



4 GENERATOR ENCLOSURE - PAD DETAIL
SCALE: 3/4" = 1'-0"



SINKHOLE DESCRIPTION

- GENERAL SINKHOLE REMEDIATION PROCESS
- (A) DESCRIPTION - THIS WORK SHALL CONSIST OF THE CORRECTION OF ANY SINKHOLES ENCOUNTERED DURING CONSTRUCTION OF THIS PROJECT, AS DETAILED ON THE CONSTRUCTION DRAWINGS, AND ANY SUCH WORK SHALL BE PERFORMED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THESE PROCEDURES MAY BE MODIFIED IN THE FIELD BY THE GEOTECHNICAL ENGINEER. IF SITE CONDITIONS ARE NOT CONDUCTIVE TO REPAIRING SINKHOLES IN THE FOLLOWING PRESCRIBED MANNERS, THEN ALTERNATIVE METHODS, SUCH AS PRESSURE GROUTING, MAY BE REQUIRED.
- (B) CONSTRUCTION REQUIREMENTS - THE FOLLOWING METHODS OF TREATMENT WILL BE APPLIED WHERE SINKHOLES ARE ENCOUNTERED DURING CONSTRUCTION:
- SINKHOLES OR SOLUTION CAVERNS IN EXCAVATION
 - PARTIALLY DEVELOPED SINKHOLE OR SOLUTION CAVERN IN ROCK SUBGRADE PROCEDURE
 - CLEAN OUT DEBRIS
 - SEAL ANY OPENING(S) IN ROCK WITH FLOWABLE FILL AND BACKFILL CAVITY WITH ROCK TO ABOUT SUBGRADE ELEVATION
 - SEAL TOP OF ROCK BACKFILL WITH FLOWABLE FILL TO PREVENT INFILTRATION OF SUBBASE DRAINAGE
 - PARTIALLY DEVELOPED SINKHOLE IN SOIL SUBGRADE PROCEDURE
 - EXCAVATE AND CLEAN TO ROCK OR FIRM MATERIAL
 - IF ROCK SURFACE IS EXPOSED IN BOTTOM OF PIT, SEAL ANY OPENING(S) IN ROCK WITH FLOWABLE FILL AND COMPLETE BACKFILL TO SUBGRADE ELEVATION WITH IMPERVIOUS SOIL
 - IF BASE OF CLEANED SURFACE IS IN SOIL, BACKFILL ENTIRE OPENING WITH "INVERTED CONE" METHOD TO SUBGRADE ELEVATION
 - SINKHOLES IN EMBANKMENT FOUNDATION
 - COLLAPSE SINKHOLE IN ROCK PROCEDURE
 - CLEAN OUT LOOSE SOIL AND DEBRIS
 - SEAL ALL OPENINGS IN ROCK WITH FLOWABLE FILL
 - BACKFILL VOID WITH ROCK TO ELEVATION OF BEDROCK AND OVERBURDEN
 - SEAL TOP OF ROCK BACKFILL WITH "PLUS" OF FLOWABLE FILL AND CONTINUE BACKFILL TO EXISTING GROUND LEVEL WITH EMBANKMENT MATERIAL
 - COLLAPSE SINKHOLE IN SOIL PROCEDURE
 - EXCAVATE TO ROCK OR FIRM MATERIAL
 - IF ROCK SURFACE IS EXPOSED, SEAL ANY OPENING(S) IN ROCK WITH FLOWABLE FILL AND COMPLETE BACKFILL WITH IMPERVIOUS SOIL TO ORIGINAL GROUND LEVEL
 - IF BASE OF CLEANED SURFACE IS IN SOIL, BACKFILL ENTIRE OPENING WITH "INVERTED CONE" METHOD TO ORIGINAL GROUND LEVEL
 - FUNNEL SINKHOLE IN ROCK PROCEDURE
 - CLEAN OUT LOOSE SOIL AND DEBRIS
 - SEAL ALL OPENINGS IN ROCK WITH FLOWABLE FILL
 - BACKFILL VOID WITH ROCK TO ELEVATION OF CONTACT OF BEDROCK AND OVERBURDEN
 - SEAL TOP OF ROCK BACKFILL WITH "PLUS" OF FLOWABLE FILL AND CONTINUE BACKFILL TO EXISTING GROUND LEVEL WITH EMBANKMENT MATERIAL
 - FUNNEL DEPRESSION IN SOIL PROCEDURE
 - EXCAVATE TO ROCK OR FIRM MATERIAL
 - IF ROCK SURFACE IS EXPOSED, SEAL ANY OPENING(S) IN ROCK WITH FLOWABLE FILL AND COMPLETE BACKFILL WITH IMPERVIOUS SOIL TO ORIGINAL GROUND LEVEL
 - IF BASE OF CLEANED SURFACE IS IN SOIL, BACKFILL ENTIRE OPENING WITH THE INVERTED CONE METHOD TO ORIGINAL GROUND LEVEL

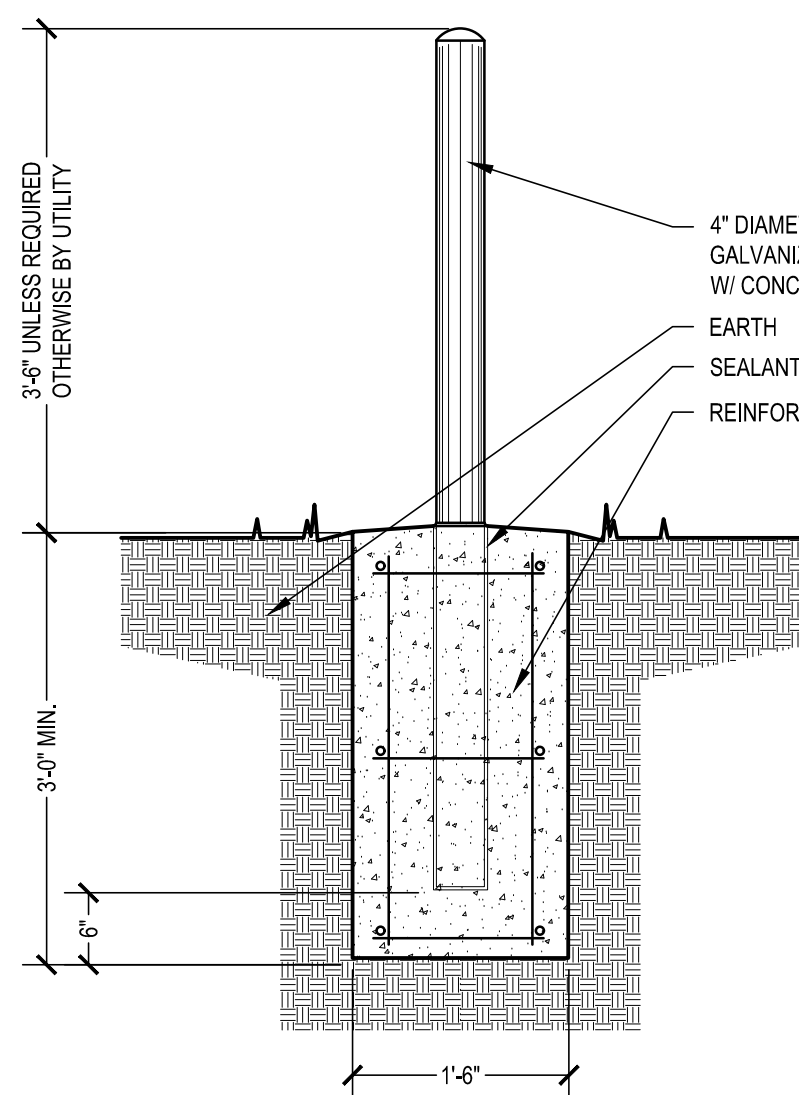
5 SINKHOLE REMEDIATION PROCEDURE
SCALE: N.T.S.

RECOMMENDED CONSTRUCTION PRACTICES FOR MINIMIZING SINKHOLE DEVELOPMENT IN CARBONATE AREAS

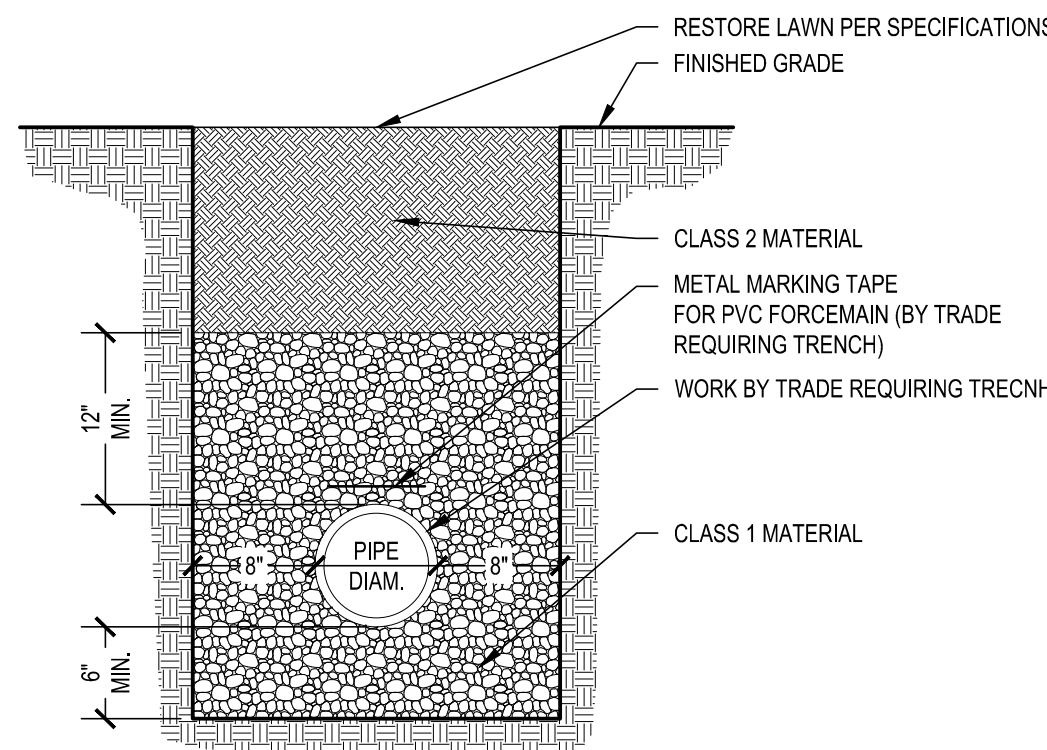
- UTMOST CARE MUST BE TAKEN TO PREVENT COLLECTION AND DRAINAGE OF SURFACE WATER INTO EXCAVATED OR LOW-LYING AREAS OF THE SITE DURING THE EXCAVATION AND CONSTRUCTION OF ROADWAYS, RAMPS OR STRUCTURES. THIS MAY BE DONE BY CONSTRUCTING EARTH BERM DIKES, OR DIVERSION DITCHES AROUND OPEN EXCAVATIONS OR OTHERWISE PREVENTING THE COLLECTION AND PONDING OF WATER IN LOW-LYING AREAS. TYPICALLY, EXCAVATIONS SHOULD NOT BE MADE DURING PREDICTED PERIODS OF PRECIPITATION. EXCAVATIONS SHOULD BE FILLED AS SOON AS PRACTICAL, ESPECIALLY OVER WEEKENDS OR PERIODS OF INACTIVITY.
- THE SOIL SITUATED ABOVE A ZONE OF SOLUTION ACTIVITY IS USUALLY SOFT AND WET. IT IS, THEREFORE, IMPORTANT TO LOCATE AREAS EXHIBITING THESE CONDITIONS, WHEREVER THEY MAY EXIST OR BE ENCOUNTERED. IF STRUCTURAL FILL IS TO BE PLACED IN AREAS SUSPECTED OF SINKHOLE ACTIVITY, THE SUBGRADE SHOULD BE PROOF-ROLLED AND ALL SOFT AREAS SUITABLY REPLACED AND COMPACTED PRIOR TO CONSTRUCTION. IF THE AREA IS TO BE EXCAVATED, PROOF-ROLLING SHOULD BE CONDUCTED AFTER EXCAVATING TO THE FINISHED SUBGRADE ELEVATION.
- SOFT SOIL MUST BE REMOVED AND REPLACED WITH CLEAN FILL, PLACED AND COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS MAXIMUM DRY DENSITY TESTED IN ACCORDANCE WITH ASTM D698.
- THE BASE OF ALL EXCAVATIONS IN CARBONATE AREAS SHOULD BE INSPECTED FOR SOFT OR UNUSUALLY MOIST CONDITIONS. A VISUAL INSPECTION OF THE EXCAVATED SURFACE, AS WELL AS PROBES OF THE SOIL AT REGULAR INTERVALS, IS RECOMMENDED. ANY SOFT OR UNUSUALLY MOIST SOIL SHOULD BE FURTHER EXCAVATED AND A DETERMINATION OF THE EXTENT OF THE PROBLEM SHOULD BE MADE. REMEDIAL MEASURES SHOULD THEN BE UNDERTAKEN AS NECESSARY. SWALES, DRAINAGE DITCHES AND/OR BASINS ARE PARTICULARLY VULNERABLE TO SINKHOLE DEVELOPMENT DURING PERIODS OF HEAVY RAINFALL. THE SAME IS TRUE FOR DRAINAGE PIPE OUTLET LOCATIONS. CONSIDERATION SHOULD BE GIVEN TO LINING THESE AREAS WITH IMPERMEABLE LINERS TO PREVENT THE INFILTRATION OF WATER.
- EXCAVATION SHOULD BE KEPT TO A PRACTICAL MINIMUM IN AREAS OF KNOWN OR SUSPECTED SINKHOLE OR SOLUTION ACTIVITY. IN GENERAL, THE CLOSER EXCAVATIONS GET TO THE ROCK SURFACE, THE GREATER THE POTENTIAL IS FOR SINKHOLE DEVELOPMENT.
- WATERTIGHT SEALS SHOULD BE PROVIDED AT ALL WATER BEARING UTILITY LINE CONNECTIONS. ALL ROOF DRAINS SHOULD BE WATERTIGHT AND SHOULD CONNECT TO THE ON-SITE STORMWATER MANAGEMENT SYSTEM.
- SITE GRADES SHOULD PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING AREAS.
- JOINTS BETWEEN ASPHALT PAVING AND CONCRETE CURBING SHOULD BE SEALED TO REDUCE WATER INFILTRATION IN THESE AREAS.
- THE PROPER STABILIZATION OF SINKHOLES OR OTHER AREAS EXHIBITING SOLUTION ACTIVITY IS CRITICAL AND SHOULD BE PERFORMED UNDER THE DIRECTION OF EXPERIENCED PROFESSIONAL GEOLOGIST AND/OR GEOTECHNICAL ENGINEERS.
- ALL TRENCH EXCAVATIONS, SUCH AS FOR FOUNDATIONS OR UTILITY, SHOULD BE POURED OR BACKFILLED ON A DAILY BASIS SO AS NOT TO ALLOW WATER TO COLLECT IN THESE AREAS.

EARTHWORK
STRUCTURAL FILL SHOULD GENERALLY BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES IN LOOSE THICKNESS AND COMPACTED WITH A SHEEPSFOOT OR SMOOTH DRUM VIBRATORY ROLLER WITH A MINIMUM STATIC WEIGHT OF FIFTEEN (15) TONS. THE FILL SHOULD BE PLACED IN LIFTS OF SIX (6) INCHES LOOSE THICKNESS WHERE COMPACTION BY HAND-OPERATED EQUIPMENT IS NECESSARY. THE OPTIMUM LIFT THICKNESS AND NUMBER OF REPETITIONS NECESSARY TO ACHIEVE THE REQUIRED PERCENTAGE COMPACTION VALUES SHOULD BE DETERMINED IN THE FIELD WITH TEST PASSES OF THE CHOSEN COMPACTION EQUIPMENT. THE FILL MATERIAL SHOULD BE PLACED AT, OR DEViate NOMINALLY FROM, THE OPTIMUM MOISTURE CONTENT AS DETERMINED IN ACCORDANCE WITH ASTM STANDARD D698 AND COMPACTED TO A MINIMUM PERCENTAGE OF THE MAXIMUM DRY DENSITY AS INDICATED IN THE FOLLOWING TABLE.

FILL AREA	PERCENT OF MAXIMUM DRY DENSITY AS PER ASTM STANDARD D 698
CONCRETE STRUCTURE	98
NON-STRUCTURAL	92
BASIN AND LINER AREAS	95



7 TYPICAL PIPE BOLLARD DETAIL
SCALE: 3/4" = 1'-0"

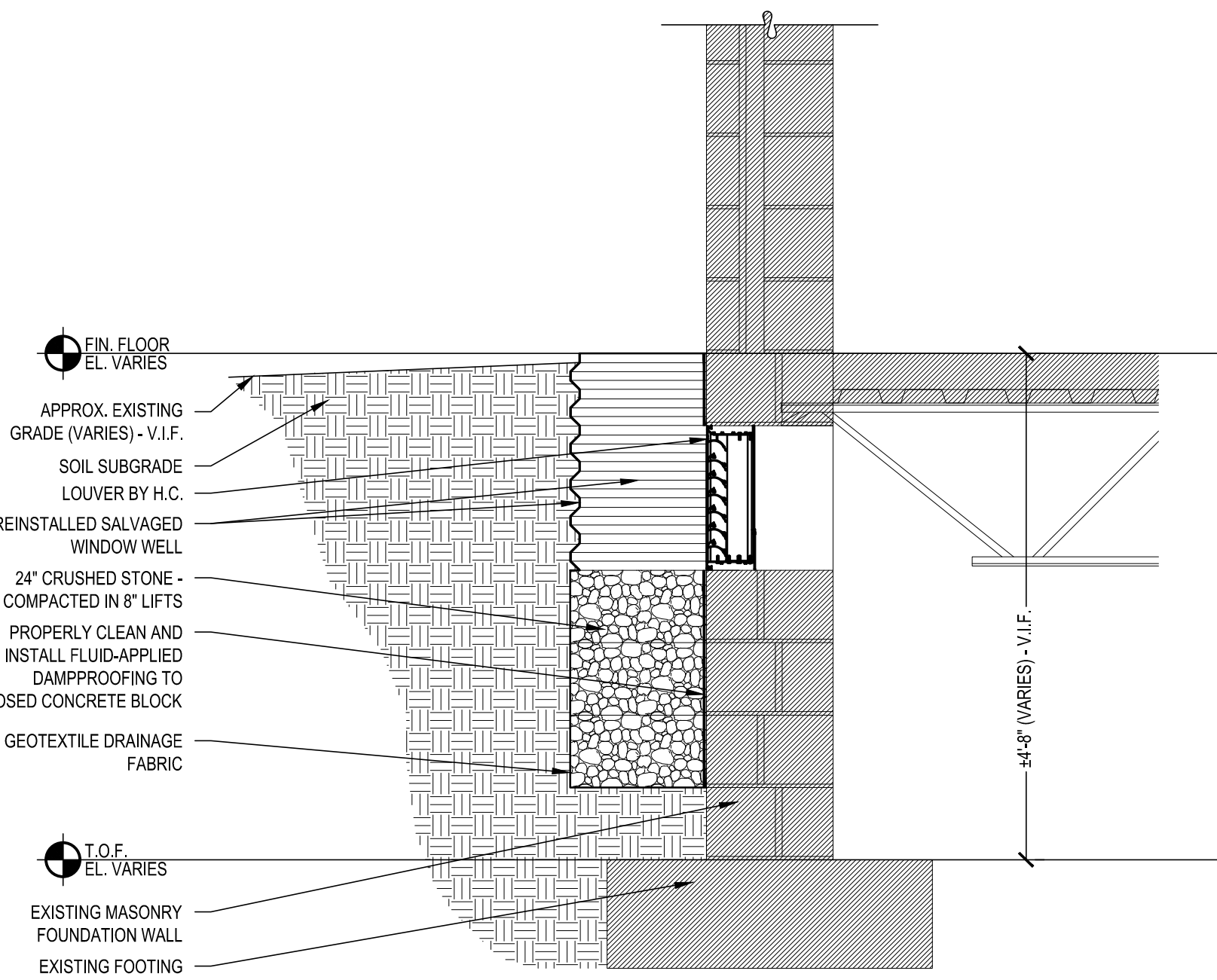


CLASSIFICATION OF MATERIALS:

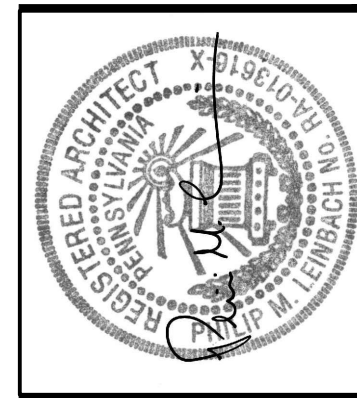
- CLASS 1 - THIS MATERIAL SHALL CONSIST OF 2A COARSE AGGREGATE OR 2 RC STONE FREE OF SLAG, EXCEPT IN WET OR UNSTABLE AREAS WHERE THE BEDDING MAY BE NO. 8 OR NO. 57 COARSE AGGREGATE. ALL MATERIALS SHALL CONFORM TO PennDOT PUBLICATION 408, SECTION 703.3.
- CLASS 2 - THIS MATERIAL SHALL CONSIST OF EXCAVATED MATERIAL FREE FROM CINDERS, ASHES, REFUSE, VEGETABLE OR ORGANIC MATERIAL, BOULDERS, ROCKS NO LARGER THAN FOUR (4) INCHES IN DIMENSION, STONE OR OTHER MATERIAL WHICH IN THE OPINION OF THE ENGINEER IS UNSUITABLE.

8 TYPICAL TRENCH DETAIL
SCALE: N.T.S.

NOTE: INSERT DETAIL AT 1/8"=1'-0"



6 TYPICAL WINDOW WELL REINSTALLATION
SCALE: 3/4" = 1'-0"



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Phone: 610.779.3220 Fax: 610.779.3222
www.aem-arch.com

SITE DETAILS
RENOVATIONS TO THE COCALICO MIDDLE SCHOOL
COCALICO SCHOOL DISTRICT
SOUTH 4TH STREET, DENVER BOROUGH, LANCASTER COUNTY, PA

ALL DIMENSIONS AND EXISTING CONDITIONS
shall be CHECKED AND VERIFIED
by the CONTRACTOR at the SITE.

JOB NO.: 23001.00
DRAWN BY: JOK
DATE: 04.12.24

SP-3