#### RAP ELEMENT FOUNDATION CONSTRUCTION NOTES

- 1. RAMMED AGGREGATE PIER (RAP) ELEMENT LAYOUT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR (GC). GEOPIER ELEMENT SHALL BE INSTALLED IN THE FIELD WITHIN 6-INCHES OF LOCATION SHOWN ON THESE PLANS.
- 2. A QUALIFIED, FULL—TIME QUALITY CONTROL (QC) REPRESENTATIVE PROVIDED BY THE RAP INSTALLER (THE INSTALLER) SHALL BE RESPONSIBLE FOR INSTALLATION OF THE RAP ELEMENTS IN ACCORDANCE WITH THE DESIGN, AND SHALL REPORT ALL GEOPIER FOUNDATION CONSTRUCTION ACTIVITIES TO THE DESIGNER. IF AUTHORIZED BY THE OWNER, THE QC REPRESENTATIVE SHALL COORDINATE QC ACTIVITIES WITH THE TESTING AGENCY HIRED BY THE OWNER. UNDER NO CIRCUMSTANCES SHALL THE TESTING AGENCY DIRECT RAP INSTALLATION PROCEDURES.
- 3. RAP ELEMENTS SHALL BE BASED ON THE FOLLOWING CRITERIA UNLESS OTHERWISE APPROVED IN WRITING BY THE DESIGNER:
  A. RAP ELEMENTS SHALL BE WITHIN 3 INCHES OR DEEPER THAN THE DEPTHS SHOWN ON THE PLANS.
  - B. AVERAGE COMPACTED LIFT THICKNESS DURING EACH DAYS PRODUCTION SHALL BE APPROXIMATELY 18 INCHES.
  - C. A BASE STABILIZATION TEST (BST) SHALL BE PERFORMED ON THE FIRST FIVE RAP INSTALLED. RESULTS OF THE INITIAL BST SHOULD BE PROVIDED TO THE DESIGNER (GEOPIER NORTHWEST) FOR REVIEW AND ESTABLISHMENT OF ACCEPTANCE CRITERIA AND FREQUENCY OF BST. THE FREQUENCY OF BST MAY VARY DEPENDING ON THE SOIL CONDITIONS; HOWEVER, BST SHALL BE PERFORMED ON NO LESS THAN 10% OF PRODUCTION RAP.
  - D. RAP ELEMENT AGGREGATE SHALL CONSIST OF TYPE I GRADE B IN GENERAL ACCORDANCE WITH ASTM D-1241-68, OR APPROVED BY GEOPIER DESIGNER AND SUCCESSFULLY USED IN THE MODULUS TEST.
- 4. WHEN OBSTRUCTIONS ARE ENCOUNTERED THAT CANNOT BE REMOVED WITH CONVENTIONAL RAP INSTALLATION EQUIPMENT, THE GC SHALL BE RESPONSIBLE FOR REMOVING THE OBSTRUCTIONS. IF THE GC DOES NOT DO SO IN A TIMELY MANNER THAT DOES NOT INTERRUPT RAP PRODUCTION, THE INSTALLER MAY REMOVE OBSTRUCTION(S) AND SHALL BE REIMBURSED FOR COSTS INCURRED, INCLUDING LABOR, EQUIPMENT, AND MATERIALS. IN THE EVENT OBSTRUCTIONS ARE ENCOUNTERED BELOW THE DESIGN BOTTOM OF FOOTING ELEVATION THE OBSTRUCTION SHALL BE REMOVED AS OUTLINED ABOVE. THE RESULTING EXCAVATION SHALL THEN BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. THE AREA SHALL BE TESTED BY THE OWNER'S TESTING AGENCY AND THE COMPACTION TEST RESULTS SHALL BE SUBMITTED TO THE INSTALLER AND THE DESIGNER.
- 5. RAP ELEMENTS NOT MEETING THE REQUIREMENTS DEFINED IN THE DESIGN AND MODULUS TEST SHALL BE RE-INSTALLED TO MEET PROJECT REQUIREMENTS UNLESS OTHERWISE APPROVED IN WRITING BY THE DESIGNER.
- 6. FOOTING ELEVATIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPORTED IN WRITING TO THE INSTALLER'S QC REPRESENTATIVE PRIOR TO INSTALLING RAP ELEMENTS.
- 7. UTILITY LOCATIONS ARE THE RESPONSIBILITY OF THE GC. THE DESIGNER SHALL BE NOTIFIED OF ANY CONFLICTS WITH RAP LOCATIONS SHOWN ON THE PLANS. NEW UTILITIES EXCAVATIONS SHALL BE LIMITED TO THE ZONE DEPICTING ON DETAIL 1 ON THIS SHEET. IF EXCAVATIONS ARE PLANNED WITHIN THE RAP "NO DIG" ZONE, THE DESIGNER SHOULD BE NOTIFIED IMMEDIATELY TO DISCUSS EXCAVATION OPTIONS.
- 8. RAP ELEMENTS ARE LOCATED AT THE INTERSECTION OF REFERENCE GRID LINES OR AT THE CENTERLINE OF STRIP FOOTINGS UNLESS DIMENSIONED OTHERWISE.
- 9. AFTER COMPLETION OF RAP INSTALLATIONS, THE GC IS RESPONSIBLE FOR PROTECTION OF THE WORK. THIS INCLUDES, BUT IS NOT LIMITED TO, PROPER SITE DRAINAGE TO PREVENT PONDING OF WATER ABOVE THE RAP ELEMENTS AND APPROPRIATE CONTROL AND COORDINATION OF EARTHWORK AND ANY SUBSEQUENT DRILL ACTIVITIES SUCH AS ELEVATOR SHAFT CONSTRUCTION, TO PREVENT DAMAGE TO INSTALLED RAP ELEMENTS.
- 10. ALL RAP ELEMENTS HAVE A MINIMUM NOMINAL TOP DIAMETER OF 24 INCHES WITH COMPACTED 24 INCH LIFTS. GEOPIER ELEMENTS TO HAVE DRILL DEPTHS 9 TO 20 FEET.
- 11. THESE DRAWINGS ARE BASED ON THE STRUCTURAL DRAWINGS PROVIDED BY SNYDER AND BBFM ENGINEERS, INC. THE RAP ELEMENT LAYOUT LOCATION PLAN AND FOOTING DETAILS PLAN ARE FOR RAP ELEMENT NUMBER, LOCATION, AND LAYOUT ONLY. FOOTING LOCATIONS, SIZES, AND ORIENTATION SHOWN ON THESE PLANS ARE FOR INFORMATION ONLY. PLEASE REFER TO STRUCTURAL PLANS FOR SPECIFIC FOUNDATION DIMENSIONS AND LOCATION. THE DESIGNER ACCEPTS NO RESPONSIBILITY FOR LOCATION OF FOOTINGS SHOWN ON THESE PLANS. THE DESIGNER SHALL BE NOTIFIED IMMEDIATELY IF INFORMATION ON THESE PLANS CONFLICTS WITH STRUCTURAL OR ARCHITECTURAL DRAWINGS.
- 12. THE RAP FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL INFORMATION PROVIDED BY CRW ENGINEERING GROUP, INC., REPORT DATE JUNE 2023. GEOPIER FOUNDATION COMPANY, INC., HAS RELIED ON THIS INFORMATION AND WE HAVE NO REASON TO SUSPECT ANY OF THE INFORMATION THE REPORT IS IN ERROR. GEOPIER FOUNDATION COMPANY, INC. IS NOT RESPONSIBLE FOR ERRORS OR OMISSIONS IN THE REPORT THAT MAY AFFECT THE PARAMETER VALUES IN OUR DESIGN. IF THE SUBSURFACE OR SITE CONDITIONS DIFFER FROM THOSE UTILIZED IN THE DESIGN THE DESIGNER SHALL BE NOTIFIED IMMEDIATELY.
- 13. RAP FOUNDATION DESIGN LOADS ARE BASED ON THE DESIGN INFORMATION PROVIDED TO US BY STRUCTURAL ENGINEER. IN THE EVENT THE STRUCTURAL LOADS VARY THE DESIGNER SHALL BE NOTIFIED.

#### CONCRETE FOOTING CONSTRUCTION SUPPORTED BY RAP NOTES

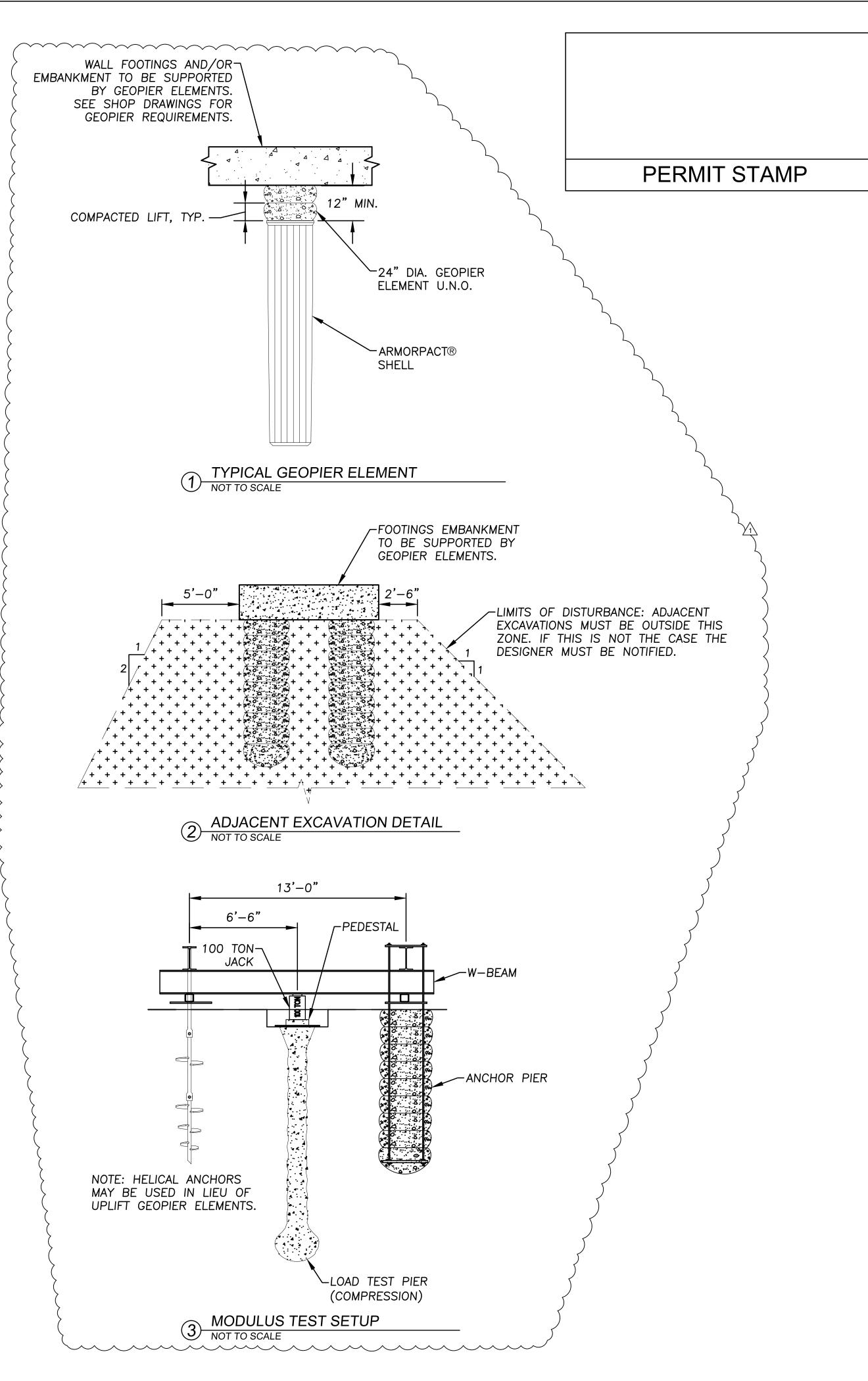
- 1. ALL EXCAVATIONS FOR FOOTINGS SUPPORTED BY RAMMED AGGREGATE PIERS SHALL BE PREPARED IN THE FOLLOWING MANNER BY THE GC: OVEREXCAVATION BELOW THE BOTTOM OF FOOTING SHALL BE LIMITED TO THREE INCHES. THIS INCLUDES LIMITING THE TEETH OF EXCAVATORS FROM OVEREXCAVATION BEYOND THREE INCHES BELOW THE FOOTING ELEVATION.
- 2. FOOTINGS SHALL BE POURED AS SOON AS POSSIBLE FOLLOWING FOOTING EXCAVATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO PROTECT FOOTING BEARING SURFACES FROM WET WEATHER AND DISTURBANCE. A "MUD MAT" (3 INCH THICKNESS OF LEAN CONCRETE) OR COMPACTED CRUSHED ROCK SURFACE IS RECOMMENDED TO PROTECT BEARING SURFACES.
- 3. PRIOR TO CONCRETE OR MUD MAT PLACEMENT, THE TOP OF THE EXCAVATED SOIL AND RAMMED AGGREGATE PIERS SHALL BE COMPACTED WITH A STANDARD, HAND-OPERATED IMPACT COMPACTOR (I.E. JUMPING JACK COMPACTOR). COMPACTION SHALL BE PERFORMED OVER THE ENTIRE FOOTING SUBGRADE TO COMPACT ANY LOOSE SURFACE SOIL AND LOOSE SURFACE PIER AGGREGATE.
- 4. WATER SHALL NOT BE ALLOWED TO ACCUMULATE IN THE FOOTING EXCAVATIONS PRIOR TO CONCRETE PLACEMENT OR ALLOWED TO ACCUMULATE OVER THE POURED FOOTING.
- 5. EXCAVATION AND SURFACE COMPACTION OF ALL FOOTING SUBGRADES SHALL BE THE RESPONSIBILITY OF THE GC.
- 6. THE TESTING AGENCY SHALL INSPECT EACH FOOTING AND APPROVE IT IN WRITING ON THE SAME DAY THAT THE CONCRETE OR MUD MAT IS PLACED IN THE FOOTING EXCAVATION. THE APPROVAL SHALL STATE THAT ALL FOOTING BOTTOMS INCLUDING MATRIX SOILS AND RAP TOPS HAVE NOT BEEN OVEREXCAVATED MORE THAN THREE—INCHES BELOW THE BOTTOM OF THE FOOTING, HAVE BEEN KEPT FREE OF WATER ACCUMULATION, AND HAVE BEEN REASONABLY DENSIFIED WITH A HAND—HELD MECHANICAL IMPACT COMPACTOR ON THE SAME DAY THAT THE CONCRETE WAS PLACED.
- 7. THE GC IS RESPONSIBLE FOR MEASURING TOP OF FOOTING ELEVATIONS TO ACCURACY OF 0.01 FEET. MEASUREMENTS SHALL BE TAKEN BY A LICENSED PROFESSIONAL SURVEYOR BEFORE LOADS ARE APPLIED TO THE FOOTINGS.
- 8. IN THE EVENT THAT FOOTING BOTTOM PREPARATIONS, AS DESCRIBED ABOVE, ARE NOT PERFORMED OR DOCUMENTED IN ACCORDANCE WITH THIS SECTION, ANY WRITTEN OR IMPLIED WARRANTY WITH RESPECT TO GEOPIER FOUNDATION PERFORMANCE CAN BE CONSIDERED VOID.



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REVISIONS:	
1 COMMENT RESPONSE	6/13/2023

GEOPIER
CONSTRUCTION
NOTES & DETAILS

SHEET NO.

**GP100** 

(17.1) (17)(14) (13) (12.9) 168 1517 n520 2042 2031 2664 1192 700 4667 2647 8 8 8 8 8 8 8 8 8 8 8

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**KEY PLAN** 

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REVIEW COMMENTS COMMENT RESPONSE

GEOPIER **FOUNDATION** PLAN -SORTING FACILITY (1 OF 3)

SHEET NO.

**GP200** 

FOUNDATION PLAN - SORTING FACILITY 1/16" = 1'-0"

### **GEOPIER LEGEND**

NUMBERED 24" GEOPIER - 9.5' ARMORPACT

NUMBERED 24" GEOPIER - 14.5' ARMORPACT

#### **GEOPIER PLAN NOTES:**

MATCHLINE (SHEET GP201)

1. THIS DRAWING IS BASED ON STRUCTURAL DRAWINGS PROVIDED BY BBFM ENGINEERS, INC.

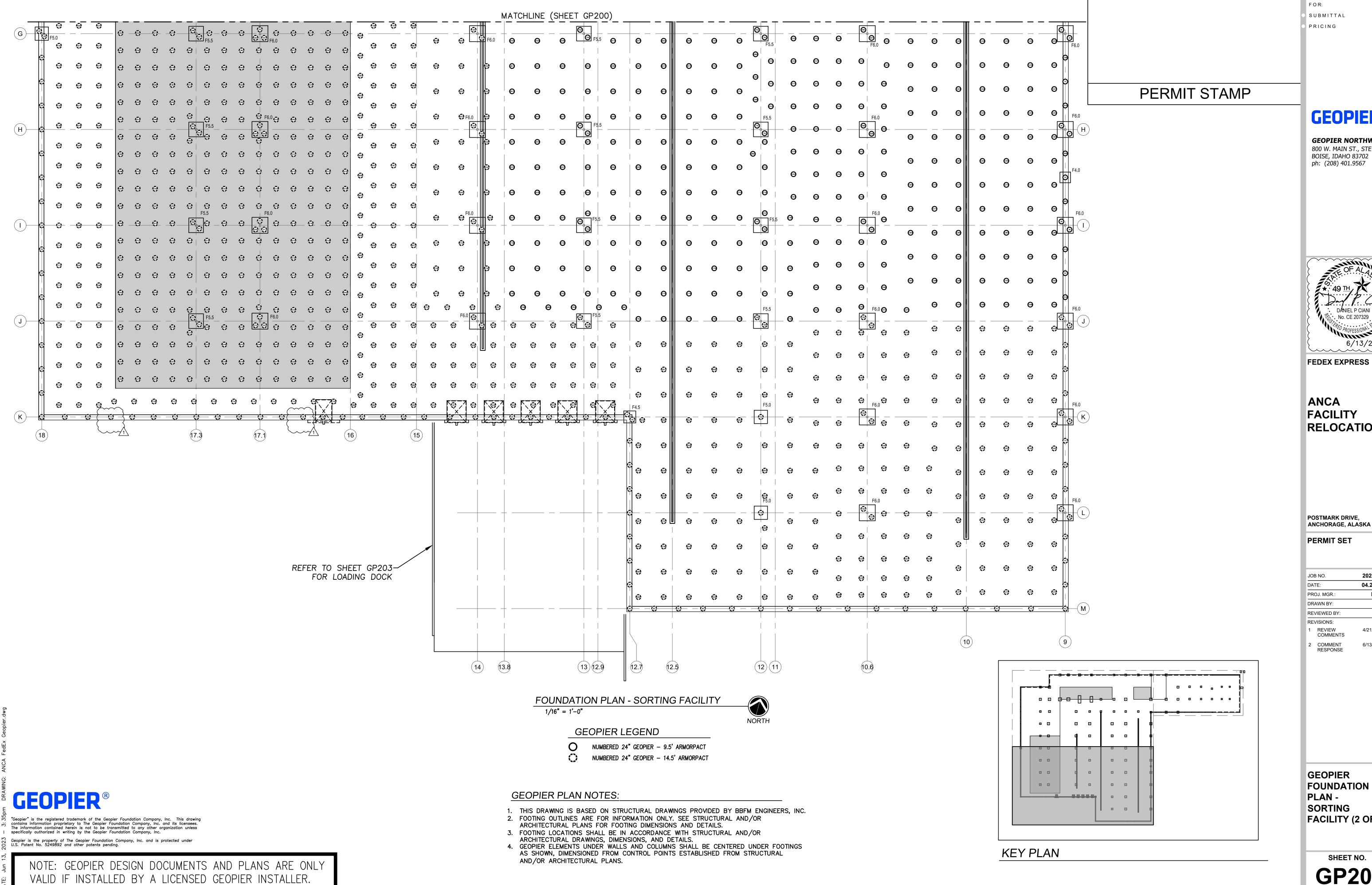
NORTH

- 2. FOOTING OUTLINES ARE FOR INFORMATION ONLY. SEE STRUCTURAL AND/OR ARCHITECTURAL PLANS FOR FOOTING DIMENSIONS AND DETAILS.
- 3. FOOTING LOCATIONS SHALL BE IN ACCORDANCE WITH STRUCTURAL AND/OR ARCHITECTURAL DRAWINGS, DIMENSIONS, AND DETAILS.
- 4. GEOPIER ELEMENTS UNDER WALLS AND COLUMNS SHALL BE CENTERED UNDER FOOTINGS AS SHOWN, DIMENSIONED FROM CONTROL POINTS ESTABLISHED FROM STRUCTURAL AND/OR ARCHITECTURAL PLANS.

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2	COMMENT	6/12/2022

6/13/2023 RESPONSE

GEOPIER **FOUNDATION** PLAN -SORTING FACILITY (2 OF 3)

SHEET NO.

**GP201** 

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**KEY PLAN** 

F6.0X4.0

FOUNDATION PLAN - SORTING FACILITY 1/16" = 1'-0"

### GEOPIER LEGEND

NUMBERED 24" GEOPIER - 9.5' ARMORPACT

NUMBERED 24" GEOPIER - 14.5' ARMORPACT

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- 2. FOOTING OUTLINES ARE FOR INFORMATION ONLY. SEE STRUCTURAL AND/OR ARCHITECTURAL PLANS FOR FOOTING DIMENSIONS AND DETAILS.
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SHEET NO. **GP202** 

FACILITY (3 OF 3)

GEOPIER

SORTING

PLAN -

**FOUNDATION** 

# FOUNDATION PLAN - LOADING DOCK 1/8" = 1'-0"



### **GEOPIER LEGEND**

NUMBERED 24" GEOPIER - 9.5' ARMORPACT

NUMBERED 24" GEOPIER - 14.5' ARMORPACT

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  4. GEOPIER ELEMENTS UNDER WALLS AND COLUMNS SHALL BE CENTERED UNDER FOOTINGS AS SHOWN, DIMENSIONED FROM CONTROL POINTS ESTABLISHED FROM STRUCTURAL AND/OR ARCHITECTURAL PLANS.

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GEOPIER
FOUNDATION
PLAN LOADING DOCK

SHEET NO.

**GP203** 

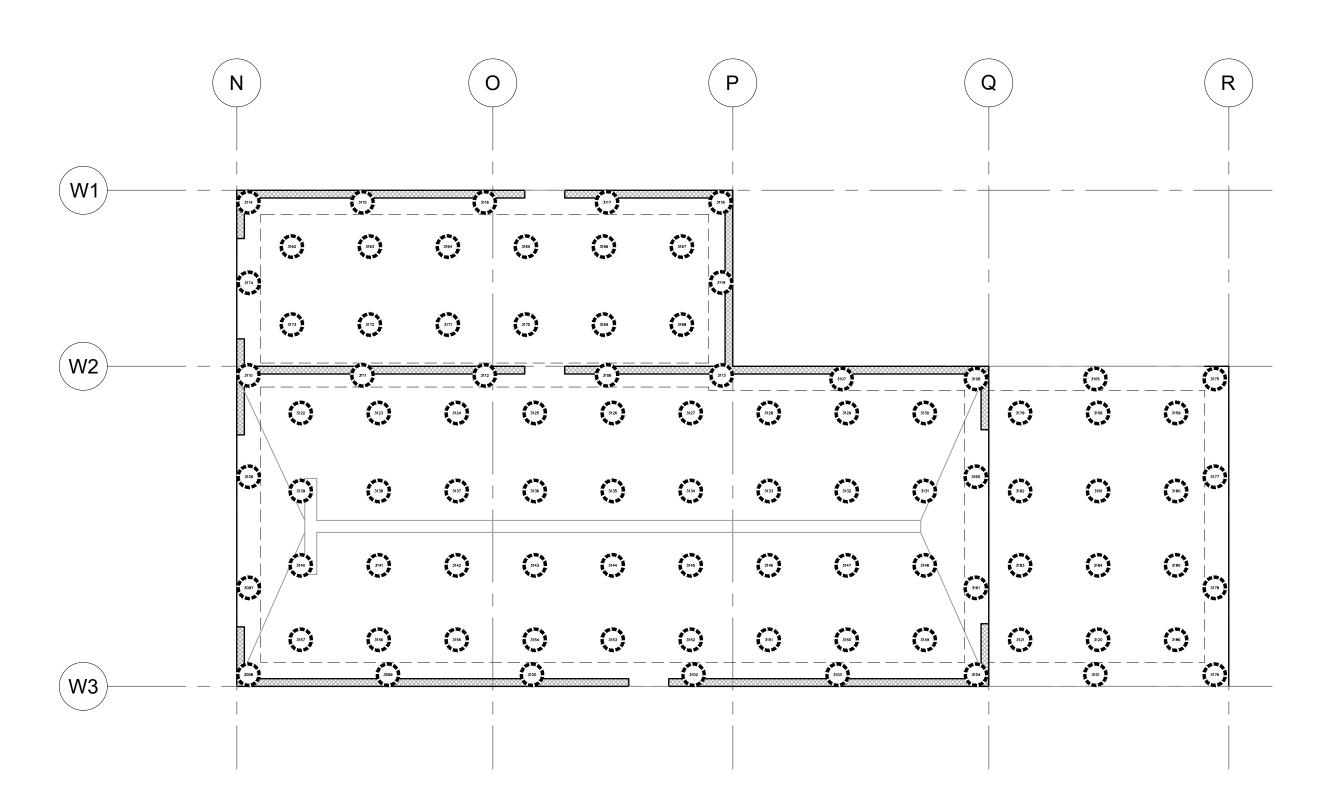
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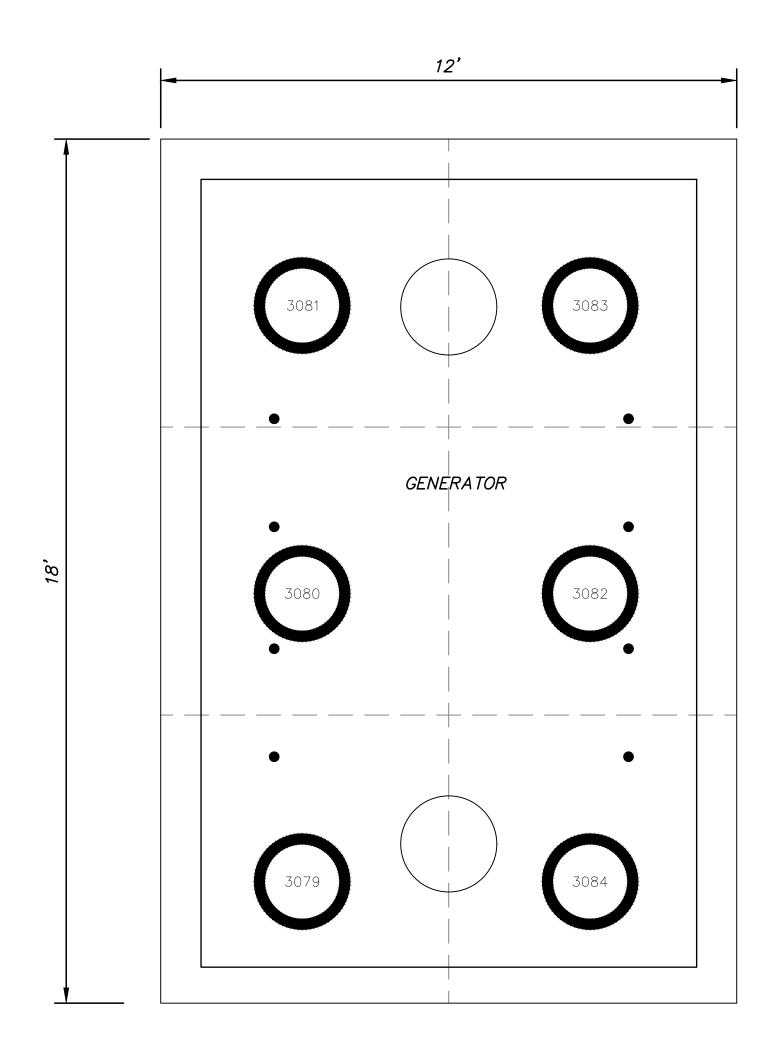
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# FOUNDATION PLAN - VEHICLE WASH 1/8" = 1'-0"

GEOPIER LEGEND

NUMBERED 24" GEOPIER - 14.5' ARMORPACT



FOUNDATION PLAN - GENERATOR PAD

1/2" = 1'-0"

GEOPIER LEGEND

NUMBERED 24" GEOPIER - 9.5' ARMORPACT

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GEOPIER
FOUNDATION
PLAN GENERATOR PAD
AND
VEHICLE WASH

SHEET NO.

GP204

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