ADDENDUM NO. 4

07/12/24

Marianas High School Career Technical Education Center Construction Project

NMHC IFB 2024-006

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1. General: The following revisions, additions, corrections, and/or clarifications to the specifications shall apply to the work affected thereby. Careful note of the Addendum shall be taken into consideration by the bidder/contractor, and all trade affected shall be fully advised of the information contained herein. In the event of conflicts between the drawings, specifications and this Addendum, the content of this Addendum shall govern. All further conflicts in the work resulting from or caused by, the contents of this Addendum must be brought to the attention of the Contracting Officer for resolution. Failure to acknowledge this Addendum in accordance with the instructions, may subject your bid to rejection on the affected item(s)/services(s).

2. Request for Information (RFI) Responses to the following (Exhibit A):

- **a)** HBR RFI
- **b)** RNV RFI
- **c)** UMI RFI
- **d)** GPPC RFI

To include Division 10 Specifications and the Geotechnical Engineering Report

3. Bid Submission Extension: Exhibit B

- **a)** Bid submission: July 26, 2024, 2:00 p.m.

(Note: acknowledgement of addendums must be indicated in the bid proposal form.)

All other requirements of the Invitation For Bids (IFB) shall remain as stated

Jesse S. Palacios
Corporate Director

Exhibit A

Northern Marianas Housing Corporation (NMHC)

Community Development Block Grant-Disaster Recovery (CDBG-DR)

Request for Information (RFI)

HBR RFI-001 – Electrical Works DOR Responses

IFB X/RFP ☐ _____

Bidder/Proposer: **Date:**

Project Name: Marianas High School Career Technical Education Center Construction Project

No.	Question
1.	Please confirm if CUC Permanent Power & Water application and connection is owner responsibility? DOR Response: KTR will coordinate with CUC for utility connection and should be coordinated at least 8-months in advance of contract completion. Reference Electrical General Note 22.
2.	Who will provide the 750KVA. 3Phase, 13.8V – 480/277 V Pad Mounted Transformer? DOR Response: KTR will provide a pad mounted transformer. Please see specs section 261219.
3.	Please see Sheet E-101 One Line Diagram, there is NO Concrete Pedestal. Please Confirm. DOR Response: Confirmed. A concrete pedestal is not required. The pad mounted transformer is housed in a screen wall enclosure. The KWHR meter and CT cabinet will be mounted on the transformer screen wall enclosure. Please see detail 2/E702.
4.	For Manhole Cover Requirements of 304 Stainless Steel Angle Bar Framing, please confirm if alternative materials Galvanized Angle Bar is Acceptable? DOR Response: Galvanized angle bar is not acceptable. Provide stainless steel angle bar.

Northern Marianas Housing Corporation (NMHC)

Community Development Block Grant-Disaster Recovery (CDBG-DR)

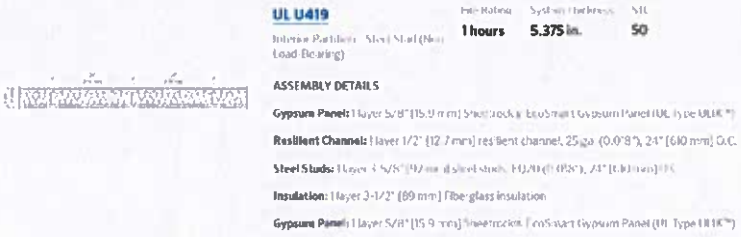
Request for Information (RFI)

RNV RFI-008 - DOR Responses

IFB X/RFP ☐ _____

Bidder/Proposer: **Date:**

Project Name: Marianas High School Career Technical Education Center Construction Project

No.	Question
1.	We would like to request for another 3-week extension so that our suppliers can quote on the materials because as of 06/21/2024, the material specifications that were requested in the previous RFI's are still not issued. DOR Response: NMHC/PSS to provide response.
2.	In Plans A705 and A713, please confirm that the Toilet Partitions will have an IP15 (Tile) finish. DOR Response: (Refer response to RFI 001 Question 10) Not tile - refer specification. Please find the attached detailed plan of the toilet partition layout A860 as well as specification SEC 10 21 13 for further clarity for costing. We note that the toilet partitioning was incorrectly coded/keynoted as IP15. The code for the partition is now IP19. See attached updated finishes schedule.
3.	Please provide specification for WLF1 (Wall Finish: Splashback, Laminex Type). DOR Response: Please provide a locally sourced Acrylic or glass type splashback for the staff kitchenette. The owner to confirm finish/color. Finishes Schedule has been updated with these details
4.	In Plan A670, please confirm that the given wall details can be changed depending on the required fire rating. Example: a. For 1-hour Fire Rating, 1/2"thk Greenboard to be changed to 5/8"thk Greenboard  UL U419 — Fire Rating: 1 hours — System Thickness: 5.375 in. — STC: 50 Interior Partition - Steel Stud (Non Load Bearing) ASSEMBLY DETAILS Gypsum Panel: 1 layer 5/8" [15.9 mm] SheetRock® brand Gypsum Panel (UL Type ULIC™) Resilient Channel: 1 layer 1/2" [12.7 mm] resilient channel, 25 ga. (0.018"), 24" [610 mm] O.C. Steel Studs: 1 layer 3-5/8" [92 mm] steel studs, 25 ga. (0.018"), 24" [610 mm] O.C. Insulation: 1 layer 3-1/2" [89 mm] fiberglass insulation Gypsum Panel: 1 layer 5/8" [15.9 mm] SheetRock® brand Gypsum Panel (UL Type ULIC™) DOR Response: We have no objections to this change as long as the system - UL U419 (1 hour fire rating) - has been tested and certified in accordance with IBC Chapter 7 and any other fire safety regulations. b. For 2-hour Fire Rating, 1/2"thk Greenboard to be changed to 2-layers of 5/8"thk Greenboard UL U419 — Fire Rating: 2 hours — System Thickness: 6.125 in. — STC: 53 Interior Partition - Steel Stud (Non Load Bearing) ASSEMBLY DETAILS Gypsum Panel: 1 layer 5/8" [15.9 mm] SheetRock® brand Gypsum Panel (UL Type SCX) Gypsum Panel: 1 layer 5/8" [15.9 mm] SheetRock® brand Gypsum Panel (UL Type SCX) Steel Studs: 1 layer 3-5/8" [92 mm] steel studs, 25 ga. (0.018"), 24" [610 mm] O.C. Insulation: 1 layer 3-1/2" [89 mm] fiberglass insulation Gypsum Panel: 1 layer 5/8" [15.9 mm] SheetRock® brand Gypsum Panel (UL Type SCX) Gypsum Panel: 1 layer 5/8" [15.9 mm] SheetRock® brand Gypsum Panel (UL Type SCX) DOR Response: We have no objections to this change as long as the system - UL U419 (2 hour fire rating) - has been tested and certified in accordance with IBC Chapter 7 and any other fire safety regulations.

c. For 3-hour Fire Rating, 1/2"thk Greenboard to be changed to 3- layers of 5/8"thk Greenboard

UL U419

Interior Partition - Steel Stud (Non-Load Bearing)

Fire Rating	System Thickness	STC
3 hours	6.25 in.	52

ASSEMBLY DETAILS

Gypsum Panel: 1 layer 5/8" [15.9 mm] Sheetrock® EcoSmart Gypsum Panel (UL Type ULIE™)

Gypsum Panel: 1 layer 5/8" [15.9 mm] Sheetrock® EcoSmart Gypsum Panel (UL Type ULIX™)

Gypsum Panel: 1 layer 5/8" [15.9 mm] Sheetrock® EcoSmart Gypsum Panel (UL Type ULIX™)

Steel Studs: 1 layer 2 1/2" [64 mm] steel studs, LQ20 (0.018"), 16" [406 mm] O.C.

Insulation: 1 layer 2 1/2" [64 mm] Fiberglass Insulation

Gypsum Panel: 1 layer 5/8" [15.9 mm] Sheetrock® EcoSmart Gypsum Panel (UL Type ULIX™)

Gypsum Panel: 1 layer 5/8" [15.9 mm] Sheetrock® EcoSmart Gypsum Panel (UL Type ULIX™)

Gypsum Panel: 1 layer 5/8" [15.9 mm] Sheetrock® EcoSmart Gypsum Panel (UL Type ULIX™)

DOR Response: We have no objections to this change as long as the system - UL U419 (3 hour fire rating) - has been tested and certified in accordance with IBC Chapter 7 and any other fire safety regulations.

Northern Marianas Housing Corporation (NMHC)

Community Development Block Grant-Disaster Recovery (CDBG-DR)

Request for Information (RFI)

UMI RFI-002 – DOR Responses

IFB X/RFP ☐ _____

Bidder/Proposer: **Date:**

Project Name: Marianas High School Career Technical Education Center Construction Project

No.	Question
1.	Reference Existing Grade of the site /Topo Map DOR Response: Question unclear. Minor and Major Contours are shown on V101.
2.	Specs for Vinyl Floor Finish DOR Response: Please find the attached Finishes Schedule.
3.	Ceiling Schedule is inconsistent with Ceiling Tags on the Plan DOR Response: Please find updated drawing 12596133_A250_r0.
4.	Specifications for Division 10 DOR Response: The specifications have been attached separately for previous RFIs. See attached compiled specifications.
5.	Solid Core Wood Doors Specifications DOR Response: The timber solid core door types are shown on drawings A654 to A657. Typical thickness is 1-3/4".
6.	DWG A654 and A655 calls out frames to be aluminum; however, DWG A657(door details) indicate frames as metal – please advise which one will govern DOR Response: Door frames to be aluminum, typical.
7.	Gravel Pad (2'x2') details DOR Response: Provide 2'x2'x1' deep gravel pad using Coarse Aggregate Type A3 in accordance with Specification Section 31 05 16 lined with geotextile fabric per Specification Section 31 23 23.
8.	Specs for Drainage and Sewer Site Utilities DOR Response: Provided in previous RFI responses.
9.	If Landscaping is part of the Bid, if so, please provide additional details DOR Response: Landscaping is not included as part of the bid.
10.	Exact Location of Retaining wall on plan, as it doesn't match with the Details on C505 DOR Response: Question unclear. New headwall to connect to existing head wall as shown in the Headwall Extension

Plan on Detail 5/C504. Dimensions to be taken from the typical details above.

11. Junction Box Detail shown on Sheet C105 (Drainage)
DOR Response: Junction Box to be constructed per Detail 7/C102.

12. Aluminum Screen detail on Sheet A901 is missing

DOR Response: Please ignore the sheet name with reference to this detail. This detail has not been provided.

Northern Marianas Housing Corporation (NMHC)

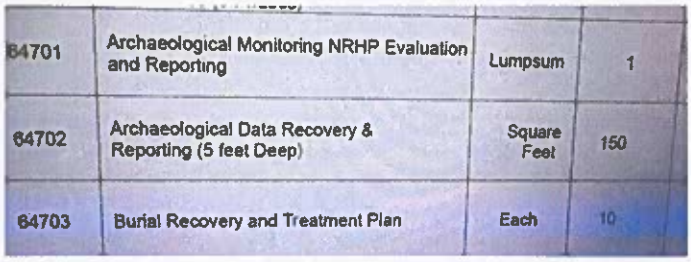
Community Development Block Grant-Disaster Recovery (CDBG-DR)

Request for Information (RFI)

IFB☑/RFP ☐ 2024-006

Bidder/Proposer: GPPC, Inc. **Date:** 05/15/2024

Project Name: Marianas High-School Career Technical Education Center Construction Project

No.	Question
1.	In accordance with the Instructions to Bidders, Item No. 5, prospective bidders are instructed to submit a Schedule of Values. However, we seek clarification regarding the necessity of providing this document alongside the bid proposal, as conventional industry practice typically involves its submission subsequent to the issuance of the notice of award. PSS Response: Yield to NMHC. PSS concurs that the Schedule of Values should be submitted during the Intent to Award as the prices should be considered confidential. NMHC Response: Schedule of values shall be submitted prior to the issuance of an NTP. Therefore, submission of schedule of values shall not be required for the bid submission.
2.	Refer to the attached extracted from Item No. 9 Special Provisions Required by EDA. Could you please furnish an estimated count of burials based on the requirements outlined in Item No. 10 Special Conditions - Historical Preservation? This request stems from our observations during current beach road projects, where disparities in estimated burial counts among bidders could result in potential cost discrepancies. Providing an estimated count will help ensure fairness and equity in the bidding process by preventing situations where bid proposals may be disadvantaged due to significantly differing estimates from other bidders. Ensuring transparency and equity among all bidders is essential to maintain a level playing field. Refer to the image below, provided as reference to this request.  PSS Response: Burial Recovery and Treatment Plan shall be limited to 5 each.

64701	Archaeological Monitoring NRHP Evaluation and Reporting	Lumpsum	1
64702	Archaeological Data Recovery & Reporting (5 feet Deep)	Square Feet	150
64703	Burial Recovery and Treatment Plan	Each	10

5. INSPECTION BY EDA REPRESENTATIVES

The authorized representatives and agents of EDA shall be permitted to inspect all work, materials, payrolls, personnel records, invoices of materials, and other relevant data and records.

6. EXAMINATION AND RETENTION OF CONTRACTOR'S RECORDS

(a) The Owner, EDA, or the Comptroller General of the United States, or any of their duly authorized representatives shall, generally until three years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.

(b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders that do not exceed $10,000.

(c) The periods of access and examination in paragraphs (a) and (b) above for records relating to (1) appeals under the disputes clause of this contract, (2) litigation or settlement of claims arising from the performance of this contract, or (3) costs and expenses of this contract to which the Owner, EDA, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

7. CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

Immediately after execution and delivery of the contract, and before the first partial payment is made, the Contractor shall deliver to the Owner an estimated construction progress schedule in a form satisfactory to the Owner, showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the Contract Documents and the anticipated amount of each monthly payment that will become due to the Contractor in accordance with the progress schedule. The Contractor also shall furnish the Owner (a) a detailed estimate giving a complete breakdown of the contract price and (b) periodic itemized estimates of work done for the purpose of making partial payments thereon. The costs employed in making up any of these schedules will be used only to determine the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

8. CONTRACTOR'S TITLE TO MATERIAL

No materials, supplies, or equipment for the work shall be purchased by the Contractor or by any subcontractor that is subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants and guarantees that he/she has good title to all work, materials, and equipment used by him/her in the Work, free and clear of all liens, claims, or encumbrances.

Finishing Materials Schedule

Project Name: CTE MHS
Project Number: 12596133
Date: 25.06.2024
Revision PRELIMINARY - NOT FOR CONSTRUCTION

The client must confirm all finishes/colour selections before construction
All items can be costed with an equivalent product/approved equal

Keynote	Type	Size	Supplier	Product or Performance Spec	Colour**	Notes	Revision
WALLING							
IP15	Ceramic Tiles	4"x 4"		Refer Division 10 of specifcation	White matte		rA
IP16	Vinyl	Sheet	Tarkett	ProtectWall (1.5mm)			rA
IP17	Fabric	Refer A700 dwg series. Custom sizing	Autex	Cube Acoustic Panel 24mm			rA
IP19	Plastic Toilet Compartment			Refer Division 10 21 13.19 Solid Plastic Toilet Compartments			rA
Skirting to vinyl floors	Rubber	6" high	Armstrong Flooring	Coved Wall base			rA
Skirting to concrete floors	Rubber	6" high	Armstrong Flooring	Coved Wall base			rA
Internal Wall paint				Semi-gloss			rA
IP11	Acoustic Board	0 1/2" thick Refer dwg A702 and A703	Knauf Insulation	Black Acoustical Board with ECOSE® Technology 3.0 PCF (48kg/m3)			rA
IP40	Operable Wall	Refer dwg A714	Modernfold	Acousti-Seal® Premier®			rA
WLF1	Acrylic		Locally sourced	Commercial grade		Staff room kitchenette only Glass can be used as an alternative	rA
CEILINGS							
CLAC-001	Acoustic	Hexagonal - sides 600mm	Autex	Autex Horizon		Provide separate price	rA
CLFS1	Suspended flat sheet	Sheet	Tarkett	Plasterboard, mold & water resistant, flush set, square set cornices, suspended, paint, washable	White		rA
CLTL1 Classrooms	Suspended tiled		Armstrong	CSCHOOL ZONE® FINE FISSURED™ AirAssure®		NRC rating of at least 0.69	rA
CLTL1 Training Kitchen	Suspended tiled		Armstrong	KITCHEN ZONE			rA
Ceiling paint				Flat paint.			rA
FLOORS							
FLCR1	Coloured concrete			Allow for standard colored oxide (colour hardener) and suitable sealer to the manufacturer's recommendations.			rA
FLVY1	Vinyl floor	Homogenous Sheet	Armstrong Flooring	Natralis™		Coved skirting	rA
FLVY2	Vinyl floor (wet-area)	Homogenous Sheet	Armstrong Flooring	Natralis™		Coved skirting	rA
MAT1	Recessed entry mat	Width of entry doors		Entry mat, alum frame, grit inserts, recessed in concrete		ADA compliant for wheelchair access	rA
TGSI1 Internal	Rubber	24" X 24"		ADA compliant rubber tactile indicators			rA
TGSI1 External	Concrete pavers	24" X 24"		ADA compliant recessed concrete paver tactile indicators			rA
TGSI2 Internal	Rubber	12" X 12"		ADA compliant rubber tactile indicators			rA
TGSI2 External	Concrete pavers	12" X 12"		ADA compliant concrete recessed paver tactile indicators			rA
TGSI3 Internal	Rubber	To ADA standards		ADA compliant directional ridge tactiles indicators			rA
WINDOWS DRESSING							

BLIND1	Fabric Alum. Pelmet	Refer A250 for locations. Sizing to suit windows as shown on A700 dwg series		Dual block out and sheer roller blinds with manual operation.	Pelmet colour to match adjacent wall		rA
GLF	Perforated glazing film	Refer dwg A653	Marianas Variety	•Suitable for covered external use 6mil composite PVC Removable adhesive •Dual Liner for all ink platforms and images •80/20 pattern (20% perforated, 80% retained)		Co-ordinate design of image with Mariana High School.	rA
WINDOWS DRESSING							
CURTAIN 1 (a)	Fabric curtain Backdrop	Refer dwgs	**Georgia Stage** 3765 Peachtree Crest Dr Duluth, GA 30097 info@georgiastage.com	Fabric: 15 oz. Valdosta or similar		Provide separate costs Provide shopdrawings for client approval Provide all supports to u/s of concrete roof Georgia Stage to provide advice on supports	rA
CURTAIN 1 (b)	Fabric curtain Midstage (boarder) sides & top	Refer dwgs	**Georgia Stage** 3765 Peachtree Crest Dr Duluth, GA 30097 info@georgiastage.com	Fabric: 15 oz. Valdosta or similar		As above	rA
CURTAIN 2	Fabric curtain Main procenium sides	Refer dwgs	**Georgia Stage** 3765 Peachtree Crest Dr Duluth, GA 30097 info@georgiastage.com	Fabric: 22 oz. Valdosta or similar		As above	rA
CURTAIN 3	Fabric curtain Main procenium top (valance)	Refer dwgs	**Georgia Stage** 3765 Peachtree Crest Dr Duluth, GA 30097 info@georgiastage.com	Fabric: 22 oz. Valdosta or similar		As above	rA

SECTION 10 14 00
INTERIOR SIGNAGE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Plastic interior panel signs.
   1. Room Identification.
   2. Stairs.
   3. Restroom.
   4. Elevator Lobby.
   5. Informational Signage.
   6. Directory Signage.

B. Plastic exterior panel signs.
   1. Room Identification.
   2. Stairs.
   3. Restroom.
   4. Elevator Lobby.
   5. Informational Signage.
   6. Directory Signage.

1.2 RELATED SECTIONS

A. Section 06 20 00 - Finish Carpentry.

B. Section 10 13 13 - Electronic Directories.

C. Section 10 14 16 - Plaques.

1.3 REFERENCES

A. ANSI 117.1 - For Buildings and Facilities.

B. ASTM International (ASTM):
   1. ASTM D149 - Standard Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies.
   2. ASTM D150 - Standard Test Methods for AC Loss Characteristics and Permittivity (Dielectric Constant) of Solid Electrical Insulation.
   3. ASTM D256 - Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics.
   4. ASTM D542 - Standard Test Method for Index of Refraction of Transparent Organic Plastics.
   5. ASTM D570 - Standard Test Method for Water Absorption of Plastics.
   6. ASTM D635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
   7. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.
   8. ASTM D648 - Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.
   9. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics.
   10. ASTM D696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30 degrees C and 30 degrees C with a Vitreous Silica Dilatometer.

11. ASTM D732 - Standard Test Method for Shear Strength of Plastics by Punch Tool.
12. ASTM D785 - Standard Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials.
13. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
14. ASTM D792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
15. ASTM D1003 - Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics.
16. ASTM D1929 - Standard Test Method for Determining Ignition Temperature of Plastics.
17. ASTM D2843 - Standard Test Method for Density of Smoke from the Burning or Decomposition of Plastics.
18. ASTM D3418 - Standard Test Method for Transition Temperatures and Enthalpies of Fusion and Crystallization of Polymers by Differential Scanning Calorimetry.
19. ASTM D3763 - Standard Test Method for High Speed Puncture Properties of Plastics Using Load and Displacement Sensors.
20. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
21. ASTM E2072-04 - Standard Specification for Photoluminescent (Phosphorescent) Safety Marketing.
22. ASTM E2073-02 - Standard Test Method for Photopic Luminance of Photo Luminescent (Phosphorescent) Markings.

C. Underwriters Laboratories (UL):
1. UL 94 - Tests for Flammability of Plastic Materials for Parts in Devices and Appliances.
2. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Shop Drawings: Detail drawings showing sizes, lettering and graphics, construction details of each type of sign and mounting details with appropriate fasteners for specific project substrates.

D. Manufacturer's Installation Instructions: Printed installation instructions for each signage system.

E. Message List: Signage report indicating signage location, text, and sign type.

F. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and available pictograms, characters, and Braille indications.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum two years documented experience in work of this Section.

B. Installer Qualifications: Minimum two years documented experience in work of this Section.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Furnish signs designated by Architect.
   2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
   3. Refinish mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in unopened factory packaging.

B. Inspect materials at delivery to verify there are no defects or damage.

C. Store products in manufacturer's original packaging until ready for installation in climate controlled location away from direct sunlight.

D. Store and dispose of solvent-based materials, and materials used with solvent-based materials in accordance with requirements of local authorities having jurisdiction.

1.7 PROJECT CONDITIONS

A. Install products in an interior climate controlled environment.

B. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Nova Polymers, Inc., which is located at: 8 Evans St. Suite 201; Fairfield, NJ 07004; Toll Free Tel: 888-484-NOVA (6682); Email:request info (info@novapolymers.com); Web:https://www.novapolymers.com
   1. United States:
      a. Acceptable Fabricator: AdLight Group, 4150 Elati St., Denver, CO 80216. Phone: (303) 399-3334. Email: Sales@AdLightGroup.com. Web: www.adlightgroup.com.
      b. Acceptable Fabricator: AGS, 302 Commerce Drive, Exton, PA 19341. Phone: (610) 363-8150. Email: info@agsinfo.com. Web: www.agsinfo.com.
      c. Acceptable Fabricator: ASI, Iowa - Grinnell, IA, 1219 Zimmerman Dr., Grinnell, IA 50112. Phone: (641) 236-6616. Web: www.asisignage.com/locations/iowa
      d. Acceptable Fabricator: Bell Company, 8327 Parkway Dr., Leeds, AL 35094. Phone: (800) 828-3564. Email: sales@bellcoinc.com. Web: www.braillebybell.com.
      e. Acceptable Fabricator: Boyd Sign Systems, 3901 S Kalamath Street, Englewood, CO 80110. Phone: (800) 333-3190. Email: signs@boydsignsystems.com. Web: www.boydsignsystems.com
      f. Acceptable Fabricator: Cab Signs, 38 Livonia Ave, Brooklyn, NY 11212. Phone: (800) 394-1690. Email: sales@cab-signs.com. Web: www.cab-signs.com.
      g. Acceptable Fabricator: Cadwell Signs, 4 Kuniholm Drive, Holliston, MA 01746. Phone: (508) 429-3100. Web: www.cadwellsigns.com.
      h. Acceptable Fabricator: Graphic Components, 2800 Patterson Street, Greensboro, NC 27407. Phone: (336) 542-2128. Email: sales@graphiccomponents.com. Web: www.graphiccomponents.com.
      i. Acceptable Fabricator: InPro Corporation, S80 W18766 Apollo Drive, Muskego, WI 53150. Phone: (800) 222-5556. Email: rbader@inprocorp.com. Web:

www.inprocorp.com.

j. Acceptable Fabricator: Kroy Sign Systems, 8221 E Gelding Dr., Scottsdale, AZ 85260. Phone: (800) 950-5769. Email: signs@kroysignsystems.com. Web: www.kroysignsystems.com.

k. Acceptable Fabricator: Neiman & Company, 6842 Valjean Ave., Van Nuys, CA 91406. Phone: (818) 781-8600. Email: signs@neimanandco.com. Web: www.neimanandcompany.com.

l. Acceptable Fabricator: Park Place Sign Systems, Inc., 2019 30th Street, Hannibal, MO 63401. Phone: (573) 221-1360. Email: sales@parkplacesign.com. Web: www.parkplacesign.com.

m. Acceptable Fabricator: Sign Pro, 60 Westfield Dr, Plantsville, CT 96479. Phone: (860) 229-1812. Email: pete@signpro-usa.com. Web: www.signpro-usa.com.

n. Acceptable Fabricator: Signtech, 4444 Federal Blvd., San Diego, CA 92102. Phone: (619) 527-6100 ext.117. Email: sales@Signtech.com. Web: www.signtech.com.

o. Acceptable Fabricator: Tube Art Group, 11715 SE 5th Street, Bellevue, WA 98005. Phone: (206) 223-1122 Email: mwoods@tubeart.com. Web: www.tubeartgroup.com

p. Acceptable Fabricator: Welch Signs, 7 Lincoln Ave., Scarborough, ME 04074. Phone: (207) 883-6200. Web: www.welchsign.com

2. Canada:

a. Acceptable Fabricator: Marvel Sign and Display, Inc., 99 Rodinea Road, Unit 1, Vaughan, Ontario L6A 1R3, Canada. Phone: (905) 856-6920 Email: alan@marvelsigns.ca. Web: www.marvelsigns.ca.

b. Acceptable Fabricator: WSI Sign System Ltd. & KING Architectural Products, 31 Simpson Road, Bolton - Ontario L7E 2R6. Phone: (905) 857-2804. Web: www.king-ap.com.

3. Middle-East:

a. Acceptable Fabricator: Doganer Signage Systems, Eminel Sanayi Sitesi 1452. Sk. No: 53, OSTIM ANKARA, Turkey. Phone: + 90 312 395 47 10, Email: info@doganermimari.com.tr, Web: www.doganermimari.com.tr

b. Acceptable Fabricator: Gulfcrafts, New Industrial Area, Zone #81,Street #9, Building #40, Doha - Qatar. Phone: 974 44602002 or 974 30244303. Email: elma@gulfcrafts.net. Web: www.gulfcrafts.net.

B. Substitutions: permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 PERFORMANCE REQUIREMENTS

A. Provide photopolymer signage that conforms to the requirements of all regulatory agencies holding jurisdiction.

B. Provide glow in the dark, photo luminescent material that complies with applicable provisions of ASTM E 2073-02 and DIN 67510. Photo luminescent material must have up to eight hours of luminance.

C. Requirements:

1. Comply with all applicable provisions of the 2010 ADA Standard for Accessible Design.
2. Character Proportion: Letters and numbers on signs must have a width-to-height ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10.
3. Color Contrast: Characters and symbols must contrast with their background - either light characters on a dark background or dark characters on a light background.
4. Raised Characters or Symbols: Letters and numbers on signs must be raised 1/32 in

(0.8 mm) minimum and be sans serif characters. Raised characters or symbols must be at least 5/8 in (16 mm) high but no higher than 2 in (50 mm). Symbols or pictograms on signs must be raised 1/32 in (0.8 mm) minimum.

5. Symbols of Accessibility: Accessible facilities required to be identified must use the international symbol of accessibility.
6. Braille: Grade II with accompanying text.

D. Fire Performance Characteristics:
   1. Provide photopolymer signage with surface burning characteristics that consist of a flame spread of 75 and a smoke development of 120 when tested in accordance with UL 723 (ASTM E 84).
   2. Self-Extinguishing: Provide photopolymer signage with a CC1 classification for .060 in thick material when tested in accordance with the procedures in ASTM D 635, Standard Test Method for Rate of Burning and/or Extent and Time of Burning Plastics in a Horizontal Position.
   3. Vertical Burn: Provide photopolymer material that is classified as 94V-2 for material .118 in thick or greater and 94HB for material .118 in thick or less when tested in accordance with UL 94, Tests for Flammability of Plastic Materials for Parts in Devices and Appliances.
   4. Self-Ignition Temperature: Provide photopolymer material that has a self-ignition temperature of 800 degrees F (427 degrees C) when tested in accordance with ASTM D 1929.

E. Novacryl PETG: Polyethylene terephthalate glycol. A thermoplastic polyester with high chemical resistance, and fomability.
   1. ADA Compliant.
   2. NSF: Listed.
   3. FDA: Conforms to food contact regulations.
   4. Physical Properties:
      a. Specific Gravity per ASTM D792: 1.27.
      b. Optical Refractive Index per ASTM D542: 1.57.
      c. Light Trans - Total per ASTM D1003: 86 percent.
      d. Light Trans - Haze per ASTM D1003: 1 percent.
      e. Water Absorption by weight per ASTM D570: 0.2 percent.
   5. Mechanical Properties:
      a. Tensile Strength per ASTM D638: 7,700 psi.
      b. Tensile Modulus of Elasticity per ASTM D790: 320,300 psi.
      c. Flexural Strength per ASTM D790: 11,200 psi.
      d. Flexural Modulus of Elasticity per ASTM D790: 10,000 psi.
      e. Izod Impact Strength Molded - Milled Notch per ASTM D256: 1.7 Ft-lb per inch Notch.
      f. Rockwell Hardness per ASTM D785: R-115.
      g. Drop Dart Impact per ASTM D3763: 22 ft-lbs.
      h. Shear Strength per ASTM D732: 9,000 psi.
      i. Compressive Strength per ASTM D695: 8,000 psi.
   6. Thermal Properties:
      a. Deflection Temperature at 264 psi ASTM D648: 157 degrees F.
      b. Deflection Temperature at 66 psi ASTM D648: 164 degrees F.
      c. Coefficient of Thermal Expansion ASTM D696: 3.8x10 Inches per inch per degrees F.
      d. Flammability (Burning Rate) ASTM D635: 0.06 Inches per minute.
      e. Flammability UL 94: HB.
      f. Smoke Density Rating ASTM D2843: 53.8 percent.
      g. Self-Ignition Temp ASTM D1929: 880 degrees F.
      h. Flame Spread Index ASTM E84: 85.
      i. Smoke Development Index ASTM D84: 450.

j. Glass Transition Temperature ASTM D3418: 178 degrees F.

2.3 SIGNAGE - GENERAL

A. It is the intent of these specifications to establish a sign standard for the Owner including but not limited to, wall-mounted directional signs, primary room identification, restrooms, conference rooms and all code compliant Braille signage.

B. Comply with all applicable provisions of the 2010 ADA Standard for Accessible Design codes that apply to the State and Local jurisdiction of the project.

C. If required text and graphics are not indicated in specification or on drawings, obtain Owner's instructions as to text and graphics prior to preparation of shop drawings.

D. Typography: See Drawings. Copy shall be a clean and accurate reproduction of typeface(s) specified. Upper and lower case and all caps as indicated in Sign Type drawings and Signage Schedule. Letter spacing to be set by manufacturer.

E. Arrows, symbols, and pictograms will be provided in style, sizes, colors and spacing as indicated in drawings for each sign system.

F. Braille:

2. Grade 2 Braille.

G. Design:
1. Text/Graphics Placement: As indicated on contract drawings.
2. Font: As indicated on the Contract Drawings.
3. Font: _____.

2.4 INTERIOR SIGNAGE

A. Panel Material: Novacryl PT Series Photopolymer
1. Composition: 0.032 inch (0.8 mm) thick moisture resistant, non-glare interior nylon photopolymer on ultraviolet resistant clear NOVACRYL PETG sign base, single piece construction. Laminated photopolymers, added-on characters, and engraved characters are not acceptable.
2. Sustainable Certification: Minimum 40 percent pre-consumer recycled content.
3. Base thickness: 0.020 inch (0.5 mm) Gloss NOVACRYL PETG.
4. Base thickness: 0.040 inch (1.0 mm) Non-glare NOVACRYL PETG.
5. Base thickness: 0.060 inch (1.5 mm) Non-glare NOVACRYL PETG.
6. Base thickness: 0.080 inch (2.0 mm) Non-glare NOVACRYL PETG.
7. Base thickness: 0.118 inch (3.0 mm) Non-glare NOVACRYL PETG.
8. Base thickness: 0.190 inch (4.8 mm) Non-glare NOVACRYL PETG.
9. Base thickness: 0.236 inch (6.0 mm) Non-glare NOVACRYL PETG.
10. Base thickness: 0.375 inch (9.5 mm) Gloss NOVACRYL PETG.
11. Type and Color: To be selected from manufacturer's full color range by Architect.
12. Size: ____
13. Surface burning characteristics: Flame spread/smoke developed rating less than 75/120, tested to ASTM E 84 and UL 723.
14. Rate of burning: Tested to ASTM D 635 at nominal 0.060 inch (1.5 mm) thickness with resulting Classification CC1.
15. Vertical burning: Tested to UL 94, classified as 94V-2 in thickness of 0.118 inch (3.0 mm) or greater and 94HB in thicknesses less than 0.118 inch (3.0 mm).
16. Self-ignition temperature: 800 degrees F (427 degrees C), tested to ASTM D 1929.

2.5 EXTERIOR SIGNAGE

A. Panel Material: Novacryl EX Series Photopolymer.
   1. Composition: 0.032 inch (0.8 mm) thick exterior-grade photopolymer resin bonded to 0.016 inch (0.4 mm) thick aluminum alloy base.
   2. Base thickness: 0.016 inch (0.4 mm) thick brushed aluminum alloy base.
   3. Type and Color: To be selected from manufacturer's full color range by Architect.
   4. Size: ____.

2.6 ACCESSORIES

A. Adhesive:
   1. Type recommended by sign manufacturer.
   2. Maximum volatile organic compound (VOC) content: 70 grams per liter.

B. Tape: Double sided, waterproof, pressure sensitive.

C. Fasteners: Chrome plated screws.

D. Fasteners: Brass screws.

E. Fasteners: Stainless steel screws.

2.7 FABRICATION

A. Fabricate panel material in accordance with manufacturer's instructions and approved shop drawings.

B. Fabricate signs by photo polymer process using film negatives to produce characters and graphics in contrasting color, raised. Refer to Signage Schedule.

C. Characters:
   1. Height: Refer to Signage Schedule.
   2. Style: Refer to Signage Schedule.
   3. Width to height ratio: Refer to Signage Schedule.
   4. Stroke width to height ratio: Refer to Signage Schedule.

D. Pictograms: Refer to Signage Schedule.

E. Provide Braille Grade indications for each character.

F. Frames:
   1. Miter corners; fit to hairline joint.
   2. Secure frame to sign with adhesive.

G. Changeable Slide Inserts: Clear NOVACRYL PETG sheet cover with slot behind for insertion of changeable slide strip, removed from side.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 10 21 13.19 SOLID PLASTIC TOILET COMPARTMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Solid plastic toilet compartments including the following: (Eclipse)
   1. Floor mounted overhead-braced toilet compartments.
   2. Floor mounted overhead-braced entry partitions.
   3. Wall mounted urinal screens.

1.2 RELATED SECTIONS

A. Section 06 10 00 - Rough Carpentry.

B. Section 05 50 00 – Metal Fabrications

1.3 REFERENCES

A. ASTM International (ASTM):
   1. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
   2. ASTM B 85 - Standard Specification for Aluminum-Alloy Die Castings.
   3. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

B. National Fire Protection Association (NFPA) 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

C. United States Green Building Council (USGBC): LEED Green Building Rating System.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Shop Drawings: Provide layout drawings and installation details with location and type of hardware required.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, two samples representing actual product, color, and patterns.

F. Sustainable Design Submittals:
   1. Recycled Content: Certify percentages of post-consumer and pre-consumer recycled content.
   2. Regional Materials: Certify distance in miles between manufacturer and Project and between manufacturer and extraction or harvest point.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A company regularly engaged in manufacture of products specified in this section, and whose products have been in satisfactory use under similar service conditions for not less than 5 years.

B. Installer Qualifications: A company regularly engaged in installation of products specified in this Section, with a minimum of 5 years experience.

C. Performance Requirements:
   1. Fire Resistance: Partition materials shall comply with the following requirements, when tested in accordance with the ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building Materials:
      a. Class B flame spread/smoke developed rating, tested to ASTM E84.
   2. Material Fire Ratings:
      a. National Fire Protection Association (NFPA) 286: Pass.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

A. Manufacturer guarantees its plastic against breakage, corrosion, and delamination under normal conditions for 25 years from the date of receipt by the customer. If materials are found to be defective during that period for reasons listed above, the materials will be replaced free of charge. (Labor not included in warranty.)

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Scranton Products; Toll Free Tel: 800-445-5148; Email:request info (info@scrantonproducts.com); Web:http://www.scrantonproducts.com

B. Substitutions: Permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 MATERIAL

A. Plastic Panels: High density polyethylene (HDPE) suitable for exposed applications, waterproof, non-absorbent, and graffiti-resistant textured surface;
   1. Fire-resistance Rating: Tested in Accordance with NFPA 286.
   2. Fire-resistance Rating: Tested to meet ASTM E84, Class B.

2.3 SOLID PLASTIC TOILET COMPARTMENTS AND SCREENS

A. Basis of Design: Eclipse Toilet Partitions as manufactured by and supplied by Scranton Products.
   1. Style: Floor mounted overhead-braced toilet compartments.

B. Doors and Panels: High density polyethylene (HDPE), fabricated from SEQ CHAPTER 1extruded polymer resins, forming single thickness panel.

1. Waterproof and nonabsorbent, with self-lubricating surface, resistant to marks by pens, pencils, markers, and other writing instruments.
2. Thickness: 1 inch (25 mm).
3. Edges: Shiplap.

C. Panel Color: Taken from the Traditional Series: [TBD by owner]

D. Doors and Dividing Panels:
1. High Privacy:
   a. Height: 62 inches (1575 mm) high and mounted at 8 to 14 inches (203 to 356 mm) above the finished floor.

E. Metal Posts: 82.75 inches (2102 mm) high, heavy duty extruded aluminum, clear anodized finish, fastened to foot with stainless steel tamper resistant screw.

F. Hidden Shoe (Foot): One-piece molded polyethylene invisible shoe inserted into metal post and secured to metal post with stainless steel tamper resistant screw.

G. Headrail Cap and Corner Cap: One-piece molded polyethylene secured to metal post with stainless steel tamper resistant screw; adjustable to level headrail to finished floor.

H. Wall Brackets: Continuous heavy duty extruded aluminum, clear anodized finish, inserted into slotted panel and fastened to panels with stainless steel tamper resistant screws.
1. Type: Single Ear bracket aluminum.

2. Length: 61 inches (1550 mm).

I. Headrail: Heavy duty extruded aluminum, designer anti-grip design, clear anodized finish, fastened to headrail bracket with stainless steel tamper resistant screw and to headrail cap or corner cap with stainless steel tamper resistant screw.
1. Headrail Brackets: Heavy duty extruded aluminum, clear anodized finish, secured to wall with stainless steel tamper screws.

J. Door Hardware:
1. Hinges:
   a. Edge-mounted helix style stainless steel continuous hinge.
      1) Closing degree: 5 degrees.
      2) Comes to a full close on its own weight
2. Occupancy Indicator Latch and Housing:
   a. Material: Satin stainless steel.
   b. Slide bolt and button.
3. Coat Hook and Door Bumper Combination:
   a. Material: Chrome plated Zamak
   b. Handicap Door: Equip with second door pull and door stop.
4. Door Pulls: Chrome plated Zamak

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Examine areas to receive toilet partitions, screens, and shower compartments for correct height and spacing of anchorage/blocking and plumbing fixtures that affect installation of partitions. Report discrepancies to the architect.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved Shop Drawings.

B. Install partitions rigid, straight, plumb, and level.

C. Locate bottom edge of doors and panels 9 inches (229 mm) above finished floor.

D. Clearance at vertical edges of doors shall be uniform top to bottom and shall not exceed 3/8 inch (9.5 mm).

E. No evidence of cutting, drilling, and/or patching shall be visible on the finished work.

F. Finished surfaces shall be cleaned after installation and be left free of imperfections.

3.4 ADJUSTING

A. Adjust doors and latches to operate correctly.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 10 21 13.19 SOLID PLASTIC TOILET COMPARTMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Solid plastic toilet compartments including the following: (Eclipse)
   1. Floor mounted overhead-braced toilet compartments.
   2. Floor mounted overhead-braced entry partitions.
   3. Wall mounted urinal screens.

1.2 RELATED SECTIONS

A. Section 06 10 00 - Rough Carpentry.

B. Section 05 50 00 – Metal Fabrications

1.3 REFERENCES

A. ASTM International (ASTM):
   1. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
   2. ASTM B 85 - Standard Specification for Aluminum-Alloy Die Castings.
   3. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

B. National Fire Protection Association (NFPA) 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

C. United States Green Building Council (USGBC): LEED Green Building Rating System.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Shop Drawings: Provide layout drawings and installation details with location and type of hardware required.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, two samples representing actual product, color, and patterns.

F. Sustainable Design Submittals:
   1. Recycled Content: Certify percentages of post-consumer and pre-consumer recycled content.
   2. Regional Materials: Certify distance in miles between manufacturer and Project and between manufacturer and extraction or harvest point.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A company regularly engaged in manufacture of products specified in this section, and whose products have been in satisfactory use under similar service conditions for not less than 5 years.

B. Installer Qualifications: A company regularly engaged in installation of products specified in this Section, with a minimum of 5 years experience.

C. Performance Requirements:
   1. Fire Resistance: Partition materials shall comply with the following requirements, when tested in accordance with the ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building Materials:
      a. Class B flame spread/smoke developed rating, tested to ASTM E84.
   2. Material Fire Ratings:
      a. National Fire Protection Association (NFPA) 286: Pass.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

A. Manufacturer guarantees its plastic against breakage, corrosion, and delamination under normal conditions for 25 years from the date of receipt by the customer. If materials are found to be defective during that period for reasons listed above, the materials will be replaced free of charge. (Labor not included in warranty.)

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Scranton Products; Toll Free Tel: 800-445-5148; Email:request info (info@scrantonproducts.com); Web:http://www.scrantonproducts.com

B. Substitutions: Permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 MATERIAL

A. Plastic Panels: High density polyethylene (HDPE) suitable for exposed applications, waterproof, non-absorbent, and graffiti-resistant textured surface;
   1. Fire-resistance Rating: Tested in Accordance with NFPA 286.
   2. Fire-resistance Rating: Tested to meet ASTM E84, Class B.

2.3 SOLID PLASTIC TOILET COMPARTMENTS AND SCREENS

A. Basis of Design: Eclipse Toilet Partitions as manufactured by and supplied by Scranton Products.
   1. Style: Floor mounted overhead-braced toilet compartments.

B. Doors and Panels: High density polyethylene (HDPE), fabricated from SEQ CHAPTER 1extruded polymer resins, forming single thickness panel.

1. Waterproof and nonabsorbent, with self-lubricating surface, resistant to marks by pens, pencils, markers, and other writing instruments.
2. Thickness: 1 inch (25 mm).
3. Edges: Shiplap.

C. Panel Color: Taken from the Traditional Series: [TBD by owner]

D. Doors and Dividing Panels:
1. High Privacy:
   a. Height: 62 inches (1575 mm) high and mounted at 8 to 14 inches (203 to 356 mm) above the finished floor.

E. Metal Posts: 82.75 inches (2102 mm) high, heavy duty extruded aluminum, clear anodized finish, fastened to foot with stainless steel tamper resistant screw.

F. Hidden Shoe (Foot): One-piece molded polyethylene invisible shoe inserted into metal post and secured to metal post with stainless steel tamper resistant screw.

G. Headrail Cap and Corner Cap: One-piece molded polyethylene secured to metal post with stainless steel tamper resistant screw; adjustable to level headrail to finished floor.

H. Wall Brackets: Continuous heavy duty extruded aluminum, clear anodized finish, inserted into slotted panel and fastened to panels with stainless steel tamper resistant screws.
1. Type: Single Ear bracket aluminum.

2. Length: 61 inches (1550 mm).

I. Headrail: Heavy duty extruded aluminum, designer anti-grip design, clear anodized finish, fastened to headrail bracket with stainless steel tamper resistant screw and to headrail cap or corner cap with stainless steel tamper resistant screw.
1. Headrail Brackets: Heavy duty extruded aluminum, clear anodized finish, secured to wall with stainless steel tamper screws.

J. Door Hardware:
1. Hinges:
   a. Edge-mounted helix style stainless steel continuous hinge.
      1) Closing degree: 5 degrees.
      2) Comes to a full close on its own weight
2. Occupancy Indicator Latch and Housing:
   a. Material: Satin stainless steel.
   b. Slide bolt and button.
3. Coat Hook and Door Bumper Combination:
   a. Material: Chrome plated Zamak
   b. Handicap Door: Equip with second door pull and door stop.
4. Door Pulls: Chrome plated Zamak

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Examine areas to receive toilet partitions, screens, and shower compartments for correct height and spacing of anchorage/blocking and plumbing fixtures that affect installation of partitions. Report discrepancies to the architect.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved Shop Drawings.

B. Install partitions rigid, straight, plumb, and level.

C. Locate bottom edge of doors and panels 9 inches (229 mm) above finished floor.

D. Clearance at vertical edges of doors shall be uniform top to bottom and shall not exceed 3/8 inch (9.5 mm).

E. No evidence of cutting, drilling, and/or patching shall be visible on the finished work.

F. Finished surfaces shall be cleaned after installation and be left free of imperfections.

3.4 ADJUSTING

A. Adjust doors and latches to operate correctly.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 10 26 00 - WALL AND DOOR PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1.
   2. Floor Edge Protection.
   3. Door Kick Plates
   4. Dock Bumpers

1.2 REFERENCES

A. STM D 624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers; 2000.

B. ASTM D 2632 - Standard Test Method for Rubber Property--Resilience by Vertical Rebound; 200

1.3 SUBMITTALS

A. Product Data: Physical dimensions and features of wall-mounting brackets, including mounted measurements, anchorage details, and rough-in measurements.

B. Samples: Two sections of floor edge protection, dock bumpers, and door kick plate 24 inches long, illustrating component design, configuration, and finish.

C. Manufacturer's Certificate: Products meet or exceed specified requirements.

D. Manufacturer Instructions:

   1. Submit detailed instructions on installation requirements.
   2. Storage and handling procedures.
   3. Procedures regarding perimeter conditions requiring special attention.

E. Qualifications Statement:

   1. Qualifications for manufacturer.

1.4 SUSTAINABLE DESIGN SUBMITTALS (NOT USED)

1.5 QUALITY ASSURANCE

A. Perform Work according to ANSI A117.1 requirements for accessibility.

B. Impact Strength:
   1. Minimum thickness for floor edge steel guards is ¼ inch (6.35mm).
   2. Resilience of rubber property for dock bumpers according to ASTM D2632

C. Stain Resistance: Comply with ASTM D543.

D. Surface-Burning Characteristics:

   1. Maximum Flame-Spread/Smoke-Developed Index: 26-75/0-450.
   2. Comply with ASTM E84.

E. Perform Work according to DPW standards.

F. Manufacturer: Company specializing in manufacturing products specified in this Section with three years' experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials according to manufacturer instructions.

B. Protection:

   1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
   2. Provide additional protection according to manufacturer instructions.

1.7 EXISTING CONDITIONS

A. Field Measurements:

   1. Verify field measurements prior to fabrication.
   2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 PERFORMANCE AND DESIGN CRITERIA

2.2 FLOOR EDGE PROTECTION

A. Manufacturers: stainless steel angle; 6x6x1/4 min; length of door opening

2.3 DOOR KICK PLATE

A. Manufacturers: Western Fabricating, LLC: 16 guage stainless steel kick plates

2.4 DOCK BUMPERS

A. Manufacturers: Durable Corp.
   1. Bumper: Durable Dura-Soft Bumper Patent #DES 400-145); Rubber pads with loop pads punched to receive 3/4 inch (19 mm) steel supporting rods; 3/8 inch (10 mm) thick steel face equal to rubber surface dimensions.
   2. Projection from Wall: 5-1/2 inches (140 mm).
   3. Vertical Height: 12 inches (305 mm); 4 inch (102 mm) bolt hole centers.
   4. Length: 36 inches (914 mm)
   5. Finish: Black

2.5 SUSTAINABILITY CHARACTERISTICS (NOT USED)

2.6 FABRICATION

A. Fabricate components with tight joints and corners, and flush seams.

B. Pre-drill holes for attachment.

C. Form end trim closure by capping and finishing smooth.

2.7 FINISHES

A. Floor Edge Protection: Type 304 stainless steel, with No. 4 finish

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that rough-in for components is correctly sized and located.

B. Complete finishing operations, including painting, before beginning installation.

3.2 PREPARATION

A. Clean substrate to remove dust, debris, and loose particles.

3.3 INSTALLATION

A. According to manufacturer instructions.

B. Anchor accessories to substrates using types and quantity of fasteners to support required loads and impact forces.

3.4 CLEANING

A. Remove excess adhesive from panels and adjacent materials.

B. Clean surfaces according to manufacturer instructions.

END OF SECTION 10 26 00

SECTION 10 28 13
COMMERCIAL TOILET ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Public-use washroom and shower room accessories.
   1. Mirrors.
   2. Towel dispensers.
   3. Hand dryers.
   4. Soap dispensers.
   5. Grab bars.
   6. Toilet paper dispensers.
   7. Hooks.
   8. Shelves.

1.2 RELATED SECTIONS

A. Section 08 83 00 - Mirrors.

1.3 REFERENCES

A. American National Standards Institute (ANSI):
   1. ANSI A 117.1 - Accessible and Usable Buildings and Facilities.

B. ASTM International (ASTM):
   1. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
   2. ASTM A1008/A 1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
   3. ASTM B456 - Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
   4. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror.
   5. ASTM F446 - Standard Consumer Safety Specification for Grab Bars and Accessories Installed in the Bathing Area.

C. US Federal Government:
   1. U.S. Architectural and Transportation Barriers Compliance Board. Americans with Disability Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities.

1.4 ACTION SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: For each product:
   1. Manufacturer's product data sheets indicating operating characteristics, materials, and finishes. Mark each sheet with product designation.
   2. Mounting requirements and rough-in dimensions.

C. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.

1.5 INFORMATION SUBMITTALS

A. Sample warranty.

B. Operation, care, and cleaning instructions.

1.6 Closeout SUBMITTALS

A. Furnish all spare parts packaged with identification labels.

B. Provide operation and maintenance guides for each installed product.

C. Surrender all keys to lockable units.

1.7 QUALITY ASSURANCE

A. Source Limitations: For products listed together in the same Part 2 articles, obtain products from single source from single manufacturer.

B. Manufacturer Qualifications: Approved manufacturer listed in this section, with minimum five years' experience in the manufacture of product types in use in similar facilities. Manufacturers seeking approval must submit the following:
   1. Product data, including test data from qualified independent testing agency indicating compliance with requirements.
   2. List of successful installations of similar products available for evaluation by Architect.

1.8 WARRANTY

A. The warranty is limited to replacing or repairing, at manufacturer's option, transportation charges prepaid by the purchaser, any washroom accessory unit or part thereof which our inspection shall show to have been defective within the limitations of the warranty.

B. The period during which accessory units are warranted is as follows, measured from the date of manufacturer's invoices:
   1. Complete unit, except mirrors: one (1) year.
   2. Stainless Steel Mirror Frames: fifteen (15) years against corrosion.
   3. Plate Glass Mirrors: fifteen (15) years against silver spoilage under normal indoor atmospheric conditions.
   4. Hand Dryers: ten (10) years.
   5. Tempered Glass Mirrors: five (5) years against silver spoilage under normal indoor atmospheric conditions.
   6. Laminate Glass: five (5) years against silver spoilage under normal indoor atmospheric conditions.
   7. LED Mirrors: five (5) years on electronic components and against silver spoilage under normal indoor atmospheric conditions.
   8. Polished No. 8 Architectural Grade Finish on 304 Series Stainless Steel: one (1) year against corrosion.
   9. Bright Annealed Finish on 430 Series Stainless Steel: one (1) year against corrosion.
   10. Verge Deck Mounted Soap Dispensers: three (3) years

C. The warranty does not cover installation labor charges and does not apply to any units which have been damaged by accident, abuse, improper installation, improper maintenance, or altered in any way. Rust and discoloration to stainless steel parts resulting from exposure to harsh environmental and/or chemical conditions are not considered to be defects in workmanship or material and there is no expressed or implied warranty for such a condition.

D. The replacement or repair of defective washroom accessory units as stated in the warranty shall constitute the sole remedy of the purchaser and the sole liability of the manufacturer under this

warranty. The manufacturer shall not under any circumstances be liable for incidental, consequential or indirect damages caused by defects in washroom accessory units or any delay in the repair or replacement thereof.

E. The warranty extends only to commercial and institutional purchasers and does not extend to any others, including consumer customers of commercial and institutional purchasers.

F. The warranty does not extend to any product purchased from an unauthorized online seller (meaning any seller offering manufacturer's products for sale over the internet, other than those resellers identified as "authorized".

G. The warranty is in lieu of all other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular purpose or otherwise.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer:
1. Bradley Corp.
2. Bobrick Washroom Equipment, Inc
3. American Specialties, Inc.

B. Substitutions: Permitted and will be considered in accordance with the provisions of Section 01 60 00.

2.2 PERFORMANCE REQUIREMENTS

A. Accessibility Requirements: Comply with requirements of ADA/ABA and authorities having jurisdiction.
1. ANSI A 117.1 - Accessible and Usable Buildings and Facilities.

B. Operational Performance:
1. Concealed magnetic locking system with magnetic key.
2. High visibility low-level indicator to alert staff when attention is needed.
3. Anti-slam operation to prevent an open dispenser from damaging walls or dispenser when being opened for refilling.

2.3 MIRRORS

A. Frameless Mirrors:
1. Basis of Design: Bradley Corp., Model 7B1 (MIR-7B1-Series).
2. High Quality Flat Glass: Thickness: 0.25 inches (6.4 mm).
3. Corners: Radiused. Edges: Ground and polished smooth.
4. Mounting: Vertical only.
5. Tamper Resistant: Remove mirror with tool No. 330-074 (ordered separately).
6. Shelf: Stainless steel, 300 series 16 gauge.
   a. Finish: Brushed No. 3 satin.
   b. Shelf Thickness: 5/16 inches (8 mm). Depth: 4-1/2 inches (140 mm).
   c. Length: Varies based on mirror width.
7. Guarantee: 15 years. Silver spoilage.
8. Size: refer to drawings

2.4 TOWEL DISPENSERS

A. Paper Towel Dispenser: Surface mounted.
1. Basis of Design: Bradley Corp., Model 2B1 (PTD-2B1-11 Series). Seamless design. Easy access for service.

2. Material: 20-gauge, 300 series stainless steel.
   a. Finish: Brushed No. 3 satin.
3. Construction: Welded, pill-shape.
4. Red, low-level indicator.
5. Integral, easy-feed towel guide liner.
6. Security: BradLock system and magnetic key.
   a. Magnetic Lock Location: Hidden behind the Bradley logo.

2.5 HAND DRYERS

A. Sensored Electric Hand Dryer:
   1. Basis of Design: Bradley Corp., Model 2B4 (HND-2B4). ADA approved. Slim profile. Surface-mounted.
   2. Components: UL and CE.
   3. Material: 20-gauge, 300 series stainless steel
      a. Finish: Brushed No. 3 satin finish.
   4. Construction: Welded mounting frame.
   5. Size (HxWxD): 8.5 x 12.5 x 3.9 inches (216 x 318 x 100 mm).
   6. Sound Level: 72 to 78 dB
   7. Air Speed: 70- 82 m/s.
   8. Air Filters: Carbon filter and 3M Filtrete sets.
   9. Thermal Protection: For the motor and heater.
   10. Adjustable Motor Wattage: 325 to 500 W.
   11. Dryer requires a dedicated properly grounded 15 A circuit.
   12. Power Source: 110 Volts.

2.6 SOAP DISPENSERS

A. Manual Hand Soap Dispensers: Surface-mounted. Manually-activated mechanism dispenses measured amount of vegetable or coconut oil soaps, synthetic detergents, gel sanitizer, or foam soap. Seamless design, and easy access for service.
   1. Basis of Design: Bradley Corp., Model 6B1 110000. Liquid soap.
   2. Material: 20 gauge, 300 series stainless steel.
      a. Finish: Brushed No. 3 satin finish.
   3. Low-level indicator.
   4. Security: BradLock system and magnetic key.
      a. Magnetic Lock Location: Hidden behind the Bradley logo.
   5. Anti-Slam Operation: Prevents damage to walls or dispenser when being opened for refilling.
   6. Capacity: 40-oz liquid soap/gel sanitizer or bulk foam soap.
   7. Size (HxWxD): 18-1/16 x 6-7/8 x 3-15/16 inches (273 x 279 x 102 mm).

2.7 GRAB BARS

A. Grab Bars:
   1. Basis of Design: Bradley Corp., Model 8B1-00 Series. Oval grab bar.
   2. Material: 18-gauge, 300 series stainless steel.
      a. Finish: Brushed No. 3 satin finish.
   3. End Caps: Welded.
   4. Hooks:
      a. Material: 14-gauge, 300 series stainless steel.
         1) Finish: Brushed No. 3 satin finish.

2.8 TOILET PAPER DISPENSERS

A. Toilet Paper Dispensers: Dual roll with drop-down, roll-in-reserve. A seamless design, and easy access for service.

1. Basis of Design: Bradley Corp. Model 5B2-000000 - Recessed.
   a. Size (WxHxD): 7-5/8 x 12-1/2 x 5-9/16 inches (193 x 318 x 142 mm).
2. Basis of Design: Bradley Corp. Model 5B2-110000 - Surface-mounted.
   a. Size (WxHxD): 5-11/16 x 10-1/2 x 5-9/16 inches (144 x 266 x 142 mm).
3. Material: 20 gauge, 300 series stainless steel.
   a. Finish: Brushed No. 3 satin finish on exposed surfaces.
4. Toilet Roll Size: Up to 5-1/4 inch (mm) diameter.
5. Roll Spindles: Molded polyethylene. Non-removable.
6. Bottom-hinged service door.
7. Security: BradLock system and magnetic key.
   a. Magnetic Lock Location: Hidden behind the Bradley logo.

2.9 HOOKS

A. Wall Hook: Surface-mounted Elvari Coat/Robe Hooks.
   1. Basis of Design: Bradley Corp., Model 9B1-110000. Single hook.
      a. Size: 2-3/4 x 1-3/16 x 1-11/16 inches (69 x 30 x 42 mm).
   2. Basis of Design: Bradley Corp., Model 9B1-110200. Double hook.
      a. Size: 5-3/8 x 1-3/16 x 1-3/4 inches (136 x 30 x 44 mm).
   3. Material: 14-gauge, 300 series stainless steel
      a. Finish: Brushed No. 3 satin finish.
   4. Fasteners: Set screws and hex key included.
   5. Load Rating: 50 lbs (23 kg).

2.10 SHELVES

A. Shelves:
   1. Basis of Design: Bradley Corp., Model 7B2 (SHLF- 7B2-00 Series. Surface mounted.
   2. Material:
      a. Top and Back and Integral Back Mounting Plate: 20-gauge, 300 series stainless steel.
         1) Finish: Brushed No. 3 satin finish on exposed surfaces.
      b. Front and Sides: 18-gauge, 300 series stainless steel.
         1) Finish: Brushed No. 3 satin finish on exposed surfaces.
   3. Hooks: Two per shelf.
      a. Material: 30-gauge, 300 series stainless steel.
         1) Finish: Brushed No. 3 satin finish.

2.11 MATERIALS

A. Stainless Steel: ASTM A666 Type 304 (18-8); satin finish exposed surfaces unless otherwise indicated.

B. Fasteners:
   1. Exposed: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant.
   2. Concealed: Galvanized steel.

C. Chrome Plating: ASTM B456, Service Condition Number SC 2, moderate service.

D. Mirrors: ASTM C1503, mirror glazing quality, consisting of clear float glass ASTM C1036, nominal 6.0 mm thick, triple silver plated with electro copper plated layer and thermosetting, infrared cured paint backing with epoxy protective finish.

E. ABS Plastic: Acrylonitrile-butadiene-styrene resin formulation.

2.12 FABRICATION

A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage with corrosion-resistant backing plates.

B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until the substrates have been properly constructed and prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install supports attached to building structure for equipment requiring supports.

B. Grab Bars: Install grab bars to withstand downward force of not less than 250 lbf (1112 N) per ASTM F446.

C. Install equipment level, plumb, and firmly in place in accordance with manufacturer's rough-in drawings.

3.4 CLEANING AND PROTECTION

A. Repair or replace defective work, including damaged equipment and components.

B. Clean unit surfaces and leave in ready-to-use condition.

C. Turn over keys, tools, maintenance instructions, and maintenance stock to Owner.

3.5 TESTING AND ADJUSTING

A. Test each piece of equipment provided with moving parts to assure proper operation, freedom of movement, and alignment.

B. Repair or replace malfunctioning equipment, or equipment with parts that bind or are misaligned.

END OF SECTION

SECTION 10 44 16 FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes portable, hand-carried fire extinguishers.
B. Brackets for wall mounting.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher mounting brackets.

B. Product Schedule: For fire extinguishers. Coordinate final fire-extinguisher schedule with fire-protection cabinet schedule to ensure proper fit and function.

C. Submit reduced scale building plan showing locations of each fire protection specialty required.

1.3 INFORMATIONAL SUBMITTALS

A. Warranty: Sample of special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

1. Submit test, refill, or recharge schedules
2. Submit recertification requirements.

1.5 COORDINATION

A. Coordinate type and capacity of fire extinguishers with fire-protection cabinets to ensure fit and function where applicable.

1.6 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Failure of hydrostatic test according to NFPA 10
   b. Faulty operation of valves or release levers.

2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

1. Provide fire extinguishers approved, listed, and labeled by FM Global.

2.2 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each fire-protection cabinet indicated.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. JL Industries, Inc.; a division of the Activar Construction Products Group.
b. Larsens Manufacturing Company.
c. Potter Roemer LLC.

2. Valves: Manufacturer's standard.
3. Handles and Levers: Manufacturer's standard.
4. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.

B. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 4-A:60-B:C, 10-lb nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container.

C. Carbon Dioxide Type: UL-rated 10-B:C, 20-lb nominal capacity, with carbon dioxide in enameled-steel container.

D. Clean Agent Type: UL-rated 1-A:10-B:C, 10-lb nominal capacity, with HFC blend agent and inert material in enameled-steel container; with pressure-indicating gauge.

E. Wet-Chemical Type: UL-rated 2-A:B:C:K, 1.6-gal. nominal capacity, with potassium citrate-based chemical in stainless-steel container; with pressure-indicating gauge.

2.3 MOUNTING BRACKETS (FE)

A. Mouting Brackets: Manufacturer's standard galvanized steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.

B. Identification: Lettering complying with authorities having jurisdiction for letter syle, size, spacing, and location. Locate as indicated by Architect.

1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.

    a. Orientation: Horizontal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

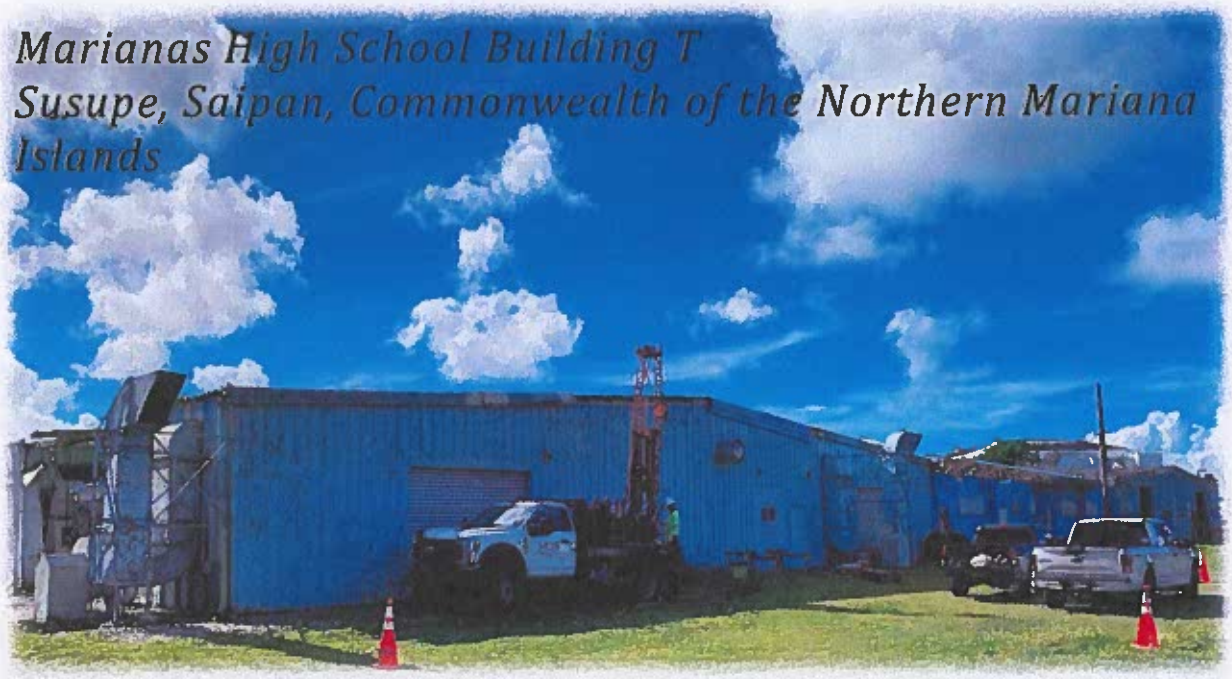
A. General: Install fire extinguishers in locations indicated and in compliance with requirements of authorities having jurisdiction.

END OF SECTION 10 44 16

Submittal 1.0

Geotechnical Engineering Report

Reference No. 21-047



February 25, 2022

Prepared for: GHD Inc.
PMB 596 Box 10000
Saipan, MP 96950

Prepared by:

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MGS
MARIANAS GEOTECH SERVICES

February 25, 2022

Andre Tenorio, P.E.
Project Manager
GHD Inc. ("GHD")
PMB 596 Box 10000
Saipan, MP 96950

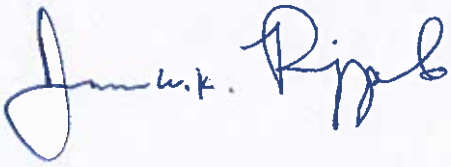
Re: Submittal 1.0
Geotechnical Engineering Report
Marianas High School Building T
Susupe, Saipan, Commonwealth of the Northern Mariana Islands

Dear Mr. Tenorio:

Marianas Geotech Services, LLC ("MGS") is pleased to submit our Geotechnical Engineering Report for the proposed Marianas High School Building T located in Susupe, Saipan, Commonwealth of the Northern Mariana Islands. MGS' services were completed in general accordance with our Proposal for Subsurface Soil Investigation Reference No. 21-047 dated July 13, 2021. This report presents our conclusions in regard to subsurface conditions and geotechnical recommendations for the proposed development.

Thank you for the opportunity to provide our services. If you have any questions, please do not hesitate to contact me.

Sincerely,
Marianas Geotech Services, LLC



02/25/22

James W. K. Ripple, P.E.
President

MGS
MARIANAS GEOTECH SERVICES

TABLE OF CONTENTS

1.0 INTRODUCTION

This report presents the results of a geotechnical exploration and evaluation of the subsurface soil conditions performed by Marianas Geotech Services, LLC ("MGS") for the proposed MHS Building T located in Susupe, Saipan, Commonwealth of the Northern Marianas Islands. The following tables provides the project description and site information.

Table 1: Project Description

Item	Description
Site Layout	Refer to the Exploration Location Plan (Figure 1 in Appendix A)
Structures	One new two storey building
Construction	The new building will consist of reinforced concrete and concrete masonry units.
Finished floor elevation	Approximately existing grade.
Site Improvements	Site grading, landscaping, drainage, and paved areas.
Grading	Grading will include over-excavating the upper soils to a depth of 12 inches bgs as well as 48 inches below the depth of the foundation systems.

Table 2: Site Information

Item	Description
Location	This project is located within the Marianas High School campus in Susupe, Saipan, CNMI.
Existing site features	The site currently has the existing condemned metal and masonry/concrete structures and numerous debris throughout the proposed new footprint.
Surrounding developments	The site is in a commercially zoned area.
Current ground cover	Concrete slabs, gravel, and low-lying grass.
Existing topography	The project site is relatively flat throughout with a moderate slope to the west.

1.1 Purpose and Scope of Work

The purpose of this subsurface soil investigation was to explore and evaluate the subsurface conditions of the site materials at selected locations within the project site to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- ground water conditions
- earthwork
- seismic considerations
- foundation design
- percolation

The following scope of services was performed in general accordance with our fee proposal dated July 13, 2021.

- Conducted field visits to evaluate site conditions
- Drilled a total of three (3) borings within or within close proximity the proposed building footprints to a depth of approximately 25.1 to 29.75 feet below the existing ground surface ("bgs").
- Conducted two (2) percolation test within the proposed ponding basin at a depth of approximately 3 feet bgs.
- Performed laboratory testing of samples collected during the field exploration to evaluate geotechnical soil index properties of the encountered materials.
- Prepared this Submittal 1.0 of the geotechnical engineering report, which summarizes the results of our field exploration and laboratory testing and provides design recommendations.

2.0 FIELD EXPLORATION AND TESTING

2.1 Field Exploration

The field exploration for this project was performed under the supervision of our Principal Engineer on October 18, 2021 to October 19, 2021. The field exploration included three (3) borings to approximate depths of 25.1 to 29.75 feet bgs.

2.2 Laboratory Testing

Laboratory testing was performed to verify our visual field classifications to determine pertinent geotechnical engineering properties of selected soil samples collected in the exploratory hand holes and borings. The geotechnical laboratory testing was performed by MGS.

A description of the laboratory test procedures is presented in Appendix B. The tests performed include moisture content and grain size distribution.

2.3 Field Testing

Field testing was performed to determine in-situ soils properties such as permeability at their respective locations. The geotechnical field testing was performed by MGS.

A description of the field test procedures is presented in Appendix A. The tests performed include percolation tests.

3.0 SUBSURFACE CONDITIONS

3.1 Typical Subsurface Profile

Subsurface conditions presented in this report are based on the interpretation of the subsoil data, obtained from the geotechnical exploration and field and laboratory testing performed by MGS. More detailed descriptions of the subsurface conditions encountered in the MGS borings are presented in the logs of borings in Appendix A.

Based on the results of exploration plan, subsurface conditions on the project site can be generalized as follows:

Table 3: Typical Subsurface Profile

Description	Approximate Thickness of Stratum	Soils Encountered	Consistency/Density
Stratum 1	2 inches	Asphalt Pavement	-
Stratum 1A*	4 inches	Clayey Sandy Silt with Grass	Soft
Stratum 2	9.5 to 16 feet	Silty Sand with Gravel/Sand	Medium Dense
Stratum 3	Maximum depth of exploration	Coralline Limestone	Weak to Hard

*Note: *encountered in BH-1.*

The U.S. Geological Survey Preliminary geologic map of the island of Saipan (2011)[1] identifies native soils in this part of the island as generally Emerged carbonate sands (Holocene) (Qrl) – very fine to very coarse grained, locally gravelly, carbonate sand, which was relatively consistent with the upper soils (underlain by weak to moderately hard limestone) encountered at the site during the subsurface soil investigation.

Specific conditions encountered at the exploration locations are indicated on the individual logs. Stratification boundaries of the logs represent the approximate location of changes in soil types; the transition between materials may be gradual.

3.2 Regional Geology and Seismic Hazard

The Commonwealth of the Northern Mariana Islands is an archipelago stretching over 500 miles and comprising of 14 islands which are divided in two geologic groups: the older south (Rota, Tinian, Saipan, Farallon de Mendinilla, and Aguijan) and younger north (Anatahan, Sarigan, Guguan, Alamagan, Pagan, Agrihan, Asuncion, Maug and Farallon de Parajaros)[2]. This arc-trench system dates back from late Eocene to early Miocene (15-20 Ma). Although all the islands are volcanic in origin, the southern Mariana Islands are primarily episodically uplifted limestone terraces created from ancient coral reefs.

[1] *Weary, David J., Burton, William C., Preliminary geologic map of the island of Saipan, Commonwealth of the Northern Mariana Islands, U.S. Geological Survey, (2011)*

The Mariana island arc was formed due to the subduction of the Pacific plate beneath the Philippine Sea plate. Seismic activity in the Mariana Islands is due to the convergence between the two tectonic plates and two crustal faults on Guam. Although there is seismic activity within the Mariana Arc, no great thrust earthquake has been associated with the Mariana plate boundary.

The U.S. Geological Survey probabilistic seismic hazard methodology[3] is based on specific fault sources with geologically or geophysical derived slip-rate or recurrence information and on historical seismic background. The maximum magnitudes for an earthquake to occur due to the Mariana Megathrust is based on local history and similar subduction zones. The comparison was made using the best-studied of all Pacific megathrust earthquakes such as the megathrust earthquake in Chile (2010 Maule, 8.8) or the earthquake in Japan (2011 Tohoku-oki, 9.0).

The probabilistic ground motions for islands in the Marianas is as follows:

Table 4: Probabilistic Ground Motions (*g*) at Guam and Saipan

Parameter	Guam (Agana)		Saipan	
	2% in 50 yr	10% in 50 yr	2% in 50 yr	10% in 50 yr
PGA	0.94	0.49	0.57	0.29
0.2Ssa	2.86	1.43	1.75	0.83
1.0Ssa	0.61	0.30	0.37	0.18

3.3 Groundwater

The borings were monitored during and immediately after completion for the presence and level of groundwater. Water level observed in the exploration log is noted on the logs as well in the table below. These water level observations provide an approximate indication of the groundwater conditions existing on the site at the time the borings were drilled.

Fluctuations of the groundwater level can occur due to the high permeability of site soils reacting to the groundwater and tidal changes.

Table 5: Groundwater Level Observations

Exploration ID	Date - Time	Depth BGS (ft)
BH-1	10/18/2021 – 9:30	7.4
BH-1	10/18/2021 – 12:00	7.7
BH-1	10/19/2021 – 11:00	7.4
BH-1	10/19/2021 – 14:25	7.5
BH-2	10/19/2021 – 11:25	6.0
BH-2	10/19/2021 – 14:45	7.0
BH-3	10/18/2021 – 15:40	8.1
BH-3	10/19/2021 – 11:04	7.9
BH-3	10/19/2021 – 14:35	8.0

[2] *Commonwealth of Northern Mariana Islands (CNMI) and Guam, Pacific Islands Benthic Habitat Mapping Center, School of Ocean and Earth Science and Technology, University of Hawai'i, Manoa. (2017)*
[3] *Mueller, C.S., Haller, K.M., Luco, N., Petersen, M.D., Frankel, A.D., Seismic Hazard Assessment for Guam and the Northern Mariana Islands, U.S. Geological Survey, (2012)*

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

The site appears suitable for the proposed construction based upon geotechnical conditions encountered, provided the recommendations presented in this report are implemented during the design and the construction of the project. We recommend supporting the proposed structures on either a spread with grade beams or continuous wall foundation system or combination, both bearing on a minimum of 48 inches of compacted engineered fill.

Geotechnical engineering recommendations for the foundation systems and other earth connected phases of the project are outlined below. The recommendations contained in this report are based upon the results of the subsurface exploration, field and laboratory testing (which are presented in Appendices A and B), engineering analyses, and our current understanding of the proposed project.

Table 6: General Foundation Design Recommendations

Item	Design Parameters
Minimum embedment below finished grade	36 inches
Minimum Wall Footing Width	30 inches
Allowable bearing capacity	Dead + Live = 3,000 psf Dead + Live + Wind/Seismic = 4,000 psf
Modulus of subgrade reaction	200 pci
Coefficient of Friction	0.35
Approximate total settlement	Approximately 1.5 inch
Estimated differential settlement	Approximately 0.5 inch
Engineered fill below foundation	Minimum thickness of 48 inches Minimum lateral placement beyond foundation width of 12 inches

4.2 Seismic Considerations

Seismic site classification is defined by the 2018 International Building Code ("IBC") as the site soil profile determination extending to a depth of 100 feet. Although this subsurface exploration only extended to 29.75 feet bgs, it is assumed that the coralline limestone could extend beyond this depth.

Table 7: Seismic Site Classification

Description	Value
2018 IBC Site Class	D

4.3 Earthwork

The following presents recommendations for site preparation, excavation, subgrade preparation and placement of engineered fill on the project. The recommendations presented for the design and construction of earth supported elements including foundations, slabs, and pavements, are contingent upon following the recommendations outlined in this section.

Earthwork on the project should be observed and evaluated by MGS. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project.

4.3.1 Site and Subgrade Preparation

Strip and remove existing concrete slabs, vegetation, and other deleterious materials from the proposed site to a minimum depth of 12 inches bgs and 48 inches below foundation design level. However, deeper stripping could be required in some areas. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction. All grading for each structure should incorporate the limits of the proposed structure plus a minimum lateral distance of 12 inches.

Upon completion of the removal of unsuitable material the exposed subgrade should be scarified and compacted. Scarified soils not meeting compaction requirements should be removed and replaced with suitable material.

4.3.2 Fill Materials and Placement

All fill materials should be inorganic soils free of vegetation, debris, and fragments no larger than two inches in size. Approved imported materials may be used as fill material for the following:

- Building foundation areas
- Floor slab areas
- Walkway slab areas
- Pavements
- General site grading

Imported soils for use as fill materials within the building foundations, slabs, sidewalks, pavement, and general site grading areas should conform to low volume change materials and meet the following specification:

Table 8: Engineered Fill Specifications

Material Type	Specification		
Engineered Fill	Gradation	Sieve Size	Percent Finer by Weight
		2"	100
		1"	80-100 (6)
		3/4"	64-94 (6)
		3/8"	40-69 (6)
		No. 4	31-54 (6)
		No. 200	4-7 (3)
	Plasticity Index	8 (max)	
	LA Abrasion	40 (max)	
	CBR	80 (min)	

Note: () The value in the parentheses is the allowable deviation (±) from the target values.

Fill should be placed and compacted in horizontal lifts, uniformly spreading without segregation using equipment and procedures that will produce the recommended moisture contents and densities throughout the lift. All proposed fill materials should be inspected and tested by MGS to ensure compliance.

Table 9: Compaction Requirements

Material Type and Location	Minimum Compaction Requirement (%)	Range of Moisture Contents above Optimum Moisture		Maximum Lift Thickness (in.)	
		Minimum	Maximum	Loose	Compacted
Engineered Fill:					
Beneath foundations	95	-1%	+3%	10	8
Beneath floor slabs	95	-1%	+3%	10	8
Beneath pavements	98	-1%	+3%	10	8
Beneath walkway slabs	95	-1%	+3%	10	8

4.4 Structure Foundations

Based on the subsurface conditions observed during our field and laboratory programs, foundation for the proposed structures may consist of the following. Recommendations for foundation systems are provided in the following section, along with other geotechnical considerations for this project.

4.4.1 Structure Foundation Recommendations

Table 10: Foundation Recommendations

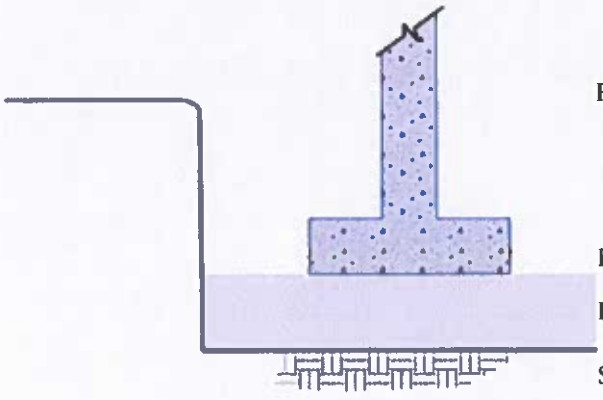
Structure	Foundation Type
Building T	Spread with Grade Beams or Continuous Wall or Combination

4.4.2 Construction Considerations

The base of all foundation excavations should be free of standing water and loose soil prior to placement of concrete. Concrete should be placed as soon as possible after the finished fill surface is placed. Any soil at the finished fill surface that becomes disturbed or saturated, be removed and replaced prior to concrete placement.

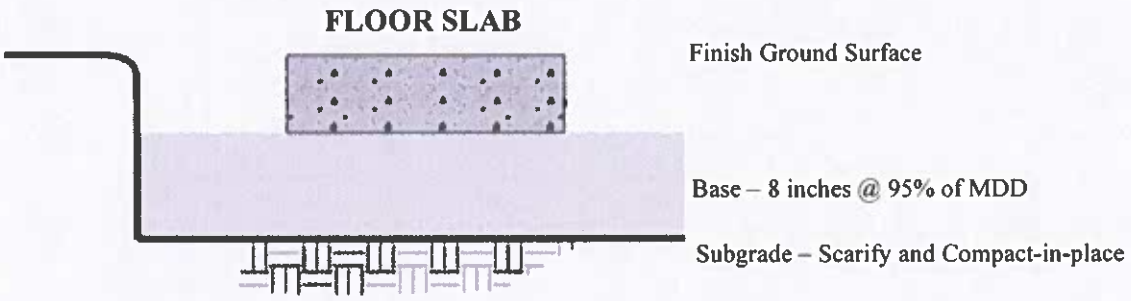
4.5 Building T Structure

Building T foundation should be constructed to bear on a minimum of 48 inches of compacted base (95% of MDD as per ASTM D1557) after which the subgrade is scarified and compacted. In the event unsuitable soils are encountered, minimum thickness of compacted base shall increase, and deeper stripping may be required and shall be determined by the geotechnical engineer upon inspection.



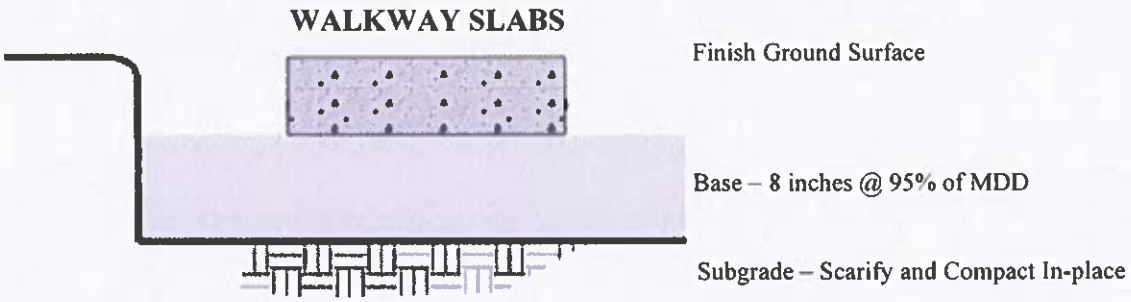
4.6 Floor Slabs

Floor slabs should be constructed to bear on a minimum of 8 inches of compacted base and be structurally supported. Moisture permeating through the concrete slab has been known to cause damage to the finished surface (e.g., vinyl and tile flooring), therefore it is recommended that a plastic vapor barrier be placed beneath the floor slab to provide some level of protection. Great care should be taken to maintain the condition of the finished fill surface and plastic vapor barrier prior to concrete placement.



4.7 Walkway Slabs

Walkway slabs should be constructed to bear on a minimum of 8 inches of compacted base.

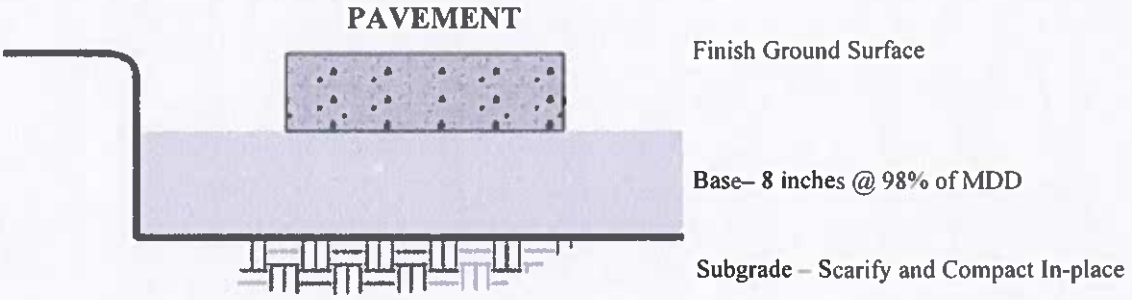


4.8 Pavements

Based on subgrade soils encountered, an assumed subgrade California Bearing Ratio ("CBR") value of 20 correlated to a Resilient Modulus of 10,000 psi, which was used as a design value in evaluating the flexible pavement section design. Flexible (asphalt) pavement sections have been design according to the 1993 AASHTO Empirical Equation for Flexible Pavements using a 20-year pavement life.

Table 11: Flexible Pavement Section Design

Subgrade Mr (psi)	ESALs	Traffic	Pavement Section, inches	
			Asphalt Concrete	Engineered Fill
10,000	25k	Automobile Parking/ Driveways	2.5	8



4.9 Percolation

Based on the existing subsurface conditions, it is our opinion that the in-situ material is considered adequate for storm water infiltration and the following percolation rates may be used in the design. Percolation rates are provided in the following table and located on the Exploration Location Map in Appendix A.

Table 12: Percolation Test Values

Exploration ID (depth)	Soil Description	Final Percolation Rate (in/hr)
PT-1 (3 ft)	Sand with Gravel	15
PT-2 (3 ft)	Sand with Gravel	150

It should be noted that siltation and vegetation growth and influent water quality along with other factors may affect the infiltration rates of the infiltration areas, therefore the developer is advised to implement a proper maintenance program for all stormwater controls.

5.0 LIMITATIONS

The geotechnical recommendations and conclusions presented in this report are based on the assumption that the scope of the construction project, as described, does not change appreciably and that significant variations in soils properties from those encountered by our field exploration do not occur. The exploration locations are widely spaced; therefore, some variation in the soil properties between these locations are likely. If any conditions are notably different from those described herein are encountered during construction, we should be immediately notified. The geotechnical recommendations presented in this report were developed assuming the Geotechnical Engineer-of-Record will be retained to observe actual field conditions encountered during construction, verify the applicability of the recommendations presented in this report, and to recommend appropriate changes in design or construction procedures, if conditions differ from those described herein.

This report was prepared for use by GHD in accordance with generally accepted geotechnical engineering principles and practices. The geotechnical opinions and recommendations given in this report are based on our analysis of the data collected for this project. Additional conclusions and/or recommendations made from the data by others are solely their own responsibility.

Our analysis is based on the data obtained from the exploration locations indicated on the Exploration Location Map. If project plans or requirements change, the conclusions and recommendation provided herein by MGS may need to be revised. The nature and extent of variations between the exploration locations may become evident during construction and will likely differ from those discussed in this report. No warranty is included, either expressed or implied, that the actual conditions encountered will conform exactly to the conditions described herein.

Our services were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the geotechnical engineering profession practicing contemporaneously under similar conditions in the locality of this project. No other representation is intended or implied.

APPENDIX A
FIELD EXPLORATION

APPENDIX A - FIELD EXPLORATION

A.1 Exploratory Borings

Field explorations consisted of a total of three (3) borings. To date, the borings were conducted on October 18, 2021 to October 19, 2021. The borings were drilled to depths ranging from approximately 25.1 to 29.75 feet bgs. The borings were drilled by MGS with a truck mounted Diedrich Drill D-25D using a 6-inch diameter continuous solid stem auger that mechanically cut and removed soil from the borehole. No fluid was required in the drilling process.

A.2 Soil Sampling

Soil sampling was conducted under the observation of MGS personnel, who logged the materials, encountered in each boring, and obtained samples for further examination and laboratory testing.

Disturbed soils samples were obtained using a Standard Penetration Test ("SPT") sampler. SPTs were performed in general accordance with the ASTM D1586, Test Method for Penetration Test and Split-Barrel Sampling of Soils. In the SPT, a 2-inch outer diameter ("OD"), 1.375-inch inner diameter ("ID"), split spoon sampler is driven with a 140-pound hammer, falling freely from a height of 30 inches. The number of blows required to achieve each of three 6-inch increments of sampler penetration is recorded. When penetration resistances exceeded 25 blows for 1 inch or less of penetration, the test was generally terminated, and the number of blows along with the penetration distance was recorded on the boring log. In addition, if the sampler exhibited bouncing after multiple blows, the test was generally terminated and considered refusal.

The number of blows required to cause the last 12 inches of penetration is termed the penetration resistance. In the SPT, this number is called Standard Penetration Resistance or N-value. The SPT N-value is a useful parameter for determining the relative density or consistency of the soils. The term "standard penetration resistance or "N-value," however, is used only for the 2-inch OD, split-spoon sampler driven for the SPT. The specific energy (energy/volume) imparted to the sample is a function of hammer type, hammer efficiency, hammer weight, hammer drop height, drill rod length and diameter, and sampler size. Therefore, the penetration resistance values obtained using different parameters than the SPT are not the same as the SPT N-value.

Soil samples recovered from the field were initially classified according to the ASTM D2488 standards and was later refined according to ASTM D2487 based on the results of the laboratory tests performed on selected samples.

Samples recovered during the field exploration were transported to MGS' geotechnical laboratory for further examination and assignment of laboratory tests on selected samples.

A.3 Field Testing

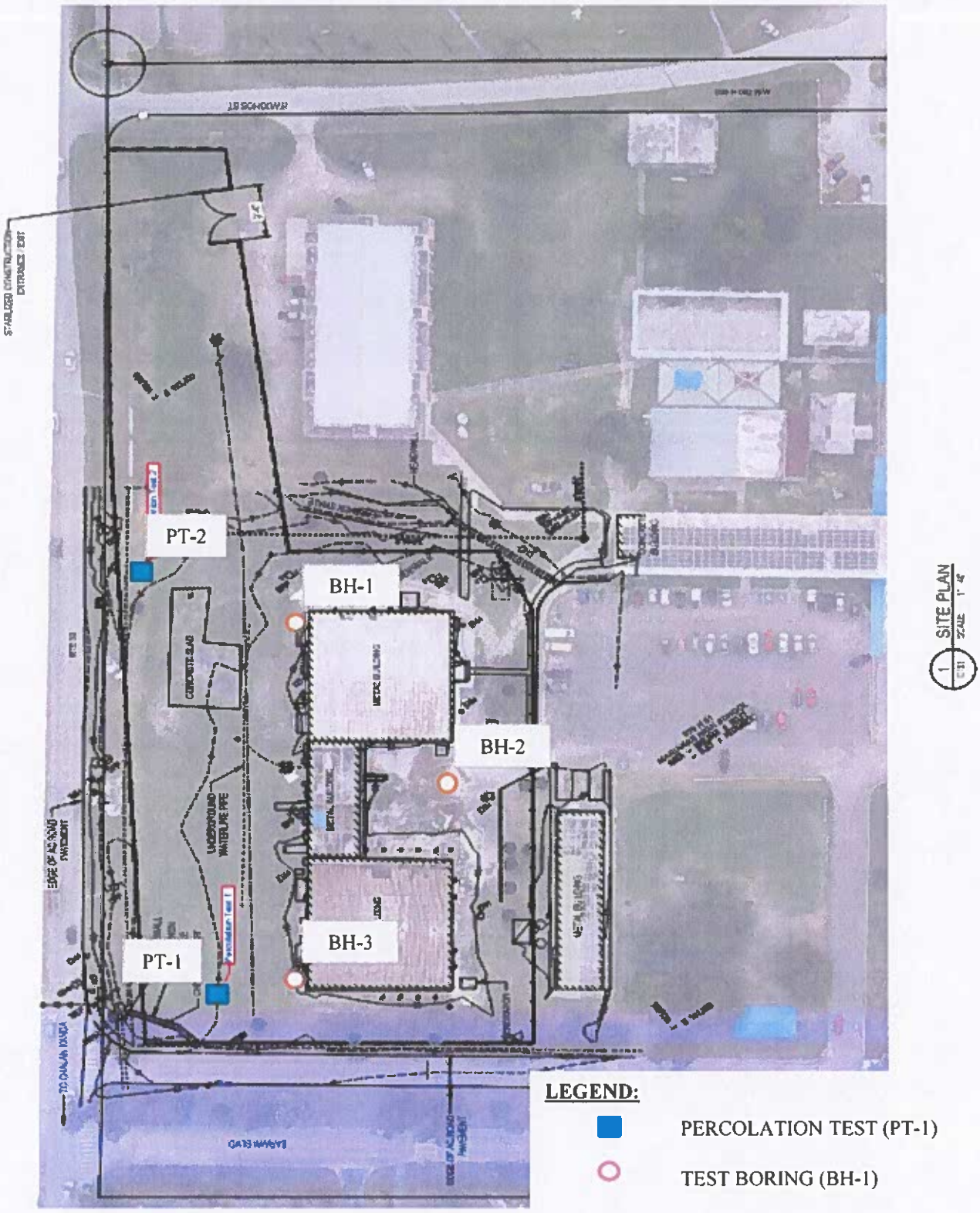
A.3.1 Percolation Tests

Two (2) in-situ percolation tests were performed within close vicinity of the project site in accordance with the DEQ Percolation Testing Manual (August 2007). The percolation test involved excavating a shallow pit, approximately 2 feet by 2 feet and 3 feet deep, with the bottom 13 inches limited to a 6-inch diameter hole. Prior to testing, a minimum of 5 gallons of water was used to pre-soak each

location. All percolation tests were witnessed by a Division of Environmental Quality personnel and performed by a DEQ certified percolation tester. Percolation rates are provided in the following table.

Table 12: Percolation Test Values

Exploration ID (depth)	Soil Description	Final Percolation Rate (in/hr)
PT-1 (3 ft)	Sand with Gravel	15
PT-2 (3 ft)	Sand with Gravel	150



SOURCE: MHS Building T Site Plan by GHD Inc.

EXPLORATION LOCATION MAP
MHS BUILDING T
SUSUPE, SAIPAN, CNMI

MGS
Mariana Geotech Services

FIGURE 1

SOIL CLASSIFICATION CHART

Major Divisions			Symbol	Typical Names	Other Criteria
COARSE GRAINED SOILS More than 50% of material larger than No. 200 sieve size	**Gravels** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravel** Little or no fines (<5%)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	Cu>4 and 1<=Cc=3
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines	Not meeting Cu and Cc criteria for GW
		Gravels with Fines Appreciable amount of fines (>12%)	GM	Silty gravels, gravel-sand-silt mixtures	Atterberg limit below A-line or PI<4
			GC	Clayey gravels, gravel-sand-silt mixtures	Atterberg limit above A-line with PI>7
	Sands More than 50% of coarse fraction passing No. 4 sieve	**Clean Gravel** Little or no fines (<5%)	SW	Well-graded sands, gravelly sands, little or no fines	Cu>6 and 1<=Cc=3
			SP	Poorly graded sands, gravelly sands, little or no fines	Not meeting Cu and Cc criteria for SW
		Gravels with Fines Appreciable amount of fines (>12%)	SM	Silty sands, sand-silt mixture	Atterberg limit below A-line or PI<4
			SC	Clayey sands, sandy-clay mixture	Atterberg limit above A-line with PI>7
FINE GRAINED SOILS More than 50% of material smaller than No. 200 sieve size	**Silts and Clays** Liquid limt less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	Atterberg limit below A-line
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clay	Atterberg limit above A-line
			OL	Organic silts and organic silty clays flow plasticity	Atterberg limit below A-line
	Silts and Clays Liquid limit larger than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	Atterberg limit below A-line
			CH	Inorganic clays of high plasticity, fat clays	Atterberg limit above A-line
			OH	Organic clays of high plasticity, organic silts	Atterberg limit below A-line
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils	

Notes: 1. Cu=D60/D10, Cc=(D30)^2/(D60 x D10) where D60, D30 and D10 are diameters associated with 60%, 30% and 10% smaller in gradation curves
2. Dual symbols are used to indicate borderline classification such as GM-SM

LOG LEGEND


Bulk/Grab Sample


2-inch SPT


3-inch California Modified Sampler

SA — Sieve Analysis

SOIL CLASSIFICATION CHART AND LOG LEGEND
MHS BUILDING T
SUSUPE, SAIPAN, CNMI

MGS Mariana Geotech Services
FIGURE 2

LOG OF BORING BH-1

PROJECT: MHS BUILDING T
CLIENT: GHD INC.
LOCATION: SUSUPE, SAIPAN, MP
DRILLER: MGS, LLC
DRILL EQUIP: DIEDRICH DRILL D-25D
GROUNDWATER LEVEL / DATE: SEE BELOW

PROJECT NO.: 21-047
DATE: 10/18/21
ELEVATION: -
LOGGED BY: MGS, LLC
HAMMER TYPE / WEIGHT / DROP: AUTO / 140 LB/ 30 IN.
DRILLING METHOD: 6 IN. SSA

DEPTH	SAMPLE NO.	SAMPLE TYPE	SAMPLING RESISTANCE	GRAPHIC LOG	DESCRIPTION	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	LIQUID LIMIT	PLASTICITY INDEX	OTHER TESTS AND REMARKS
0					DARK BROWN CLAYEY SANDY SILT WITH GRASS (MH), SOFT, MOIST					
					LIGHT GRAYISH BROWN SILTY SAND WITH GRAVEL (SM), MEDIUM DENSE, MOIST					
	1		15			9.5				SA
5										
▽					LIGHT BROWN TO WHITE SAND (SP), MEDIUM DENSE, MOIST TO WET					
	2		15			27.3				SA
10										
	3		12		SOME LIMESTONE COBBLES/GRAVELS INTERMIXED WITH SAND	23.1				
15										
					WHITE CORALLINE LIMESTONE, MODERATELY HARD					
	4		24/5"							
20										
	5		35/65"							
25					BH-1 COMPLETED AT 25.1 FEET BGS ON 10/18/21.					
30										
35										

WATER LEVEL: 7.4' AT 9:30 AM ON 10/18/21
7.7' AT 12:00 PM ON 10/18/21
7.4' AT 11:00 AM ON 10/19/21
7.5' AT 14:25 PM ON 10/19/21

FIGURE 3

LOG OF BORING BH-2

PROJECT: MHS BUILDING T
CLIENT: GHD INC.
LOCATION: SUSUPE, SAIPAN, MP
DRILLER: MGS, LLC
DRILL EQUIP: DIEDRICH DRILL D-25D
GROUNDWATER LEVEL / DATE: SEE BELOW

PROJECT NO.: 21-047
DATE: 10/19/21
ELEVATION: -
LOGGED BY: MGS, LLC
HAMMER TYPE / WEIGHT / DROP: AUTO / 140 LB/ 30 IN.
DRILLING METHOD: 6 IN. SSA

DEPTH	SAMPLE NO.	SAMPLE TYPE	SAMPLING RESISTANCE	GRAPHIC LOG	DESCRIPTION	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	LIQUID LIMIT	PLASTICITY INDEX	OTHER TESTS AND REMARKS
0					2" ASPHALT CONCRETE PAVEMENT					
					LIGHT BROWN SANDY GRAVEL (GW), MEDIUM DENSE, MOIST					
					WHITE SAND (SP), MEDIUM DENSE, MOIST					
	1		26			8.2				SA
5										
▽										
	2		17			26.5				
10										
					LIGHT BROWN CORALLINE LIMESTONE, WEAK					
	3		38			17.3				SA
15										
					BECOMES HARD					
20										
	4		25/2"							
25										
					BH-2 COMPLETED AT 28.5 FEET BGS ON 10/19/21.					
30										
35										

WATER LEVEL: 6' AT 11:25 AM ON 10/19/21.
7' AT 14:45 PM ON 10/19/21.

FIGURE 4

LOG OF BORING BH-3

PROJECT: MHS BUILDING T
CLIENT: GHD INC.
LOCATION: SUSUPE, SAIPAN, MP
DRILLER: MGS, LLC
DRILL EQUIP: DIEDRICH DRILL D-25D
GROUNDWATER LEVEL / DATE: SEE BELOW

PROJECT NO.: 21-047
DATE: 10/18/21
ELEVATION: -
LOGGED BY: MGS, LLC
HAMMER TYPE / WEIGHT / DROP: AUTO / 140 LB/ 30 IN.
DRILLING METHOD: 6 IN. SSA

DEPTH	SAMPLE NO.	SAMPLE TYPE	SAMPLING RESISTANCE	GRAPHIC LOG	DESCRIPTION	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	LIQUID LIMIT	PLASTICITY INDEX	OTHER TESTS AND REMARKS
0					2" ASPHALT CONCRETE PAVEMENT					
					GRAY TO LIGHT BROWNISH WHITE SAND (SP), MEDIUM DENSE, MOIST					
	1		17			6.8				
5										
▽										
	2		15			29.1				
10										
					LIGHT BROWN CORALLINE LIMESTONE, MODERATELY HARD TO HARD					
	3		15/.75"							
15										
	4		25/3"							
20										
					BECOMES WEAK 21'-26'					
	5		11		BECOMES GRAYISH BROWN	16.8				SA
25										
					BECOMES MODERATELY HARD					
	6		41/4"							
30										
					BH-3 COMPLETED AT 29.75 FEET BGS ON 10 /18/21.					
35										

WATER LEVEL: 8.1' AT 15:40 PM ON 10/18/21.
7.9' AT 11:04 AM ON 10/19/21.
8' AT 14:35 PM ON 10/19/21.

FIGURE 5

CNMI DIVISION OF ENVIRONMENTAL QUALITY

PERCOLATION TEST REPORT

Test Pit Results

Complete & attach one form for each percolation test, along with copy of original level measurement sheet

TEST PIT NUMBER: PT 1 Examples: "OS1" for on-site wastewater system; "SW1" for stormwater infiltrators	2/7/2022 Date of measurement

1. Project Information

GHD
Owner Name

Drainage
Project Name / Type

Saipan, Susupe
Island, Village

2. Test Pit Description

Hole Dimensions

Diameter: (in.) 6

Bottom Depth: (in.) 36

Pre-soaking data:

Start time / date: 13:30 2/6/2022

Volume absorbed (gal.): 5

Soil Description: *(brief – see detailed soil profile log from deep observation pit)*

Depth (in. to in.)	Soil texture or description (e.g., silty clay loam, limestone)	Color
0-2	Clayey Sand with Vegetation	Dark Brown
2-5	Silty Gravel	White
5-36	Sand with Gravel	Grayish Black

2. Percolation Test Data

Start time / date: 13:30 2/7/2022

*****Enter final six measurements only*****

Interval No.	Drop (in.) fractions (e.g., 1 5/16th)	Drop (in.) decimal (e.g., 1.3125")	Time Interval (min.)
1.	1 1/4	1.25	0.5
2.	7/8	0.875	0.5
3.	5/8	0.625	0.5
4.	9/16	0.5625	0.5
5.	1/2	0.5	0.5
6.	1/2	0.5	0.5

3. Final Rate Calculation

final drop: 0.5 (in.) / *time:* 0.5 (~~min.~~) X 60 ~~min.~~ / 1 hr. = 15 in./hr.

3. Certification

Nathan Castro (See original report for signature)
Test Performed by: (print & signature)

00134
DEQ Percolation Tester Certification Number

Valerie Hofschneider 2/7/2022 (See original report for signature)
Witnessed by: (DEQ inspector signature & date)

DEQ form version 7.13.07

FIGURE 6

CNMI DIVISION OF ENVIRONMENTAL QUALITY

PERCOLATION TEST REPORT

Test Pit Results

Complete & attach one form for each percolation test, along with copy of original level measurement sheet

TEST PIT NUMBER: PT 2 Examples: "OS1" for on-site wastewater system; "SW1" for stormwater infiltrators	2/7/2022 Date of measurement

1. Project Information

GHD
Owner Name

Drainage
Project Name / Type

Saipan, Susupe
Island, Village

2. Test Pit Description

Hole Dimensions

Diameter: (in.) 6

Bottom Depth: (in.) 36

Pre-soaking data:

Start time / date: 14:30 2/6/2022

Volume absorbed (gal.): 5

Soil Description: *(brief – see detailed soil profile log from deep observation pit)*

Depth (in. to in.)	Soil texture or description (e.g., silty clay loam, limestone)	Color
0-3	Clayey Sandy Gravel with Vegetation	Grayish Brown
3-36	Sand with Gravel	White

2. Percolation Test Data

Start time / date: 14:30 2/7/2022

*****Enter final six measurements only*****

Interval No.	Drop (in.) fractions (e.g., 1 5/16th)	Drop (in.) decimal (e.g., 1.3125")	Time Interval (min.)
1.	1 9/16	1.5625	0.25
2.	1 3/8	1.375	0.25
3.	1 1/8	1.125	0.25
4.	1	1.0	0.25
5.	13/16	0.8125	0.25
6.	5/8	0.625	0.25

3. Final Rate Calculation

final drop: 0.625 (in.) X 60 ~~min.~~ = 150 in./hr.
time: 0.25 (~~min.~~) 1 hr.

3. Certification

Nathan Castro (See original report for signature)
Test Performed by: (print & signature)

00134
DEQ Percolation Tester Certification Number

Valerie Hofschneider 2/7/2022 (See original report for signature)
Witnessed by: (DEQ inspector signature & date)

DEQ form version 7.13.07

FIGURE 7

APPENDIX B
LABORATORY TESTING

APPENDIX B - LABORATORY TESTING

To evaluate their engineering properties, selected soil samples obtained during the field exploration were laboratory tested for moisture content and gradation analysis. MGS, the Geotechnical Engineer of Record for this project, reviewed field logs and collected soil samples. MGS then developed the laboratory test program to provide their soil classification and geologic unit interpretations for inclusion in the boring logs presented in this geotechnical data report. The laboratory tests completed for this project are described in the following paragraphs.

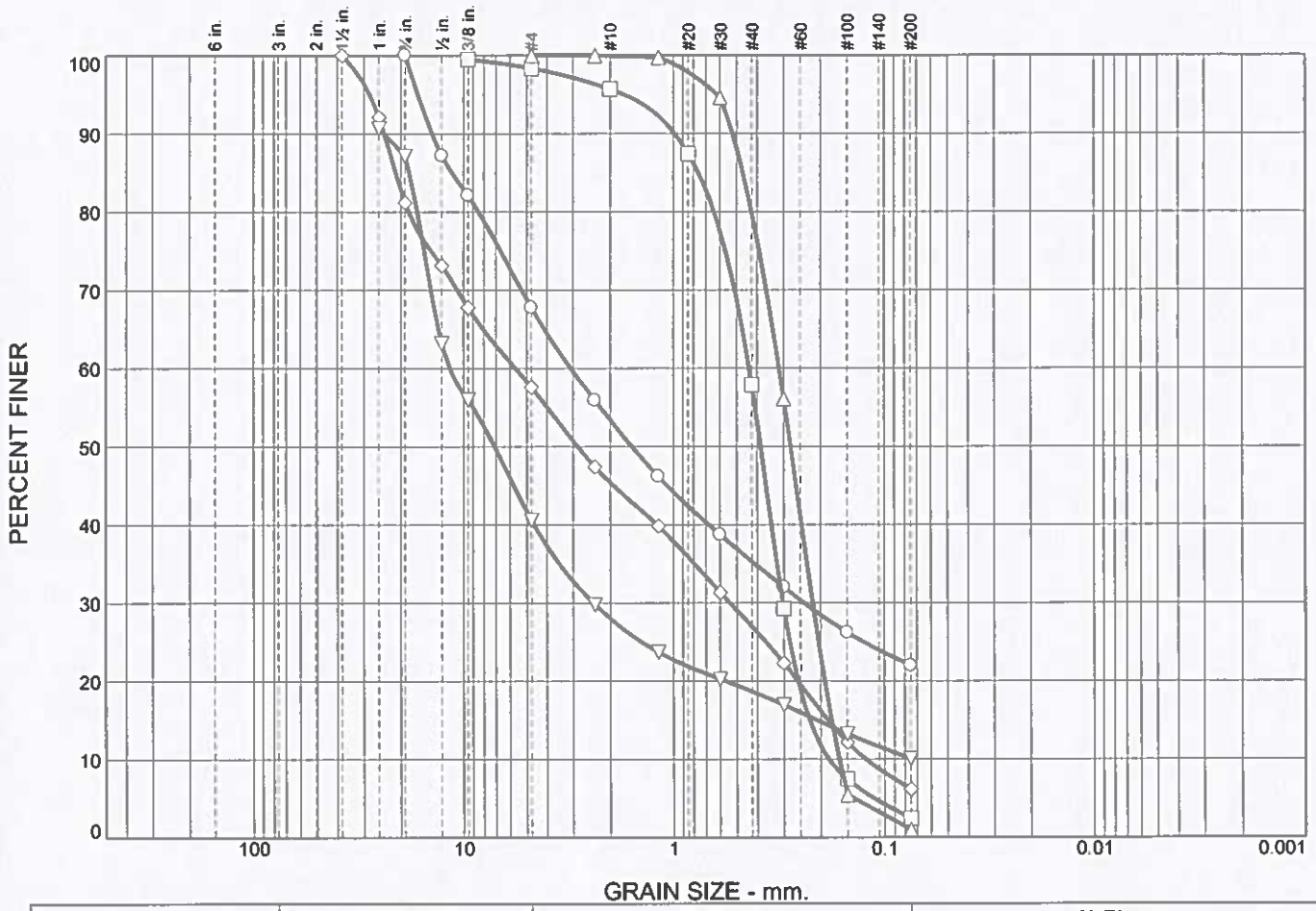
B.1 Moisture Content

Selected soil samples were tested to measure their moisture contents. The tests were performed in accordance with ASTM D2216. Results of the moisture contents are shown on boring logs at the appropriate sample depths.

B.2 Gradation Analysis

Gradation analyses were performed on selected samples using the sieve method to evaluate grain size distribution. These tests were performed in accordance with ASTM D422. Results of the gradation analyses are presented on the boring logs at the appropriate sample depths and within this Appendix.

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	32.3	14.3	18.1	13.3	22.0	
□				2.6	37.8	55.5	2.4	
△	0.0	0.0	0.0	0.1	20.0	78.9	1.0	
◇	0.0	18.8	23.6	12.2	18.4	20.8	6.2	
▽			46.5	12.6	9.4	8.6	10.0	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH-1	1	3.5	LIGHT GRAYISH BROWN SILTY SAND WITH GRAVEL	SM
□	BH-1	2	8.5	LIGHT BROWN TO WHITE SAND	SP
△	BH-2	1	3.5	WHITE SAND	SP
◇	BH-2	3	14	LIGHT BROWN CORALLINE LIMESTONE	ROCK
▽	BH-3	5	24	GRAYISH BROWN CORALLINE LIMESTONE	ROCK

MGS
MARIANAS GEOTECH SERVICES

Client: GHD INC.
Project: MHS BUILDING T
Project No.: 21-047
Figure 8

Exhibit B

NORTHERN MARIANAS HOUSING CORPORATION
P.O. BOX 500514, Saipan, MP 96950-0514
Email: nmhc@nmhc.gov.mp
Website: http://www.nmhcgov.net

Amendment No. 3

INVITATION FOR BIDS (IFB)

(This ad is paid by NMHC with HUD Funds)

NMHC IFB 2024-006

MARIANAS HIGH-SCHOOL CAREER TECHNICAL EDUCATION CENTER CONSTRUCTION PROJECT

The Northern Marianas Housing Corporation (NMHC) is soliciting sealed bids for the Marianas High-School Career Technical Education Center Construction Project.

The proposed project activity will be an approximately 42,000 square-foot, reinforced concrete two story building. The new facility will include technical education classrooms include automotive workshop, culinary arts training kitchen, performing arts theatre, mock-up hotel room, various classrooms, flexible spaces, electrical room, telecom room, storage space, office space, designated loading area, restrooms, fire pump room, water tank, exterior walkways, and an exterior enclosure for mechanical equipment.

The site improvements include perimeter sidewalks, training kitchen garden, grading as the building is raised 2' above existing grade, driveway to allow vehicles access to the theatre back of house, and driveway to the automotive workshop.

Site water will be connected through a new connection along Beach Road. The facility's sanitary sewer system will connect to the existing sewer gravity lines within the campus Power will be routed from Beach Road and to a new pad mounted transformer just west of the building.

The project is funded through the Economic Development Authority (EDA), US Department of Housing and Urban Development (HUD) through the Northern Marianas Housing Corporation (NMHC), and Federal Emergency Management Agency (FEMA) through the CNMI Office of the Governor, Public Assistance Office (PAO). EDA and HUD funding will be utilized for the superstructure and site improvements.

The Project Package will be available beginning **April 30, 2024,** at the NMHC Central Office in Garapan, Saipan, during regular working hours (7:30 a.m. to 4:30 p.m.) Monday thru Friday except CNMI holidays. A non-refundable payment of **One Hundred Dollars ($100.00)** is required for each set of the project package. Payment must be made payable to NMHC and receipt of payment must be presented when obtaining the project package at the reception counter.

A Mandatory Pre-Bid Conference will be held at the NMHC Central Office in Garapan, Saipan on **May 24, 2024, 10:00 a.m.** In addition, a Mandatory site Visit/Inspection of the project site will be conducted immediately after the Pre-Bid Conference. Failure to attend both the Mandatory Pre-bid conference and the Mandatory site Visit/Inspection will be considered a non-responsive bidder.

Sealed bids must be marked **NMHC IFB 2024-006.** For Bidders within the CNMI, an original, three (3) copies of sealed bids and one (1) USB flash drive must be submitted to the NMHC Central Office, Garapan, Saipan MP 96950, **no later than 2:00 p.m. ~~July 19, 2024~~ July 26, 2024.** Bids received after the date and

time will not be accepted. Bidders located outside the CNMI may obtain an additional seven (7) working days for receipt of their bids by submitting a **Notice of Intent to Bid.** Notice of Intent to Bid must be received by the Procurement Officer no later than 2:00 p.m. local time, ~~**July 19, 2024**~~ **July 26, 2024,** and must be transmitted via facsimile to (670) 234-9021, or via email to officemanager@nmhcgov.net. For bidders outside the CNMI, an original, three (3) copies and one (1) USB Flash Drive of sealed bids must be postmarked by the U.S. Postal Services or the official government postal service of a foreign country no later than ~~**July 19, 2024**~~ **July 26, 2024,** and must be received at NMHC no later than ~~**July 30, 2024**~~ **August 06, 2024.** Note that failure to submit the required number of copies may be cause for rejection of a bid.

Bids will be publicly opened and read at the NMHC Central Office, Garapan, Saipan at **2:30 p.m.** local ~~**July 19, 2024**~~ **July 26, 2024.** However, if notice of intent to bid is received from bidders outside the CNMI, bids will be opened at **2:00 p.m.** local time on ~~**July 31, 2024**~~ **August 07, 2024.**

Bid Security: Bids shall be accompanied by a bid guarantee of not less than fifteen percent (15%) of the amount of the bid which maybe a Bid Bond (form enclosed) in cash, by certified check, cashiers' check or other form acceptable to NMHC.

Bidding Procedures shall be in compliance with the NMHC Procurement Regulations (NMIAC § 100-60)

Breach of Ethical Standard

NMIAC § 100-60-725 (a) Gratuities and Kickbacks

Gratuities. It shall be a breach of ethical standards for any person to offer, give or agree to give any employee or former employee or for any employee or former employee to solicit, demand accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation of any part of a program requirement or purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing or any other advisory capacity in any proceeding or application, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract or to any solicitation or proposal therefor.

Kickbacks. It shall be a breach of ethical standards for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith as an inducement for the award of a subcontractor or order.

NMIAC 100-60-730 Prohibition Against Contingent Fees

Contingent Fees. It shall be a breach of ethical standards for a person to be retained, or to retain a person, to solicit or secure NMHC contracts upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except for retention of bona fide employees or bona fide established commercial selling agencies for the purpose of securing business.

NMHC hereby notifies all bidders that it will affirmatively ensure that, in any contracts entered into pursuant to this advertisement, small, minority businesses and women's business enterprises will be afforded equal opportunity to submit bids and will not be discriminated against on grounds of race, color, religion, sex, disabilities or national origin.

This project is also subject to Section of the Housing and Community Development Act of 1968 which requires the successful bidder to the "maximum extent feasible", take affirmative steps to provide training, contracting and employment opportunities and help ensure that the economic opportunities generated by these HUD funds are provided to local low-income residents in Saipan.

NMHC reserves the right to reject any and all proposals for any reason and to waive any defects in the bids if determined to be in its best interest. All bids received shall become the property of the Commonwealth Government

/s/
Jesse S. Palacios
Corporate Director

/s/
Merced “Marcie” M. Tomokane
Chairwoman, NMHC Board of Directors