File No. EA2020-122

CITY OF RICHLAND
Determination of Non-Significance

Description of Proposal: Construction of a 20,000 s.f. food processing structure with associated infrastructure and parking areas on an approximate 4-acre site. It is anticipated that a future expansion of the proposed building will occur (approx. 7,500 s.f.) and that another building approximately 20,000 s.f. will be constructed on the western portion of the site sometime in the future.

Proponent: BDG Investments
JF Engineering, PLLC
Attn: John Fetterolf
7500 W Clearwater, STE A
Kennewick, WA 99336

Location of Proposal: The proposed project will occur at 2746 & 2770 Battelle Blvd, Richland, WA (APN 121082013288002).

Lead Agency: City of Richland

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

( ) There is no comment for the DNS.

(**X**) This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for fourteen days from the date of issuance.

( ) This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

Responsible Official: Mike Stevens
Position/Title: Planning Manager
Address: 625 Swift Blvd., MS #35, Richland, WA 99352
Date: September 8, 2020

Signature_____

A. Background

1. Name of proposed project, if applicable:

   GF Blends

2. Name of applicant:

   BDG Investments

3. Address and phone number of applicant and contact person:

   Applicant:
   BDG Investments
   Mr. Glen Call
   2151 Henderson Loop
   Richland, WA 99354
   (509) 308-0459

   Contact:
   JF Engineering, PLLC
   Mr. John Fetterolf
   7500 W Clearwater, STE A
   Kennewick, WA 99336
   (509) 551-8174

4. Date checklist prepared:

   August 24, 2020

5. Agency requesting checklist:

   City of Richland

6. Proposed timing or schedule (including phasing, if applicable):

   Construction on the project is anticipated to begin in the summer of 2020 and will likely last until sometime in 2021. The easterly building expansion will be determined by market conditions. Currently anticipated to be between 2024-2026.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

   This project anticipates expanding the current planned building on the east side of the property. In the future there are plans to construct a similar structure on the west half of the property.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

   No environmental information has been prepared related to this project.

9. Do you know whether applications are pending for governmental approvals or other proposal directly affecting the property covered by your proposal? If yes, explain.

   There are no applications pending or proposal directly affecting the property.

10. List any government approvals or permits that will be needed for your proposal, if known.

The project will be reviewed and approved by the City of Richland Building Department prior to construction. A building permit will be required to complete the project.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

    The current project will construct a single 20,000 SF food processing structure together with associated roof, sidewalks, and parking areas on an approximate 4-acre site. In the future, the project anticipates expanding the building to incorporate approximately 7,500 SF of additional space. It is anticipated that within the next several years, an additional building, similar in size to the current structure, will be developed on the western half of this site.

    The project involves receiving and shipping food products with semi-trailers and storing raw materials and finished products inside the building. The building will be used for the processing of food products, without the use of frying.

    The area around the structure will be paved for employee parking and semi-truck and trailer shipping/receiving.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site, plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or details plans submitted with any permit applications related to this checklist.

    The project site is located in the NW¼ of SEC 21 and the SW¼ of SEC 16, T9N, R28E, W.M. More specifically the site is located on two lots on the north side of Battelle Boulevard approximately 400ft from the intersection of Kingsgate. The east lot is 2746 Battelle Blvd and the western lot is 2770 Battelle Blvd. (Tax ID 121082013288002). The project encompasses approximately 4.8 acres of property.

B. Environmental elements

1. Earth

a. General description of the site (circle one): Flat, **rolling**, hilly, steep slopes, mountainous, other.

The site is rolling, falling from east to the west.

b. What is the steepest slope on the site (approximate percent slope)?

Limited areas of the site are 15-20 percent.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

The soils are classified as Quincy loamy sand. NRCS provides an HSG rating of Type A soils which have a high infiltration rate and low runoff potential when thoroughly wet.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

There are no indications of unstable soils in the immediate vicinity.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

Grading will occur to facilitate the project. Approximately 4,000CY of onsite material will be cut and placed to create the final grades for the initial project. The next building will have similar cut and fill volume requirements. Fill will be generated from onsite cuts. No import or export is anticipated.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Due to the sandy soil conditions erosion from rain is unlikely. Wind erosion is more likely, although this will be controlled through Best Management Practices.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or building)?

The general project area totals 4 acres with the impervious asphalt and concrete areas totaling 65,000SF for a 38% coverage rate. With construction of the western building and associated impervious areas, total site impervious coverage is expected to be in the 65-75% range.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Best Management Practices will be employed to control erosion from wind, as best practicable.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

During the construction phase of the project, exhaust from construction equipment will be generated and dust will be generated from construction activities. After completion, the project will generate exhaust from commercial cooking and distilling processes. Exhaust will also be generated from forklifts and semi-truck receiving and shipping.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

No

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

The project will install new trees and bushes along the frontage that will reduce impacts created by the project.

3. Water

a. Surface Water:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

There are no surface water bodies or seasonal streams near the project.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

No.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

None.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No.

6) Does the proposal involve any discharges of waste materials to surface water? If so, describe the type of waste and anticipated volume of discharge.

No.

b. Ground water:

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No, the project will be connected to the City of Richland municipal water system.

2) Describe waste material that will be discharged into the gound from septic tanks or other sources, if any (for example: industrial, containing the following

chemicals..., agricultural; etc.) Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste materials will be discharged into the ground.

c. Water Runoff (including storm water):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Stormwater runoff from onsite impervious pavement will be collected, treated, and infiltrated into the ground.

2) Could waste materials enter ground or surface waters? If so, generally describe.

No. Stormwater is collected in trapped catch basins and infiltrated into the native ground. Groundwater is over 70ft from the bottom of these facilities.

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe

No.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Runoff from impervious surfaces will be designed to capture the 25-year design rainfall event, detain it, and infiltrate it into the ground over time. Infiltrated stormwater runoff will be treated in accordance to the Eastern Washington Stormwater Management Manual.

4. Plants

a. Check or circle types of vegetation found on the site:

deciduous tree; alder, maple, aspen, other
evergreen tree; fir, cedar, pine, other
shrubs
pasture
crop or grain *(alfalfa)*
wet soil plants; cattail, buttercup, bullrush, skunk cabbage, other
water plants: water lily, eelgrass, milfoil, other
other types of vegetation (**sage brush and wildland grasses**)

b. What kind and amount of vegetation will be removed or altered?

All existing vegetation within the project area will be removed.

c. List threatened, or endangered species known to be on or near the site.

The applicant is not aware of any threatened or endangered plant species on or near the site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

The completed project will incorporate lawn, trees, and drought tolerant bushes into the landscaping areas.

e. List all noxious weeds and invasive species known to be on or near the site.

*Cheat grass*http://www.ecy.wa.gov/programs/sea/sepa/ChecklistGuidance.html - Plants

5. Animals

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site.

Examples include:

birds: **hawk**, heron, eagle, **songbirds**, other: ***Quail***
mammals: **deer**, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other:

b. List any threatened or endangered species known to be on or near the site.

There are no known threatened or endangered species known to be on or near the site.

c. Is the site part of a migration route? If so, explain.

Yes, Richland is within the Pacific Flyway which stretches from Canada to Mexico.

d. Proposed measures to preserve or enhance wildlife, if any:

None

e. List any invasive animal species known to be on or near the site.

None

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electricity will be provided by Richland Energy Services. Electricity will be used for both heating and in the food manufacturing and packaging process.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

The building will be constructed to meet State Energy and Building Codes for heating, cooling, and insulation.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk or fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.

No.

1) Describe any known or possible contamination at the site from present or past uses.

There are no known past or present contamination issues with the site.

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity:

None

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

None.

4) Describe special emergency services that might be required.

None.

5) Proposed measures to reduce or control environmental health hazards, if any:

None.

b. Noise

1) What types of noise exist in the area, which may affect your project (for example: traffic, equipment, operation, other)?

None.

2) What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

During the short term, construction equipment will be present to construct the infrastructure necessary for the project. Long-term noise is expected to be that typically associated with a commercial/light industrial business. This includes indoor machinery, moving equipment, and vehicles.

3) Proposed measures to reduce or control noise impacts, if any:

During construction, work hours will be limited per the City of Richland Municipal Code.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe?

The project site, and the property to the west, are currently undeveloped. Adjacent properties to the north, south, and east are developed as various industrial and manufacturing businesses.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use.

Approximately 20 years ago, the property was part of an irrigation circle pivot used for agricultural cash crops. Since approximately 2000, a railroad spur was constructed through the approximate center of the circle and the site was removed from irrigation and has been unused and vacant since.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how.

No.

c. Describe any structures on the site.

There are no structures on the site.

d. Will any structures be demolished; if so, what?

None.

e. What is the current zoning classification of the site?

The property is classified by the City of Richland as M-2, Heavy Manufacturing.

f. What is the current comprehensive plan designation of the site?

The property is identified as Industrial within the City's Comprehensive Plan.

g. If applicable, what is the current shoreline master program designation of the site?

The property does not have a shoreline master program designation.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

No.

i. Approximately how many people would reside or work in the completed project?

The business will employ approximately 20 employees in the near term and ultimately up to 40.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

None.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The project type is compliant with the City of Richland's Comprehensive Plan and current zoning for the property.

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

The project follows the City of Richland's Comprehensive Plan which addresses nearby compatible uses. There are no long-term commercially significant agricultural or forest lands near this project.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any:

None.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The building is anticipated to be approximately 35ft in height at its maximum point.

b. What views in the immediate vicinity would be altered or obstructed?

None.

c. Proposed measures to reduce or control impacts, if any:

Landscaping is proposed along the frontage as a part of this project which will visually soften the improvements.

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Light from building wall packs will illuminate the parking and receiving areas. The lights operate from dusk to dawn.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Lights will be shielded to direct light downward. The lights themselves are intended to increase safety by increasing nighttime visibility. It is not anticipated that the lights will interfere with views.

c. What existing off-site sources of light or glare may affect your proposal?

None.

d. Proposed measures to reduce or control light and glare impacts, if any:

Lights will be shielded to direct light downward.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

None.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

None.

13. Historic and Cultural Preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.

None known to the applicant.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

None known to the applicant.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc:

None.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

None.

14. Transportation

a. Identify public streets and highways serving the site and describe proposed access to the existing street system. Show on site plans, if any.

The project accesses Battelle Boulevard, which connects to Kingsgate Way. Kingsgate connects to HWY 240 which is a part of the State's transportation system.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

No. The nearest transit stop is Route 123 located on Spengler Street and Cosmic Ln, approximately 3.4 miles from the site.

c. How many parking spaces would the completed project have? How many would the project eliminate?

The project will not eliminate any parking spaces. It will create approximately 13 new spaces for employee parking.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No new streets are being developed with this project. The project is served by the previously constructed Battelle Boulevard.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No, the project will not utilize rail transportation.

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

With an estimated 20 employees (initially) and using the ITE, 6th Edition tables for General Heavy Industrial (120), 16 trip ends per day can be expected. At ultimate build-out of 40 employees, 33 trip ends per day can be expected. Peak volumes are anticipated during the 4pm to 6pm time frame.

g. Will the proposal interfere with, affect, or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

None.

h. Proposed measures to reduce or control transportation impacts, if any:

The project will pay traffic impact fees as levied by the City of Richland. In addition, business taxes will be paid to the State and City that could be utilized for transportation system related projects.

15. Public Services

a) Would the project result in an increased need for public services (for example: fire protection, police protection, healthcare, school, other)? If so, generally describe.

No.

b) Proposed measures to reduce or control direct impacts on public services, if any.

Business taxes utility fees will be paid to the City that will offset impacts to public services.

16. Utilities

a) Circle utilities currently available at the site: **electricity,** natural gas**, water, refuse service, telephone,** sanitary sewer, septic system, other.

City water, sewer, and power are currently extended into the site from Battelle Boulevard.

b) Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity, which might be needed.

Private utilities (telephone, television) will have the opportunity to be extended with the project. Actual installation will be dependent upon the private companies own business operations.

C. SIGNATURE:

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Name of signee: John Fetterolf

Position and Agency/Organization: Owner, JF Engineering PLLC (Project Engineer)

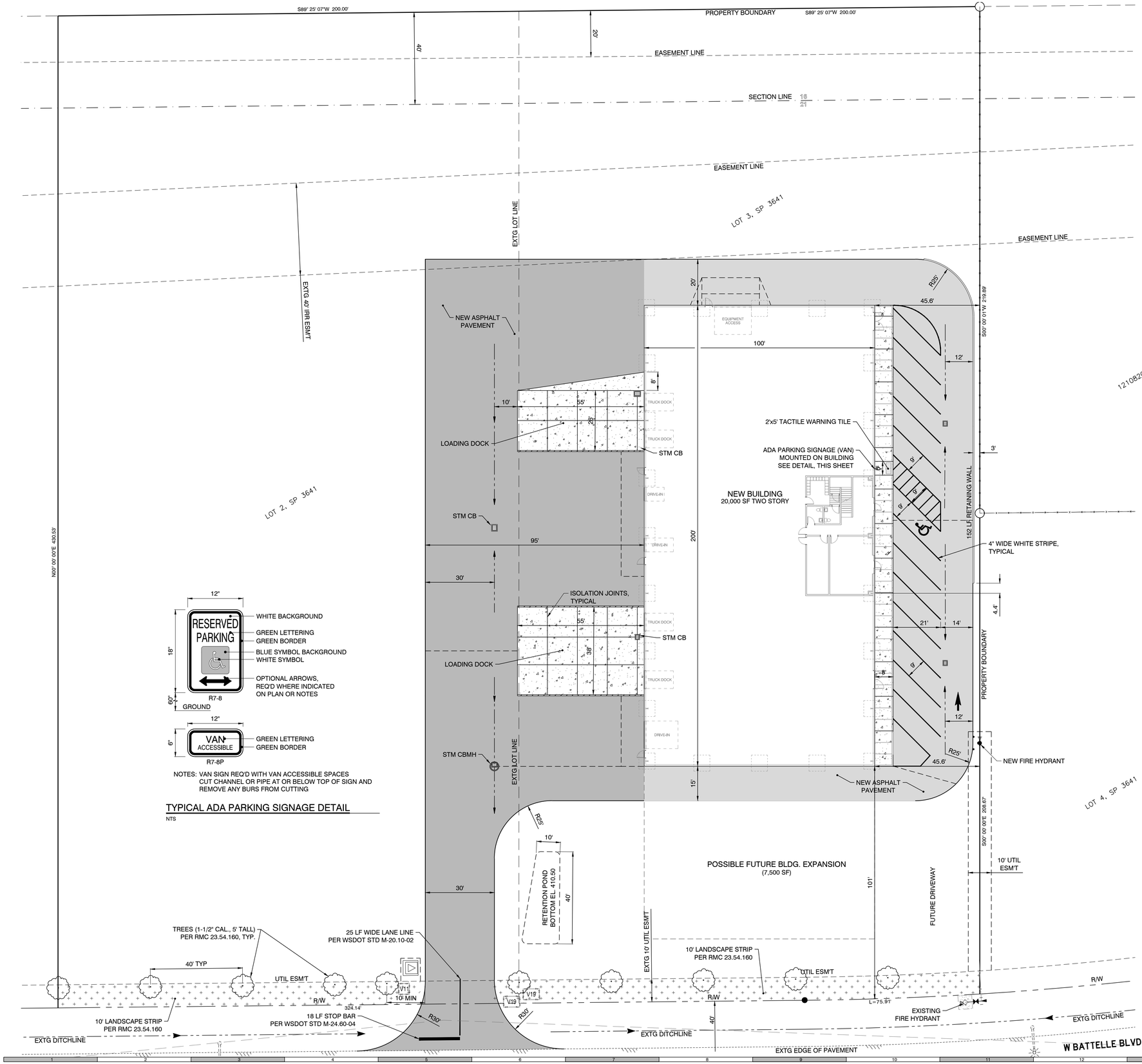
Date Submitted: 8/25/2020

Community & Economic Development Department

This application was reviewed by the Planning Division of the Community & Economic Development Department. Any comments or changes made by the Department are entered in the body of the checklist and contain initials of the reviewer.

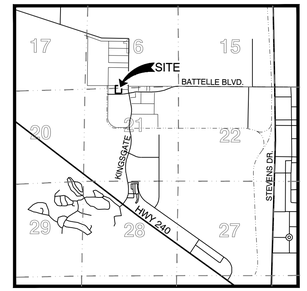
_____

Reviewer Signature Date



TYPICAL ADA PARKING SIGNAGE DETAIL

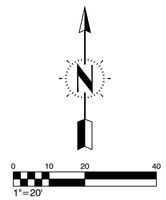
NTS



VICINITY MAP

T10N R28E
1"=4,000'±

SHEET INDEX



Developer:
GF Blends
2151 Henderson Loop
Richland, WA 99354

Surveyor:
Permit Surveying, Inc.
2245 Robertson Drive
Richland, WA 99354
Phone: (509) 375-4123

Project Statistics

Parcel tax ID: 121082013288002

Parcel area: 172,171 SF / 3.95 Ac

Current zoning: M-2; Heavy Manufacturing
Building area: 20,000 SF Proposed, 2 Story
Proposed use: Manufacturing

Site lighting: Shielded wall packs

Off-street parking requirements:

1 space per each 2 employees on largest shift	20 employees/2 =10 spaces
Total required spaces	10 spaces

Off-street parking provided:

Standard	12 spaces	92%
ADA Compliant	1 space	8%
Total provided	13 spaces	100%

Total site area: 172,154 SF / 3.95 Ac (Lots 2 & 3)
Total pervious area: 113,638 SF / 2.61 Ac (66%)
Total impervious area: 58,516 SF / 1.34 Ac (34%)

Know what's below. Call before you dig.

811

JOHN ERIC FETTEROLF — STATE OF WASHINGTON — 38322 — REGISTERED PROFESSIONAL ENGINEER

8/24/20

JF ENGINEERING, PLLC
CIVIL ENGINEERING
PLANNING
PROJECT MANAGEMENT
5220 S. Auburn Pl
(509) 551-8174 PHN
Kennewick, WA 99337
www.JFEngineering.pro

Site plan for:

GF Blends Building

A project in the City of Richland, WA

Drawn by: JEF
Checked by: JEF

JF Eng. Job # 0115.00

Scale H: 1"=20'
Scale V: N/A

Date: August 24, 2020

C100

TEMPORARY EROSION AND SEDIMENT CONTROL GENERAL NOTES:

APPROVAL OF THE ESC PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (e.g., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.)

THE IMPLEMENTATION OF THIS ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC BMPs IS THE RESPONSIBILITY OF THE APPLICANT UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.

CLEARLY FLAG THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE APPLICANT FOR THE DURATION OF CONSTRUCTION.

CONSTRUCT THE ESC BMPs SHOWN ON THE S PLAN IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANOR AS TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.

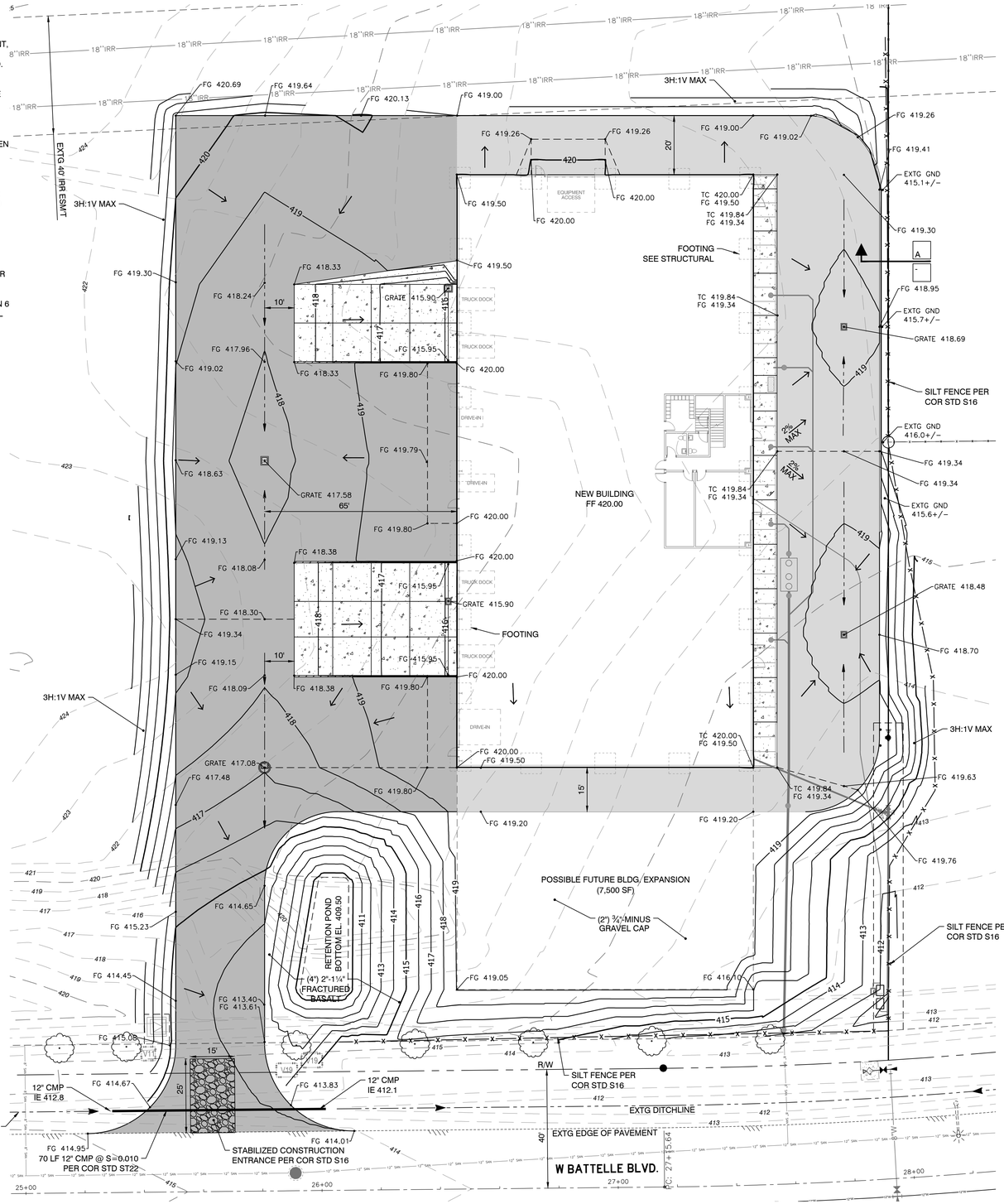
THE ESC BMPs SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE ESC BMPs AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.

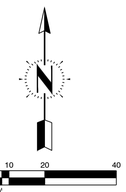
THE APPLICANT SHALL INSPECT THE ESC BMPs DAILY AND MAINTAIN THEM AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONALITY.

INSPECT THE ESC BMPs ON INACTIVE SITES A MINIMUM OF ONCE PER MONTH OR WITHIN THE 48 HOURS FOLLOWING A MAJOR STORM EVENT (24-HOUR STORM EVENT WITH A 10-YEAR OR GREATER RECURRENCE INTERVAL).

AT NO TIME SHALL THE SEDIMENT EXCEED 60 PERCENT OF THE SUMP DEPTH OR HAVE LESS THAN 6 INCHES OF CLEARANCE FROM THE SEDIMENT SURFACE TO THE INVERT OF THE LOWEST PIPE. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.

INSTALL STABILIZED CONSTRUCTION ENTRANCES AT THE BEGINNING OF CONSTRUCTION AND MAINTAIN FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

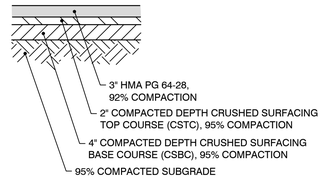




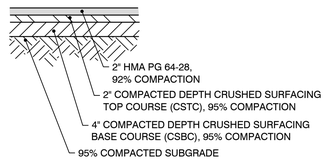
NOTES:
1. THE PROJECT HAS NO OFF-SITE DISCHARGE AND IS THEREFORE EXEMPT FROM THE REQUIREMENTS OF SWPPP AND THE EROSIVITY WAIVER.

LEGEND

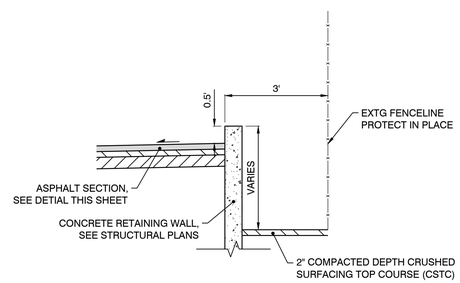
- HEAVY DUTY ASPHALT SECTION
- LIGHT DUTY ASPHALT SECTION



TYPICAL HEAVY DUTY ASPHALT SECTION
NTS



TYPICAL LIGHT DUTY ASPHALT SECTION
NTS



A GRADING SECTION
NTS

Know what's below. Call before you dig.

8/24/20

JF ENGINEERING, PLLC
CIVIL ENGINEERING
PLANNING
PROJECT MANAGEMENT
5220 S. Auburn Pl
Kennewick, WA 99337
(509) 551-8174 PHN
www.JFengineering.pro

Grading plan for:
GF Blends Building
A project in the City of Richland, WA

Drawn by: JEF
Checked by: JEF

JF Eng. Job # 0115.00

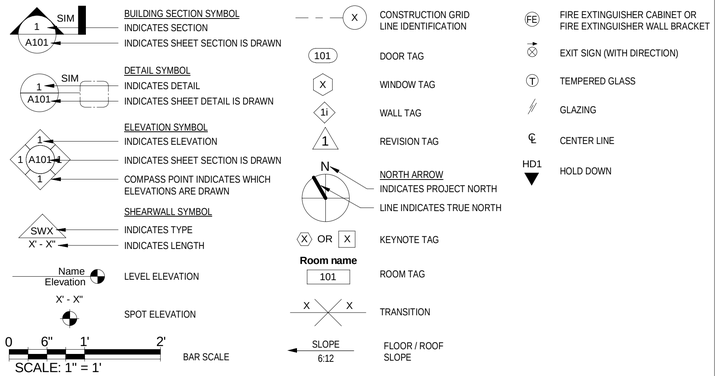
Scale H: 1"=20'
Scale V: N/A

Date: August 24, 2020

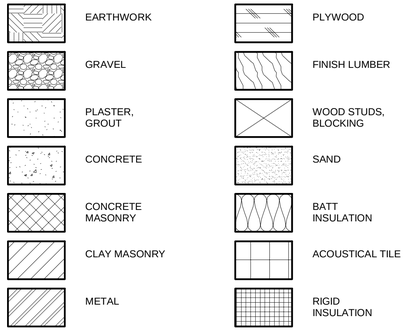
C300

BDG LLC - NEW WAREHOUSE
2746 BATTELLE BLVD. RICHLAND WA 99354
REVIEW SET

SYMBOLS LEGEND



HATCH LEGEND



PROJECT INFORMATION

PROJECT DESCRIPTION:	ONE STORY PRE-ENGINEERED METAL BUILDING WAREHOUSE WITH TWO STORY OFFICE SUITE (FULLY SPRINKLERED)
CLIENT:	GLEN CALL - GF BLENDS 2151 HENDERSON LOOP RICHLAND, WA 99354 (509) 308-0459
ARCHITECT:	DKEI ARCHITECTURAL SERVICES 1630 LUCCA LN. RICHLAND, WA 99352 (509) 336-9716
STRUCTURAL ENGINEER:	MONEY ENGINEERING 7100 W 13TH AVE. KENNEWICK, WA 99338 (509) 430-5630
CIVIL ENGINEER:	JF ENGINEERING 5220 S AUBURN PL. KENNEWICK, WA 99338 (509) 551-8174

SHEET INDEX

ABREVIATIONS

A/E	ARCHITECT / ENGINEER	FOS	FACE OF SURFACE	PT	PRESSURE TREATED
AB	ANCHOR BOLT	FP	FIRE PLACE	PTD	PAPER TOWEL DISPENSER
ABV	ABOVE	FRP	FIBER REINFORCED PLASTIC	RAD	RADIUS
ACT	ACOUSTICAL TILE	FS	FLOOR SINK	RD	ROOF DRAIN
AFF	ABOVE FINISHED FLOOR	FT or '	FOOT OR FEET	REF	REFERENCE / REFRIGERATOR
ALUMN	ALUMINUM	FTG	FOOTING	REQD	REQUIRED
ALT	ALTERNATE	FUR	FURRING	REV	REVISION
ARCH	ARCHITECTURAL / ARCHITECT	GA	GAUGE	RR	RESTROOM
BLDG	BUILDING	GAL	GALLONS	RM	ROOM
BOT	BOTTOM	GALV	GALVANIZED	RO	ROUGH OPENING
BR	BEDROOM	GB	GRAB BAR	R&S	ROD AND SHELF
CAB	CABINET	GLB	GLUE LAMINATED BEAM	RWB	RUBBER WALL BASE
CANT	CANTILEVER	GWB	GYPSUM BOARD	S	SOUTH
CB	CATCH BASIN	GYP	GYPSUM	SC	SOLID CORE
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED	HB	HOSE BIB	SCHED	SCHEDULE
		HC	HOLLOW CORE	SD	SOAP DISPENSER
CFOI	CONTRACTOR FURNISHED OWNER INSTALLED	HM	HOLLOW METAL	SEAL	SEALANT
		HOR	HORIZONTAL	SECT	SECTION
CG	CORNER GUARD	HR	HOUR	SF	SQUARE FOOT
CJ	CONTROL JOINT	HW	POTABLE HOT WATER	SHWR	SHOWER
CL	CENTER LINE	ID	INSIDE DIAMETER	SG	SAFETY GLAZING
CLNG	CEILING	INSUL	INSULATION	SIM	SIMILAR
CLR	CLEAR	IN or "	INCH	SND	SANITARY NAPKIN DISPENSER
CLST	CLOSET	INFO	INFORMATION	SPEC	SPECIFICATIONS
CMU	CONCRETE MASONRY UNIT	INSUL	INSULATION	SQ	SQUARE
CO	CLEANOUT	INT	INTERIOR	SQM	SQUARE METER
COL	COLUMN	JAN	JANITOR	SS	STAINLESS STEEL or SANITARY SEWER
CONC	CONCRETE	KIT	KITCHEN		
CONT	CONTINUOUS	LAB	LABORATORY	STC	SOUND TRANSMISSION CLASS
CPT	CARPET	LAV	LAVATORY	STD	STANDARD
CUST	CUSTODIAN	LB	LAG BOLT	STL	STEEL
CT	CERAMIC TILE	LEV	LEVEL	STOR	STORAGE
CW	POTABLE COLD WATER	LIV	LIVING	STRUCT	STRUCTURAL
DBL	DOUBLE	LL	LIVE LOAD	SUSP	SUSPENDED
DEG	DEGREE	LVL	LAMINATED VENEER LUMBER	SYM	SYMBOL
DEPT	DEPARTMENT	MAX	MAXIMUM	T&G	TONGUE AND GROOVE
DET	DETAIL	MECH	MECHANICAL	TB	TOWEL BAR
DF	DRINKING FOUNTAIN	MFR	MANUFACTURER	TEL	TELEPHONE
DIA	DIAMETER	MH	MAN HOLE	TEMP	TEMPORARY
DIM	DIMENSION	MIL	MILLIMETER or 0.001"	TLT	TOILET
DIN	DINING	MIN	MINIMUM	TO	TOP OF
DL	DEAD LOAD	MIR	MIRROR	TOC	TOP OF CURB
DN	DOWN	MISC	MISCELLANEOUS	TOF	TOP OF FRAMING
DS	DOWNSPOUT	MO	MASONRY OPENING	TOS	TOP OF STEEL
DW	DISH WASHER	MSTR	MASTER	TOP	TOP OF PARAPET
DWG	DRAWING	MTL	METAL	TOW	TOP OF WALL
(E) or EXST	EXISTING	N	NORTH	TPD	TOILET PAPER DISPENSER
E	EAST	NA	NOT APPLICABLE	TS	TUBE STEEL
EA	EACH	NIC	NOT IN CONTRACT	TSCD	TOILET SEAT COVER DISPENSER
EIFS	EXTERIOR INSULATED FINISH SYSTEM	NO or #	NUMBER	TV	TELEVISION
		NTS	NOT TO SCALE	TYP	TYPICAL
EJ	EXPANSION JOINT	O/	OVER	VB	VAPOR BARRIER
ELEV	ELEVATION	OC	ON CENTER	VCT	VINYL COMPOSITION TILE
ELEC	ELECTRICAL	OCC	OCCUPANTS	VERT	VERTICAL
EMER	EMERGENCY	OD	OUTSIDE DIAMETER or OVERFLOW DRAIN	VEST	VESTIBULE
EQ	EQUAL			VTR	VENT TO ROOF
EQPT	EQUIPMENT	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED	W	WEST
EXP	EXPANSION			W/	WITH
EXT	EXTERIOR	OFOI	OWNER FURNISHED OWNER INSTALLED	W/O	WITH OUT
FAM	FAMILY			WC	WATER CLOSET
FD	FLOOR DRAIN	OFF	OFFICE	WD	WOOD
FE	FIRE EXTINGUISHER	OPP	OPPOSITE	WDW	WINDOW
FEC	FIRE EXTINGUISHER CABINET	PERF	PERFORATED	WF	WIDE FLANGE
FF	FINISH FLOOR	PL	PLATE	WH	WATER HEATER
FH	FIRE HYDRANT	PLAM	PLASTIC LAMINATE	WT	WEIGHT
FIN	FINISH	PLYWD	PLYWOOD	WWM	WELDED WIRE MESH
FIXT	FIXTURE	PNT	PAINT	&	AND
FL	FLOOR	POLY	POLYETHYLENE	L	ANGLE
FND	FOUNDATION	PREFAB	PRE FABRICATED	@	AT
FOC	FACE OF CONCRETE	PSF	POUNDS PER SQUARE FOOT	#	POUND / NUMBER
FOF	FACE OF FRAMING	PSI	POUNDS PER SQUARE INCH		
FOM	FACE OF MASONRY				

GENERAL NOTES

1) DO NOT SCALE THE DRAWINGS. DRAWINGS MAY BE REDUCED, VERIFY SCALE.

2) REPETITIVE FEATURES NOT NOTED ON THE DRAWINGS SHALL BE COMPLETELY PROVIDED AS IF DRAWN IN FULL.

3) ALL WORK SHALL CONFORM TO THE LATEST EDITION (2015) OF THE FOLLOWING CODES AND GUIDELINES (OR AS DIRECTED BY GOVERNING AGENCIES WITHIN JURISDICTION):
- INTERNATIONAL BUILDING CODE (WAC 51-50/51)
- INTERNATIONAL MECHANICAL CODE (WAC 51-52)
- UNIFORM PLUMBING CODE (WAC 51-56)
- WASHINGTON STATE ENERGY CODE (WAC 51-11)
- INTERNATIONAL FIRE CODE (WAC 51-54A)
- NEC (NATIONAL ELECTRIC CODE)

4) CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF SITE CONDITIONS, INSTALLATION STANDARDS AND CONSTRUCTION CONDITIONS, DISCREPANCIES BETWEEN SITE CONDITIONS AND THE CONSTRUCTION DRAWINGS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT/ENGINEER. WORK DONE WITHOUT THE DESIGNER'S APPROVAL IS THE RESPONSIBILITY OF THE CONTRACTOR.

5) CONTRACTOR ALONE SHALL BE RESPONSIBLE FOR SAFETY. CONTRACTOR SHALL PROVIDE ADEQUATE SAFEGUARDS, SAFETY DEVICES AND PROTECTIVE EQUIPMENT AND TAKE ANY OTHER NEEDED ACTIONS NECESSARY TO PROTECT THE LIFE, HEALTH AND SAFETY OF THE PUBLIC AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF THE WORK COVERED BY THE CONTRACT.

6) MECHANICAL WORK (HVAC AND PLUMBING) SHALL BE BIDDER DESIGN.

7) ELECTRICAL WORK SHALL BE BIDDER DESIGN. ELECTRICAL CONTRACTOR SHALL SUBMIT ELECTRICAL LOAD CALCULATIONS FOR ADDITIONAL LOADS TO EXISTING SYSTEM PER NREC. A SEPARATE PERMIT IS REQUIRED FOR THE ELECTRICAL INSTALLATION BY THE WASHINGTON STATE DEPARTMENT OF LABOR & INDUSTRIES (L&I).

8) EXISTING SURROUNDING SURFACES NOT INCLUDED IN THE PROJECT SHALL BE PROTECTED DURING THE COURSE OF CONSTRUCTION.

9) DIMENSIONS ON DRAWINGS ARE TAKEN TO/FROM THE LOCATIONS LISTED BELOW UNLESS OTHERWISE INDICATED:

- GRID LINES
- FACE OF FRAMING OF EXTERIOR FRAMED WALLS
- CENTERLINE OF INTERIOR FRAMED WALLS
- CENTERLINE OF WINDOWS
- CENTERLINE OF DOORS
- FACE OF MASONRY
- MASONRY ROUGH OPENINGS

DIMENSIONS ON INTERIOR ELEVATIONS ARE TAKEN TO/FROM THE:

- FACE OF FINISHED GYPSUM
- PLASTIC LAMINATE
- CABINETRY
- CENTERLINES OF FIXTURES

10) GRID LINES INDICATE THE CENTERLINE OF PRIMARY COLUMNS ONLY. SEE STRUCTURAL DETAILS FOR EXACT LOCATION AND SIZE OF INDIVIDUAL COLUMNS.

11) MECHANICAL AND ELECTRICAL INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS IS PROVIDED FOR CLARITY AND/OR LOCATIONAL PURPOSES ONLY. SEE MECHANICAL AND ELECTRICAL DRAWINGS.

12) FLASHING TO BE GALVANIZED. IF ALUMINUM FLASHING IS REQUIRED, THE PAINT COLOR IS TO MATCH ADJACENT WALL COLOR UNLESS OTHERWISE NOTED.

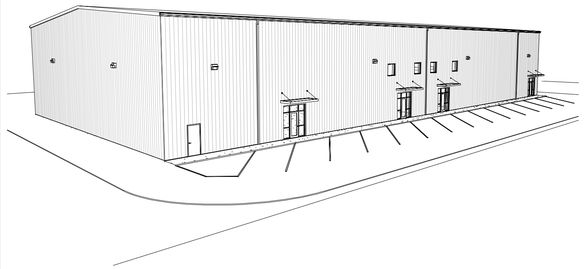
13) BUILDING HEIGHTS AND ELEVATIONS ARE BASED UPON PROJECT FINISH ELEVATION OF 0'-0" AT THE FIRST LEVEL. REFERENCE CIVIL DRAWINGS FOR FIRST LEVEL ELEVATIONS RELATIVE TO SEA LEVEL.

14) ALL DOORS IN WALLS NOT LOCATED BY DIMENSION ON PLANS OR DETAILS SHALL BE 5" FROM FACE OF ADJACENT PERPENDICULAR WALL TO EDGE OF DOOR OPENING.

15) ROOM AND DOOR NUMBERS SHOWN ON DRAWINGS ARE FOR CONSTRUCTION PURPOSES ONLY.

16) ALL WOOD IN CONTACT WITH CONCRETE, MASONRY, EARTH OR SUBJECT TO OTHER DAMP CONDITIONS TO BE PRESSURE TREATED.

PERSPECTIVE



SITE MAP

REVISIONS			
MARK	DATE	DESCRIPTION	BY

9342 REGISTERED ARCHITECT
DEVIN G. GEISLER
STATE OF WASHINGTON

DKEI Architectural Services
1630 LUCCA LN.
RICHLAND, WA 99352
(509) 336-9716
DKEIPLLC@GMAIL.COM
WWW.DKEIPLLC.COM

CLIENT: BDG LLC
PROJ. LOC.: 2746 BATTELLE BLVD. RICHLAND WA 99354

BDG LLC - NEW WAREHOUSE

COVER SHEET

PROJECT NUMBER: 20190809

ISSUE DATE: 02/13/2020

G-0.0

Sheet 1 of 25

Bar Measures 1 inch

CODE REVIEW

NOTE: CODE INFORMATION PROVIDED FOR PERMIT REVIEW ONLY. CONTRACTOR IS RESPONSIBLE TO ENSURE ALL ELEMENTS ARE IN COMPLIANCE WITH ALL LOCAL CODES AND REGULATIONS. NOTIFY ARCHITECT/ENGINEER OF RECORD IMMEDIATELY UPON DISCOVERY OF ELEMENTS THAT DO NOT CONFORM TO CURRENT CODES.

NATIONAL CODES AND CRITERIA:
IBC INTERNATIONAL BUILDING CODE, 2015

BUILDING DESCRIPTION: ONE STORY PRE-ENGINEERED METAL BUILDING WAREHOUSE WITH TWO STORY OFFICE SUITE AT ONE END (FULLY SPRINKLERED)

BUILDING SQUARE FOOTAGE: 18,512 SF PROCESSING WAREHOUSE
1,488 SF OFFICE 2ND FLOOR = 1,488 SF
TOTAL 20,000 SF FIRST FLOOR 2ND FLOOR = 1,488 SF

303.1.1 SMALL BUILDINGS AND TENANT SPACES
A BUILDING OR TENANT SPACE USED FOR ASSEMBLY PURPOSES WITH AN OCCUPANT LOAD OF LESS THAN 50 PERSONS SHALL BE CLASSIFIED AS GROUP 'B' OCCUPANCY.
303.1.2 SMALL ASSEMBLY SPACES - A ROOM OR SPACE USED FOR ASSEMBLY PURPOSES WITH AN OCCUPANT LOAD OF LESS THAN 50 PERSONS OR 750 SQUARE FEET SHALL BE CLASSIFIED AS A GROUP 'B' OCCUPANCY.
SECTION 304 - BUSINESS GROUP B
304.1 - INCLUDES THE USE OF A BUILDING OR STRUCTURE FOR OFFICE, PROFESSIONAL OR SERVICE-TYPE TRANSACTIONS INCLUDING STORAGE OF RECORDS AND ACCOUNTS
(BUSINESS)
SECTION 306 - STORAGE GROUP F
306.2 MODERATE-HAZARD FACTORY INDUSTRIAL- STORAGE USES NOT CLASSIFIED AS F-2
(FOOD PROCESSING)
SECTION 311 - STORAGE GROUP S
311.2 MODERATE-HAZARD STORAGE - STORAGE USES NOT CLASSIFIED AS S-2
(STORAGE)

SECTION 427 - ELECTRIC VEHICLE CHARGING - GROUP 'B' OCCUPANCY WITH MORE THAN 20 ON-SITE PARKING SHALL PROVIDE 5% OF THE STALLS WITH ELECTRIC VEHICLE CHARGING STATIONS. STATION SHALL SERVICE ADA AND NON-ADA STALLS PROPORTIONALLY.

501.2 ADDRESS IDENTIFICATION: ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETICAL LETTERS. NUMBERS SHALL NOT BE SPELLED OUT. PROVIDE ADDRESS IDENTIFICATION AS REQUIRED BY LOCAL JURISDICTION AND AS APPROVED BY OWNER.
SECTION 504 - BUILDING HEIGHT AND AREA
504.1.1 UNLIMITED AREA BUILDINGS PER SECTION 507
504.1.2 SPECIAL PROVISIONS PER SECTION 510
TABLE 504.3 - HEIGHT IN FEET
A,B,E,F,M,S,U - (S) TYPE VB = 60 FEET
TABLE 504.4 - ALLOWABLE STORIES
B (S) = 3 STORIES
F-1 (S) = 2 STORIES
S-1 (S) = 2 STORIES

SECTION 506 - BUILDING AREA
506.2 ALLOWABLE AREA SHALL BE DETERMINED BY SECTION 506.2.1 THROUGH 506.2.4 AND SECTION 506.3.
TABLE 506.2 - ALLOWABLE AREA
B (SM) = 27,000 SQUARE FEET
F (SM) = 25,500 SQUARE FEET
S (SM) = 27,000 SQUARE FEET
506.2.4 MIXED-OCCUPANCY MULTI-STORY BUILDINGS: ALLOWABLE AREA SHALL BE DETERMINED IN ACCORDANCE WITH EQUATION 5-3
ALLOWABLE AREA (EQUATION 5-1)
Aa = At + (NS x If)
Aa = 25,500 + (8,500 x 0.75)
Aa = 31,875 31,875 > 20,000 (ok)
506.3 FRONTAGE INCREASE (EQUATION 5-4)
W = (L1 X W1 + L2 X W2 + L3 X W3 + L4 X W4) / F
W = 75 x 30 + 275 x 30 + 75 x 30 + 275 x 30 / 700
W = 30
506.3.3 AREA FACTOR INCREASE (EQUATION 5-5)
If = [F/P - 0.25] W/30
If = 1,000/1,000 - 0.25] 30/30
If = 0.75

SECTION 508 - MIXED USE AND OCCUPANCY
508.1 EACH PORTION OF A BUILDING SHALL BE INDIVIDUALLY CLASSIFIED IN ACCORDANCE WITH SECTION 302.1
508.2.1 ACCESSORY OCCUPANCIES ARE THOSE OCCUPANCIES THAT ARE ANCILLARY TO THE MAIN OCCUPANCY.
508.2.2 THE ALLOWABLE BUILDING HEIGHT SHALL BE BASED ON THE MAIN AREA.
508.2.3 THE ALLOWABLE BUILDING AREA SHALL BE BASED ON THE MAIN AREA. THE ACCESSORY SHALL NOT EXCEED 10 PERCENT OF THE FLOOR AREA AND SHALL NOT EXCEED THE TABULAR VALUES FOR A NON SPRINKLED BUILDING IN TABLE 506.2
508.2.4 SEPARATION OF OCCUPANCIES - NO SEPARATION IS REQUIRED FOR ACCESSORY OCCUPANCIES
508.3 NONSEPARATED OCCUPANCIES
508.3.1 NONSEPARATED OCCUPANCIES SHALL BE INDIVIDUALLY CLASSIFIED IN ACCORDANCE WITH SECTION 302.1. THE MOST RESTRICTIVE PROVISIONS OF CHAPTER 9 SHALL APPLY
508.3.2 THE ALLOWABLE AREA AND HEIGHT SHALL BE BASED ON THE MOST RESTRICTIVE REQUIREMENTS.
508.3.3 NO SEPARATION IS REQUIRED BETWEEN OCCUPANCIES

SECTION 602 - CONSTRUCTION CLASSIFICATION
602.1 - BUILDING ELEMENTS SHALL HAVE A FIRE RESISTANCE RATING NOT LESS THAN THAT SPECIFIED IN TABLE 601 AND 602
TABLE 601 - FIRE-RESISTANCE RATING REQUIREMENTS
TYPE VB - ALL BUILDING ELEMENT = 0 HOUR
TABLE 602 - FIRE RATING BASED ON EXTERIOR SEPARATION
OCCUPANCY GROUP B/S-1 DISTANCE X>10 FEET = 0 HOUR

602.5 - TYPE V - TYPE V CONSTRUCTION IS THAT TYPE OF CONSTRUCTION IN WHICH THE STRUCTURAL ELEMENTS, EXTERIOR WALLS AND INTERIOR WALLS ARE OF ANY MATERIALS PERMITTED BY THIS CODE.

SECTION 705 - EXTERIOR WALLS
705.2.2 TYPE III,IV,V CONSTRUCTION - PROJECTIONS FROM WALLS SHALL BE OF ANY APPROVED MATERIAL.
705.8 OPENINGS
705.8.1 ALLOWABLE AREA OF OPENINGS - THE MAXIMUM AREA OF UNPROTECTED OPENINGS SHALL NOT EXCEED VALUES IN TABLE 705.8
EXCEPTION: UNLIMITED UNPROTECTED OPENINGS ARE PERMITTED
IN THE FIRST STORY ABOVE GRADE WHEN EITHER:
2) BUILDINGS WHOSE EXTERIOR WALLS ARE NOT REQUIRED TO BE FIRE RATED SHALL BE PERMITTED TO HAVE UNLIMITED UNPROTECTED OPENINGS.

SECTION 708 - FIRE PARTITIONS
708.1 THE FOLLOWING WALL ASSEMBLIES SHALL COMPLY WITH THIS SECTION
2) WALLS SEPARATING TENANT SPACES
708.3 FIRE PARTITIONS SHALL HAVE A FIRE RESISTANCE RATING OF NOT LESS THAN 1-HR
708.4 FIRE PARTITIONS SHALL EXTEND FROM THE FOUNDATION OR FLOOR ASSEMBLY BELOW TO THE UNDERSIDE OF THE FLOOR OR ROOF SHEATHING / DECK ABOVE.

SECTION 901 FIRE PROTECTION SYSTEMS
SECTION 903 AUTOMATIC SPRINKLER SYSTEMS
903.2.4 F-1 AN AUTOMATIC SPRINKLER SHALL BE PROVIDED WHEN:
1) FIRE AREA EXCEEDS 12,000 SQUARE FEET (FIRE SUPPRESSION PROVIDED)
903.2.9 S-1 AN AUTOMATIC SPRINKLER SHALL BE PROVIDED WHEN:
1) FIRE AREA EXCEEDS 12,000 SQUARE FEET (FIRE SUPPRESSION PROVIDED)

SECTION 906 - PORTABLE FIRE EXTINGUISHERS
TABLE 906.3(1) - TYPE A - LIGHT HAZARD - MAXIMUM TRAVEL DISTANCE OF 75 FEET
TABLE 906.3(2) - TYPE B - LIGHT HAZARD - MAXIMUM TRAVEL DISTANCE OF 50 FEET
SECTION 907 - FIRE ALARM
907.2.2 - A MANUAL FIRE ALARM SHALL BE INSTALLED IN A GROUP 'B' WHERE THE OCCUPANT LOAD IS MORE THAN 500. (N/A)
SECTION 916 - EMERGENCY RESPONDER RADIO COVERAGE SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 510 OF THE INTERNATIONAL FIRE CODE.
EXCEPTION - WHERE IT IS DETERMINED BY THE FIRE CODE OFFICIAL
THAT THE RADIO COVERAGE IS NOT NEEDED.
(CONTRACTOR SHALL VERIFY WITH LOCAL OFFICIAL IF RADIO COVERAGE IS REQUIRED. CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS OF CODE OFFICIAL AND INCLUDE IN BASE BID.)

SECTION 1004 OCCUPANT LOAD
TABLE 1004.1.2 - MAXIMUM FLOOR AREA ALLOWANCES
BUSINESS AREAS - 100 GROSS
WAREHOUSES - 500 GROSS
BUILDING SQUARE FEET = 20,000
BUSINESS - 1ST FLR. = 1,488 / 100 = 15
BUSINESS - 2ND FLR. = 1,488 / 100 = 15
WAREHOUSE = 13,512 / 300 = 45
(FUTURE TI) = 5,000 / ? = FUTURE
TOTAL = 75

SECTION 1005 - MEANS OF EGRESS SIZING
1005.3.2 OTHER - CAPACITY FACTOR OF .2 INCH PER OCCUPANT
MINIMUM DOOR WIDTH 36" = 180 OCCUPANTS
SECTION 1006 - NUMBER OF EXITS AND EXIT ACCESS
1006.2.1 TWO EXITS FROM ANY SPACE SHALL BE PROVIDED WHERE THE OCCUPANT LOAD OR COMMON PATH OF EGRESS TRAVEL DISTANCES EXCEEDS TABLE 1006.2.1
TABLE 1006.2.1 - SPACES WITH ONE EXIT
B = MAXIMUM OCCUPANT LOAD = 49 > 30 - ok
F-1 = MAXIMUM OCCUPANT LOAD = 49 > 45 - ok
B/F-1 = MAXIMUM COMMON PATH OF TRAVEL = WITH SPRINKLER = 100
TABLE 1006.3.2(2) - STORIES WITH ONE EXIT
SECOND STORY ABOVE GRADE PLANE - B,F,M,S = 29 > 15 = ok
MAXIMUM TRAVEL DISTANCE 75 FEET

SECTION 1009 - ACCESSIBLE MEANS OF EGRESS
WHERE MORE THAN ON MEANS OF EGRESS ARE REQUIRED BY 1006.2 OR 1006.3 NO LESS THAN TWO EGRESSES ARE TO BE ACCESSIBLE

SECTION 1010 - DOORS, GATES AND TURNSTILES
1010.1.9 DOOR OPERATION SHALL BE READILY OPERABLE FROM EGRESS SIDE WITHOUT THE USE OF KEY OR SPECIAL KNOWLEDGE.
1010.1.9.3 MAIN DOORS ARE PERMITTED TO BE LOCKED WITH A KEY IF A READILY VISIBLE SIGN IS POSTED ABOVE THE DOOR INDICATING DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. SEE WASHINGTON AMENDMENTS TO IBC CODE FOR EXACT REQUIREMENTS.

SECTION 1016 - EXIT ACCESS
1016.2 EGRESS THROUGH INTERVENING SPACE - EGRESS SHALL NOT PASS THROUGH ADJOINING ROOMS UNLESS AREA SERVES AS AN ACCESSORY SPACE. EXIT ACCESS SHALL NOT PASS THROUGH KITCHENS, STORAGE ROOMS, CLOSETS OR SIMILAR SPACES.

SECTION 1017 - EXIT ACCESS TRAVEL DISTANCE
1017.3 EXIT ACCESS TRAVEL DISTANCE SHALL BE MEASURED FROM THE MOST REMOTE POINT AND UNOBSTRUCTED TO THE EXIT.
TABLE 1017.2 EXIT ACCESS
F-1 = 250 FEET WITH SPRINKLER SYSTEM
B = 300 FEET WITH SPRINKLER SYSTEM

SECTION 2902 - MINIMUM PLUMBING FACILITIES
TABLE 2902.1 - MINIMUM REQUIRED FIXTURES

B	WATERCLOSETS 1:25 FOR FIRST 50 THEN 1:50			
	LAVATORIES 1:40 FOR FIRST 80 THE 1:80			
F-1	WATERCLOSETS 1:100			
	LAVATORIES 1:100			

TOTAL REQUIRED

	WATERCLOSETS	B-30 = 1.2 REQUIRED	F-1-45 = 0.45 REQUIRED	TOTAL = 1.65
	LAVATORIES	B-30 = 0.75 REQUIRED	F-1-45 = 0.45 REQUIRED	TOTAL = 1.15

TOTAL PROVIDED
WATERCLOSETS 8
LAVATORIES 8

2902.2 - SEPARATE FACILITIES SHALL BE PROVIDED FOR EACH SEX.
2902.2.1 - WHERE SEPARATE TOILET FACILITIES ARE REQUIRED FOR EACH SEX BUT ONLY REQUIRE ONE WATER CLOSET, TWO UNISEX RESTROOMS SHALL BE PERMITTED TO SERVE AS THE REQUIRED FACILITY.
2902.3 - EMPLOYEE AND PUBLIC TOILET FACILITIES SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 2902.1
2902.5.1 ONE DRINKING FOUNTAIN SHALL BE PROVIDED ON EACH FLOOR WHEN THE OCCUPANCY LOAD IS OVER 30 FOR THE FIRST 150 THEN ONE PER EACH ADDITIONAL 500 OCCUPANTS.
(NOTE - LOCAL CODE OFFICIAL MAY PERMIT BOTTLED WATER SERVICE TO REPLACE DRINKING FOUNTAIN REQUIREMENTS.)

WASHINGTON STATE ENERGY CODE 2015

SECTION C301 - CLIMATE ZONE
TABLE C301.1 - BENTON Co. = 5B

SECTION C402 - BUILDING ENVELOPE REQUIREMENTS

TABLE C402.2 - OPAQUE THERMAL ENVELOPE REQUIREMENTS

ROOFS:	INSULATION ENTIRELY ABOVE DECK = R-30ci OR R-38	
	METAL BUILDINGS =	R-25 + R-11 LS
	ATTIC =	R-49
WALLS ABOVE / BELOW GRADE:		
	MASS =	R-9.5
	METAL BUILDINGS =	R-19ci
	STEEL FRAMED =	R-13 + R-10ci
	WOOD FRAMED =	R-21
FLOORS:	MASS =	R30ci
	METAL JOIST =	R-38 + R-10ci
	WOOD JOIST =	R-30
SLAB ON GRADE - UNHEATED SLABS =		R-10 FOR 24" BELOW
	HEATED SLAB =	R-10 ENTIRE SLAB
OPAQUE DOORS - SWINGING =		U-0.37
OPAQUE DOORS - ROLL-UP / SLIDING =		R-4.75

TABLE C402.4 - BUILDING ENVELOPE REQUIREMENTS - FENESTRATION

NONMETAL FRAMING =	U-0.30
METAL FRAMING FIXED =	U-0.38
METAL FRAMING OPERABLE =	U-0.40
SHGC = 0.40	

C402.4.1 - MAXIMUM AREA - VERTICAL FENESTRATION AREA SHALL NOT EXCEED 30 PERCENT OF THE GROSS WALL AREA.

C402.5.1 - AIR BARRIERS - A CONTINUOUS AIR BARRIER SHALL BE PROVIDED THROUGHOUT THE BUILDING THERMAL ENVELOPE. ALL JOINTS, SEAMS AND PENETRATIONS TO BE SEALED.

C402.5.1.2 - BUILDING TEST - AIR LEAKAGE RATE SHALL NOT EXCEED 0.40 CFM PER SQUARE FOOT AT A PRESSURE OF 0.3 INCHES WATER GAGE

C402.5.6 - LOADING DOCK DOORS TO BE EQUIPPED WITH WEATHERSEALS TO RESTRICT INFILTRATION WHEN VEHICLES ARE PARKED IN THE DOORWAY.

C402.5.7 - VESTIBULES - ALL BUILDING ENTRANCES SHALL BE PROTECTED WITH AN ENCLOSED VESTIBULE. DISTANCE BETWEEN THE DOOR SHALL NOT BE LESS THAN 7 FEET.
EXCEPTION - BUILDINGS THAT ARE LESS THAN 4 STORIES AND LESS THAN 10,000 SQUARE FEET IN AREA

C402.5.8 - RECESSED LIGHTING SHALL BE IC RATED, LABELED AS HAVING AN AIR LEAKAGE RATE OF NOT MORE THAN 2.0 CFM AND SEALED WITH A GASKET OR CAULK BETWEEN THE HOUSING AND INTERIOR WALL / CEILING SURFACE.

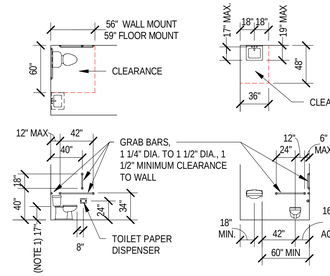
TYPICAL MOUNTING HEIGHTS AND ACCESSIBILITY REQUIREMENTS W/ TUB

ACCESSORY MOUNTING HEIGHTS FOR ACCESSIBILITY
CONTRACTOR SHALL COMPLY WITH LOCAL AND STATE BUILDING CODES FOR MOUNTED CONTROLS AND FIXTURES. REFER TO CURRENT ICC/ANSI A117.1 CODES FOR MOUNTING HEIGHTS.

GENERAL NOTES
1. ALL OPERATING MECHANISMS OF ACCESSIBLE FIXTURES FOR PEOPLE WITH DISABILITIES SHALL BE MOUNTED AS SHOWN IN COMPLIANCE WITH CURRENT ICC/ANSI A117.1 CODES.
2. PROVIDE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY, WITH BRAILLE AT ALL STAIRS, RESTROOMS, AND LEGAL HANDICAP EXITS. THE SIGN SHALL BE MOUNTED 48" MINIMUM AND 60" MAXIMUM ABOVE THE FINISHED FLOOR TO THE BASELINE OF THE BRAILLE CELLS ON THE LATCH SIDE OF THE DOOR AND ALONG SIDE THE DOOR PER ICC/ANSI A117.1 CHAPTER 7. SEE THE DIAGRAM BELOW FOR MORE INFORMATION.
3. SEE ENLARGED PLANS FOR DIMENSIONS FOR ACCESSIBLE TOILET COMPARTMENTS.

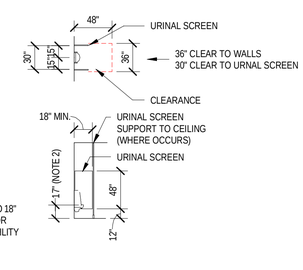
TOILET

NOTE 1: TOILET MOUNTING HEIGHTS
17" MINIMUM TO 19" MAXIMUM STANDARD TO TOP OF SEAT FOR ACCESSIBILITY

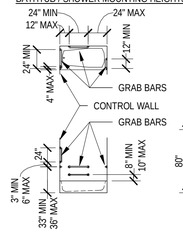


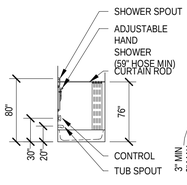
URINAL

NOTE 2: URINAL MOUNTING HEIGHTS
24" STANDARD TO RIM
17" MAXIMUM TO RIM FOR ACCESSIBILITY

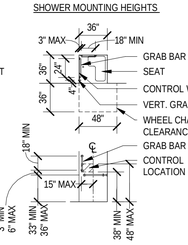


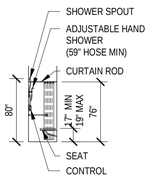
BATHTUB / SHOWER MOUNTING HEIGHTS



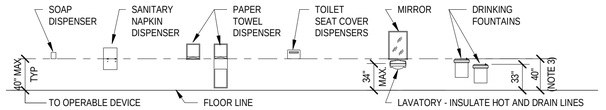


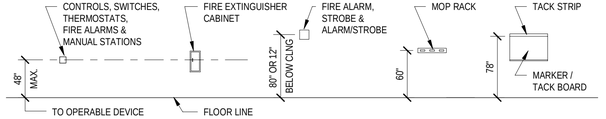
SHOWER MOUNTING HEIGHTS





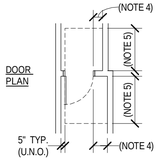
MISCELLANEOUS FIXTURES





NOTE 3: DRINKING FOUNTAIN HEIGHTS
STANDARD - 38" MIN. TO 43" MAX. TO SPOUT OUTLET
ACCESSIBLE - 36" MAX. TO SPOUT OUTLET

DOOR CLEARANCES



NOTE 4: DOOR MINIMUM PARALLEL CLEARANCES BEYOND DOOR LATCH
12" DIRECT OR HINGE SIDE APPROACH, PUSH SIDE
18" DIRECT APPROACH, PULL SIDE
24" LATCH SIDE APPROACH
36" HINGE SIDE APPROACH, PULL SIDE WITH MINIMUM 60" PERPENDICULAR CLEARANCE
42" HINGE SIDE APPROACH, PULL SIDE WITH MINIMUM 54" PERPENDICULAR CLEARANCE
(SEE HARDWARE SCHEDULE FOR CLOSER AND LATCHES)

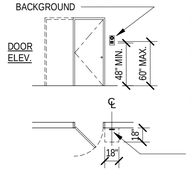
NOTE 5: DOOR MINIMUM CLEARANCES PERPENDICULAR TO DOORWAY
42" HINGE OR LATCH SIDE APPROACH, PUSH SIDE
48" HINGE OR LATCH SIDE APPROACH, PUSH SIDE WITH LATCH AND CLOSER
48" DIRECT APPROACH, PUSH SIDE
48" LATCH SIDE APPROACH, PULL SIDE
54" LATCH SIDE APPROACH, PULL SIDE WITH LATCH AND CLOSER
54" HINGE SIDE APPROACH, PULL SIDE (SEE NOTE 4)
60" HINGE SIDE APPROACH, PULL SIDE (SEE NOTE 4) WITH LATCH AND CLOSER
60" DIRECT APPROACH, PULL SIDE

DOOR HARDWARE
DOOR HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERABLE PARTS SHALL MEET MINIMUM REQUIREMENTS OF ICC/ANSI A117.1. OPERABLE PARTS SHALL BE 34" MIN AND 48" MAXIMUM ABOVE FINISHED FLOOR. DOOR HARDWARE SHALL BE OPERABLE WITH CLOSED FIST OR LOOSE GRIP (LEVER STYLE).

SIGNAGE: PROVIDE SIGNS WITH THE INTERNATIONAL SYMBOL OF ACCESSIBILITY, WITH BRAILLE AT ALL STAIRS, RESTROOMS, AND LEGAL HANDICAP EXITS. THE SIGN SHALL BE MOUNTED 48" MINIMUM AND 60" MAXIMUM ABOVE THE FINISHED FLOOR TO THE BASELINE OF THE BRAILLE CELLS ON THE LATCH SIDE OF THE DOOR AND ALONG SIDE THE DOOR PER ICC/ANSI A117.1 CHAPTER 7.

LOCATION: WHERE A TACTILE SIGN IS PROVIDED AT DOUBLE DOORS WITH ONE ACTIVE LEAF. THE SIGN SHALL BE LOCATED ON THE INACTIVE LEAF. WHERE A TACTILE SIGN IS PROVIDED AT DOUBLE DOORS WITH TWO ACTIVE LEAFS, THE SIGN SHALL BE LOCATED TO THE RIGHT OF THE RIGHT HAND DOOR. WHERE THERE IS NO WALL SPACE AT THE LATCH SIDE OF A SINGLE DOOR OR AT THE RIGHT SIDE OF DOUBLE DOORS, SIGNS SHALL BE LOCATED ON THE NEAREST ADJACENT WALL. SIGNS CONTAINING TACTILE CHARACTERS SHALL BE LOCATED SO THAT A CLEAR FLOOR SPACE OF 18 INCHES BY 18 INCHES MINIMUM, CENTERED ON THE TACTILE CHARACTERS.

ADA SIGN: WHITE SYMBOL AND CHARACTERS ON BLUE BACKGROUND



REVISIONS

MARK	DATE	DESCRIPTION	BY

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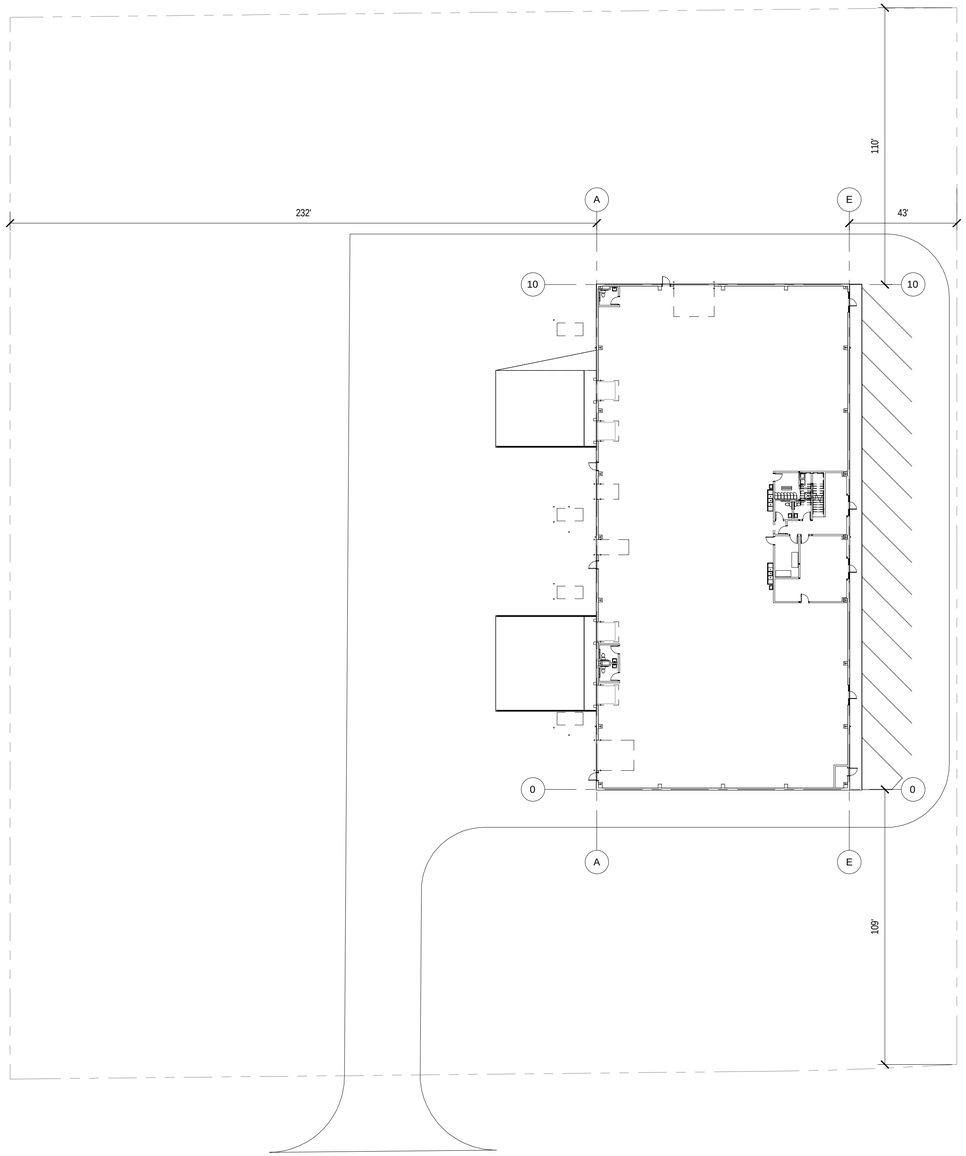
BDG LLC - NEW WAREHOUSE
CODE REVIEW

PROJECT NUMBER: 20190809
ISSUE DATE: 02/13/2020

G-0.1
Sheet 2 of 25

Bar Measures 1 inch



1 G-0.2 CODE PLAN - SITE

SCALE 1" = 30'-0"

0 15' 30' 60'

SCALE: 1" = 30'

N

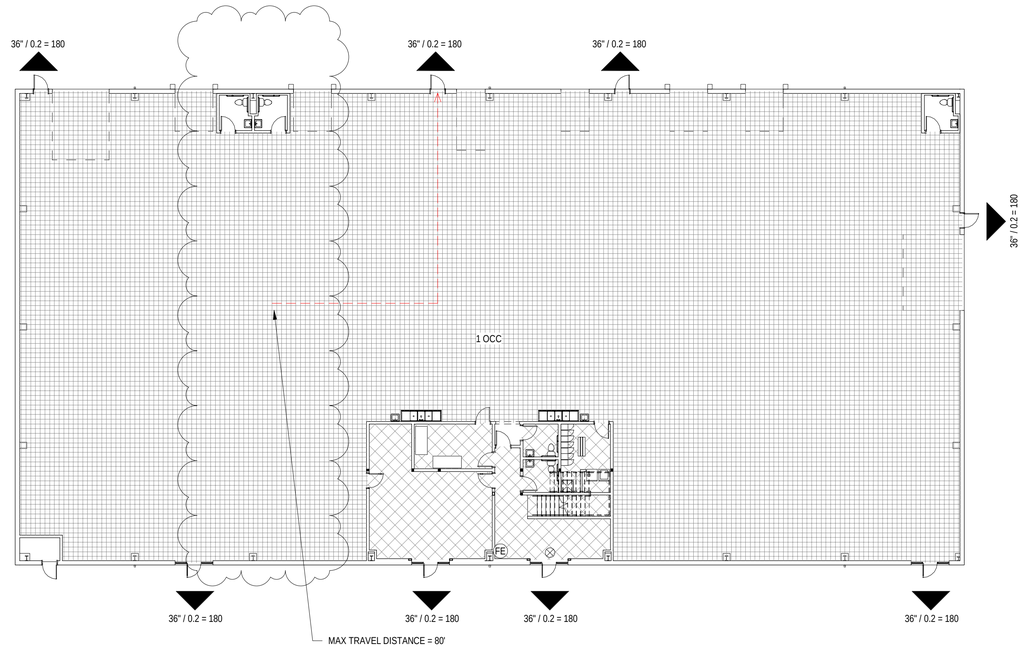
CODE PLAN LEGEND

- PATH OF EGRESS TRAVEL (LONGEST DISTANCE)
- XX"/.X=XXX EGRESS WIDTH / WIDTH PER PERSON = OCCUPANT CAPACITY
- PRIMARY DIRECTION OF EGRESS TRAVEL
- SECONDARY MEANS OF EGRESS - PER ROOM (THIS IS AVAILABLE AS A MEANS OF EGRESS WITHIN THE ROOM ONLY - AS ACCESS IS LIMITED)
- EXIT LIGHT W DIRECTIONAL INDICATOR
- FE FIRE EXTINGUISHER CABINET (SEE FLOOR PLAN FOR LOCATIONS)
- 2-HR FIRE RATED WALL
- 1-HR FIRE RATED WALL
- NON RATED WALL
- X OCC CALCULATED ROOM OCCUPANCY

NOTE:
OCCUPANCY SHOWN FOR EGRESS SIZING ONLY. SEE CODE REVIEW FOR TOTAL OCCUPANCY COUNT.

OCCUPANCY

- BUSINESS
- STORAGE



2 G-0.2 CODE PLAN

SCALE 1/16" = 1'-0"

0 8' 16' 32'

SCALE: 1/16" = 1'

N

REVISIONS

MARK	DATE	DESCRIPTION	BY
1	07/16/2020	CITY COMMENTS / REVISIONS	

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BDG LLC - NEW WAREHOUSE

CODE PLANS

PROJECT NUMBER:
20190809
ISSUE DATE:
02/13/2020

G-0.2
Sheet 3 of 25

Bar Measures 1 inch

01 GENERAL REQUIREMENTS
1) THE CONTRACTOR SHALL COMPLETE ALL WORK AS SPECIFIED OR INDICATED IN THE CONTRACT DOCUMENTS.

2) BEFORE ANY WORK AT THE SITE BEGINS THE CONTRACTOR SHALL SCHEDULE A CONFERENCE ATTENDED BY OWNER, CONTRACTOR, ARCHITECT/ENGINEER AND ANY OTHERS AS APPROPRIATE TO ESTABLISH A WORKING UNDERSTANDING OF THE WORK TO BEGIN. AT THIS CONFERENCE THE OWNER AND CONTRACTOR EACH SHALL DESIGNATE THE REPRESENTATIVE TO HAVE AUTHORITY TO TRANSMIT INSTRUCTIONS, RECEIVE INFORMATION, RENDER DECISIONS RELATIVE TO THE CONTRACT, AND OTHERWISE ACT ON BEHALF OF EACH RESPECTIVE PARTY.

3) CONTRACTOR SHALL CAREFULLY STUDY AND COMPARE THE CONTRACT DOCUMENTS AND VERIFY PERTINENT FIGURES THEREIN AND ALL APPLICABLE FIELD MEASUREMENTS, CODES, STANDARDS, LAWS OR REGULATIONS. CONTRACTOR SHALL REPORT ANY CONFLICT, ERROR, AMBIGUITY, OR DISCREPANCY WHICH CONTRACTOR DISCOVERS, OR HAS ACTUAL KNOWLEDGE AND SHALL OBTAIN CLARIFICATION FROM ARCHITECT/ENGINEER BEFORE PROCEEDING WITH ANY WORK AFFECTED THEREBY.

4) CONTRACTOR AND ANY SUBCONTRACTOR OR SUPPLIER SHALL NOT HAVE OR ACQUIRE ANY TITLE TO OR OWNERSHIP RIGHTS OF THE DRAWINGS, SPECIFICATIONS, OR OTHER DOCUMENTS (OR COPIES OF ANY THEREOF) PREPARED BY OR BEARING THE SEAL OF ARCHITECT/ENGINEER INCLUDING ELECTRONIC MEDIA EDITIONS. CONTRACTOR AND ANY SUBCONTRACTOR OR SUPPLIER SHALL NOT REUSE ANY SUCH DRAWINGS, SPECIFICATIONS, OR OTHER DOCUMENTS OR COPIES THEREOF ON EXTENSIONS OF THE PROJECT OR ANY OTHER PROJECT WITHOUT WRITTEN CONSENT OF OWNER AND ARCHITECT/ENGINEER.

5) CONTRACTOR SHALL BE FULLY RESPONSIBLE TO OWNER AND ARCHITECT/ENGINEER FOR ALL ACTS AND OMISSIONS OF THE SUBCONTRACTORS, SUPPLIERS, AND OTHER INDIVIDUALS OR ENTITIES PERFORMING OR FURNISHING ANY OF THE WORK JUST AS CONTRACTOR IS RESPONSIBLE FOR CONTRACTOR'S OWN ACTS AND OMISSIONS.

6) CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SCHEDULING AND COORDINATING THE WORK OF SUBCONTRACTORS, SUPPLIERS, AND OTHER INDIVIDUALS OR ENTITIES PERFORMING ANY OF THE WORK UNDER DIRECT OR INDIRECT CONTRACT WITH THE CONTRACTOR. CONTRACTOR TO ENSURE THAT ALL DOCUMENTS RELATED TO THIS PROJECT HAVE BEEN DISTRIBUTED TO SUBCONTRACTORS IN FULL. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL ERRORS AND OMISSIONS OF SUB-CONTRACTORS.

7) UNLESS OTHERWISE AGREED UPON BY OWNER AND CONTRACTOR PRIOR TO BEGINNING WORK, CONTRACTOR SHALL OBTAIN AND PAY FOR ALL CONSTRUCTION PERMITS AND LICENSES. CONTRACTOR SHALL PAY ALL GOVERNMENT CHARGES AND INSPECTION FEES NECESSARY FOR THE PROSECUTION OF THE WORK. CONTRACTOR SHALL COMPLY WITH ALL LAWS AND REGULATIONS APPLICABLE TO THE PERFORMANCE OF THE WORK.

8) CONTRACTOR SHALL CONFINE CONSTRUCTION EQUIPMENT, STORAGE OF MATERIALS AND OPERATIONS OF WORKERS TO THE SITE AND OTHER AREAS PERMITTED BY LAWS AND REGULATIONS AND SHALL NOT UNREASONABLY ENCUMBER THE SITE AND OTHER AREAS WITH CONSTRUCTION EQUIPMENT AND MATERIALS. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE TO AND SUCH LAND OR AREA OR TO THE OCCUPANT THEREOF OR ANY ADJACENT LAND OR AREAS RESULTING FROM THE PERFORMANCE OF WORK.

9) OWNER RESERVES THE RIGHT TO PERFORM OTHER WORK RELATED TO THE PROJECT AT THE SITE WITH OWNER'S EMPLOYEES, OR THROUGH OTHER DIRECT CONTRACTS THEREOF OR HAVE OTHER WORK PERFORMED BY UTILITY OWNERS. OWNER WILL NOTIFY CONTRACTOR PRIOR TO PERFORMING WORK AND HAVE SOLE AUTHORITY AND RESPONSIBILITY FOR COORDINATING WORK.

10) ARCHITECT/ENGINEER OF RECORD MAY AUTHORIZE VARIATIONS IN THE WORK FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS WHICH DO NOT INVOLVE ANY ADJUSTMENT IN THE CONTRACT PRICE OR THE CONTRACT TIME. THESE MAY BE ACCOMPLISHED BY A FIELD ORDER AND WILL BE BINDING ON THE OWNER AND ALSO ON CONTRACTOR WHO SHALL PERFORM THE WORK INVOLVED PROMPTLY. ALL OTHER CHANGES TO FOLLOW CHANGE ORDER PROCESS.

11) ARCHITECT/ENGINEER WILL HAVE AUTHORITY TO REJECT WORK WHICH ARCHITECT/ENGINEER BELIEVES WILL NOT PRODUCE A COMPLETED PROJECT THAT CONFORMS TO THE CONTRACT DOCUMENTS OR THAT WILL PREJUDICE THE INTEGRITY OF THE DESIGN CONCEPT OF THE COMPLETED PROJECT.

12) ARCHITECT/ENGINEER WILL NOT BE RESPONSIBLE FOR THE ACTS OR OMISSIONS OF CONTRACTOR OR OF ANY SUBCONTRACTOR, SUPPLIER OR OF ANY OTHER INDIVIDUAL OR ENTITY PERFORMING WORK.

13) OWNER MAY STOP WORK IF THE WORK IS DEFECTIVE OR CONTRACTOR FAILS TO SUPPLY SUFFICIENT SKILLED WORKERS OR SUITABLE MATERIALS OR EQUIPMENT, OR FAILS TO PERFORM THE WORK IN SUCH A WAY THAT THE COMPLETED WORK WILL CONFORM TO THE CONTRACT DOCUMENTS.

14) CONTRACTOR SHALL PROMPTLY CORRECT ALL DEFECTIVE WORK WHETHER OR NOT FABRICATED, INSTALLED OR COMPLETED OR IF WORK HAS BEEN REJECTED BY ARCHITECT/ENGINEER, CONTRACTOR SHALL REMOVE IT FROM THE PROJECT AND REPLACE WITH WORK THAT IS NOT DEFECTIVE. CONTRACTOR SHALL PAY ALL CLAIMS, COSTS, LOSSES AND DAMAGES (INCLUDING BUT NOT LIMITED TO ALL FEES AND CHARGES OF ARCHITECT/ENGINEERS, ATTORNEYS, AND OTHER PROFESSIONALS AND ALL COURT OR ARBITRATION OR OTHER DISPUTE COSTS) ARISING OUT OF SUCH CORRECTION OR REMOVAL AND COSTS FOR REPAIR OR REPLACEMENT.

15) CONTRACTOR SHALL PROVIDE AND PAY FOR SERVICE REQUIRED FOR CONSTRUCTION OPERATIONS. SERVICES INCLUDE BUT NOT LIMITED TO ELECTRICITY, LIGHTING, HEAT AND VENTILATION TELEPHONE SERVICE, WATER FOR CONSTRUCTION INCLUDING LANDSCAPE AND MAINTENANCE, SANITARY FACILITIES, BARRIERS INCLUDING TEMPORARY FENCING, ENCLOSURES, PROTECTION OF INSTALLED WORK, SECURITY, WATER AND DUST CONTROL, CLEANING DURING CONSTRUCTION AND PROJECT IDENTIFICATION.

16) PERMANENT FACILITIES MAY NOT BE USED DURING CONSTRUCTION. SUCH FACILITIES INCLUDE BUT NOT LIMITED TO, HVAC SYSTEMS, WATER SYSTEMS (SINKS AND TOILETS), AND PERMANENT IRRIGATION SYSTEMS.

17) ALL PRODUCTS AND MATERIALS TO BE NEW UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENTS. DO NOT DELIVER PRODUCTS AND MATERIALS TO SITE UNTIL SUCH PRODUCTS AND MATERIALS ARE SCHEDULED TO BE INSTALLED. PROMPTLY INSPECT SHIPMENTS TO ASSURE PRODUCTS COMPLY WITH REQUIREMENTS, QUANTITIES ARE CORRECT, AND PRODUCTS ARE UNDAMAGED. STORE PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. STORE SENSITIVE PRODUCTS IN WEATHER-TIGHT ENCLOSURES AND MAINTAIN TEMPERATURE AND HUMIDITY RANGES REQUIRED BY MANUFACTURER'S INSTRUCTIONS. AFTER INSTALLATION, PROVIDE COVERINGS TO PROTECT PRODUCTS FROM DAMAGE FROM TRAFFIC AND CONSTRUCTION OPERATIONS, REMOVE WHEN NO LONGER NEEDED.

18) INDOOR AIR QUALITY - ALL HVAC EQUIPMENT AND DUCTWORK TO BE SEALED DURING CONSTRUCTION. AFTER SUBSTANTIAL COMPLETION BUILDING AND NEW FURNISHINGS TO GO THOUGH "BAKE OUT" PROCEDURES. INTERIOR TEMPERATURE TO REMAIN ABOVE 90 DEG. F. FOR 72 HOURS. OPERATE SYSTEM FANS 24 HOURS A DAY FOR 10 DAYS. REBALANCE ALL AIR SYSTEMS AND REPLACE ALL FILTRATION MEDIA AFTER 10 DAY PERIOD.

19) CONTRACTOR TO PROVIDE OWNER WITH ALL MAINTENANCE AND OPERATIONS DOCUMENTATION FOR INSTALLED PRODUCTS AT SUBSTANTIAL COMPLETION. CONTRACTOR TO VERIFY ALL WARRANTY DOCUMENTS ARE IN PROPER FORM AND ARE IN EFFECT AND DATED TO MEET MANUFACTURER'S REQUIREMENTS.

02 SITE WORK
1) CONTRACTOR TO EXCAVATE SUBSOIL REQUIRED FOR BUILDING FOUNDATIONS, CONSTRUCTION OPERATIONS AND OTHER WORK. EXCAVATION SHALL NOT INTERFERE WITH 46 DEGREE BEARING SPLAY OF ANY FOUNDATION. REMOVE FROM SITE LUMPED SUBSOIL, BOULDERS, ROCKS LARGER THAN 3 INCHES AND DEBRIS. HAND TRIM EXCAVATION AND LEAVE FREE OF LOOSE MATTER.

2) ALL UNDERGROUND UTILITIES AND STRUCTURES ARE NOT SHOWN ON THE DRAWINGS. CONTRACTOR TO VERIFY LOCATION PRIOR TO EXCAVATION. DAMAGE TO UTILITIES SHALL BE REPAIRED AT NO COST TO THE OWNER.

3) REMOVE ALL VEGETATION NOT IDENTIFIED TO REMAIN. GRADE AND ROUGH CONTOUR BUILDING SITE, THEN GRADE AND ROUGH CONTOUR REMAINING SITE. PROTECT BENCH MARKS WHICH ARE NOT AFFECTED BY NEW CONSTRUCTION. TOPSOIL TO BE FREE OF ROOTS AND ROCKS LARGER THAN 1/2 INCH, SUBSOIL AND DEBRIS. IMPORTED FILL SHALL BE FREE OF FOREIGN MATERIAL. DO NOT BURY CONCRETE OR PAVEMENT ON THE SITE. EXCAVATED SUBSOIL TO BE USED TO FILL LOW AREAS OF SITE. HAUL OFF EXTRA MATERIAL AND DISPOSE OF IN APPROVED MANNER. COMPACT AREAS OF FILL IN 8 INCH MAXIMUM LIFTS AT OPTIMUM MOISTURE AND COMPACT TO 95% OF MAXIMUM DRY DENSITY. REMOVE ALL RUTS AND SOFT SPOTS. SUBGRADE TO BE PLUS OR MINUS ONE TENTH OF ONE FOOT FROM THAT SHOWN ON DRAWINGS.

4) FINAL GRADE SITE TO PLUS OR MINUS 1 INCH AFTER ALL MAJOR WORK IS DONE. ALL GRADES TO SLOPE MINIMUM 2% AWAY FROM BUILDING EXTERIOR FOR THE FIRST 5 FEET PERPENDICULAR FROM THE FACE OF THE BUILDING. TILL TOP 3 INCHES OF SOIL AFTER SPREADING COMPOST ON AREAS TO RECEIVE LANDSCAPING.

03 CONCRETE
1) CONCRETE INSTALLER TO BE EXPERIENCED AND QUALIFIED TO PERFORM WORK. ALL CONCRETE TO BE OBTAINED FROM THE SAME SOURCE AND COMPLY WITH ACI PUBLICATIONS AND INSTALLED PER ASTM STANDARDS.

2) STEEL REINFORCEMENT TO COMPLY WITH CRSI MANUAL OF STANDARD PRACTICE. CLEAN ALL REINFORCEMENT OF LOOSE RUST AND MILL SCALE, EARTH, ICE AND OTHER FOREIGN MATERIALS. INSTALL WELDED WIRE FABRIC IN LONGEST PRACTICABLE LENGTHS ON SUPPORTS SPACED TO MINIMIZE SAGGING.

3) BEFORE PLACING CONCRETE VERIFY INSTALLATION OF ALL FORMWORK, REINFORCING AND EMBEDDED ITEMS ARE COMPLETE AND ALL INSPECTIONS REQUIRED HAVE BEEN COMPLETED AND APPROVED.

4) ALL CONCRETE SURFACES TO BE FINISHED ACCORDING TO INDUSTRY STANDARDS. SEE DRAWINGS FOR LOCATIONS OF SPECIAL FINISH REQUIREMENTS. TROWEL FINISH ALL SURFACES AND FLOOR SLABS EXPOSED TO VIEW OR TO BE COVERED WITH FLOORING MATERIALS UNLESS NOTED OTHERWISE. FINE BROOM FINISH TO BE APPLIED TO ALL EXTERIOR PLATFORMS, STEPS AND RAMPS UNLESS NOTED OTHERWISE. BROOM FINISH TO RUN PERPENDICULAR TO MAIN TRAFFIC ROUTE. CHAMFER ALL EXTERIOR CORNERS AND EDGES OF PERMANENTLY EXPOSED SURFACES.

5) PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES. CONCRETE IS NOT TO BE POURED ON DAYS WITH ANTICIPATED PRECIPITATION UNLESS DIRECTED OTHERWISE.

6) EACH CONCRETE POUR TO BE DONE WITHOUT INTERRUPTION. NO MORE THAN 30 MINUTES BETWEEN LOADS TO PREVENT COLD JOINTS. CONCRETE TO BE POURED NEAR FINAL LOCATION TO AVOID EXCESSIVE WORKING. CONCRETE IS NOT TO BE THINNED FOR EASIER WORKING.

04 MASONRY
1) ALL CMU SHALL CONFORM TO ASTM C 140 FOR COMPRESSIVE STRENGTH. MORTAR TO COMPLY WITH ASTM C 270. ALL CMU TO HAVE INTEGRAL WATER REPELLENT IN DESING MIX U.N.O.

2) USE FULL-SIZE UNITS WITHOUT CUTTING IF POSSIBLE. IF CUTTING IS REQUIRED USE MOTOR DRIVEN SAWS AND PROVIDE CLEAN, SHARP, UNCHIPPED EDGES. ALLOW UNITS TO DRY BEFORE LAYING UNLESS SPECIFIED OTHERWISE.

3) LINES AND LEVELS - FOR BED JOINTS AND TOP SURFACES OF WALLS SHALL NOT VARY FROM LEVEL OR VERTICAL LINES AND SURFACES FROM PLUMB MORE THAN 1/4" IN 10 FEET OR 1/2" MAXIMUM. OPENINGS, CORNERS REVEALS, EXPANSION AND CONTROL JOINTS SHALL NOT VARY MORE THAN 1/8" IN 10 FEET FROM LEVEL AND PLUMB.

4) LAYOUT WALLS IN ADVANCE FOR ACCURATE SPACING AND UNIFORM JOINT THICKNESS. DO NOT USE CMU UNITS LESS THAN 4" OR LESS THAN HALF A FULL SIZE UNIT WHICHEVER IS GREATER.

5) MORTAR JOINTS - TOOL JOINTS WITH A ROUND JOINTER HAVING A DIAMETER OF 1/8" OR LARGER. RAKE JOINTS TO UNIFORM DEPTH AND WITH CLEAN SIDES. CLEAN SURFACE OF MASONRY OR STONE AS WORK PROGRESSES. FINAL CLEANING TO BE PERFORMED NO FEWER THAN SIX DAYS AFTER COMPLETION. DO NOT USE CLEANING METHODS THAT COULD DAMAGE SURFACE OR MORTAR JOINTS.

6) FLASHING - INSTALL EMBEDDED FLASHING AND WEEP HOLES IN MASONRY AT SHELF ANGLES, LINTELS, LEDGES AND OTHER OBSTRUCTIONS TO DOWNWARD FLOW OF WATER IN WALL. PREPARE MASONRY SURFACES SO THEY ARE SMOOTH AND FREE FROM PROJECTIONS THAT COULD PUNCTURE FLASHING. FLASHING TO EXTEND MINIMUM 6 INCHES BEYOND ENDS AND TURN UP NOT LESS THAN 2 INCHES TO FORM END DAMS.

7) WASTE - DO NOT USE WASTE AS FILL MATERIAL ON SITE. REMOVE EXCESS MASONRY UNITS AND MORTAR WASTE AND LEGALLY DISPOSE OF OFF SITE. EXCESS MASONRY UNITS THAT ARE NOT USED AND STILL IN GOOD CONDITION ARE TO BE RETURNED TO OWNER AND LOCATED AND STORED PER OWNERS DIRECTION.

05 METAL
1) SET BEARING AND LEVELING PLATES ON WEDGES, SHIMS OR LEVELING NUTS. AFTER BEARING MEMBERS HAVE BEEN POSITIONS AND PLUMBED, TIGHTEN ANCHOR BOLTS. DO NOT REMOVE WEDGES OR SHIMS BUT, IF PROTRUDING, CUT OFF FLUSH WITH EDGE OF BEARING PLATE BEFORE PACKING WITH NONSHRINK GROUT. PACK GROUT SOLIDLY BETWEEN BEARING SURFACES TO ENSURE THAT NO VOIDS REMAIN.

2) IMMEDIATELY AFTER ERECTION, CLEAN FIELD WELDS, BOLTED CONNECTIONS, AND ABRADED AREAS. PAINT UNCOATED AND ABRADED AREAS WITH THE SAME MATERIAL AS USED FOR SHOP PAINTING. REPAIR GALVANIZED SURFACES TO COMPLY WITH ASTM A 780.

3) SET RAILINGS IN LOCATION , ALIGNMENT, AND ELEVATION MEASURED FROM ESTABLISHED LINES AND LEVELS AND FREE OF RACK. SET POSTS PLUMB WITHIN A TOLERANCE OF 1/16" IN 3 FEET. COAT CONCEALED SURFACES THAT WILL BE IN CONTACT WITH GROUT, CONCRETE, MASONRY, WOOD OR DISSIMILAR METALS WITH A HEAVY COAT OF BITUMINOUS PAINT. SECURE RAILINGS AND END FLANGES TO BUILDING USING APPROVED FASTENING METHODS.

06 WOOD
1) SET ROUGH CARPENTRY TO REQUIRED LEVELS AND LINES WITH MEMBERS PLUMB, TRUE TO LINE , CUT, AND FITTED. FIT ROUGH CARPENTRY TO OTHER CONSTRUCTION; SCRIBE AND COPE AS NEEDED FOR ACCURATE FIT. LOCATE NAILERS, BLOCKING, AND SIMILAR SUPPORTS TO COMPLY WITH REQUIREMENTS FOR ATTACHING OTHER CONSTRUCTION.

2) PROTECT ROUGH CARPENTRY FROM WEATHER. IF, DESPITE PROTECTION, ROUGH CARPENTRY BECOMES WET APPLY BORATE TREATMENT PER MANUFACTURER'S RECOMMENDATIONS OR REPLACE WITH NEW MATERIALS.

3) DO NOT SPLICE MEMBERS BETWEEN SUPPORTS. ATTACH PLYWOOD SHEATHING AND SUBFLOOR PANELS TO SUPPORTS WITH MANUFACTURER'S RECOMMENDED PANEL ADHESIVE AND FASTENERS. FASTEN PANEL WITH SCREWS SET BELOW FACE.

4) WHERE TREATED LUMBER IS INSTALLED ADJACENT TO METAL, INSTALL CONTINUOUS FLEXIBLE FLASHING SEPARATOR BETWEEN WOOD AND METAL.

5) PRIME ALL LUMBER AND MOLDINGS TO BE PAINTED INCLUDING BOTH FACES AND EDGES. CUT TO REQUIRED LENGTHS AND PRIME ENDS.

6) INSTALL STAIRS WITH NO MORE THAN 3/16" VARIATION BETWEEN ADJACENT TREADS AND RISERS AND WITH NO MORE THAN 3/8" VARIATION BETWEEN LARGEST AND SMALLEST TREADS AND RISERS WITH EACH FLIGHT.

7) INSTALL FLAT-GRAIN LUMBER WITH BARK SIDE EXPOSED TO WEATHER. INSTALL TRIM WITH MINIMUM NUMBER OF JOINTS PRACTICAL, USING FULL-LENGTH PIECES FROM MAXIMUM LENGTHS OF LUMBER AVAILABLE. DO NOT USE PIECES LESS THAN 24 INCHES LONG EXCEPT WHERE NECESSARY. USE SCARF JOINTS FOR END-TO-END JOINTS. STAGGER END JOINTS IN ADJACENT AND RELATED MEMBERS. FIT EXTERIOR JOINTS TO EXCLUDE WATER. COPE AT RETURNS AND MITER AT CORNERS. SEAL BUTT JOINTS AT INSIDE AND OUTSIDE CORNERS AND AT TRIM LOCATIONS.

8) BEFORE INSTALLING INTERIOR FINISH CARPENTRY, CONDITION MATERIALS TO AVERAGE PREVAILING HUMIDITY IN INSTALLATION AREAS FOR A MINIMUM OF 24 HOURS UNLESS NOTED OTHERWISE BY MANUFACTURER'S INSTRUCTIONS.

07 - THERMAL AND MOISTURE PROTECTION
1) PREPARE SURFACES AND INSTALL WATER PROOFING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. ACCURATELY ALIGN SHEETS AND MAINTAIN UNIFORM MINIMUM LAP WIDTHS AND END LAPS. OVERLAP AND SEAL SEAMS, AND STAGGER END LAPS TO ENSURE WATERTIGHT INSTALLATION. IMMEDIATELY INSTALL PROTECTIVE MATERIALS OVER WATERPROOFING. CORRECT DEFICIENCIES IN OR REMOVE WATERPROOFING THAT DOES NOT COMPLY WITH REQUIREMENTS; REPAIR SUBSTRATES AND REAPPLY.

2) INSTALL INSULATION THAT IS UNDAMAGED, DRY, AND UNSOILED AND THAT HAS NOT BEEN LEFT EXPOSED TO ICE, RAIN, OR SNOW AT ANY TIME. EXTEND INSULATION TO ENVELOP ENTIRE AREA TO BE INSULATED. CUT AND FIT TIGHTLY AROUND OBSTRUCTIONS AND FILL VOIDS WITH INSULATION. STAGGER END JOINTS AND TIGHTLY ABUT INSULATION UNITS.

3) PLACE VAPOR RETARDER AS INDICATED ON DRAWINGS AND PER CODE REQUIREMENTS. EXTEND VAPOR RETARDER TO EXTREMITIES OF AREAS TO PROTECT FROM VAPOR TRANSMISSION. SECURE VAPOR RETARDER IN PLACE WITH ADHESIVES OR OTHER ANCHORAGE SYSTEM AS INDICATED. FASTEN VAPOR RETARDER TO FRAMING AT TOP, END AND BOTTOM EDGES; AT PERIMETER OF WALL OPENINGS AND AT LAP JOINTS. SEAL JOINTS CAUSED BY PIPES, CONDUITS, ELECTRICAL BOXES, AND SIMILAR ITEMS PENETRATING VAPOR RETARDER WITH VAPOR-RETARDER TAPE TO CREATE AN AIRTIGHT SEAL BETWEEN PENETRATING OBJECTS AND VAPOR RETARDER. REPAIR TEARS OR PUNCTURES IN VAPOR RETARDER IMMEDIATELY BEFORE CONCEALMENT BY OTHER WORK.

4) INSTALL UNDERLAYMENT FOR ALL EXTERIOR WEATHERING PRODUCTS PER MANUFACTURER'S RECOMMENDATIONS. INSTALL METAL FLASHING AND OTHER SHEET METAL TO COMPLY WITH REQUIREMENTS IN THE NRCA ROOFING AND WATERPROOFING MANUAL.

5) SEALANTS - COMPLY WITH RECOMMENDATIONS IN ASTM C 1193 FOR USE OF JOINT SEALANTS AS APPLICABLE TO MATERIALS, APPLICATIONS, AND CONDITIONS INDICATED. IMMEDIATELY AFTER SEALANT APPLICATION AND BEFORE SKINNING OR CURING BEGINS, TOOL SEALANTS ACCORDING TO REQUIREMENTS SPECIFIED TO FORM SMOOTH, UNIFORM BEADS OF CONFIGURATION INDICATED TO ELIMINATE AIR POCKETS AND TO ENSURE CONTACT AND ADHESION OF SEALANT WITH SIDES OF JOINT. PROTECT ADJACENT MATERIALS AND CLEAN OFF EXCESS SEALANT PER MANUFACTURER'S INSTRUCTIONS.

08 OPENINGS
1) DOORS - INSTALL DOORS TO COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND REFERENCE QUALITY STANDARD. ALIGN AND FIT DOORS IN FRAMES WITH UNIFORM CLEARANCES AND BEVELS. SEAL EDGES OF DOORS. ADJUST HARDWARE AND MOVING PARTS TO FUNCTION SMOOTHLY AND SO THAT DOORS OPERATE EASILY, FREE OF WARP, TWIST, OR DISTORTION.

2) WINDOWS - COMPLY WITH MANUFACTURES WRITTEN INSTRUCTION FOR INSTALLING WINDOWS, HARDWARE, ACCESSORIES, AND OTHER COMPONENTS. INSTALL WINDOWS LEVEL, PLUMB, SQUARE, TRUE TO LINE, WITHOUT DISTORTION, ANCHORED SECURELY IN PLACE TO STRUCTURAL SUPPORT, AND IN PROPER RELATION TO WALL FLASHING AND OTHER ADJACENT CONSTRUCTION TO PRODUCE WEATHERTIGHT CLOSURE. ADJUST OPERATION FOR TIGHT FIT AND CONTACT POINTS AND WEATHER STRIPPING FOR SMOOTH OPERATION. CLEAN EXPOSED SURFACES IMMEDIATELY AFTER INSTALLING WINDOWS. REMOVE EXCESS SEALANTS, GLAZING MATERIALS, DIRT AND OTHER SUBSTANCES. REMOVE AND REPLACE WIDOWS IF BROKEN, CHIPPED, CRACKED, ABRADED, OR DAMAGED DURING CONSTRUCTION PERIOD.

09 FINISHES
1) INSPECT FINISH MATERIALS BEFORE INSTALLATION. REJECT MATERIALS THAT ARE WET, MOISTURE DAMAGED, AND MOLD DAMAGED.

2) GYPSUM BOARD FINISH LEVEL PER ASTM C840. FINISH PANELS TO LEVEL 3 MINIMUM IN AREAS TO BE LEFT UNFINISHED. FINISH PANELS TO LEVEL 4 IN ALL OTHER AREAS UNLESS NOTED OTHERWISE. JOINT COMPOUND SHALL BE SMOOTH AND FREE OF TOOL MARKS AND RIDGES. PREPARE AND APPLY PRIMER TO GYPSUM PANELS AND OTHER SURFACES RECEIVING TEXTURE FINISHES. MIX AND APPLY FINISH USING POWERED SPRAY EQUIPMENT, TO PRODUCE A UNIFORM TEXTURE FREE OF STARVED SPOTS OR OTHER EVIDENCE OF THIN APPLICATION OR OF APPLICATION PATTERNS. PROTECT ADJACENT SURFACES FROM DRYWALL COMPOUND AND TEXTURE FINISHES AND PROMPTLY REMOVE FROM FLOORS AND OTHER NO-DRYWALL SURFACES. REPAIR SURFACES STAINED, MARRED, OR OTHERWISE DAMAGED DURING DRYWALL APPLICATION.

3) DO NOT INSTALL ANY FINISH MATERIALS UNTIL ALL GYPSUM BOARD FINISHING PROCEDURES HAVE BEEN COMPLETED INCLUDING TEXTURE AND PAINT.

4) TILING - VERIFY THAT SUBSTRATES FOR SETTING TILE ARE FIRM, DRY, CLEAN, FREE OF COATINGS THAT ARE INCOMPATIBLE WITH TILE-SETTING MATERIALS. FILL CRACKS, HOLES, AND DEPRESSION IN SUBSTRATES. PROVIDE MANUFACTURER'S STANDARD TRIM SHAPES WHERE NECESSARY TO ELIMINATE EXPOSED TILE EDGES. LAY TILEWORK TO MINIMIZE THE USE OF PIECES THAT ARE LESS THAN HALF OF A TILE. PROVIDE UNIFORM JOINT WIDTHS AND SET TILE PLUMB, LEVEL AND TRUE WITHIN A TOLERANCE OF 1/16" IN 3 FEET UNLESS OTHERWISE DIRECTED. WHERE JOINTS OCCUR IN SUBSTRATE LOCATE TILE JOINTS DIRECTLY ABOVE. SEAL ALL GROUT JOINTS UNLESS DIRECTED OTHERWISE.

5) INSTALL FLOORING PER MFR'S WRITTEN INSTRUCTIONS OVER APPROPRIATE SUBSTRATE. PROTECT INSTALLED FLOORING DURING REMAINDER OF CONSTRUCTION PERIOD BY COMPLETELY COVERING WITH HEAVY KRAFT PAPER OR OTHER SUITABLE MATERIAL. DO NOT USE PLASTIC SHEET OR FILM THAT MIGHT CAUSE CONDENSATION. OVERLAP SEAMS OF PROTECTIVE MATERIALS MINIMUM OF 6 INCHES. TAPE SEAMS TO FORM CONTINUOUS PROTECTIVE BARRIER. DO NOT FASTEN, TAPE OR OTHERWISE CONNECT PAPER TO FLOORING OR ADJACENT FINISHED SURFACES.

6) PAINT - APPLY PAINTS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. APPLY PAINTS TO PRODUCE SURFACE FILMS WITHOUT CLOUDINESS, SPOTTING, HOLIDAYS, LAPS, BRUSH MARKS, ROLLER TRACKING, RUNS, SAGS, ROPINESS, OR OTHER SURFACE IMPERFECTIONS. CUT IN SHARP LINES AND COLOR BREAKS. PROTECT WORK OF OTHER TRADES AGAINST DAMAGE FROM PAINT APPLICATION. CORRECT DAMAGED WORK OF OTHER TRADES BY CLEANING, REPAIRING, REPLACING, AND REFINISHING, AS APPROVED BY ARCHITECT AND LEAVE IN AN UNDAMAGED CONDITION. AFTER COMPLETION OF OTHER TRADES RETURN AND TOUCH-UP AND RESTORE DAMAGED OR DEFACED PAINTED SURFACES.

10 SPECIALTIES
1) SIGNAGE - PROVIDE SIGNAGE THAT CONFORMS TO THE REQUIREMENTS OF ALL REGULATORY AGENCIES HOLDING JURISDICTION. PROVIDE ADDRESS ON EXTERIOR OF BUILDING AS REQUIRED BY LOCAL JURISDICTION AND CLEARLY VISIBLE FROM THE MAIN ACCESS STREET. COORDINATE WITH OWNER FOR MATERIAL AND OTHER REQUIREMENTS. ALL INTERIOR SIGNS TO BE PROVIDED AND INSTALLED AS REQUIRED BY CODE. INSTALL SIGNS WITH CONCEALED FASTENERS UNLESS NOTED OTHERWISE.

2) TOILET, BATH AND LAUNDRY ACCESSORIES. CONTRACTOR SHALL COMPLY WITH LOCAL AND STATE BUILDING CODES FOR MOUNTED CONTROLS AND FIXTURES. REFER TO CURRENT ICC/ANSI A117.1 CODES FOR MOUNTING HEIGHTS AND GENERAL REQUIREMENTS.

3) FIRE PROTECTION - CONTRACTOR TO PROVIDE AND INSTALL PORTABLE FIRE EXTINGUISHERS AS REQUIRED BY CODE. COORDINATE WITH ARCHITECT AND OWNER FOR EXACT LOCATIONS AND ADDITIONAL INFORMATION.

4) CLOSETS - CONTRACTOR TO INSTALL CLOSET SHELF AND ROD IN ALL CLOSETS UNLESS NOTED OTHERWISE. SHELF TO BE MADE OF 3/4" THICK BY 14" MINIMUM DEPTH MELAMINE-FACED PARTICLEBOARD WITH RADIUSED PREFINISHED FRONT EDGE. SHELF CLEATS SHALL BE 3/4" BY 3-1/2" CONTINUOUS BOARDS WITH HOLE AND NOTCH TO RECEIVE CLOTHES RODS. SHELF BRACKETS WITH ROD SUPPORT SHALL BE PRIME PAINTED FORMED STEEL PER BHMA A156.16, B04051. INSTALL SHELF/ROD BRACKETS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND AT 36" ON CENTER MAXIMUM. CLOSET RODS SHALL BE 1-5/16" DIAMETER CHROME-PLATED STEEL TUBES COMPLYING WITH BHMA A156.16, L03131. INSTALL WITH MINIMUM NUMBER OF JOINTS PRACTICAL, USING FULL-LENGTH PIECES FROM MAXIMUM LENGTHS AVAILABLE. MITER RETURNS AND OUTSIDE CORNERS. COPE INSIDE CORNERS TO PRODUCE TIGHT-FITTING JOINTS WITH FULL-SURFACE CONTACT THROUGHOUT LENGTH OF JOINT. SCARF JOINTS FOR END-TO-END CONDITIONS.

11 EQUIPMENT
1) CONTRACTOR TO PROVIDE AND INSTALL ALL EQUIPMENT INDICATED ON DRAWINGS UNLESS NOTED OTHERWISE. EQUIPMENT TO BE INSTALLED AS SPECIFIED BY MANUFACTURER. CONTRACTOR TO VERIFY CLEARANCES REQUIRED BY EQUIPMENT WILL BE SATISFIED IN LOCATIONS SHOWN ON DRAWINGS. CONTRACTOR TO NOTIFY ARCHITECT/ENGINEER FOR RESOLUTION OF ANY CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.

12 FURNISHINGS
1) BLINDS - ALL WINDOWS TO RECEIVE BLINDS UNLESS NOTED OTHERWISE. CONTRACTOR TO PROVIDE VERTICAL LOUVER BLINDS WITH FLAT PERFORATED PVC VANES UNLESS NOTED OTHERWISE. COORDINATE WITH OWNER FOR SPECIFIC REQUIREMENTS.

2) CASEWORK - ALL CASEWORK TO COMPLY WITH "ARCHITECTURAL WOODWORK STANDARDS". ALL CASEWORK INDICATED IN DRAWINGS ARE FOR ESTIMATING PURPOSES ONLY. CONTRACTOR TO SCHEDULE A MEETING WITH THE CASEWORK SUPPLIER, OWNER AND ARCHITECT FOR FINAL DESIGN REQUIREMENTS. PROVIDE CUSTOM GRADE CASEWORK MINIMUM. CONTRACTOR SHALL PROVIDE ALL HARDWARE FOR COMPLETE INSTALLATION. COORDINATE WITH OWNER FOR SPECIFIC LAYOUT AND FINISH REQUIREMENTS. CONTRACTOR TO PROVIDE SHOP DRAWINGS INDICATING ALL CASEWORK AND HARDWARE FOR APPROVAL BY OWNER.

3) COUNTERTOPS - CONTRACTOR TO PROVIDE ALL COUNTERTOPS AS SHOWN ON DRAWINGS. CONTRACTOR TO VERIFY BLOCKING IN WALL IS ADEQUATE TO SUPPORT COUNTERTOPS. INSTALL WITH MINIMUM NUMBER OF JOINTS PRACTICAL, USING FULL-LENGTH PIECES FROM MAXIMUM LENGTHS AVAILABLE. PROVIDE CUTOUTS FOR APPLIANCES, PLUMBING FIXTURES, ELECTRICAL WORK, AND SIMILAR ITEMS. ALL COUNTERS TO RECEIVE 4" BACKSPLASH OF SIMILAR FINISH THE FULL LENGTH OF BACK WALL AND AT WALLED ENDS UNLESS NOTED OTHERWISE. ALL EXPOSED EDGES TO BE FINISHED AS DIRECTED BY OWNER. SEAL ALL JUNCTURES OF TOPS, SPLASHES AND WALLS WITH MILDEW-RESISTANT SILICONE SEALANT AS RECOMMENDED BY COUNTERTOP MANUFACTURER. SECURE BACKSPLASHES WITH CONCEALED FASTENERS TO COUNTER AND ADHERE TO WALL.

NOTE:
SPECIFICATIONS PROVIDED ON THIS SHEET ARE TYPICAL. CONTRACTOR TO CONFIRM WITH OWNER APPLICABILITY OF ALL NOTES INDICATED ON THIS SHEET

SIGNATURE OF APPROVAL
I CERTIFY THAT I HAVE READ AND INSPECTED THE INFORMATION PROVIDED ON THIS SHEET AND AGREE TO THE INFORMATION INDICATED. ANY AMENDMENTS TO THE PROVIDED INFORMATION MUST BE IN WRITING.

CONTRACTOR: ______________________

OWNER: ______________________

MARK	DATE	DESCRIPTION	BY

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BDG LLC - NEW WAREHOUSE

GENERAL SPECIFICATIONS

PROJECT NUMBER: 20190809
ISSUE DATE: 02/13/2020

G-0.5
Sheet 4 of 25

Bar Measures 1 inch

STRUCTURAL NOTES:

1. DESIGN CRITERIA:
   INTERNATIONAL BUILDING CODE - 2015
   CONCRETE - ACI 318 AND ACI 301
   WELDING - AWS D1.1
   STRUCTURAL STEEL - AISC "MANUAL OF STEEL CONSTRUCTION" FOURTEENTH EDITION.

   DESIGN LOADS:
   ROOF SNOW LOAD ..... 20 PSF
   WIND LOAD SPEED
   BASIC WIND SPEED ..... 110 MPH
   EXPOSURE C

   ASSUMED SOIL BEARING PRESSURE .....1500 PSF
   SEISMIC CATEGORY ..... ZONE D

2. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY, CHANGES OR OMISSIONS. SUBSTITUTIONS ARE NOT PERMITTED WITHOUT WRITTEN APPROVAL OF THE ENGINEER.

3. SHOP DRAWINGS ARE TO BE CHECKED AND APPROVED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING FOR ENGINEER REVIEW. GENERAL CONTRACTOR IS RESPONSIBLE FOR VERIFICATION AND COORDINATION OF DIMENSIONS AND DETAILS WITH SUBCONTRACTOR.

4. ALL STRUCTURAL CONCRETE SHALL HAVE A NORMAL COMPRESSIVE STRENGTH OF 2500 PSI AT 28 DAYS. MAXIMUM SIZE OF AGGREGATE BE 3/4 INCH. SLUMP SHALL BE BETWEEN 2 AND 4 INCHES. CEMENT SHALL BE PORTLAND CEMENT TYPE I OR II. ENTRAINED AIR SHALL BE BETWEEN 4 AND 6 PERCENT FOR CONCRETE EXPOSED TO WEATHER.

5. CONTROL JOINTS SHALL BE TRUE STRAIGHT LINES, 1/4 INCH WIDE BY 3/4 INCH DEEP AND CUT WITH IN 24 HOURS AFTER POUR. FILL CONTROL JOINTS WITH SEALANT.

6. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4 INCH.

7. ALL FOOTINGS SHALL BEAR ON 12 INCHES OF CSTC COMPACTED TO 95% OF ASTM D1557 PER GER RECOMMENDATIONS - SEE REPORT SECTION 9.

8. REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615, GRADE 60, EXCEPT #3 TIES MAY BE GRADE 40. CONCRETE COVER FOR REINFORCEMENT SHALL BE PER PARAGRAPH 7.7.1 OF ACI 318. REINFORCEMENT SHALL BE CONTINUOUS BENT AROUND CORNERS, OR CORNER BARS OF THE SAME SIZE MAY BE INSTALLED WITH A MINIMUM LEG LENGTH THAT CONFORMS TO THE ACI 318, CLASS B SPLICES.

9. ANCHOR BOLTS SHALL CONFORM TO ASTM F1554, GRADE 55 WITH 3" PROJECTION.

10. ALL WELDING SHALL CONFORM TO THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY SPECIFICATION AWS D1.1 USING CLASS E70XX SERIES (MINIMUM).

COLUMN / FOOTING SCHEDULE								
X	COLUMN [A]	WIDTH [X]	LENGTH [Y]	DEPTH [Z]	PLATE [C] / COLUMN BASE	COLUMN CAP	REINFORCING	NOTES:
C1	(3) 2x6 DF#2	30"	30"	12"	SILL PLATE	TOP PLATE	(4) #4 EACH WAY	THICKENED SLAB PER DETAIL
C2	(3) 2x6 DF#2	36"	36"	12"	SILL PLATE	TOP PLATE	(4) #4 EACH WAY	THICKENED SLAB PER DETAIL
C3	(4) 2x6 DF#2	30"	30"	12"	SILL PLATE	TOP PLATE	(4) #4 EACH WAY	THICKENED SLAB PER DETAIL
C4	4x8 DF#1	36"	24"	12"	SILL PLATE	TOP PLATE	(5) #4 SHORT / (3) #4 LONG	THICKENED SLAB PER DETAIL
C5	6x8 DF#1	48"	48"	12"	SILL PLATE	TOP PLATE	(6) #4 EACH WAY	THICKENED SLAB PER DETAIL

CONSTRUCTION NOTES

1. 6" CONCRETE SLAB WITH MAC 100 FIBER MESH OVER 4" OF 5/8" MINUS CRUSHED GRAVEL ON COMPACTED SUB-BASE.
2. CONTROL JOINT, SEE STRUCTURAL NOTE 5.
3. DEPRESS CONCRETE STEM WALL FOR FINISH FLOOR CONCRETE SLAB TO COME OVER STEM WALL AT ALL DESIGNATED OPENINGS.
4. #4 x 20' - 0" HAIRPIN (60° OFF HORIZONTAL) (TYP. 6 PLACES)
5. #5 x 20' - 0" HAIRPIN (45° OFF HORIZONTAL) AND #5 x 20' - 0" HAIRPIN (75° OFF HORIZONTAL) (TYP. 14 PLACES)

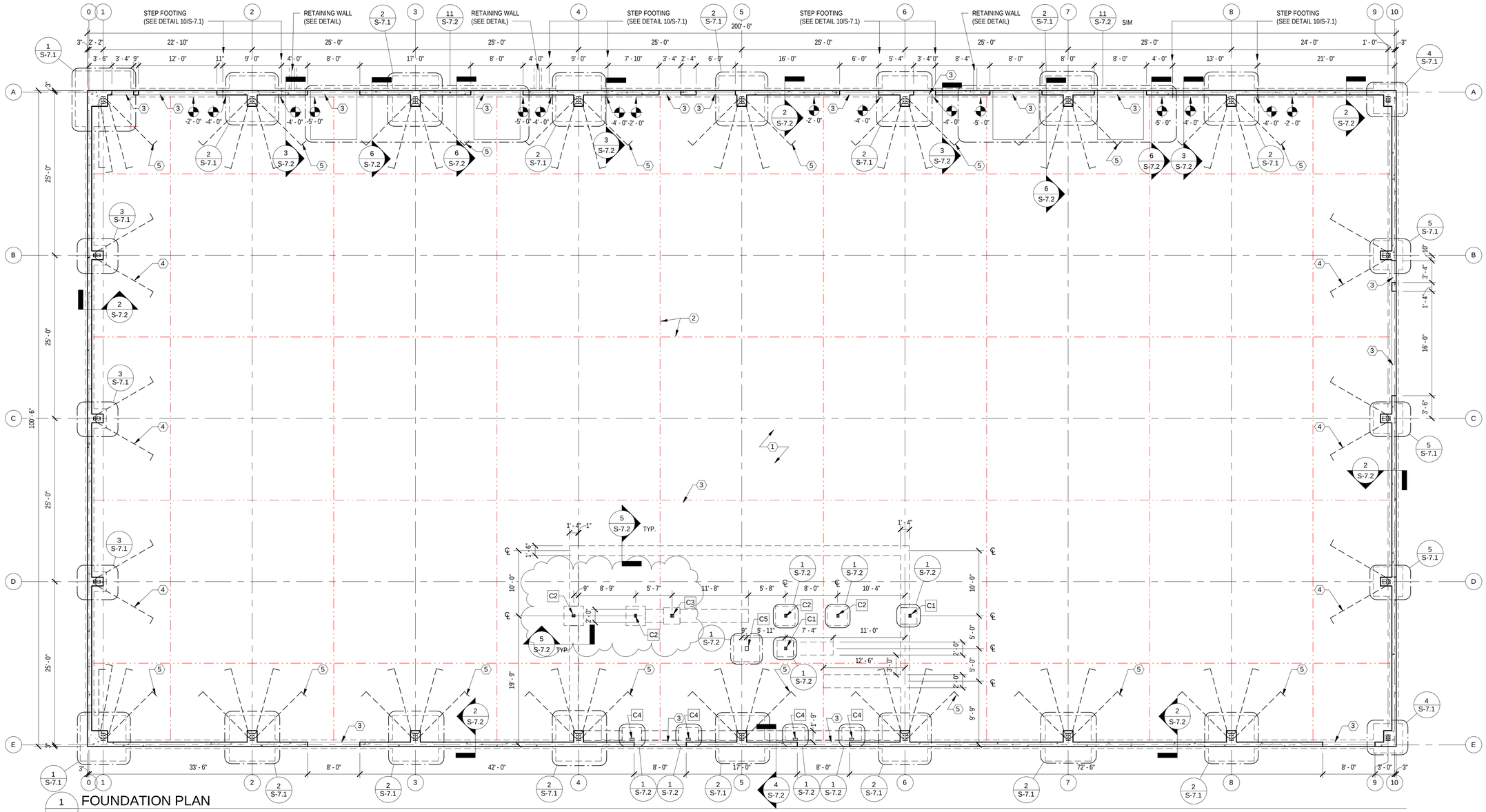
LEGEND:

CONTROL JOINT

SPOT ELEVATION (TOP OF FOOTING)

SPECIAL INSPECTIONS TABLE			
TYPE	DURATION	REFERRENCED STANDARD	2015 IBC REFERENCE
HIGH STRENGTH BOLTING	PERIODIC	AISC 360	1705.2.6.b
BOLTS CAST IN CONCRETE	PERIODIC	ACI 318	1705.3.3
SOIL MATERIALS, LIFT THICK. & COMPACTION OF FILL (TYPE 4)	CONTINUOUS	-	1705.6.4

NOTE: OUTSIDE FACE OF FOUNDATION STEM WALL IS 3" OFF OF METAL BUILDING GRID LINE SEE DETAILS PRIOR TO PLACING FORMWORK



1 S-1.1 FOUNDATION PLAN
SCALE 1/8" = 1'-0"

REVISIONS

MARK	DATE	DESCRIPTION	BY
1	07/16/2020	CITY COMMENTS / REVISIONS	

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BDG LLC - NEW WAREHOUSE

FOUNDATION PLAN

PROJECT NUMBER: 20190809
ISSUE DATE: 02/13/2020

S-1.1
Sheet 9 of 25

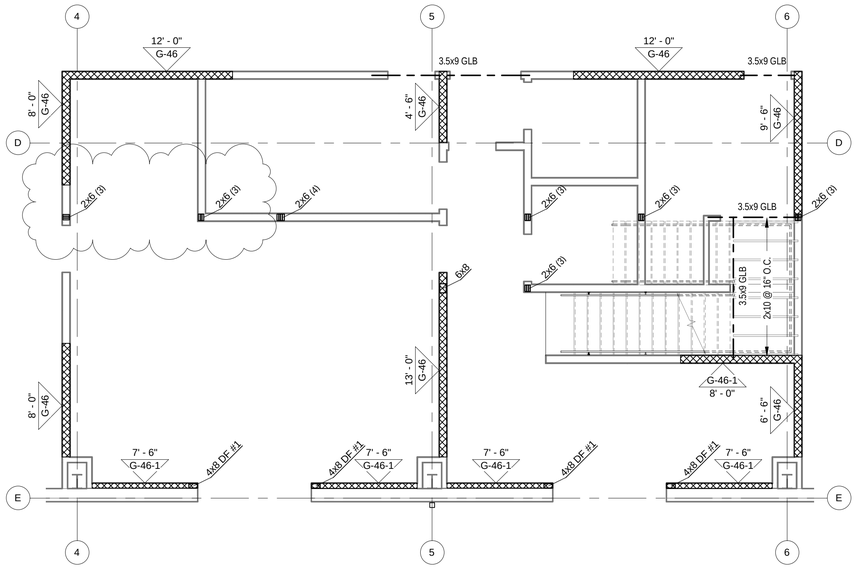
Bar Measures 1 inch

SHEARWALL SCHEDULE

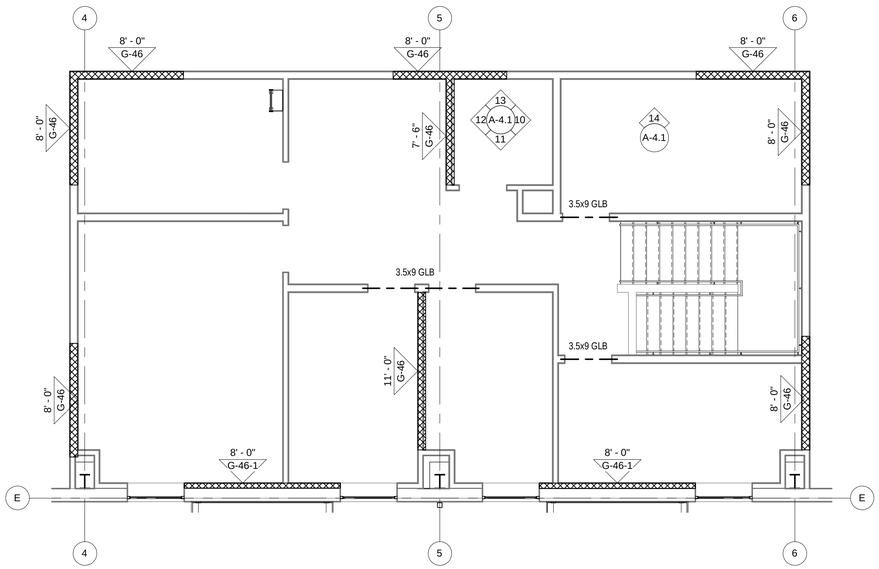
LABEL	APA RATED SHEATHING [1] [2] [3]	NAIL SIZE AND SPACING @ EDGES [4] [5]	STUD & BLOCKING SIZE @ ADJOINING EDGES [3] [6]	RIM JOIST OR BLOCK CONNECTION TO TOP PLATE [7] [8]	2x BOTTOM PLATE ATTACHMENT NAILING TO WOOD BELOW [9]	SILL PLATE ANCHOR BOLT TO CONCRETE BELOW [10]	SILL PLATE SIZE @ FOUNDATIONS [11]
G-46 X' - X"	5/8" GYPSUM BOARD SHEATHING BOTH SIDES	6d @ 4" O.C.	2x	(3) 16d TOENAILS	12d @ 6" O.C.	1/2" DIA @ 6" O.C.	2x
G-46-1 X' - X"	5/8" GYPSUM BOARD SHEATHING ONE SIDE	6d @ 4" O.C.	2x	(3) 16d TOENAILS	12d @ 6" O.C.	1/2" DIA @ 6" O.C.	2x

-'W' IS PLYWOOD OR OSB SHEATHING, 'G' IS GYPSUM WALLBOARD
-FIRST NUMBER TO RIGHT OF LETTER IS THE NAIL SPACING IN INCHES AND THE SECOND NUMBER IS THE BOLT SPACING IN FEET.
-ALL NAILS TO BE COMMON OR BOX NAILS

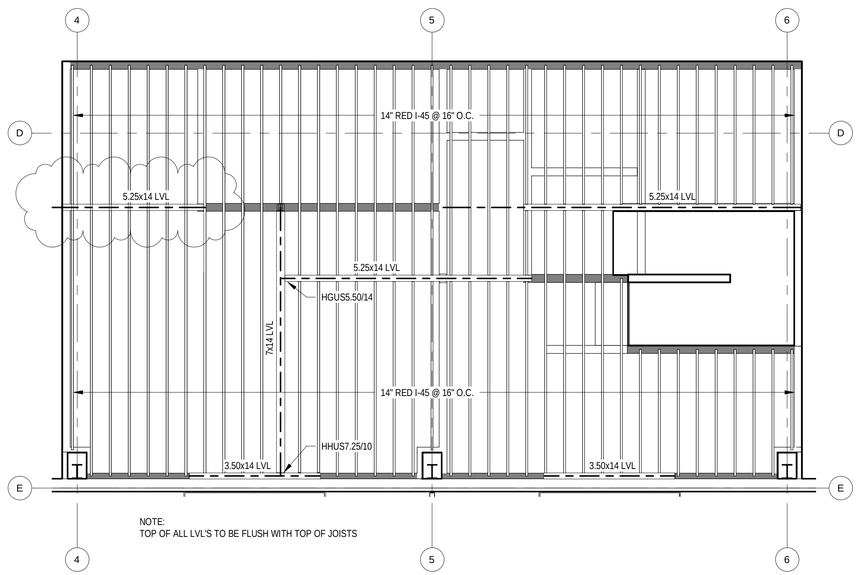
NOTES:
[1] INSTALL PANELS EITHER HORIZONTALLY OR VERTICALLY
[2] WHERE SHEATHING IS APPLIED ON BOTH SIDES OF WALL, PANEL EDGE JOINTS ON 2X FRAMING SHALL BE STAGGERED SO THAT JOINTS ON THE OPPOSITE SIDES ARE NOT LOCATED ON THE SAME STUDS.
[3] BLOCKING IS REQUIRED AT ALL WOOD SHEATHING PANEL EDGES. BLOCKING IS NOT REQUIRED ON GYPSUM BOARD SHEATHING PANEL EDGES.
[4] PROVIDE SHEAR WALL SHEATHING AND NAILING FOR THE ENTIRE LENGTH OF THE WALLS INDICATED ON THE PLANS. ENDS OF FULL HEIGHT WALLS ARE DESIGNATED BY EXTERIOR OF THE BUILDING, CORRIDORS, WINDOWS, OR DOORWAYS OR AS DESIGNATED ON PLANS. SEE PLANS FOR HOLDOWN REQUIREMENTS.
[5] SHEATHING EDGE NAILING IS REQUIRED AT ALL HOLDOWN POSTS. EDGE NAILING MAY ALSO BE REQUIRED TO EACH STUD USED IN BUILT-UP HOLDOWN POSTS.
[6] INTERMEDIATE FRAMING TO BE 2X MINIMUM MEMBERS. FIELD NAILING 12" OC FOR WOOD SHEATHING. GYPSUM BOARD NAILING TO BE AS SHOWN FOR ALL STUDS.
[7] IF CLIPS ARE USED INSTEAD OF TOE-NAILS, USE 8d x 1 1/2" LONG NAILS USED TO ATTACH FRAMING CLIPS DIRECTLY TO FRAMING. USE 8d x 2 1/2" LONG NAILS WHERE INSTALLED OVER SHEATHING.
[8] IF CLIPS ARE USED, FRAMING CLIPS: A35 OR LTP5 OR APPROVED EQUIVALENT
[9] WHERE PLATE ATTACHMENT SPECIFIES (2) ROWS OF NAILS, PROVIDE DOUBLE JOIST, RIM OR EQUAL. ATTACH PER DETAILS.
[10] (IN SEISMIC DESIGN CATEGORIES D,E&F) ANCHOR BOLTS SHALL BE PROVIDED WITH STEEL PLATE WASHERS 3/16"x2"x2". EMBED ANCHOR BOLTS 7" MINIMUM INTO THE CONCRETE.
[11] PRESSURE TREATED MATERIAL CAN CAUSE EXCESSIVE CORROSION IN THE FASTENERS. PROVIDE HOT-DIPPED GALVANIZED (ELECTRO-PLATING IS NOT ACCEPTABLE) NAILS AND CONNECTOR PLATES (FRAMING ANGLES, ETC.) FOR ALL CONNECTORS IN CONTACT WITH PRESSURE TREATED FRAMING MEMBERS.



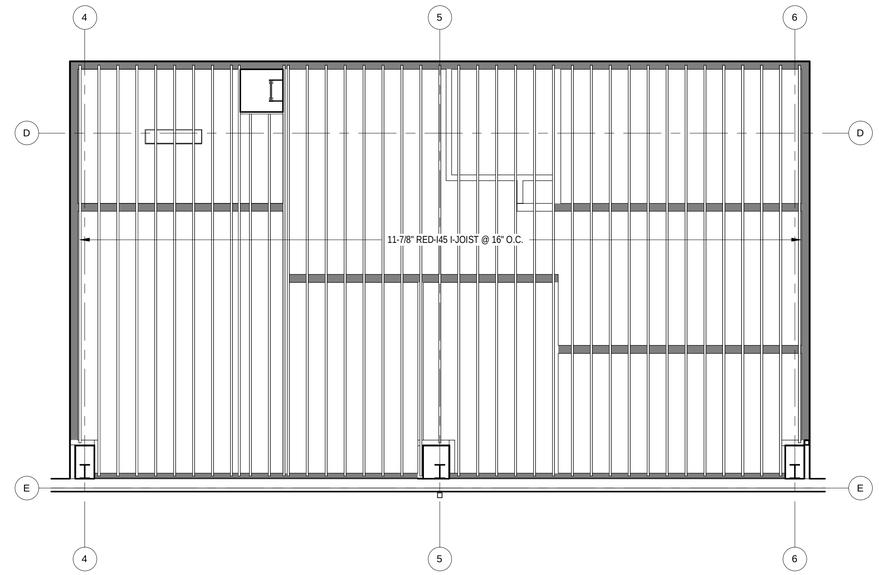
1 S-2.1 FRAMING / SHEARWALL PLAN - 1ST FLOOR
SCALE 3/16" = 1'-0"



2 S-2.1 FRAMING / SHEARWALL PLAN - 2ND FLOOR
SCALE 3/16" = 1'-0"



3 S-2.1 FRAMING PLAN - 2ND FLOOR
SCALE 3/16" = 1'-0"



4 S-2.1 FRAMING PLAN - MECHANICAL
SCALE 3/16" = 1'-0"

FOUNDATION / FRAMING LEGEND AND GENERAL NOTES

- BEARING WALL
- NON-BEARING WALL
- SWX X' - X" — SHEAR WALL - SEE SCHEDULE
- HD1 — HOLD DOWN - SEE SCHEDULE
- CX — COLUMN / FOOTING SEE SCHEDULE
- SF — STEEL FRAME SEE DETAIL
- X-PSF X' — SNOW DRIFT LOAD
- X' - X" — SPOT ELEVATION (TOP OF FOOTING)
- CJ/EJ — CONTROL JOINT (CJ) EXPANSION JOINT (EJ) SEE DETAIL

GENERAL NOTES:

1) FOOTING CONTRACTOR TO COORDINATE ALL COLUMN, SHEAR WALL AND HOLD DOWN LOCATIONS WITH FRAMING CONTRACTOR PRIOR TO POURING FOOTINGS.

2) CONTRACTOR SHALL COORDINATE INSPECTION WITH ARCHITECT/ENGINEER OF REBAR PLACEMENT PRIOR TO CONCRETE POUR FOR APPROVAL. CONTRACTOR SHALL GIVE ARCHITECT/ENGINEER (10) DAYS NOTICE.

3) PROVIDE SIMPSON H2.5A HOLD DOWNS AT ALL JOIST LANDINGS UNLESS NOTED OTHERWISE

4) PROVIDE DRAFT STOPS AS REQUIRED BY CODE - COORDINATE LOCATION OF ACCESS DOORS IN FIELD WITH ARCHITECT.

5) PLACE ALL PORTAL FRAME BEAMS JUST ABOVE WINDOW (NOT AT PLATE HEIGHT). TOP OF BEAM 10' - 0" MAX.

6) SEE DETAIL SHEETS A-7.x FOR ADDITIONAL INFORMATION

REVISIONS

MARK	DATE	DESCRIPTION	BY
1	07/16/2020	CITY COMMENTS / REVISIONS	

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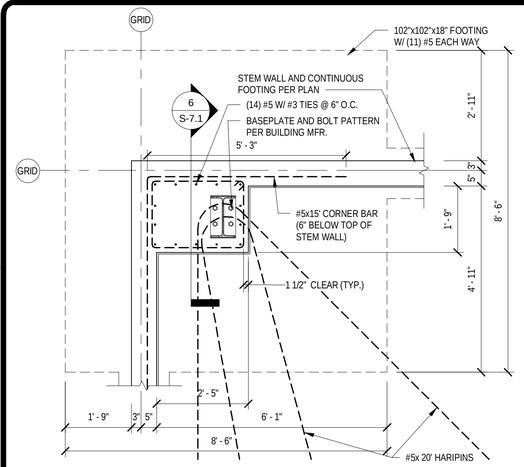
BDG LLC - NEW WAREHOUSE

FRAMING PLANS

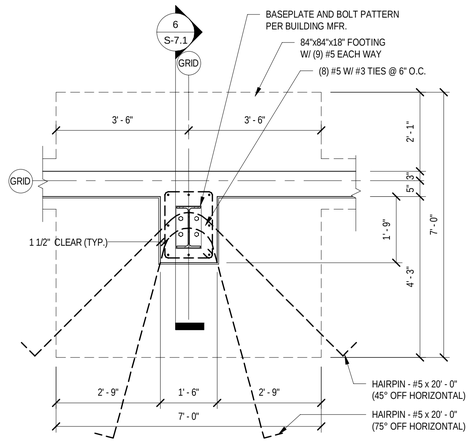
PROJECT NUMBER: 20190809
ISSUE DATE: 02/13/2020

S-2.1
Sheet 10 of 25

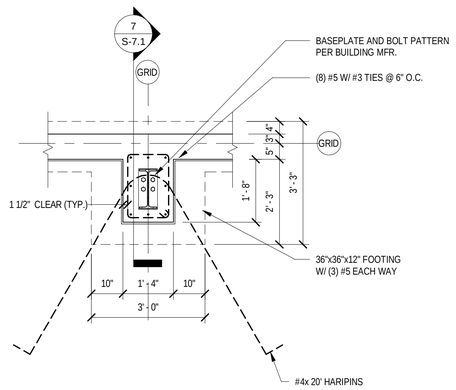
Bar Measures 1 inch



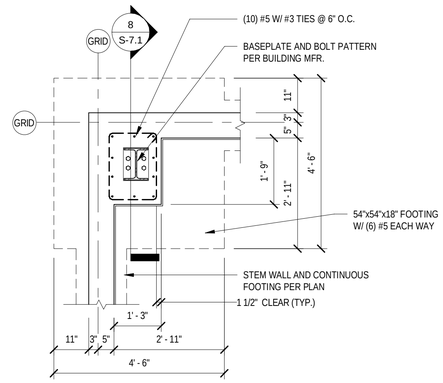
1 COLUMN FOOTING - MTL BLDG - PLAN - A/C
S-7.1 SCALE 1/2" = 1'-0"



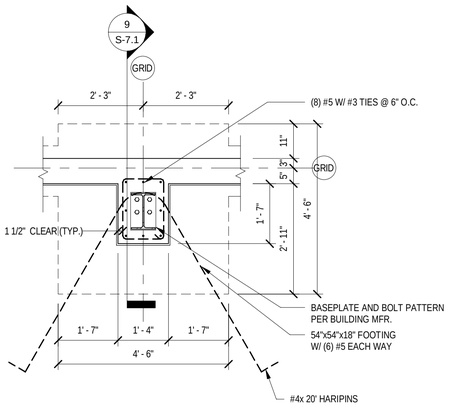
2 COLUMN FOOTING - MTL BLDG - PLAN - B/D
S-7.1 SCALE 1/2" = 1'-0"



3 COLUMN FOOTING - MTL BLDG - PLAN - E
S-7.1 SCALE 1/2" = 1'-0"



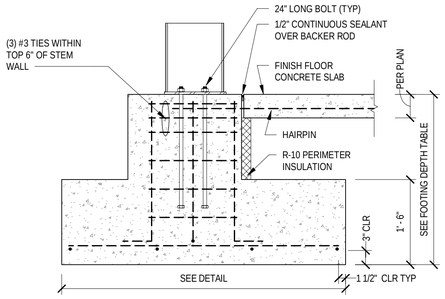
4 COLUMN FOOTING - MTL BLDG - PLAN - F/G
S-7.1 SCALE 1/2" = 1'-0"



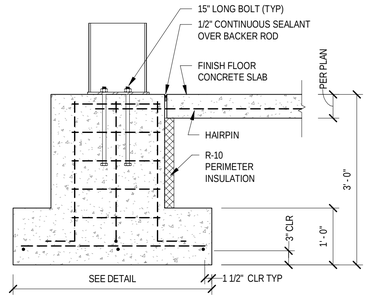
5 COLUMN FOOTING - MTL BLDG - PLAN - H
S-7.1 SCALE 1/2" = 1'-0"

FOOTING DEPTH TABLE:

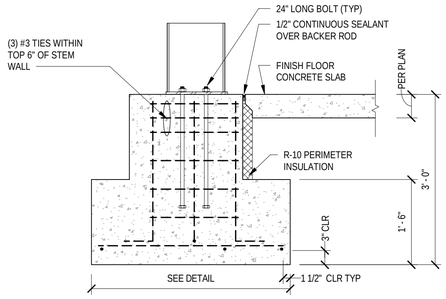
COLUMN GRID	FOOTING DEPTH
A/1, A/5, A/10,	= 3' - 0"
A/2, A/4, A/6, A8	= 5' - 0"
A/3, A/7	= 6' - 0"
E/1 THRU E/10	= 3' - 0"



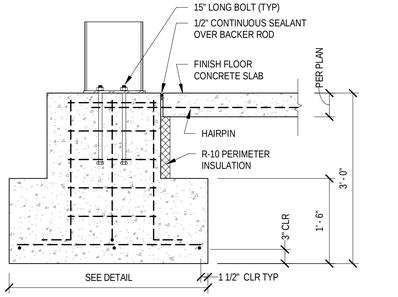
6 COLUMN FOOTING - MTL BLDG - SECTION - A/B/C/D
S-7.1 SCALE 3/4" = 1'-0"



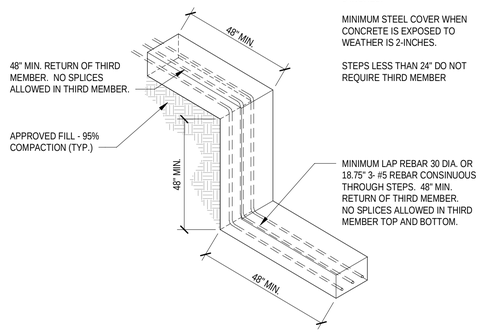
7 COLUMN FOOTING - MTL BLDG - SECTION - E
S-7.1 SCALE 3/4" = 1'-0"



8 COLUMN FOOTING - MTL BLDG - SECTION - F/G
S-7.1 SCALE 3/4" = 1'-0"



9 COLUMN FOOTING - MTL BLDG - SECTION - H
S-7.1 SCALE 3/4" = 1'-0"



NOTES:
MINIMUM STEEL COVER WHEN CONCRETE IS IN PERMANENT CONTACT WITH EARTH AS ON BOTTOM OF FOOTINGS IS 3-INCHES.

MINIMUM STEEL COVER WHEN CONCRETE IS EXPOSED TO WEATHER IS 2-INCHES.

STEPS LESS THAN 24" DO NOT REQUIRE THIRD MEMBER

10 STEP FOOTING
S-7.1 SCALE 1" = 1'-0"

REVISIONS

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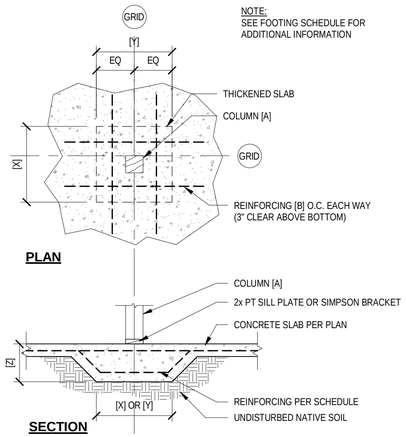
PROJ. LOC.: 2746 BATTELLE BLVD. RICHLAND WA 99354
BDG LLC - NEW WAREHOUSE

DETAILS

PROJECT NUMBER:
20190809
ISSUE DATE:
02/13/2020

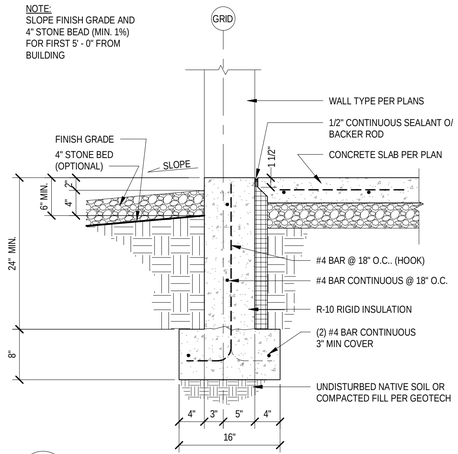
S-7.1
Sheet 11 of 25

Bar Measures 1 inch



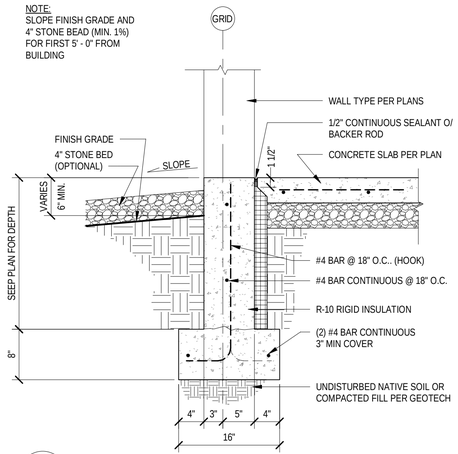
NOTE:
SEE FOOTING SCHEDULE FOR
ADDITIONAL INFORMATION

1 COLUMN FOOTING - THICKEND SLAB
S-7.2 SCALE 1/2" = 1'-0"



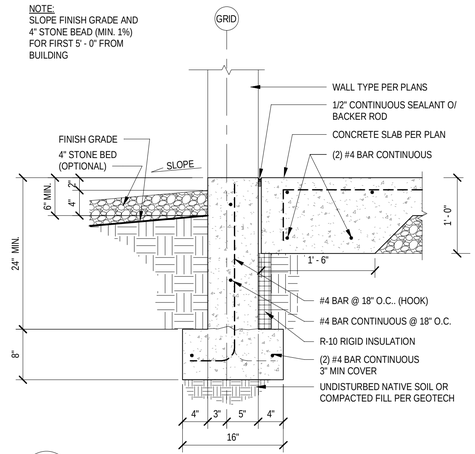
NOTE:
SLOPE FINISH GRADE AND
4" STONE BEAD (MIN. 1%)
FOR FIRST 5' - 0" FROM
BUILDING

2 STEM WALL - 8" TYPICAL
S-7.2 SCALE 1" = 1'-0"



NOTE:
SLOPE FINISH GRADE AND
4" STONE BEAD (MIN. 1%)
FOR FIRST 5' - 0" FROM
BUILDING

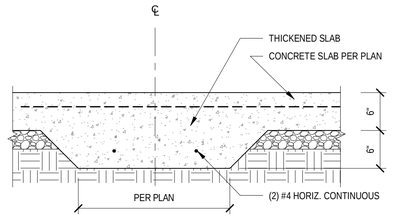
3 STEM WALL - 8" TYPICAL - STEP FOOTING
S-7.2 SCALE 1" = 1'-0"



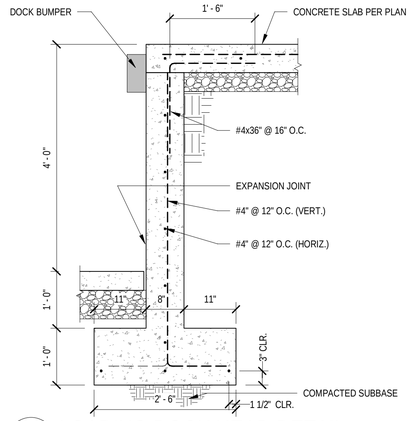
NOTE:
SLOPE FINISH GRADE AND
4" STONE BEAD (MIN. 1%)
FOR FIRST 5' - 0" FROM
BUILDING

4 STEM WALL - 8" THICKENED SLAB
S-7.2 SCALE 1" = 1'-0"

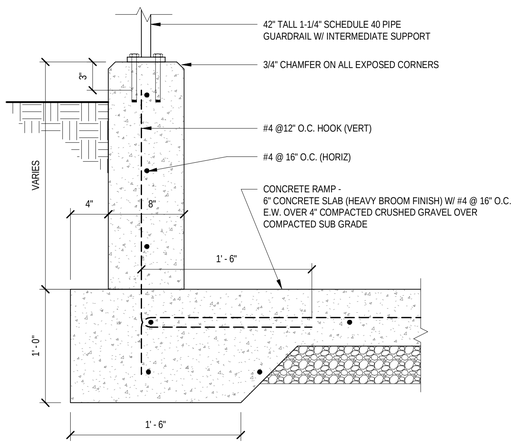
NOTE:
SEE SHEET A-7.1 FOR
ADDITIONAL
INFORMATION



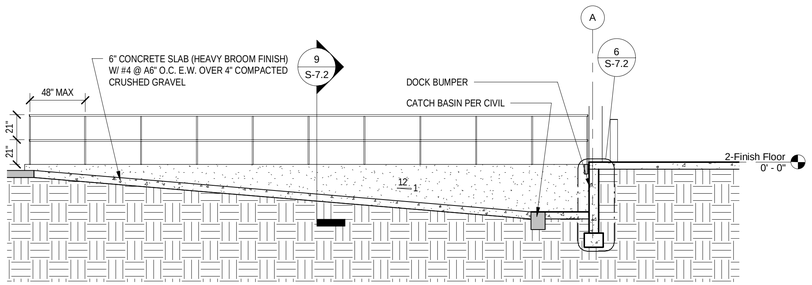
5 THICKENED SLAB - TYPICAL
S-7.2 SCALE 1" = 1'-0"



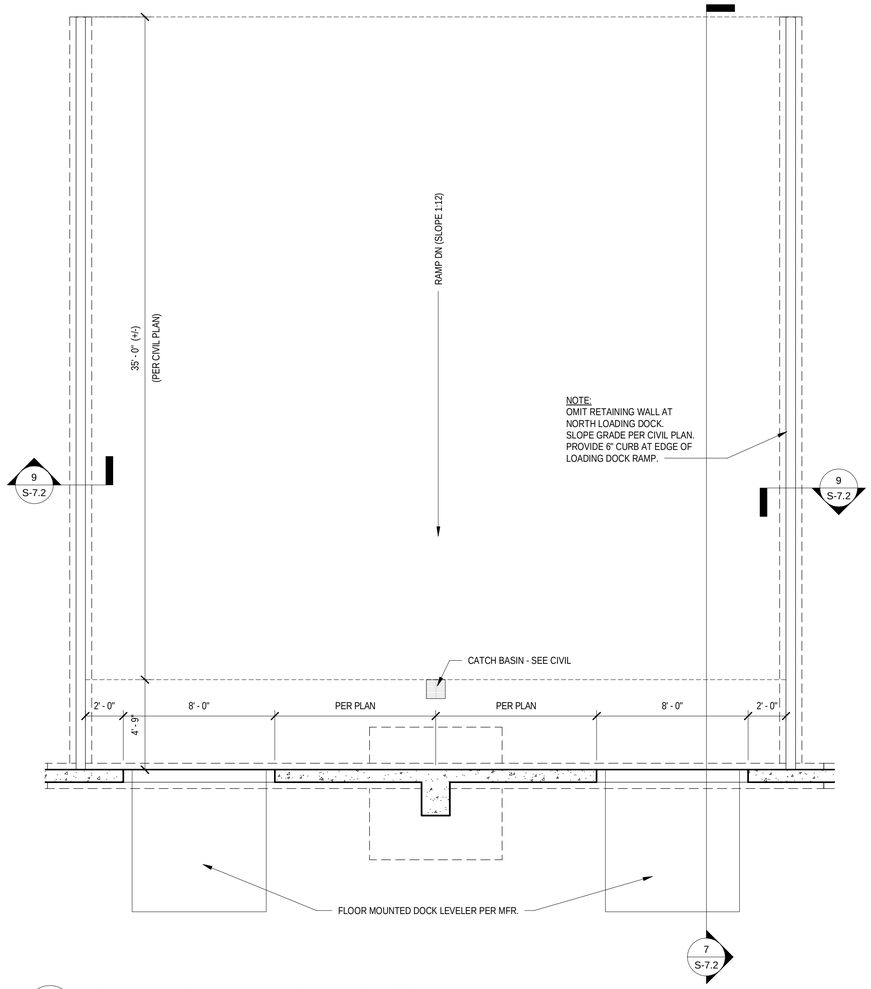
6 LOADING DOCK HEAD DETAIL
S-7.2 SCALE 3/4" = 1'-0"



9 LOADING DOCK SIDE RETAINING WALL
S-7.2 SCALE 1 1/2" = 1'-0"



7 Section 1
S-7.2 SCALE 3/16" = 1'-0"



11 FOUNDATION PLAN - LOADING DOCK
S-7.2 SCALE 1/4" = 1'-0"

REVISIONS

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BDG LLC - NEW WAREHOUSE

DETAILS

PROJECT NUMBER:
20190809
ISSUE DATE:
02/13/2020

S-7.2
Sheet 12 of 25

Bar Measures 1 inch

1 / A-1.0 FLOOR PLAN - 1ST FLOOR

SCALE 1/8" = 1'-0"

REVISIONS

MARK	DATE	DESCRIPTION	BY
1	07/16/2020	CITY COMMENTS / REVISIOSNS	

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BDG LLC - NEW WAREHOUSE

FLOOR PLANS

PROJECT NUMBER:
20190809
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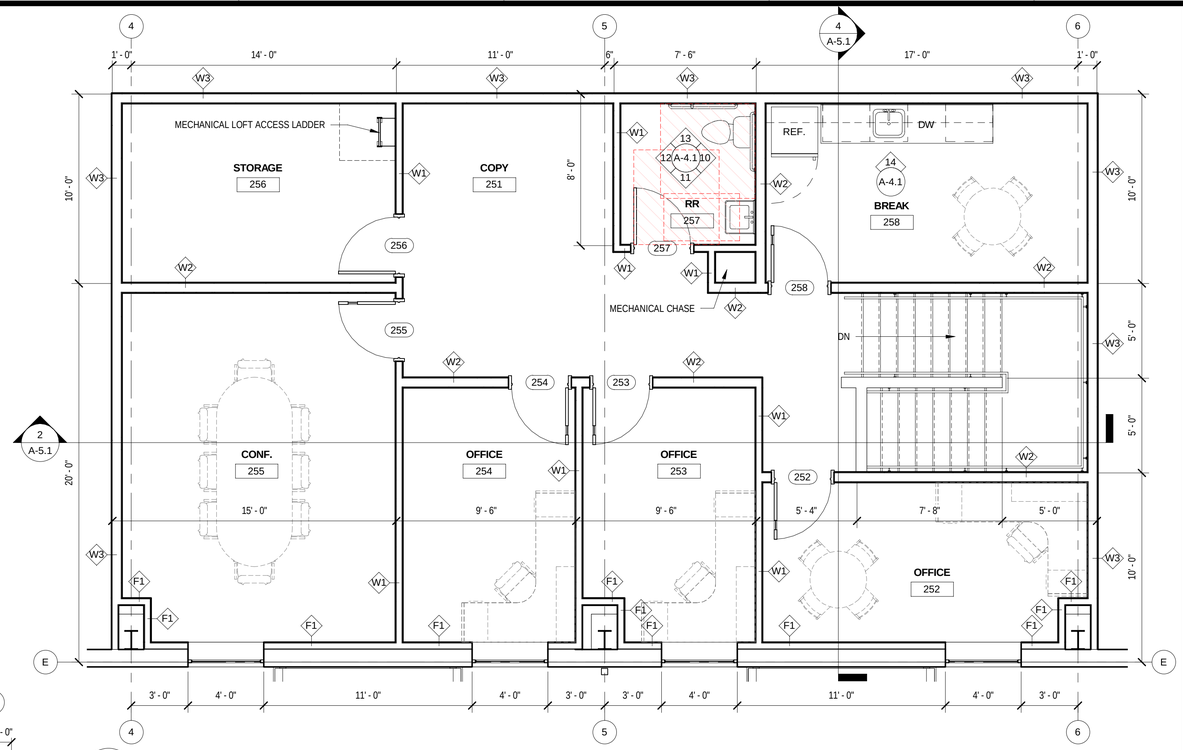
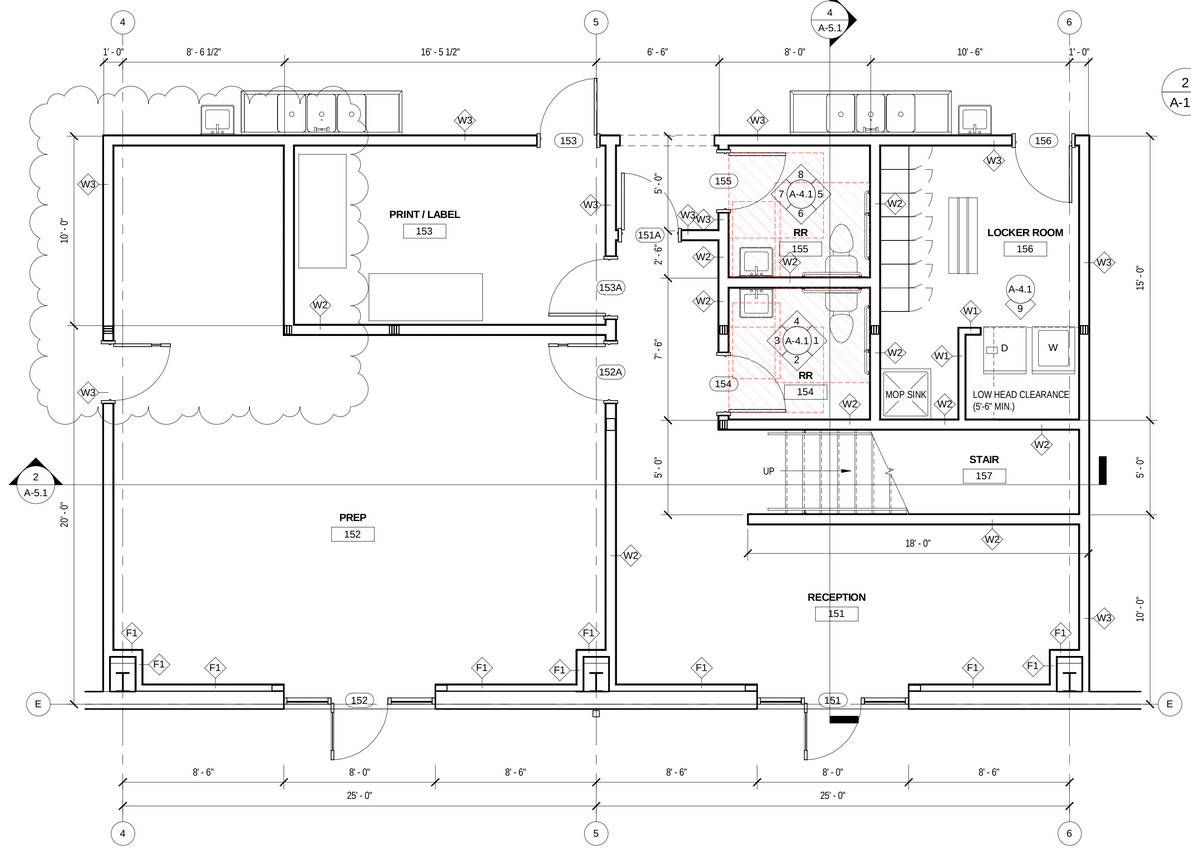
A-1.0
Sheet 13 of 25

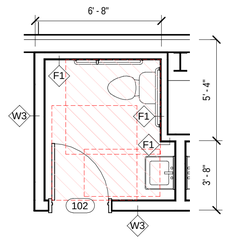
Bar Measures 1 inch



2 ENLARGED PLAN - 2ND FLOOR
A-1.1 SCALE 1/4" = 1'-0"



1 ENLARGED PLAN - 1ST FLOOR
A-1.1 SCALE 1/4" = 1'-0"



3 ENLARGED PLAN - RESTROOM
A-1.1 SCALE 1/4" = 1'-0"

REVISIONS			
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1	07/16/2020	CITY COMMENTS / REVISIONS	

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ENLARGED PLANS

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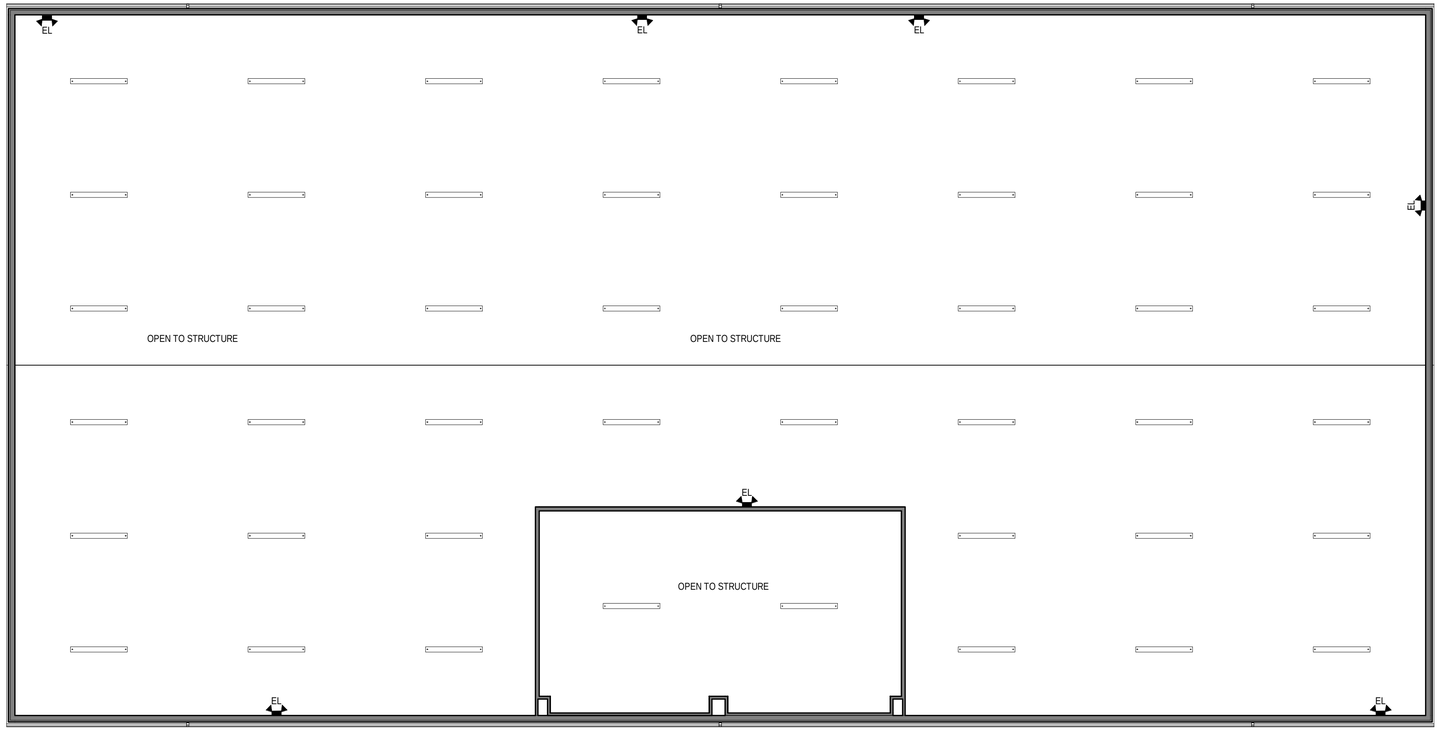
A-1.1
Sheet 14 of 25

Bar Measures 1 inch



1 A-2.1 REFLECTED CEILING PLAN - SHOP
SCALE 3/32" = 1'-0"

CEILING KEY

NOTE:
ITEMS LISTED ARE TYPICAL - NOT ALL ITEMS INDICATED ARE INCLUDED IN PROJECT - VERIFY WITH ELECTRICAL AND MECHANICAL DRAWINGS.

- SUSPENDED ACOUSTIC TILE CEILING
- 5/8" TYPE 'X' GYP
- 7/16" OSB PLYWOOD (U.N.O.)
- CHANGE IN CEILING HEIGHT CEILING SOFFIT
- X' - X" CEILING HEIGHT ABOVE FINISH FLOOR
- 2X4 SUSPENDED CEILING LIGHT FIXTURE
- 2X2 SUSPENDED CEILING LIGHT FIXTURE
- 1X4 SUSPENDED CEILING LIGHT FIXTURE
- 1X4 SURFACE MOUNTED LIGHT FIXTURE
- 1X4 SURFACE / PENDANT MOUNTED STRIP LIGHT FIXTURE
- RECESSED CAN LIGHT FIXTURE
- PENDANT LIGHT FIXTURE
- HVAC SUPPLY DIFFUSER
- HVAC RETURN / EXHAUST GRILLE
- TUBULAR DAYLIGHTING DEVICE
- EXIT SIGN
- EL EMERGENCY LIGHT
- ELWP EXTERIOR LIGHT / WALL PACK

2 A-2.1 REFLECTED CEILING PLAN - 1ST FLOOR
SCALE 3/16" = 1'-0"

3 A-2.1 REFLECTED CEILING PLAN - 2ND FLOOR
SCALE 3/16" = 1'-0"

REVISIONS

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REFLECTED CEILING PLANS

PROJECT NUMBER:
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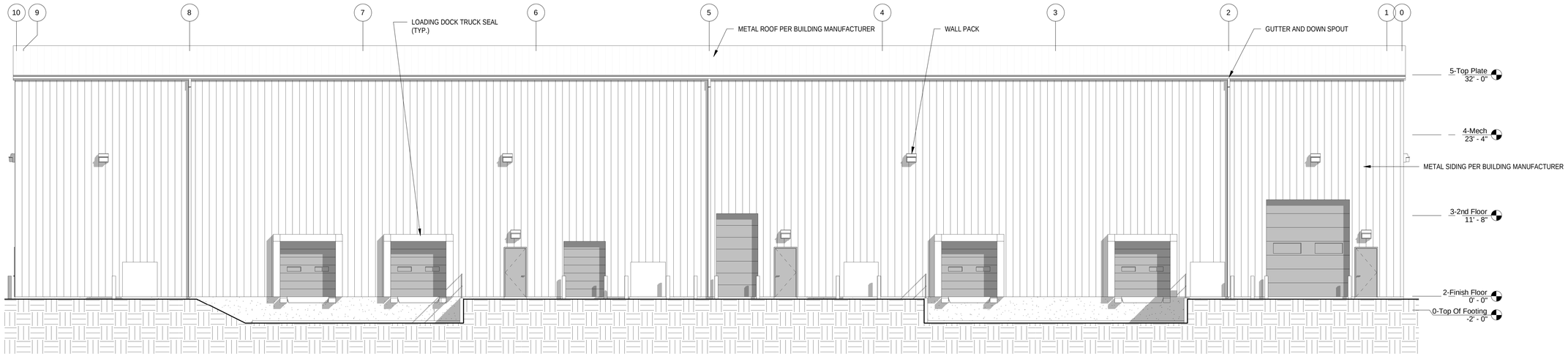
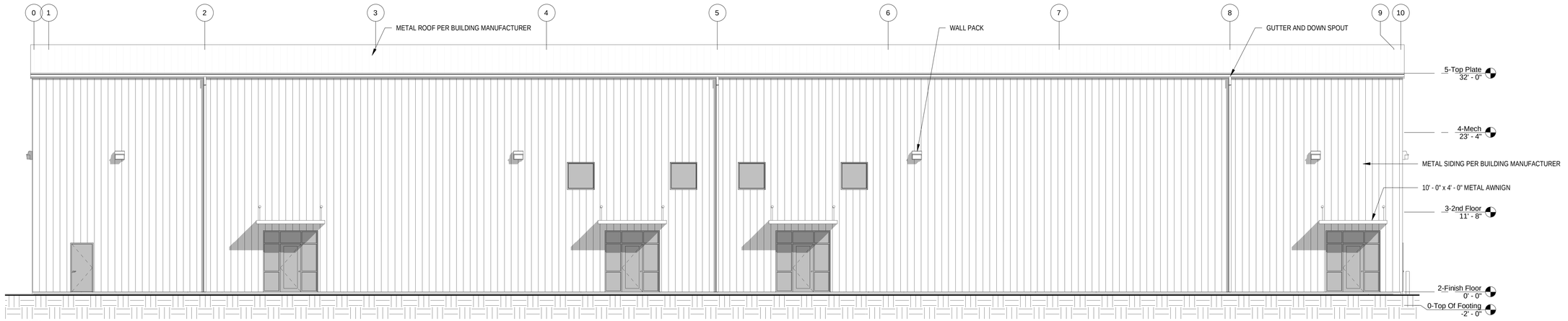
A-2.1
Sheet 15 of 25

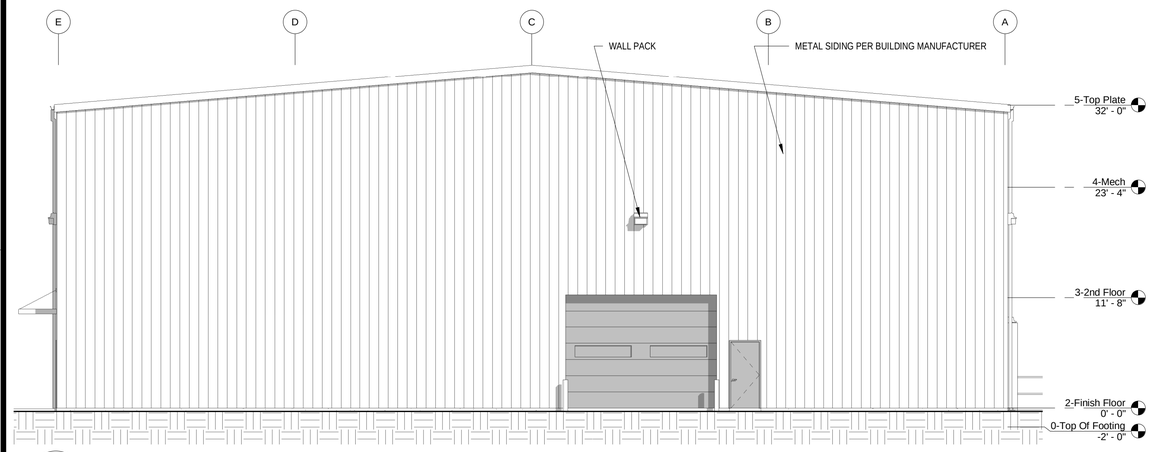
Bar Measures 1 inch



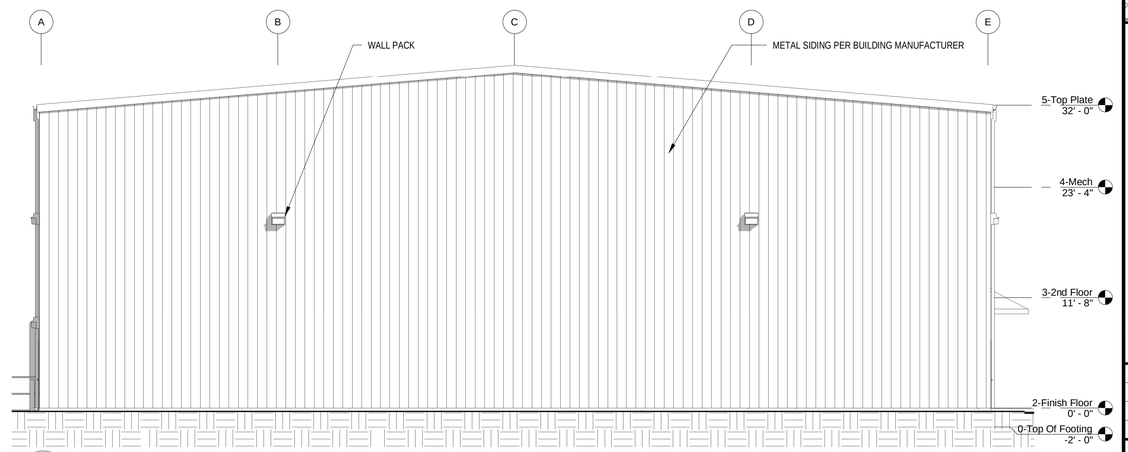
1 A-3.1 WEST ELEVATION
SCALE 1/8" = 1'-0"



2 A-3.1 EAST ELEVATION
SCALE 1/8" = 1'-0"



3 A-3.1 NORTH ELEVATION
SCALE 1/8" = 1'-0"



4 A-3.1 SOUTH ELEVATION
SCALE 1/8" = 1'-0"

REVISIONS

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ELEVATIONS

PROJECT NUMBER:
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A-3.1
Sheet 16 of 25

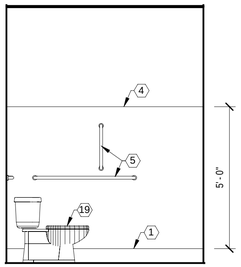
Bar Measures 1 inch

INTERIOR ELEVATION KEY NOTES

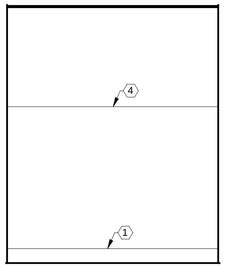
1. 6" BASE
2. BENCH
3. BABY CHANGING STATION
4. FRP WAINSCOT
5. GRAB BAR
6. JANITOR SINK
7. LOCKER
8. MIRROR (18"x30")
9. PAPER TOWEL DISPENSER
10. P-LAM COUNTERTOP
11. P-LAM WAINSCOT
12. SANITARY NAPKIN
13. SHOWER CURTAIN AND ROD
14. SINK
15. SOAP DISPENSER
16. SOAP DISH
17. SHOWER SEAT
18. TILE WAINSCOT
19. TOILET
20. TOILET PAPER DISPENSER
21. TOILET PARTITION
22. TOILET SEAT COVER DISPENSER
23. URINAL
24. WASTE RECEPTACLE

NOTE:
1) ALL CASEWORK SHOWN FOR ESTIMATING PURPOSES ONLY. CONTRACTOR TO COORDINATE CASEWORK DESIGN WITH ARCHITECT / OWNER AND SUBMIT SHOP DRAWINGS FOR APPROVAL.

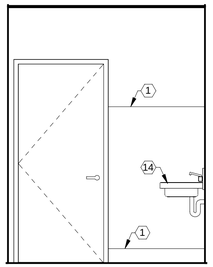
2) LIST TYPICAL - NOT ALL ITEMS LISTED ARE INCLUDED IN PROJECT - VERIFY WITH ELEVATIONS.



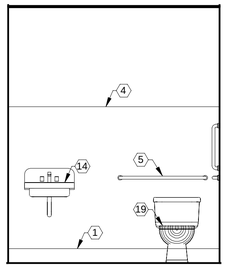
1 A-4.1 154 RR - N
SCALE 3/8" = 1'-0"



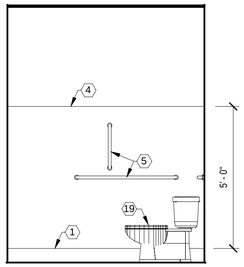
2 A-4.1 154 RR - E
SCALE 3/8" = 1'-0"



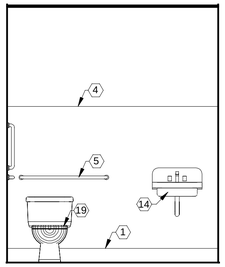
3 A-4.1 154 RR - S
SCALE 3/8" = 1'-0"



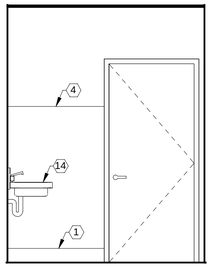
4 A-4.1 154 RR - W
SCALE 3/8" = 1'-0"



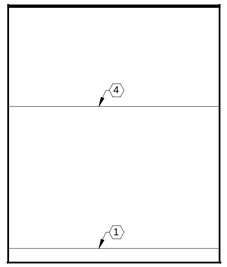
5 A-4.1 155 RR - N
SCALE 3/8" = 1'-0"



6 A-4.1 155 RR - E
SCALE 3/8" = 1'-0"



7 A-4.1 155 RR - S
SCALE 3/8" = 1'-0"



8 A-4.1 155 RR - W
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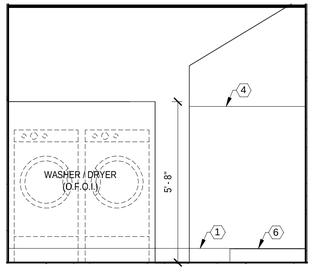
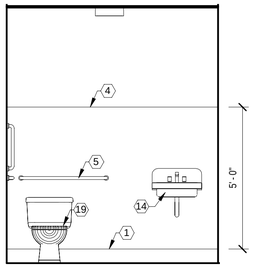
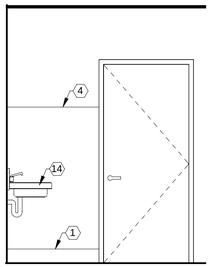


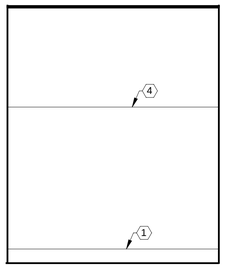
9 A-4.1 156 LOCKER ROOM - E
SCALE 3/8" = 1'-0"



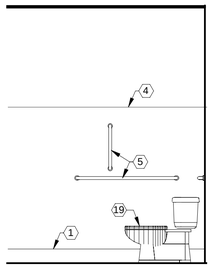
10 A-4.1 257 RR - N
SCALE 3/8" = 1'-0"



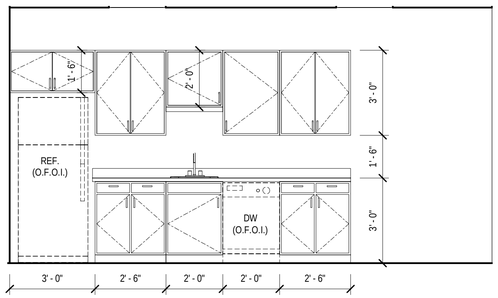
11 A-4.1 257 RR - E
SCALE 3/8" = 1'-0"



12 A-4.1 257 RR - S
SCALE 3/8" = 1'-0"



13 A-4.1 257 RR - W
SCALE 3/8" = 1'-0"



14 A-4.1 258 BREAK - W
SCALE 3/8" = 1'-0"

REVISIONS

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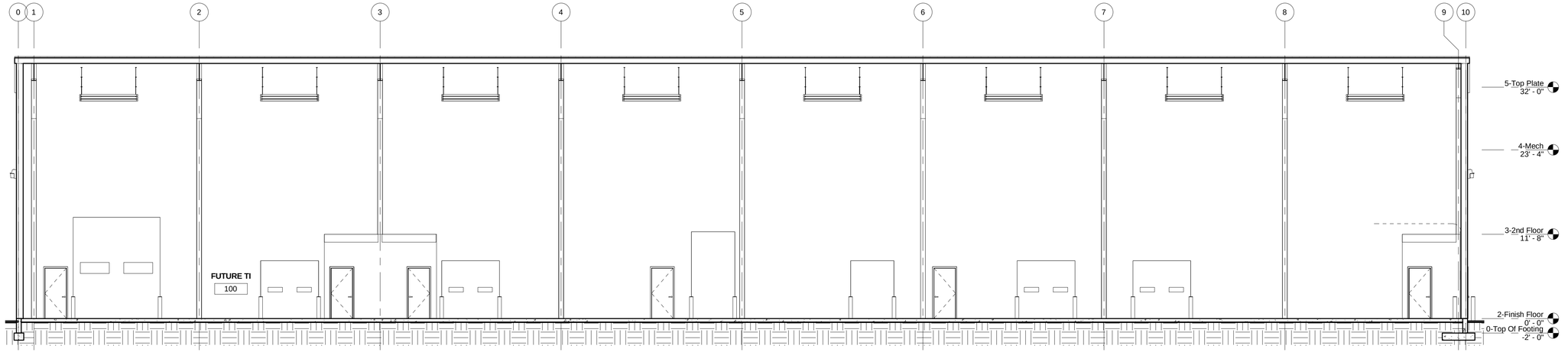
BDG LLC - NEW WAREHOUSE

INTERIOR ELEVATIONS

PROJECT NUMBER:
20190809
ISSUE DATE:
02/13/2020

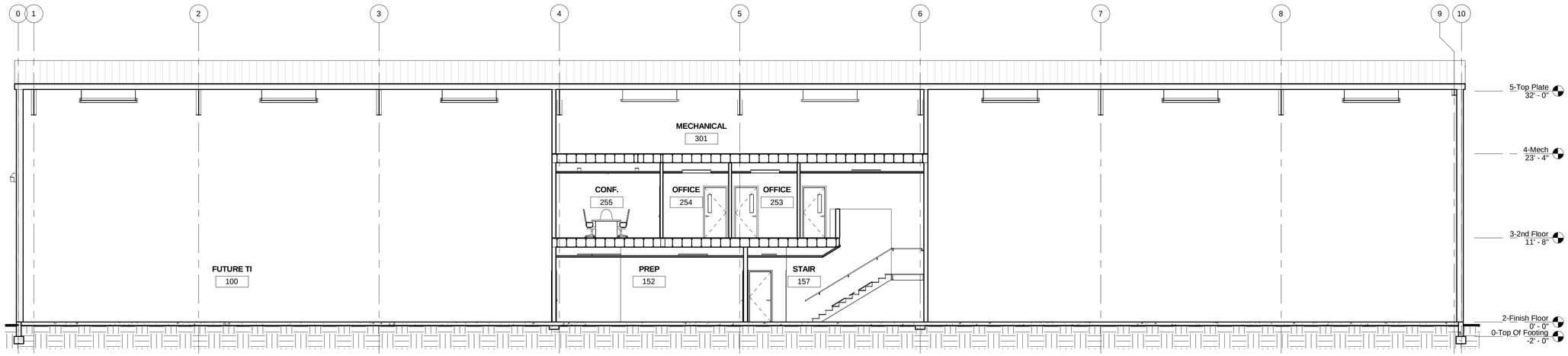
A-4.1
Sheet 17 of 25

Bar Measures 1 inch



1 A-5.1 BUILDING SECTION 1 - N/S

SCALE 1/8" = 1'-0"



2 A-5.1 BUILDING SECTION 2 - N/S

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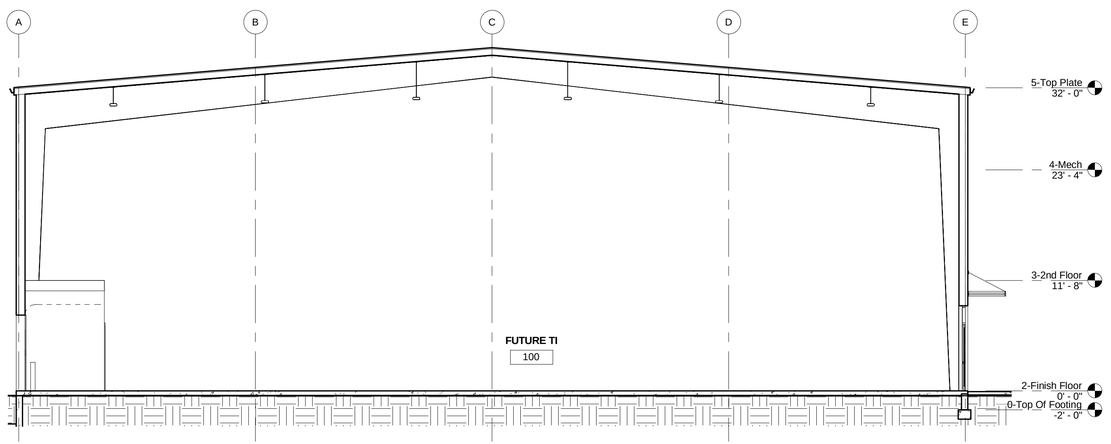
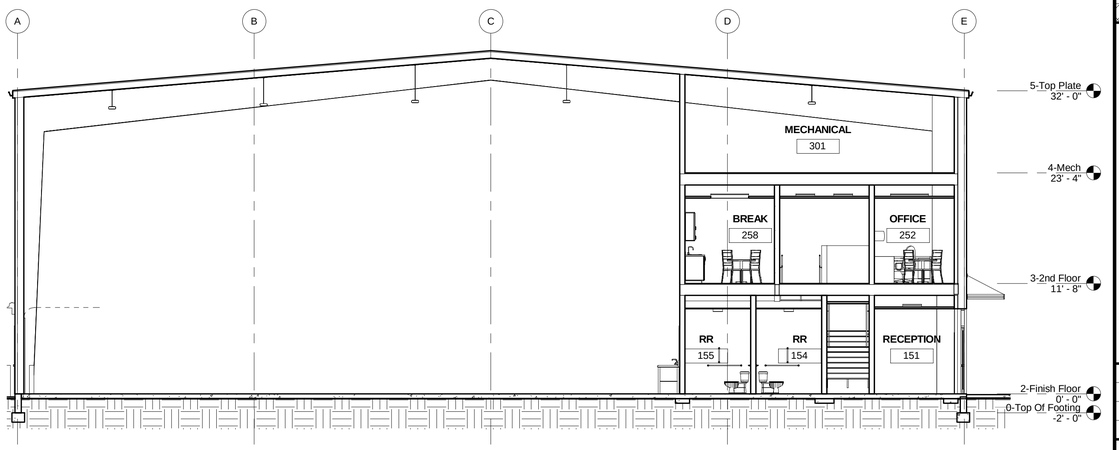


3 A-5.1 BUILDING SECTION 3 - E/W

SCALE 1/8" = 1'-0"



4 A-5.1 BUILDING SECTION 4 - E/W

SCALE 1/8" = 1'-0"

REVISIONS

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BDG LLC - NEW WAREHOUSE

BUILDING SECTIONS

PROJECT NUMBER:
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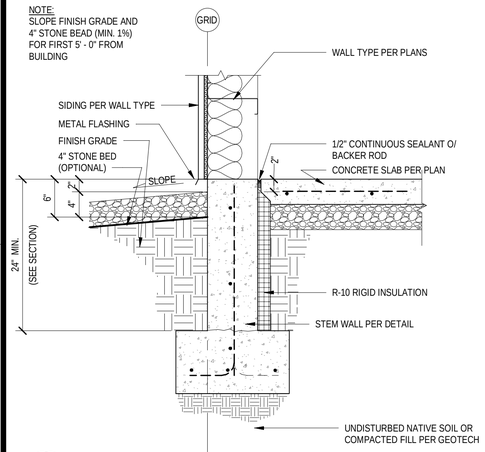
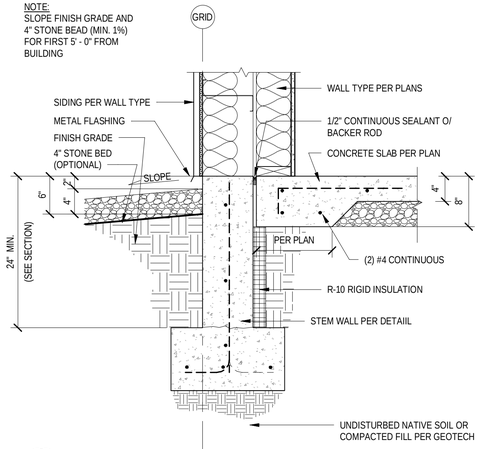
ISSUE DATE:
02/13/2020

A-5.1
Sheet 18 of 25

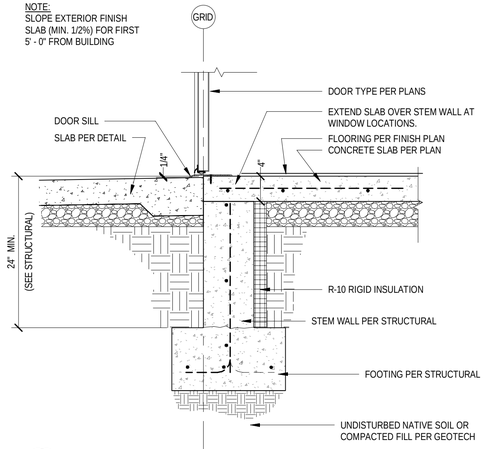
Bar Measures 1 inch



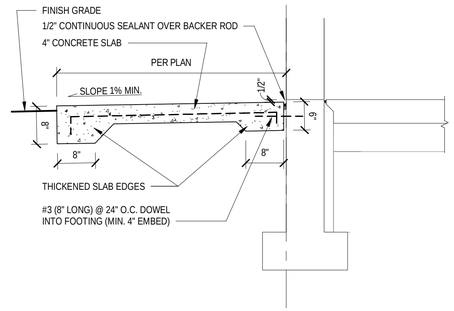
1 STEM WALL - METAL BUILDING
A-7.1 SCALE 1" = 1'-0"



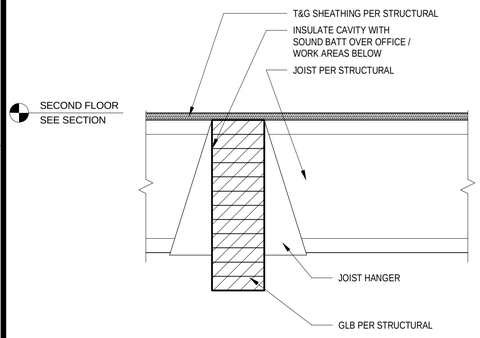
2 STEM WALL - METAL BUILDING FURRED WALL
A-7.1 SCALE 1" = 1'-0"



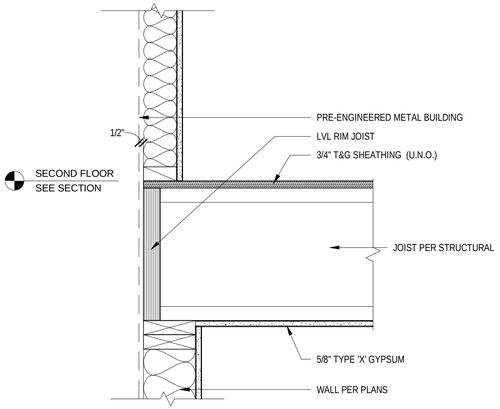
3 STEM WALL AT DOOR
A-7.1 SCALE 1" = 1'-0"



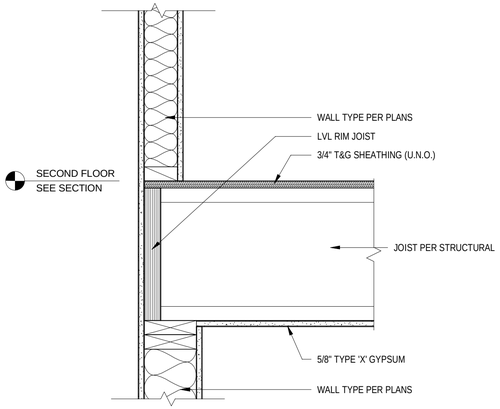
4 SLAB - SIDEWALK AT STEM WALL
A-7.1 SCALE 3/4" = 1'-0"



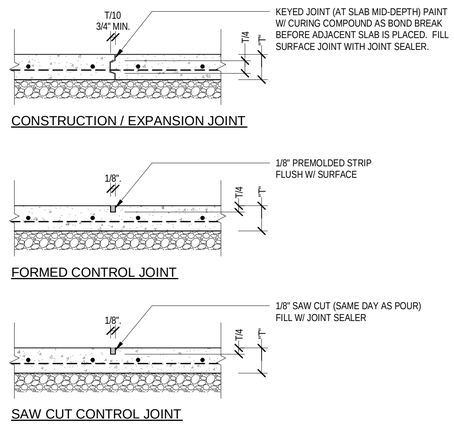
5 I-JOIST AT BEAM
A-7.1 SCALE 1 1/2" = 1'-0"



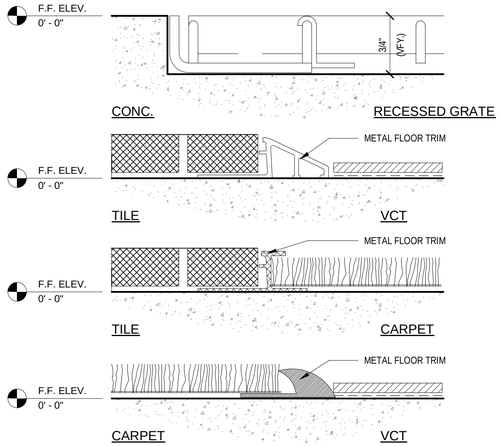
6 I-JOIST AT BEARING FURRED WALL
A-7.1 SCALE 1 1/2" = 1'-0"



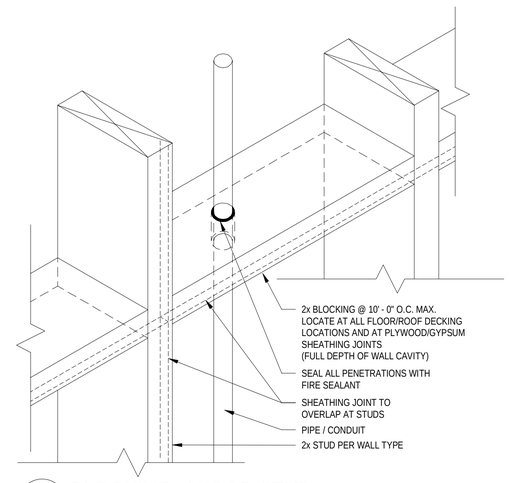
7 I-JOIST AT BEARING PERIMETER WALL
A-7.1 SCALE 1 1/2" = 1'-0"



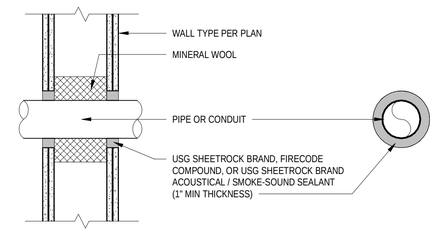
9 CONCRETE SLAB JOINT DETAILS
A-7.1 SCALE 1" = 1'-0"



10 FLOOR TRANSITION
A-7.1 SCALE 12" = 1'-0"



11 BLOCKING - WOOD STUD
A-7.1 SCALE 3" = 1'-0"



12 WALL PENETRATION DETAIL - 2-HR
A-7.1 SCALE 1 1/2" = 1'-0"

REVISIONS

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BDG LLC - NEW WAREHOUSE

DETAILS

PROJECT NUMBER:
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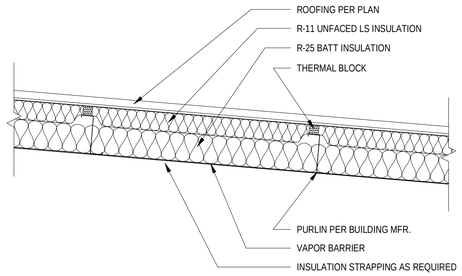
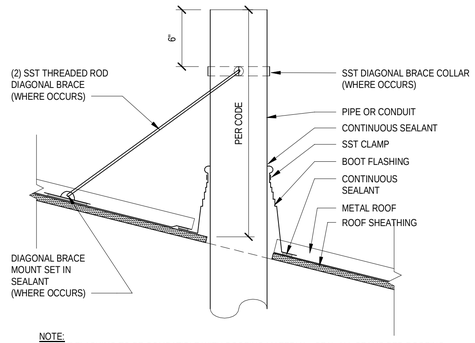
A-7.1
Sheet 19 of 25

Bar Measures 1 inch



1 ROOF DETAIL - METAL BUILDING INSULATION
A-7.2 SCALE 3/4" = 1'-0"

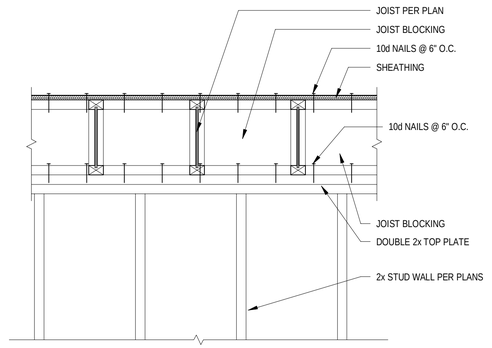


NOTE:
1) BOOT FLASHING TO BE COMPATIBLE WITH ROOFING MATERIAL. SEAL ALL SEAMS PER ROOFING MANUFACTURERS RECOMMENDATIONS.

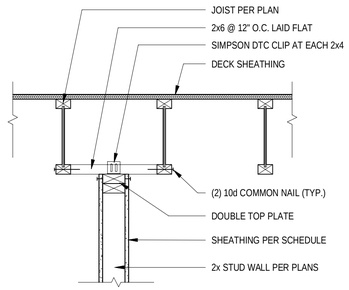
2) USE PREMANUFACTURED BOOT SYSTEM PER ROOF MFR. RECOMMENDATIONS.

3) ADD DIAGONAL BRACE SUPPORT ((2) 1/4" THREADED RODS AT 60 DEGREE SPLAY MIN.) TO ALL PIPE/CONDUIT EXTENDING ABOVE ROOF SURFACE MORE THAN 30"

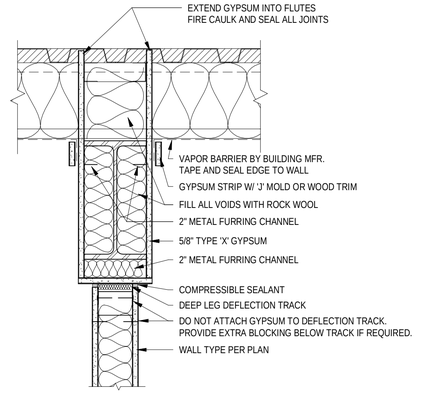
2 PIPE / CONDUIT - METAL ROOF
A-7.2 SCALE 1 1/2" = 1'-0"



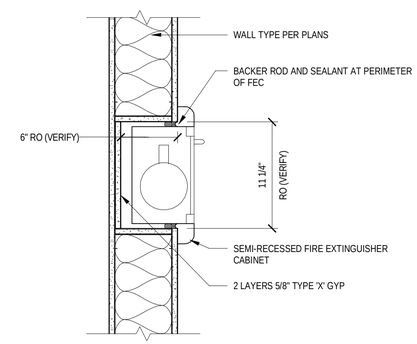
3 SHEAR WALL - AT JOIST - PERPENDICULAR
A-7.2 SCALE 1" = 1'-0"



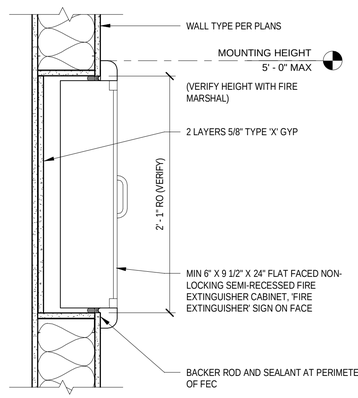
4 SHEAR WALL - AT JOIST - PARALLEL
A-7.2 SCALE 1" = 1'-0"



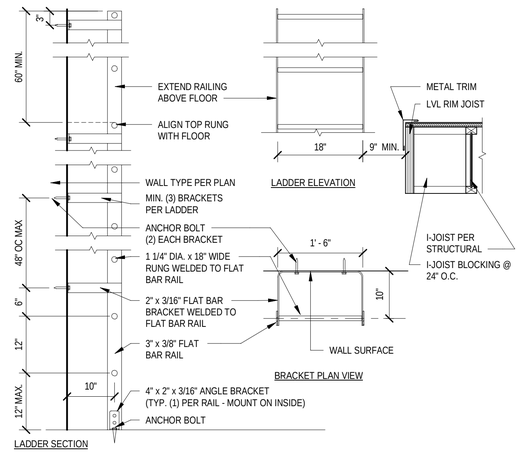
5 WALL DEFELCTION - BEAM - 1HR
A-7.2 SCALE 1 1/2" = 1'-0"



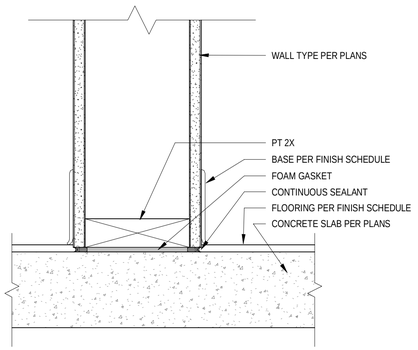
6 FEC CABINET - PLAN
A-7.2 SCALE 1 1/2" = 1'-0"



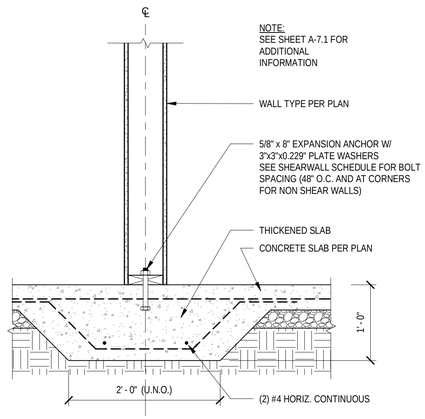
7 FEC CABINET - SECTION
A-7.2 SCALE 1 1/2" = 1'-0"



8 ACCESS LADDER - ATTIC
A-7.2 SCALE 3/4" = 1'-0"



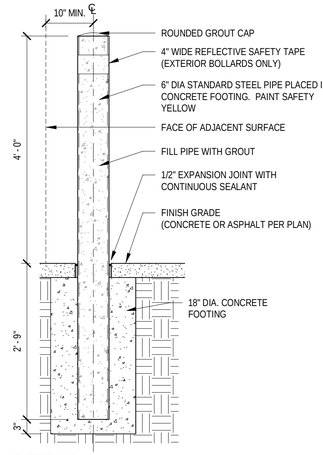
9 WALL PARTITION - BASE WOOD
A-7.2 SCALE 3" = 1'-0"



10 THICKENED SLAB - BEARING WALL - WOOD
A-7.2 SCALE 1" = 1'-0"

NOTE:
1) PLASTIC BOLLARD COVER MAY BE USED INSTEAD OF PAINT (VERIFY WITH OWNER)

2) VERIFY FOOTING LOCATION OF ADJACENT STRUCTURE. IF CONFLICT OCCURS, FOOTING FOR STRUCTURE AND BOLLARD SHALL BE INSTALLED AT THE SAME TIME (MONOLITHIC POUR).



11 BOLLARD DETAIL
A-7.2 SCALE 3/4" = 1'-0"

REVISIONS

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BDG LLC - NEW WAREHOUSE

DETAILS

PROJECT NUMBER:
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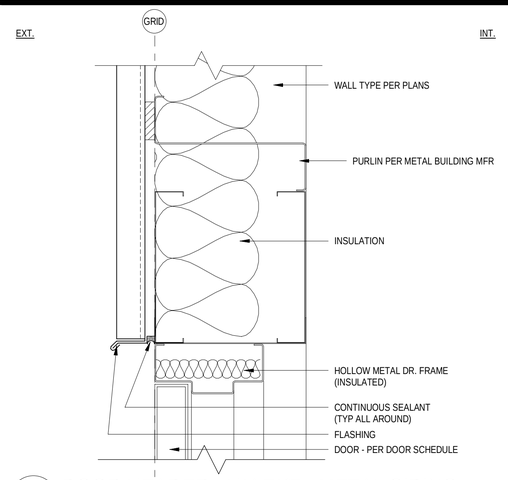
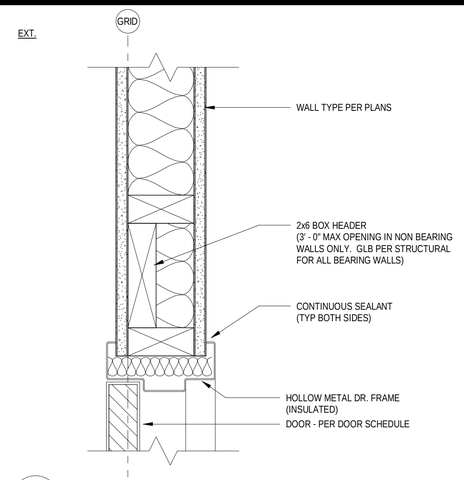
A-7.2
Sheet 20 of 25

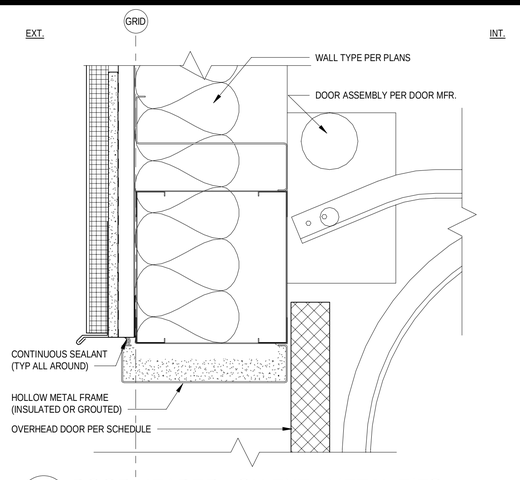
Bar Measures 1 inch



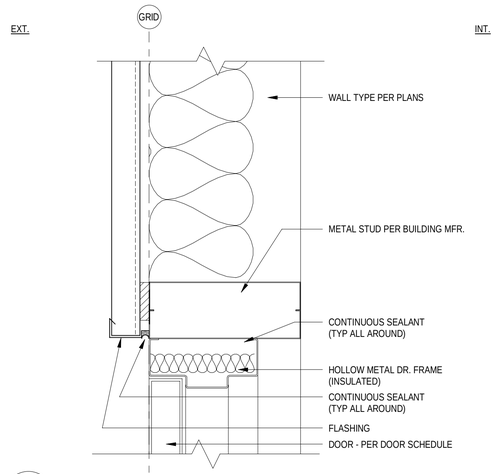
1 DOOR HEADER - HM EXT - METAL SIDING
A-7.3 SCALE 3" = 1'-0"



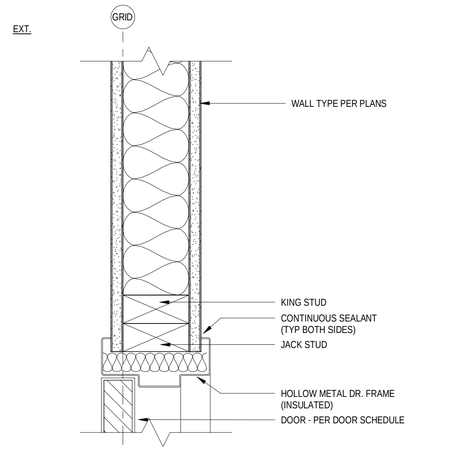
2 DOOR HEADER - HM INT - WOOD
A-7.3 SCALE 3" = 1'-0"



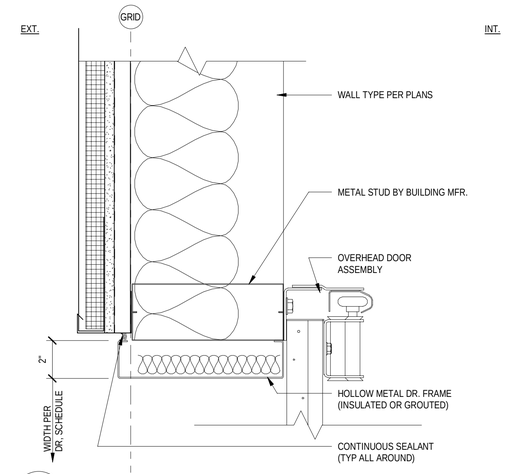
3 DOOR HEADER - OH EXT - METAL EIFS
A-7.3 SCALE 3" = 1'-0"



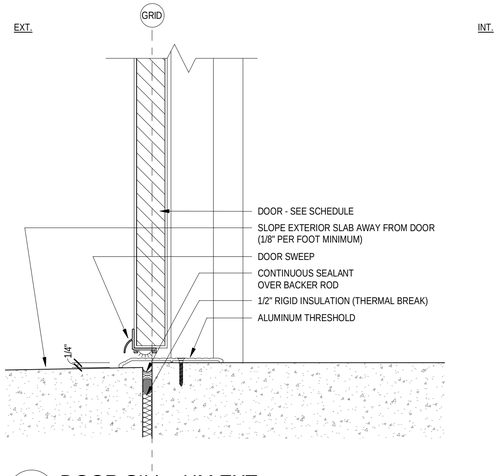
5 DOOR JAMB - HM EXT - METAL SIDING
A-7.3 SCALE 3" = 1'-0"



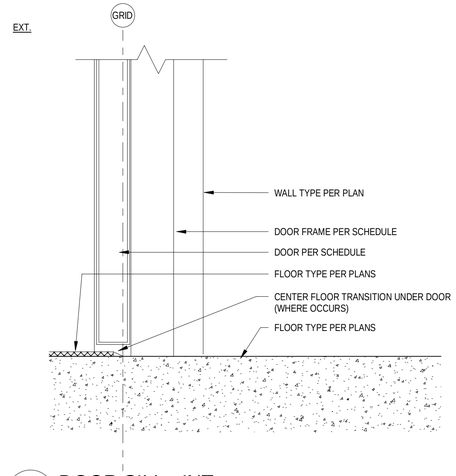
6 DOOR JAMB - HM INT - WOOD
A-7.3 SCALE 3" = 1'-0"



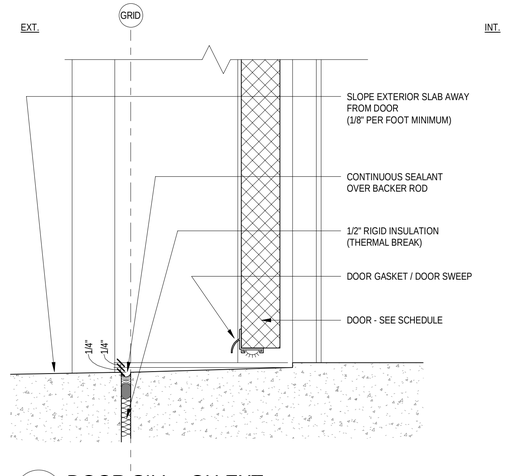
7 DOOR JAMB - OH EXT - METAL EIFS
A-7.3 SCALE 3" = 1'-0"



9 DOOR SILL - HM EXT
A-7.3 SCALE 3" = 1'-0"



10 DOOR SILL - INT
A-7.3 SCALE 3" = 1'-0"



11 DOOR SILL - OH EXT
A-7.3 SCALE 3" = 1'-0"

REVISIONS

MARK	DATE	DESCRIPTION	BY

9342 REGISTERED ARCHITECT
Devin Geisler
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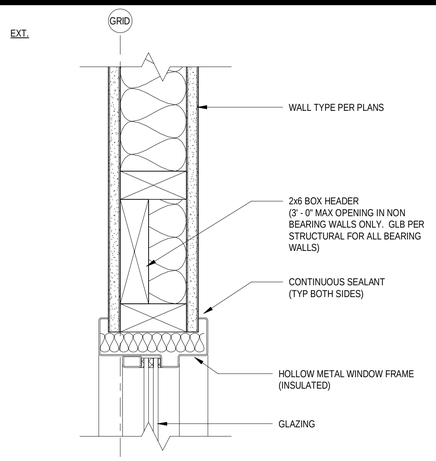
BDG LLC - NEW WAREHOUSE

DETAILS

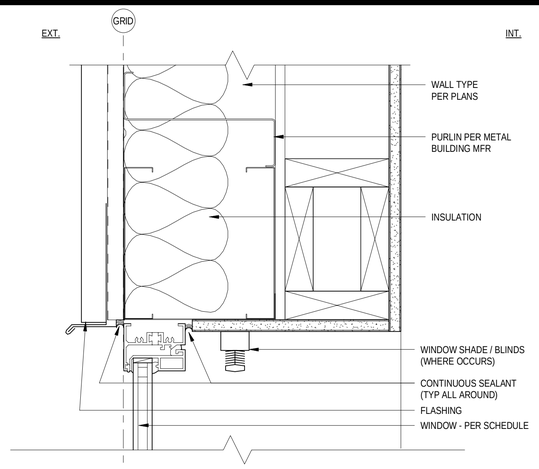
PROJECT NUMBER:
20190809
ISSUE DATE:
02/13/2020

A-7.3
Sheet 21 of 25

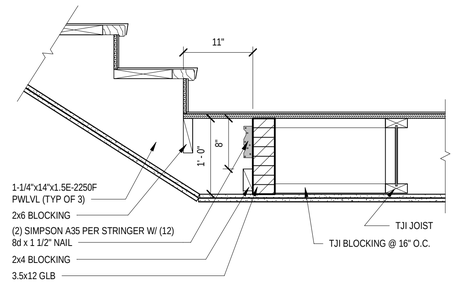
Bar Measures 1 inch



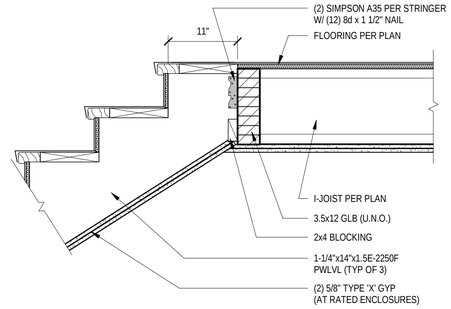
1 A-7.4 WINDOW HEADER - HM WD INTERIOR
SCALE 3" = 1'-0"



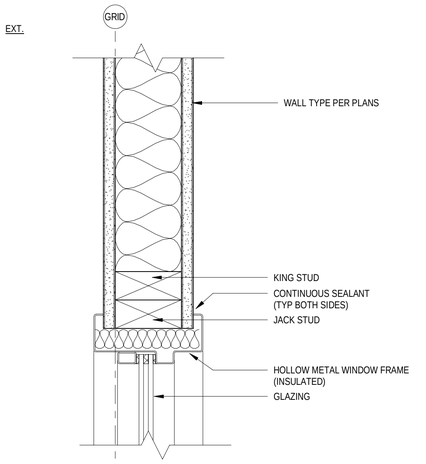
2 A-7.4 WINDOW HEADER - MTL BLDG - W/ FURRING
SCALE 3" = 1'-0"



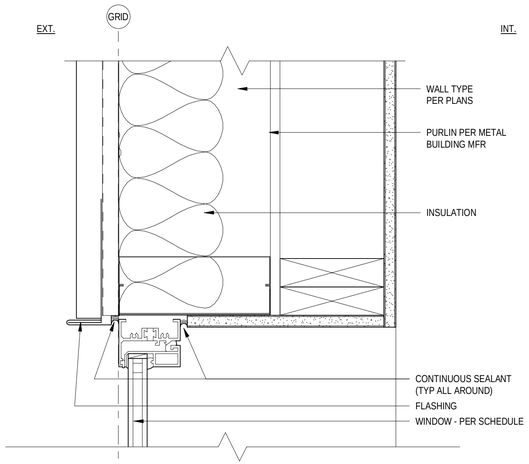
3 A-7.4 STAIR DETAIL - WOOD LANDING - BOTTOM
SCALE 1" = 1'-0"



4 A-7.4 STAIR DETAIL - WOOD TOP LANDING
SCALE 1" = 1'-0"

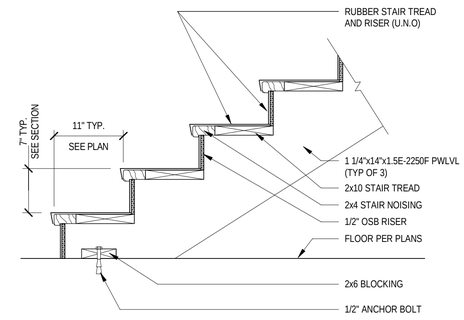


5 A-7.4 WINDOW JAMB - HM WD INTERIOR
SCALE 3" = 1'-0"



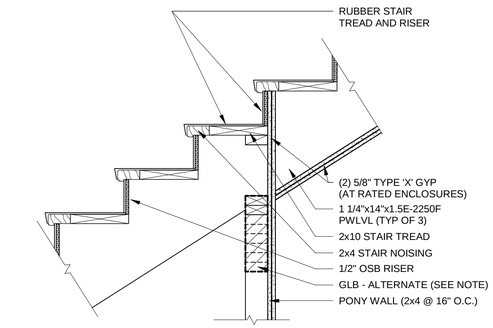
6 A-7.4 WINDOW JAMB - MTL BLDG - W/ FURRING
SCALE 3" = 1'-0"

NOTE:
1) MAXIMUM SPAN BETWEEN LANDINGS IS 9' - 2" ((10) - 11" TREADS). PROVIDE PONYWALL OR BEAM AT MID SPAN FOR LONGER SPANS.
2) PRE-MANUFACTURED STAIR TREADS CAN BE SUBSTITUTED FOR 2x TREADS

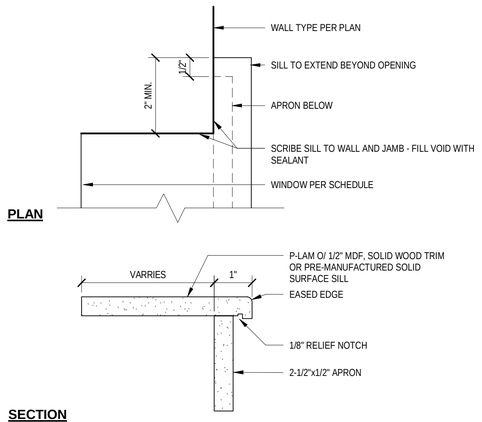


7 A-7.4 STAIR DETAIL - WOOD BOTTOM
SCALE 1" = 1'-0"

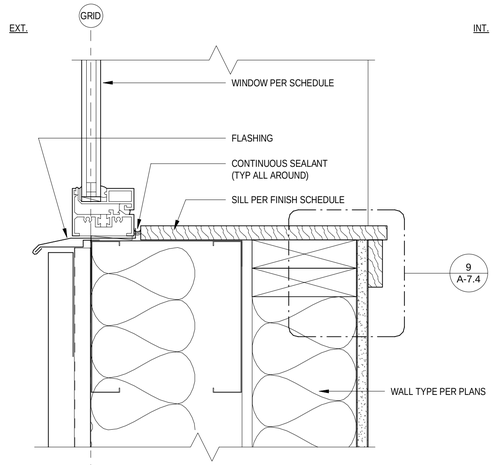
NOTE:
3.5x12 GLB MAY BE USED INSTEAD OF PONY WALL AT STAIR MID SPAN SUPPORT. PROVIDE (3) 2x4 STUD SUPPORTS IN WALL AT EACH END OF BEAM.



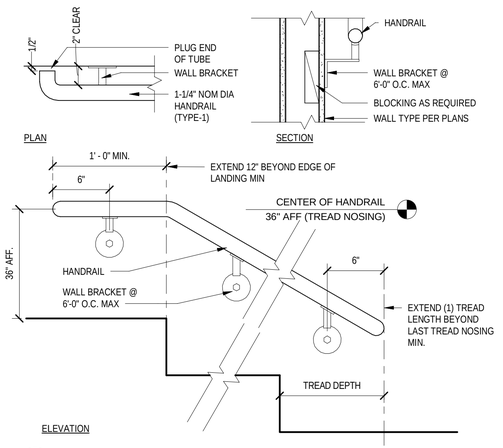
8 A-7.4 STAIR DETAIL - WOOD SUPPORT
SCALE 1" = 1'-0"



9 A-7.4 WINDOW SILL DETAIL
SCALE 6" = 1'-0"



10 A-7.4 WINDOW SILL - MTL BLDG W/ FURRING
SCALE 3" = 1'-0"



11 A-7.4 RAILING - METAL HANDRAIL
SCALE 1 1/2" = 1'-0"

REVISIONS

MARK	DATE	DESCRIPTION	BY

9342 REGISTERED ARCHITECT
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CLIENT: BDG LLC
PROJ. LOC.: 2746 BATTELLE BLVD. RICHLAND WA 99354
BDG LLC - NEW WAREHOUSE
DETAILS

PROJECT NUMBER:
20190809
ISSUE DATE:
02/13/2020

A-7.4
Sheet 22 of 25

Bar Measures 1 inch

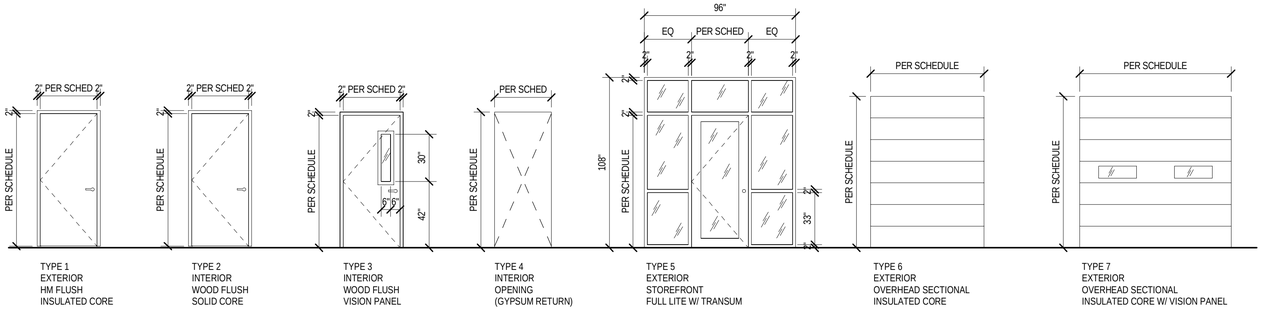
DOOR SCHED.

Door Number	Door Type	Size		Frame Type	Fire Rating	Finish		Comments
		Height	Width			Door	Frame	
100	5	7' - 0"	3' - 0"	SF	-	-	-	HARDWARE PER MFR.
100A	1	7' - 0"	3' - 0"	HM	-	PAINT	PAINT	
100B	7	14' - 0"	12' - 0"	-	-	-	-	HARDWARE PER MFR.
100C	7	8' - 0"	8' - 0"	-	-	-	-	HARDWARE PER MFR.
102	2	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
105A	7	12' - 0"	16' - 0"	-	-	-	-	HARDWARE PER MFR.
150	5	7' - 0"	3' - 0"	SF	-	-	-	HARDWARE PER MFR.
150B	1	7' - 0"	3' - 0"	HM	-	PAINT	PAINT	
150C	7	8' - 0"	8' - 0"	-	-	-	-	HARDWARE PER MFR.
150D	7	8' - 0"	8' - 0"	-	-	-	-	HARDWARE PER MFR.
150E	1	7' - 0"	3' - 0"	HM	-	PAINT	PAINT	
150F	6	8' - 0"	6' - 0"	-	-	-	-	HARDWARE PER MFR.
150G	6	12' - 0"	6' - 0"	-	-	-	-	HARDWARE PER MFR.
150H	1	7' - 0"	3' - 0"	HM	-	PAINT	PAINT	
150J	7	8' - 0"	8' - 0"	-	-	-	-	HARDWARE PER MFR.
150K	3	7' - 0"	3' - 0"		-			
151	5	7' - 0"	3' - 0"	SF	-	-	-	HARDWARE PER MFR.
151A	2	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
152	5	7' - 0"	3' - 0"	SF	-	-	-	HARDWARE PER MFR.
152A	3	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
153	2	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
153A	2	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
154	2	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
155	2	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
156	2	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
159	1	7' - 0"	3' - 0"	HM	-	PAINT	PAINT	
160	2	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
162	2	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
182	4	7' - 0"	5' - 0"	-	-	-	-	FINISH TO MATCH ADJACENT WALL
252	3	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
253	3	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
254	3	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
255	3	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
256	2	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
257	2	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	
258	3	7' - 0"	3' - 0"	HM	-	STAIN	PAINT	

DOOR HARDWARE

HARDWARE QUALITY LEVEL SHALL MATCH THE FOLLOWING OR APPROVED EQUAL:
1) BUTTS SHALL BE STANLEY, HAGER OR McKINNEY
2) LOCKSETS SHALL BE BEST, CORBIN-RUSSWIN OR SCHLAGE
3) CYLINDERS SHALL BE PER OWNERS DIRECTION
4) EXIT DEVICES SHALL BE VON DUPRIN
5) CLOSERS SHALL BE NORTON OR LCN
6) STOPS SHALL BE BBW OR TRIMCO
7) THRESHOLDS, DOOR BOTTOMS AND GASKETING SHALL BE PEMKO OR NATIONAL GUARD
8) KICK PLATES SHALL BE PLASTIC LAMINATE

DOOR LEGEND



TYPE 1
EXTERIOR
HM FLUSH
INSULATED CORE

TYPE 2
INTERIOR
WOOD FLUSH
SOLID CORE

TYPE 3
INTERIOR
WOOD FLUSH
VISION PANEL

TYPE 4
INTERIOR
OPENING
(GYPSUM RETURN)

TYPE 5
EXTERIOR
STOREFRONT
FULL LITE W/ TRANSUM

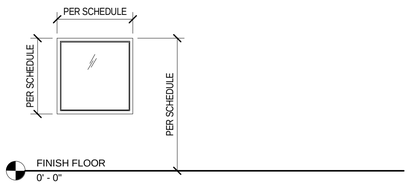
TYPE 6
EXTERIOR
OVERHEAD SECTIONAL
INSULATED CORE

TYPE 7
EXTERIOR
OVERHEAD SECTIONAL
INSULATED CORE W/ VISION PANEL

WINDOW / LOUVER SCHEDULE

Type Mark	Window Size		Head Height	Style	Comments
	Width	Height			
A	4' - 0"	4' - 0"	19' - 0"	VINYL FIXED	

WINDOW LEGEND



TYPE 'A'
VINYL FIXED

WALL TYPES

NOTE: SEE UL CERTIFICATIONS FOR ADDITIONAL INFORMATION.
UL LISTED WALLS SHALL BE CONSTRUCTED AS SPECIFIED IN UL CATALOG AND SUPERCEED THIS SHEET.

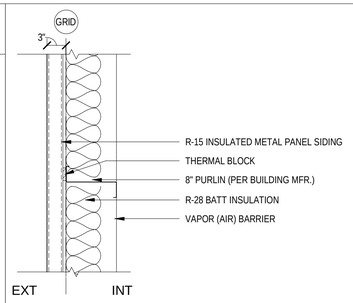
E1

EXTERIOR METAL BUILDING

METAL SIDING

STC=N/A

FIRE RATING N/A

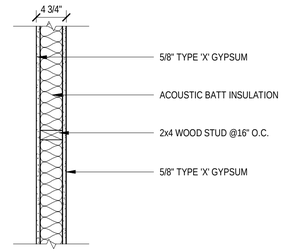


W1

INTERIOR WOOD STUD

STC=33

FIRE RATING N/A

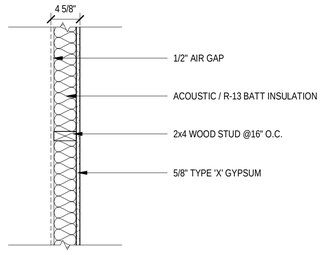


F1

INTERIOR WOOD STUD

STC=N/A

FIRE RATING N/A

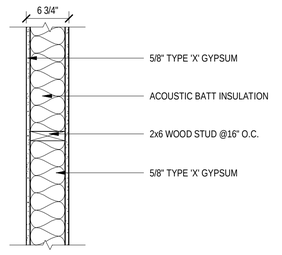


W2

INTERIOR WOOD STUD

STC=46

FIRE RATING N/A

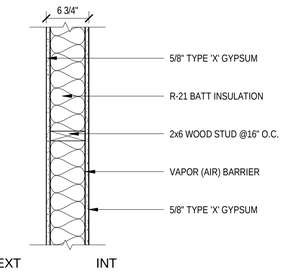


W3

INTERIOR WOOD STUD

STC=46

FIRE RATING N/A



NOTE:

1) ALL GLAZING TO BE TEMPERED WITHIN 3' - 0" OF DOOR OPENING OR FLOOR.

2) DOOR HARDWARE TO BE PROVIDED BY DOOR SPECIALIST PER OWNERS INSTRUCTIONS. OWNER TO REVIEW HARDWARE SCHEDULE PRIOR TO ORDERING HARDWARE.

3) SEE CODE REVIEW SHEET FOR ADDITIONAL DOOR AND WINDOW REQUIREMENTS

REVISIONS

MARK	DATE	DESCRIPTION	BY

9342 REGISTERED ARCHITECT
DEVIN G. GEISLER
STATE OF WASHINGTON

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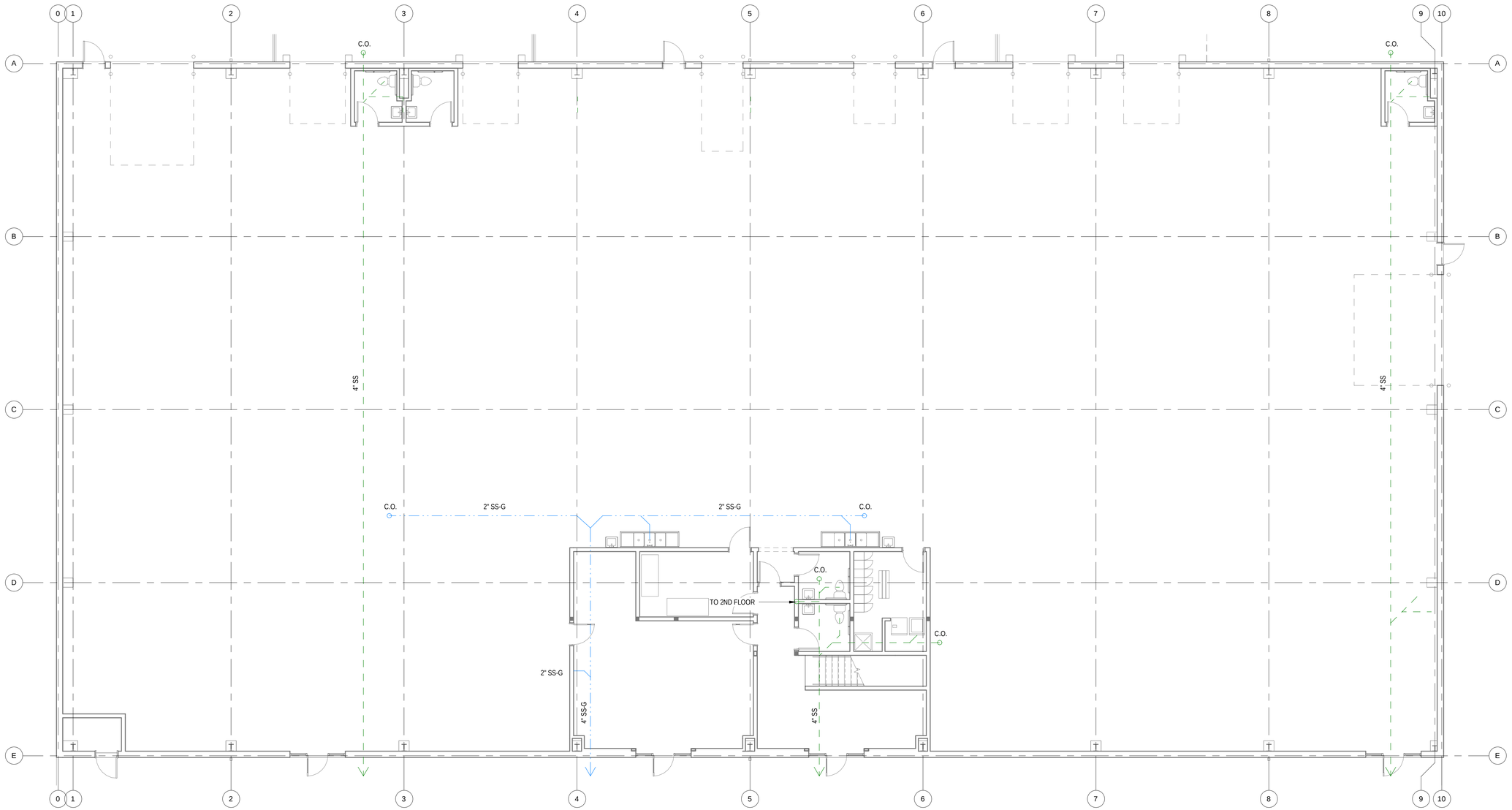
BDG LLC - NEW WAREHOUSE

DOOR & WINDOW SCHEDULES

PROJECT NUMBER:
20190809
ISSUE DATE:
02/13/2020

A-8.1
Sheet 23 of 25

Bar Measures 1 inch



1 PLUMBING PLAN - 1ST FLOOR
P-1.0 SCALE 1/8" = 1'-0"

NOTE:

PLUMBING PLANS PROVIDED FOR ESTIMATING, BIDDING AND PERMIT REVIEW PURPOSES ONLY. CONTRACTOR SHALL VERIFY ALL INFORMATION PROVIDED AND SHALL INCLUDE ADDITIONAL QUANTITIES AND MATERIALS AS REQUIRED TO PROVIDE A COMPLETE INSTALLATION. CONTRACTOR SHALL COORDINATE ALL FIXTURE TYPES AND LOCATIONS WITH OWNER PRIOR TO PREPARING ESTIMATE / BID.

PLUMBING NOTES:

1) DRAWING IS DIAGRAMATIC, AND MAY NOT INCLUDE OFFSETS OR MODIFICATIONS DUE TO SITE CONDITIONS ENCOUNTERED.

2) PIPING SHALL BE PVC SCHEDULE 40 DWV PIPE AND FITTINGS - SOLVENT CEMENT CONNECTIONS.

3) 4" PIPE SALL BE LAID AT 1% SLOPE AND SMALLER PIPING AT 2% SLOPE MINIMUM.

4) FLOOR DRAINS SHALL HAVE TRAP PRIMERS.

5) PIPING SHALL BE TESTED BY FILLING WATER TO THE HEIGHT OF 10' OF HEAD.

SUBMITTAL REVIEW

☐ No Exceptions Taken	☐ Rejected
☐ Note Markings	☐ Revise And Resubmit
☒ For Information Only	☐ Submit As Specified

This review is for general conformance with the design concept and contract documents only. Markings or comments shall not be construed as relieving the Contractor from compliance with the project plans and specifications nor departures therefrom. The contractor remains responsible for details and accuracy, for confirming and correcting all quantities and dimensions, for selecting fabrication process, for techniques of assembly, and for performing work in a safe manor.

By: DGG Date: 02/27/2020

REVISIONS

MARK	DATE	DESCRIPTION	BY

9342 REGISTERED ARCHITECT
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STATE OF WASHINGTON

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BDG LLC - NEW WAREHOUSE

PLUMBING PLAN

PROJECT NUMBER:
20190809
ISSUE DATE:
02/13/2020

P-1.0
Sheet of

Bar Measures 1 inch

Northern, Inc.

Consulting Engineers Environmental Scientists Geologists
Construction Materials Testing Geophysical Services

GEOTECHNICAL SITE INVESTIGATION REPORT

PROPOSED NEW 20,000 SF BUILDING
PORTION OF PARCEL NO. 121082013288002
BATTELLE BOULEVARD, RICHLAND, WA

GNN PROJECT NO. 219-1190

DECEMBER 2019

Prepared for

GF BLENDS
2151 HENDERSON LOOP
RICHLAND, WA 99354

GF Blends

Prepared by

GN NORTHERN, INC.
CONSULTING GEOTECHNICAL ENGINEERS
KENNEWICK, WASHINGTON
(509) 734-9320

Common Sense Approach to Earth and Engineering
Since 1995

Northern, Inc.

At GN Northern our mission is to serve our clients in the most efficient, cost effective way using the best resources and tools available while maintaining professionalism on every level. Our philosophy is to satisfy our clients through hard work, dedication and extraordinary efforts from all of our valued employees working as an extension of the design and construction team.

December 24, 2019

GF Blends
2151 Henderson Loop
Richland, WA 99354

Attn: Glen Call

CC: John Fetterolf, PE, JF Engineering, PLLC

Subject: **Geotechnical Site Investigation Report**
Proposed New 20,000 SF Building
Portion of Parcel No. 121082013288002
Battelle Boulevard, Richland, WA

GNN Project No. 219-1190

Gentlemen,

As requested, GN Northern (GNN) has completed a geotechnical site investigation for the proposed new 20,000 SF building to be constructed for GF Blends at the vacant site identified as a portion of Parcel No. 121082013288002, located on the north side of Battelle Blvd. within the Horn Rapids Industrial Park & Business Center area in the City of Richland, Washington.

Based on the findings of our subsurface study, we conclude that the site is suitable for the proposed construction provided that our geotechnical recommendations presented in this report are followed during the design and construction phases of the project.

This report describes in detail the results of our investigation, summarizes our findings and presents our recommendations concerning earthwork and the design and construction of foundation for the proposed project. It is important that GN Northern provide consultation during the design phase, as well as field compaction testing and geotechnical monitoring services during the construction phase, to review and monitor the implementation of the geotechnical recommendations.

If you have any questions regarding this report, please contact us at 509-734-9320.

Respectfully submitted,

GN Northern, Inc.

Karl A. Harmon, LEG, PE
Senior Geologist/Engineer

M. Yousuf Memon, PE
Geotechnical Engineer

M. YOUSUF MEMON
STATE OF WASHINGTON
55606
REGISTERED
PROFESSIONAL ENGINEER

TABLE OF CONTENTS

Page No.

APPENDICES

1.0 PURPOSE AND SCOPE OF SERVICES

This report has been prepared for the proposed new 20,000 SF building to be constructed for GF Blends at the vacant site identified as a portion of Parcel No. 121082013288002, located on the north side of Battelle Blvd. within the Horn Rapids Industrial Park & Business Center area in the City of Richland, Washington; site location is shown on the *Vicinity Map* (Figure 1, Appendix I). Our investigation was conducted to collect information regarding subsurface conditions and present recommendations for suitability of the subsurface materials to support the planned site development and allowable bearing capacity for the proposed construction.

GN Northern, Inc. has prepared this report for use by the client and their design consultants in the design of the proposed development. Do not use or rely upon this report for other locations or purposes without the written consent of GN Northern, Inc.

Our study was conducted in general accordance with our *Proposal for Geotechnical Services* dated December 5, 2019, along with our understanding of the proposed project based on communications with JF Engineering, PLLC; notice to proceed was provided in the form of a signed copy of the proposal received via email on December 10th.

A *Conceptual Site Plan* of the proposed site development (dated 11/26/2019) prepared by JF Engineering was provided via email on November 27, 2019. Field exploration, consisting of six (6) test-pits, was completed on December 16, 2019. Test-pit locations are shown on the *Site Exploration Map* (Figure 2, Appendix I). Detailed test-pit logs are presented in Appendix II, and results of our laboratory testing are presented in Appendix III.

This report has been prepared to summarize the data obtained during this study and to present our recommendations based on the proposed construction and the subsurface conditions encountered at the site. Results of the field exploration and laboratory testing were analyzed to develop recommendations for site development, earthwork, foundation bearing capacity and pavements. Design parameters and a discussion of the geotechnical engineering considerations related to construction are included in this report.

2.0 PROPOSED CONSTRUCTION

Based on the information provided, we understand that site development will include a new 20,000 SF 35-foot tall one-story metal pole building for GF Blends, with a 7,500 SF possible future building expansion towards the south. The new building with primarily include warehouse space, with offices in the eastern portion and loading docks along the west side. We understand that a finished floor elevation (FFE) of 420' has been planned for the new building. Consequently, cut and fills would likely be on the order of 5 feet. New asphalt pavement is planned across the site, including 14 parking spaces along the east side of the building and heavy-duty pavement across the western portion supporting delivery truck traffic. A stormwater pond is planned in the southwestern portion of the site.

Structural loading information was not available at the time of this report. Based on our experience with similar projects, we assume maximum column loads to be less than 100 kips. It shall be noted that assumed loading is based on information provided at the time of this report. If loading conditions differ from those described herein, GNN should be given an opportunity to perform re-analysis. Settlement tolerances for the structures are assumed to be limited to 1 inch, with differential settlement limited to ½ inch.

3.0 FIELD EXPLORATION

Our field exploration was completed on December 16, 2019. A local public utility clearance was obtained prior to the field exploration. Six (6) exploratory test-pits were excavated by Einar Frimodt & Sons using a John Deere 490E excavator to depths ranging from approximately 8 to 13.5 feet below existing ground surface (BGS). The test-pits were logged by a GNN field engineer. Upon completion, all excavations were loosely backfilled with excavation spoils. Test-pit locations are shown on *Site Exploration Map* (Figure 2, Appendix I).

The soils observed during our field exploration were classified according to the Unified Soil Classification System (USCS), utilizing the field classification procedures as outlined in ASTM D2488. A copy of the USCS Classification Chart is included in Appendix II. Photographs of the site and exploration are presented in Appendix IV. Depths referred to in this report are relative to the existing ground surface elevation at the time of our investigation. The surface and subsurface conditions described in this report are as observed at the time of our field investigation.

4.0 LABORATORY TESTING

Representative samples of the exposed soils obtained from the test-pits were selected for testing to determine the index properties of the subsurface soils in general accordance with ASTM procedures. The following laboratory tests were performed:

Table 1: Laboratory Tests Performed

Test	To determine
Particle Size Distribution (ASTM D6913)	Soil classification based on proportion of sand, silt, and clay-sized particles
Natural Moisture Content (ASTM D2216)	Soil moisture content indicative of in-situ condition at the time samples were taken

Results of the laboratory test are included on the test-pit logs and are also presented in graphic form in Appendix III attached to the end of the report.

5.0 SITE CONDITIONS

The approximately 2-acre site of the proposed new building development is currently identified as a portion of a larger 8.89-acre parcel (Parcel No. 121082013288002) by the Benton County Assessor and is generally located on the north side of the recently constructed segment of Battelle Blvd., approximately 380 feet west of the intersection with Kingsgate Way, in the Horn Rapids Industrial Park area of Richland, Washington. Site is surrounded by existing commercial/industrial development along the north side and the northern half of the east side, undeveloped vacant property towards the west and the southern half of the east side, and Battelle Blvd. along the south. Site is generally situated in the NE ¼ of the NW ¼ of Section 21, Township 10 North & Range 28 East, Willamette Meridian.

The site includes a moderate growth of sage brush, and was covered with mulch application for erosion control. The site is relatively flat and level with the adjacent properties, with a gentle slope from the west side down towards the northeast, east and southeast. Existing undisturbed site slopes are typically less than 6% across a majority of the site. The southwestern portion includes an area of apparent cut grading associated with the recent construction of Battelle Blvd. The northern portion of the site, primarily along the irrigation easement, also appears to include some fill soils likely related to construction of the recent irrigation lines. Based on topography shown on the conceptual site plan, native undisturbed site elevations range from ±422' near the west side in the northwestern portion to ±413' near the southeastern portion.

5.1 Regional Geology

The site is located in the Tri-Cities area of the Yakima Fold Belt region of the Columbia Basin Plateau. The subsurface stratigraphy of the region is comprised of a thick series of folded, Miocene-age flood basalt lava flows and interbedded sediments (collectively known as the Columbia River Basalt Group [CRBG]) overlain by unconsolidated deposits of late Miocene to recent age. In the Tri-Cities area, the uppermost layers of the CRBG are fractured basalt bedrock. Regionally, the top surface of the local basalt is known to slope to the east toward the Columbia River, although local variations exist in the area. Based on the *Geologic Map of the Richland 1:100,000 Quadrangle, Washington* (Reidel, 1994), the site is mapped as Quaternary dune sand [Qds] overlying Pleistocene outburst flood deposits [Qfg] predominantly consisting of gravels. The local bedrock in the area is comprised of the Miocene age Saddle Mountains Basalt of the CRBG.

5.2 Seismic Considerations

As per the *2015 International Building Code* (IBC), a Site Class 'D' may be used for seismic design purposes. Site Class 'D' corresponds to 'stiff soil'. The following site-specific design values may be used:

Table 2: IBC Design Response Spectra Parameters

Seismic Design Parameter	Value (unit)
S_S	0.405 (g)
S_1	0.157 (g)
F_a	1.476 (unitless)
F_v	2.172 (unitless)
SM_S	0.597 (g)
SM_1	0.341 (g)
SD_S	0.398 (g)
SD_1	0.227 (g)

S_S = MCE spectral response acceleration at short periods
S_1 = MCE spectral response acceleration at 1-second period
F_a = Site coefficient for short periods
F_v = Site coefficient for 1-second period
SM_S = MCE spectral response acceleration at short periods as adjusted for site effects
SM_1 = MCE spectral response acceleration at 1-second period as adjusted for site effects
SD_S = Design spectral response acceleration at short periods
SD_1 = Design spectral response acceleration at 1-second period

6.0 SUBSURFACE CONDITIONS

Based on the findings of our field exploration, native subsurface soils at the site primarily consist of relatively clean eolian sands. These fine- to medium-grained sands were classified as Silty Sand (SM) near the surface, grading to a cleaner Poorly Graded Sand with Silt (SP-SM) and Poorly

Graded Sand (SP) with depth. The native sands appeared 'loose' to 'medium dense', and exhibited damp in-situ moisture. A thin layer of caliche with gravels was also noted at approximately 4.5 feet BGS in test-pit TP-6 in the southwestern portion of the site. Some near-surface artificial fills were noted in the upper approximately 1.5 to 2 feet in test-pits TP-1 and TP-2 in the northern portion, as well as in test-pit TP-6. Test-pit logs in Appendix II show detailed descriptions and stratification of the soils encountered.

6.1 NRCS Soil Survey

The soil survey map of the site prepared by the Natural Resources Conservation Service (NRCS) identifies native site soils as *Quincy loamy sand* with parent materials described as *eolian sands*. The typical soil profile for this unit is described as *loamy sand* grading to *loamy fine sand.* According to the NRCS map (Appendix V), this unit generally consists of *excessively drained* materials.

6.2 Groundwater

Groundwater was not encountered within the test-pits at time of our exploration to a maximum depth of approximately 13.5 feet BGS. To further assist in our evaluation, we reviewed the Washington Department of Ecology Well Log database of nearby well logs to estimate groundwater levels in the vicinity. We reviewed well logs for geotechnical borings completed at the ATI property to the north (3101 Kingsgate Way) and the property south of Battelle Blvd. (3003 Kingsgate Way). Based on our review of these well logs (see Appendix VI), groundwater across the project site is believed to be greater than 30 feet BGS. Groundwater levels will fluctuate with precipitation, irrigation, drainage, and regional pumping from wells.

7.0 GEOLOGIC HAZARDS

Potential geologic hazards that may affect the proposed development include: [i] landslides & slope instability, [ii] seismic hazards (ground shaking, surface fault rupture, soil liquefaction, and other secondary earthquake-related hazards), and [iii] flooding & erosion, as discussed below:

7.1 Site Slopes

The site is relatively flat and level with the adjacent properties, with a gentle slope down towards the west side down towards the northeast, east and southeast. Existing site slopes range from less than 6% across a majority of the site in the relatively undisturbed areas, to some slightly steeper re-

graded slopes across the southern and northern portions of the site. Therefore, in our professional opinion, slope stability is not considered a hazard at the site.

7.2 Regional Faulting and Surface Fault Rupture

The nearest regional faulting with Quaternary displacement (< 130,000 years) consists of a northwest-southeast segment of the Rattlesnake Hills fault zone located approximately 2.7 miles southwest of the project site (Czajkowski, 2014). Published slip rates for these Class A faults are listed at less than 0.2 mm/year. For the purpose of this report, an active fault is defined as a fault that has had displacement within the Holocene epoch or last 11,700 years. Due to the lack of any known active fault traces in the immediate site vicinity, surface fault rupture is unlikely to occur at the subject property. While future fault rupture could occur at other locations, rupture would most likely occur along previously established fault traces.

7.3 Earthquakes & Seismic Conditions

Earthquakes caused by movements along crustal faults, generally in the upper 10 to 15 miles, occur on the crust of the North America tectonic plate when built-up stresses near the surface are released. The two largest crustal earthquakes felt in the state of Washington included the 1872, M 6.8 quake near Lake Chelan and the 1936, M 6.0 Walla Walla earthquake. The following list provides information gathered from the online USGS database regarding historic earthquakes (>4 M) within the past 150 years for epicenters within 100 kilometers of project site, sorted by magnitude (largest to smallest):

Table 3: Earthquakes within 100-kilometers of project site

Date(s) of Event	Magnitude (M)	Nearby Faults / Seismic Zone	Approx. Distance from Site (miles)
July 15, 1936	5.0	Hite fault / Wallula Fault Zone	59
March 7, 1893	4.7	unknown near Umatilla	30
December 20, 1973	4.4	Saddle Mountains fault	37
November 28, 1991	4.3	Wallula Fault Zone	53
April 8, 1979	4.3	Wallula Fault Zone	50
July 14, 1992	4.1	Wallula Fault Zone	54

Based on seismic scenarios published by the Washington State Department of Natural Resources (DNR), a M 7.35 Saddle Mountain earthquake event would result in a shaking intensity of 'VII' (very strong shaking) on the Modified Mercalli Intensity (MMI) scale at the project site. We also used the USGS deaggregation tool which provides the relative contributions of hazard for each

seismic source based on Probabilistic Seismic Hazard Analysis (PSHA). Based on the deaggregation, it appears that about 2 to 4% of the contribution to the probabilistic hazard at the site comes from the Cascadia Subduction Zone, with the remaining contribution primarily from the shallower sources including the Saddle Mountains fault, the Rattlesnake Hills fault zone, and the Horse Heaven Hills fault zone.

7.4 Soil Liquefaction

Liquefaction is the loss of soil strength from sudden shock (usually earthquake shaking), causing the soil to become a fluid mass. In general, for the effects of liquefaction to be manifested at the surface, groundwater levels must be within 50 feet of the ground surface and the soils within the saturated zone must also be susceptible to liquefaction. Based on the published *Liquefaction Susceptibility Map of Benton County, Washington* (Palmer et al., 2004), the site is mapped with a 'low' relative susceptibility for seismically-induced liquefaction to occur. A detailed assessment of the liquefaction potential using subsurface soil/groundwater data from a 50-foot deep was beyond the scope of this investigation. In general, clean sands below the groundwater table will be prone to liquefaction and may result in surface manifestation of seismically induced settlement across the site if soils within the upper 50 feet liquify. Based on our knowledge of the subsurface conditions in the vicinity, potential for liquefaction at the site is considered low.

7.5 Secondary Seismic Hazards

Additional secondary seismic hazards related to ground shaking include ground subsidence, tsunamis, and seiches. The site is far inland, so the hazard from tsunamis is non-existent. The potential hazard from seiches in also very low due to the distance/elevation between the site and nearest significant water body.

7.6 Flooding and Erosion

The subject property lies in an area mapped by Federal Emergency Management Agency (FEMA) as 'minimal flooding'. The need for and design of erosion protection measures is within the purview of the design Civil Engineer. Appropriate erosion and sediment control plan(s) and a drainage plan shall be prepared by the project civil engineer with the final construction drawings. Erosion should be mitigated with appropriate BMPs consisting of proper drainage design including collecting and disposal (conveyance) of water to approved points of discharge in a non-erosive

manner. Appropriate project design, construction, and maintenance will be necessary to mitigate the site erosion hazards.

8.0 SUMMARY OF FINDINGS & CONCLUSIONS

Conditions imposed by the proposed development have been evaluated on the basis of proposed elevations and engineering characteristics of the subsurface materials encountered in the exploratory test-pits and their anticipated behavior both during and after construction. The following is a summary of our findings, conclusions and professional opinions based on the data obtained from a review of selected technical literature and the site evaluation.

- Based on this geotechnical evaluation and our understanding of the proposed development, from a geotechnical perspective, it is our opinion that the site is suitable for the proposed construction, provided the soil design parameters and site-specific recommendations in this report are followed in the design and construction of this project.

- Final project plans, including a grading plan, were not provided at the time of this report. GNN shall be provided an opportunity to review final design plans to provide revised recommendations if/as necessary.

- Site soils generally consist of relatively clean eolian sands, classified as fine- to medium-grained Silty Sand (SM) near-surface, grading to cleaner Poorly Graded Sand with Silt (SP-SM) and Poorly Graded Sand (SP) with depth

- Groundwater was not encountered within the test-pits at time of our exploration to a maximum depth of 13.5 feet BGS and is believed to be greater than 30 feet BGS across the project site based on a review of nearby well logs.

- In our opinion, the proposed buildings may be supported on conventional shallow foundations bearing on a layer of imported crushed rock placed atop the recompacted subgrade in accordance with the recommendations of this report.

- The underlying geologic condition for seismic design is site class ‘D’. The *minimum* seismic design should comply with the 2015 International Building Code (IBC) and ASCE 07-10, Minimum Design Loads for Buildings and Other Structures.

- Site grading shall incorporate the requirements of IBC 2015 Appendix J *Grading* as adopted by City of Richland Building Department.

- While testing of the infiltration characteristics of the onsite soils was beyond the scope of this investigation, in our professional opinion, we believe that the caliche layer noted at approximately 4.5 feet BGS in test-pit TP-6 near the proposed stormwater pond may represent a limiting layer. Therefore, we recommend ensuring that bottom of the new stormwater pond penetrates through this caliche layer.

- Upon completion, all test-pit excavations were loosely backfilled with excavation spoils. The contractor is responsible to locate the test-pits to re-excavate the loose soils and re-place as compacted engineered fill.

- The onsite sandy soils are considered suitable for use as engineered fill and utility trench backfill, provided they are free of significant organic or deleterious matter, and oversize rocks (>4 inches).

- At the start of site grading, existing vegetation, large roots, mulch, any artificial fill, trash and debris shall be removed from the areas of proposed construction.

- Subsurface soils can be readily cut by normal grading equipment. The native sandy soil is prone to significant caving and sloughing in open excavations. Deeper excavations will require external support such as shoring or bracing to provide excavation bank stability.

- The near-surface fine-grained soils are susceptible to wind and water erosion when exposed during grading operations. Preventative measures and appropriate BMPs to control runoff and reduce erosion shall be incorporated into site grading plans.

9.0 GEOTECHNICAL RECOMMENDATIONS

The following geotechnical recommendations are based on our current understanding of the proposed project as described in Section 2.0 of this report. The report is prepared to comply with the 2015 International Building Code Section 1803, Geotechnical Investigations, and as required by Subsection 1803.2, Investigations Required. Please note that Soil Design Parameters and

Recommendations presented in this report are predicated upon appropriate geotechnical monitoring and testing of the site preparation and foundation and building pad construction by a representative of GNN's Geotechnical-Engineer-of-Record (GER). Any deviation and nonconformity from this requirement may invalidate, partially or in whole, the following recommendations. We recommend that we be engaged to review grading and foundation plans in order to provide revised, augmented, and/or additional geotechnical recommendations as required.

9.1 Site Development – Grading

Site grading shall incorporate the requirements of IBC 2015 Appendix J as adopted by City of Richland Building Department. The project GER or a representative of the GER should observe site clearing, grading, and the bottoms of excavations before placing fills. Local variations in soil conditions may warrant increasing the depth of over-excavation and recompaction. Seasonal weather conditions may adversely affect grading operations. To improve compaction efforts and prevent potential pumping and unstable ground conditions, we suggest performing site grading during dryer periods of the year.

Soil conditions shall be evaluated by in-place density testing, visual evaluation, probing, and proof-rolling of the imported fill and re-compacted on-site soil as it is prepared to check for compliance with recommendations of this report. A moisture-density curve shall be established in accordance with the ASTM D1557 method for all onsite soils and imported fill materials used as structural fill.

9.2 Clearing and Grubbing

At the start of site grading, existing vegetation, large roots, mulch, any artificial fill, trash and debris shall be removed from the areas of proposed construction. The surface shall be stripped of all topsoil and/or organic growth (vegetation and mulch) that may exist within the proposed structural areas. The topsoil and organic rich soils shall either be stockpiled on-site separately for future use or be removed from the construction area. Depth of stripping can be minimized with real-time onsite observation of sufficient removals. Areas disturbed during clearing shall be properly backfilled and compacted as described below.

9.3 Pre-Wetting

Due to the relatively dry soil conditions at the site, we recommend pre-watering the areas to be excavated. By pre-watering, the moisture content of the soil can be brought to near optimum moisture content, thereby reducing the need to add water during placement of engineered fill. Significant savings in time and effort during compaction can often be realized through pre-watering of the areas of proposed development. The critical element of mass grading will be moisture conditioning of the relatively dry on-site native soils. It is imperative that compaction shall be conducted while the moisture content is near optimum to achieve appropriate compaction.

9.4 Suitability of the Onsite Soils as Engineered Fill

The onsite sandy soils are considered suitable for use as engineered fill and utility trench backfill, provided they are free of significant organic or deleterious matter, and oversize rocks (>4 inches). Suitable onsite soils shall be placed in maximum 8-inch lifts (loose) and compacted to at least 95% relative compaction (ASTM D1557) near its optimum moisture content. Compaction of the suitable onsite soils shall be performed within a range of ±2% of optimum moisture to achieve the proper degree of compaction.

9.5 Temporary Excavations

It shall be the responsibility of the contractor to maintain safe temporary slope configurations since the contractor is at the job site, able to observe the nature and conditions of the slopes and be able to monitor the subsurface conditions encountered. Unsupported vertical cuts deeper than 4 feet are not recommended if worker access is necessary. The cuts shall be adequately sloped, shored or supported to prevent injury to personnel from caving and sloughing. The contractor and subcontractors shall be aware of and familiar with applicable local, state and federal safety regulation including the current OSHA Excavation and Trench Safety Standards, and OSHA Health and Safety Standards for Excavations, 29 CFR Part 1929, or successor regulations.

According to chapter 296-155 of the Washington Administrative Code (WAC), it is our opinion that the near-surface soil encountered at the site is classified as Type C soils. We recommend that temporary, unsupported, open cut slopes shall be no steeper than 1.5 feet horizontal to 1.0 feet vertical (1.5H:1V) in Type C soils. No heavy equipment should be allowed near the top of temporary cut slopes unless the cut slopes are adequately braced. Where unstable soils are encountered, flatter slopes may be required.

The native sandy soil is prone to significant caving and sloughing in open excavations. We anticipate excavation bank stability problems will be encountered due to the non-cohesive granular nature of the on-site soils. Excavation stability may be achieved by sloping excavation banks or widening shallow excavations in the anticipation of caving. Deeper excavations will require external support such as shoring or bracing to provide excavation bank stability.

9.5 Utility Excavation, Pipe Bedding and Trench Backfill

To provide suitable support and bedding for the pipe, we recommend the utilities be founded on suitable bedding material consisting of clean sand and/or sand & gravel mixture. To minimize trench subgrade disturbance during excavation, the excavator should use a smooth-edged bucket rather than a toothed bucket.

Pipe bedding and pipe zone materials shall conform to Section 9-03.12(3) of the Washington State Department of Transportation (WSDOT) 2018 Standard Specifications. Pipe bedding should provide a firm uniform cradle for support of the pipes. A minimum 4-inch thickness of bedding material beneath the pipe should be provided. Prior to installation of the pipe, the pipe bedding should be shaped to fit the lower part of the pipe exterior with reasonable closeness to provide uniform support along the pipe. Pipe bedding material should be used as pipe zone backfill and placed in layers and tamped around the pipes to obtain complete contact. To protect the pipe, bedding material should extend at least 6 inches above the top of the pipe.

Placement of bedding material is particularly critical where maintenance of precise grades is essential. Backfill placed within the first 12 inches above utility lines should be compacted to at least 90% of the maximum dry density (ASTM D1557), such that the utility lines are not damaged during backfill placement and compaction. In addition, rock fragments greater than 1 inch in maximum dimension should be excluded from this first lift. The remainder of the utility excavations should be backfilled and compacted to 95% of the maximum dry density as determined by ASTM D1557.

Onsite soils are considered suitable for utility trench backfill provided they are free of oversize rocks and can be adequately compacted. All excavations should be wide enough to allow for compaction around the haunches of pipes and underground tanks. We recommend that utility

trenching, installation, and backfilling conform to all applicable federal, state, and local regulations such as OSHA and WISHA for open excavations.

Compaction of backfill material should be accomplished with soils within ±2% of their optimum moisture content in order to achieve the minimum specified compaction levels recommended in this report. However, initial lift thickness could be increased to levels recommended by the manufacturer to protect utilities from damage by compacting equipment.

9.6 Imported Crushed Rock Structural Fill

If needed, imported structural fill shall consist of well-graded, crushed aggregate material meeting the grading requirements of WSDOT 2018 Standard Specifications, Section 9-03.9(3) (1-1/4 inch minus Base Course Material) presented here:

Table 4: WSDOT Standard Spec. 9-03.9(3)

Sieve Size	Percent Passing (by Weight)
1¼ Inch Square	99 - 100
1 Inch Square	80 - 100
5/8 Inch Square	50 – 80
U.S. No. 4	25 - 45
U.S. No. 40	3 – 18
U.S. No. 200	Less than 7.5

A 50-lb sample of each imported fill material shall be collected by GNN prior to placement to ensure proper gradation and establish the moisture-density relationship (proctor curve).

9.7 Compaction Requirements for Engineered Fill

All fill or backfill shall be approved by a representative of the GER, placed in uniform lifts, and compacted to a minimum 95% of the maximum dry density as determined by ASTM D1557. The compaction effort must be verified by a representative of the GER in the field using a nuclear density gauge in accordance with ASTM D6938. The thickness of the loose, non-compacted lift of fill shall not exceed 8 inches for heavy-duty compactors or 4 inches for hand operated compactors.

9.8 Building Pad Subgrade Preparation

Based on an FFE of 420', resulting in a finished building pad grade of ±419', we anticipate approximately 18 inches of cut in the western portion transitioning to about 4.5 feet of fill near the southeastern corner. To provide a uniform bearing support and minimize the risk of differential settlement, we recommend over-excavation of the western/southwestern portion of the building

pad to an elevation of 418'. All fill material to construct the building pad shall consist of suitable onsite soils or approved granular import material (if additional imported fill is required) placed as engineered fill as described in the previous sections. Prior to placing new fill material, the entire subgrade across the building pad (including areas of cut and fill) shall be scarified a minimum of 12 inches, moisture-conditioned to near-optimum and compacted to at least 95% of the maximum dry density as determined by ASTM D1557.

9.9 Foundation Bearing Support & Allowable Bearing Capacity

In our opinion, the new metal pole building may be supported on conventional shallow foundations bearing directly on a layer of imported crushed rock structural fill placed atop a recompacted subgrade as recommended herein. The minimum footing depth shall be 24 inches below adjacent grades for frost protection and bearing capacity considerations. We recommend that all foundations bear on a minimum of 6 inches of 1¼" minus imported crushed rock structural fill atop a recompacted native subgrade or onsite soils placed as compacted engineered fill. In order to minimize the risk of differential settlement, we recommend over-excavating foundation excavations to an elevation of 417'. Prior to placing new fill material, the foundation subgrade (including areas of cut and fill) shall be scarified a minimum of 12 inches, moisture-conditioned to near-optimum and compacted to at least 95% of the maximum dry density as determined by ASTM D1557.

Footings constructed in accordance with the above recommendations may be designed for an allowable **1,800 pounds per square foot (psf)** bearing pressure. The allowable bearing pressure presented above may be increased by 1/3 for short-term, transient loading conditions. Based on assumed structural loading, we estimate total settlement for footings constructed in accordance with this recommendations to be less than 1-inch, with differential settlement less than half that magnitude.

Lateral forces on foundations from short term wind and seismic loading would be resisted by friction at the base of foundations and passive earth pressure against the buried portions. We recommend an allowable passive earth pressure for compacted onsite fill of **220 pcf**. This lateral foundation resistance value includes a factor of safety of 1.5. We recommend a coefficient of friction of **0.45** be used between cast-in-place concrete and imported crushed rock. An appropriate factor of safety should be used to calculate sliding resistance at the base of footings.

9.10 Slab-on-Grade Floors

Place a minimum 6-inch layer of crushed aggregate fill beneath the slabs. The material shall meet the WSDOT 2018 Standards Specifications, Section 9-03.9(3), "Crushed Surfacing Top Course", with less than 5 percent passing the No. 200 sieve (fines). The crushed rock material shall be compacted to at least 95% of the maximum dry density as determined by the ASTM D1557 method. Prior to placing the crushed rock layer, the building pad subgrade shall be prepared in accordance with the recommendations of *Section 9.8* of this report. We recommend a modulus of subgrade reaction equal to **180 pounds per cubic inch (pci)** based on a value for gravel presented in the Portland Cement Association publication No. EB075.01D. Slab thickness, reinforcement and joint spacing shall be determined by a licensed engineer based on the intended use and loading.

9.11 Graded Slope Construction

Site development shall incorporate appropriate design and construction including slope stabilization and drainage/erosion control measures. We recommend that all cut or fill slopes at the project site be constructed at a maximum gradient of 2H:1V in accordance with the recommendations of this section.

Fill slopes should be overfilled and trimmed back to uniformly compacted material. The final slope surface should be track-walked or grid rolled to improve the slope's resistance to erosion. Where fill slopes or stabilization fill slopes are to be constructed on existing slopes steeper than 5V:1H, the fill should be keyed and benched into firm natural soil. Keyways for all slopes, greater than 5 feet in height, should be cut into firm natural soil. This helps ensure a good bond between the existing native soil and new fill, and to eliminate a plane of weakness at the interface. Benching dimensions into existing native slopes shall be a minimum 5 feet horizontal and maximum 4 feet vertical from the lowest adjacent soil grade. Before engineered fill is placed, the key should be observed by a representative of the GER, to observe compliance with the above recommendations. It is recommended that the GER, or their representatives, be present during the fill construction to observe compliance with the above recommendations.

Compacted fill slopes shall be overbuilt and cut back to grade, exposing the firm, compacted fill inner core. The actual amount of overbuilding should vary as field conditions dictate. The degree of overbuilding should be increased until the desired compacted slope surface condition is achieved. Care should be taken by the contractor to provide thorough mechanical compaction to

the outer edge of the overbuilt slope surface. Fill placement should proceed in thin lifts (8-10 inch loose thickness, depending upon compaction equipment). Each lift should be moisture-conditioned and thoroughly compacted. The desired moisture condition should be maintained during the period between successive lifts, and each lift should be tested to ascertain that desired compaction is being achieved.

At intervals not exceeding 4 feet in vertical slope height or the capability of available equipment, whichever is less, fill slopes should be thoroughly back-rolled utilizing conventional equipment. Care should be taken to maintain the desired moisture conditions as needed prior to back-rolling. Upon achieving final grade, the slopes should again be moisture conditioned and thoroughly back-rolled. The use of a side-boom roller may be necessary as well as vibratory methods. Without delay, the slopes should then be grid-rolled to achieve a relatively smooth surface and uniformly compact condition. Slope construction procedures shall be monitored, and moisture and density tests shall be taken at regular intervals.

Proper slope protection and maintenance will help minimize slope erosion and improve the stability of the project slopes. The project soils are prone to erosion and will require appropriate BMP protection and maintenance. Positive drainage should be provided at the tops of all slopes to divert runoff away from the face. Swales constructed in native soils should be lined with suitable no-erosive material. Erosion protection should be provided, especially where concentrated runoff is anticipated. A qualified Landscape Architect should provide recommendations for slope planting. As the exposed site soils are susceptible to erosion, it is required that erosion control measures, such as planting, erosion control blankets or fabrics, sprayed tackifiers, or some combination of these, be utilized on all slopes within the project. Landscaping should take into consideration the engineering characteristics of the slopes, especially with regards to the surficial stability.

The need for and design of flood control and erosion protection measures is within the purview of the design civil engineer. In general, erosion should be mitigated with best management practices (BMPs) consisting of proper drainage design including collecting and disposal (conveyance) of water to approved points of discharge in a non-erosive manner. Appropriate project design, construction, and maintenance will be necessary to mitigate the site erosion concerns.

9.12 Below-Grade Dock Walls & Lateral Earth Pressures

Below-grade dock retaining walls shall be designed for drained active and at-rest earth pressures of **38** and **59 psf/foot** (in terms of equivalent fluid pressure). The values are given in terms of equivalent fluid unit weights without surcharge loads and are based on the assumption that proper drainage is provided behind the walls, the backfill is horizontal and that no-buildup of hydrostatic pressure occurs. If any surcharge loads are closer than one-half of the wall height (horizontal distance) to the edge of the below-grade and/or retaining wall, increase the design wall pressure by $q/2$ over the whole area of the retaining wall. In this expression, q is the surface surcharge load in psf. GNN should review the actual surcharge loading to confirm that the appropriate design values are considered. The horizontal surcharge resultant force (pressure x H, where H is height of buried wall) should be applied at an H/2 distance from the base of the wall.

Drainage: Retaining structures should include adequate back drainage to avoid build-up of hydrostatic pressures. Positive drainage for retaining walls should consist of a vertical layer of permeable material (chimney drain), such as a pea gravel or crushed rock (typically ¼- to ¾-inch crushed), at least 18 inches thick, positioned between the retaining wall and the backfill. We recommend installing a non-woven filter fabric such as Mirafi® 140N between the drainage material and the general backfill to prevent fines from migrating into the drainage material. A 4-inch diameter perforated or slotted drain pipe, wrapped or socked in filter fabric, shall be installed at the bottom of the chimney drain.

Backfill Compaction: Compaction on the retained side of the wall within 3 feet should be performed by hand-operated or other lightweight compaction equipment. This is intended to reduce excessive stress caused by compaction with heavy grading equipment.

9.13 Flexible Pavement

The pavement subgrade soils are expected to generally consist of fine-grained sand. A California Bearing Ratio (CBR) value of 8 has been estimated for the native soils for use in the pavement analysis. Using an empirical relationship, this CBR value corresponds to a resilient modulus value of approximately 12,000 psi. Based on the data obtained from our site evaluation, recommended pavement sections for the proposed project site are presented in the Table 5 below:

Table 5: Recommended Asphalt Concrete Paving Sections

Traffic	Asphalt Thickness (inches)	Crushed Aggregate Base Course (inches)
Heavy Duty†	4.0	10
Standard Duty ††	2.5	8

†Heavy duty imply to pavements subjected to truck traffic and drive lanes
††Standard duty imply to general parking areas
*The upper 2" of crushed rock should be top course rock placed over the base course layer

The pavement design recommendations assume that the subgrade and placement of fills be prepared in accordance with the recommendations of this report. Upon completion of required stripping and removal of topsoil and artificial fill soils, the upper 12 inches of subgrade soils beneath the pavement section shall be scarified, moisture conditioned and re-compacted to at least 95% of the maximum dry density as determined by ASTM D1557. All fills used to raise low areas must be compacted native soils or structural gravel fill and shall be placed under engineering control conditions. The asphalt paving materials should be compacted to a minimum 92% of the maximum theoretical specific gravity (Rice's density). The base course rock must be placed as structural fill in uniform, horizontal lifts and each 6-inch lift must be compacted to at least 95%of the maximum dry density as determined by ASTM D1557 method. We recommend that proper surface and subsurface drainage measures must be incorporated in the parking lot design.

9.14 Subgrade Protection

The degree to which construction grading problems develop is expected to be dependent, in part, on the time of year that construction proceeds and the precautions which are taken by the contract to protect the subgrade. We recommend that the site shall be graded to prevent water from ponding within construction areas and/or flowing into excavations. Accumulated water must be removed immediately along with any unstable soil. Foundation concrete should be placed and excavations backfilled as soon as possible to protect the bearing grade.

9.15 Surface Drainage

With respect to surface water drainage, we recommend that the ground surface be sloped to drain away from the structure. Final exterior site grades shall promote free and positive drainage from the building areas. Water shall not be allowed to pond or to collect adjacent to foundations or within the immediate building area. We recommend that a gradient of at least 5% for a minimum distance of 10 feet from the building perimeter be provided, except in paved locations. In paved areas, a minimum gradient of 1% should be provided unless provisions are included for

collection/disposal of surface water adjacent to the structure. Catch basins, drainage swales, or other drainage facilities should be aptly located. All surface water such as that coming from roof downspouts and catch basins be collected in tight drain lines and carried to a suitable discharge point, such as a storm drain system. Surface water and downspout water should not discharge into a perforated or slotted subdrain, nor should such water discharge onto the ground surface adjacent to the building. Cleanouts should be provided at convenient locations along all drain lines.

10.0 CONTINUING GEOTECHNICAL SERVICES

GNN recommends that the Client should maintain an adequate program of geotechnical consultation, construction monitoring, and soils testing during the final design and construction phases to monitor compliance with GNN's geotechnical recommendations. Maintaining GNN as the geotechnical consultant from beginning to end of the project will provide continuity of services. If GN Northern, Inc. is not retained by the owner/developer and/or the contractor to provide the recommended geotechnical inspections/observations and testing services, the geotechnical engineering firm or testing/inspection firm providing tests and observations shall assume the role and responsibilities of Geotechnical Engineer-of-Record.

GNN can provide construction monitoring and testing as additional services. The costs of these services are not included in our present fee arrangement, but can be obtained from our office. The recommended construction monitoring and testing includes, but is not necessarily limited to, the following:

- Consultation during the design stages of the project.
- Review of the grading and drainage plans to monitor compliance and proper implementation of the recommendations in GNN's Report.
- Observation and quality control testing during site preparation, grading, and placement of engineered fill as required by the local building ordinances.
- Geotechnical engineering consultation as needed during construction.

11.0 LIMITATIONS OF THE GEOTECHNICAL SITE INVESTIGATION REPORT

This GEOTECHNICAL SITE INVESTIGATION REPORT ("Report") was prepared for the exclusive use of the Client. GN Northern, Inc.'s (GNN) findings, conclusions and recommendations in this Report are based on selected points of field exploration, laboratory testing, and GNN's understanding of the proposed project at the time the Report is prepared. Furthermore, GNN's findings and recommendations are based on the assumption that soil, rock and/or groundwater conditions do not vary significantly from those found at specific exploratory locations. Variations in soil, bedrock and/or groundwater conditions could exist between and beyond the exploration points. The nature and extent of these variations may not become evident until during or after construction. Variations in soil, bedrock and groundwater may require additional studies, consultation, and revisions to GNN's recommendations in the Report.

In many cases the scope of geotechnical exploration and the test locations are selected by others without consultation from the geotechnical engineer/consultant. GNN assumes no responsibility and, by preparing this Report, does not impliedly or expressly validate the scope of exploration and the test locations selected by others.

This Report's findings are valid as of the issued date of this Report. However, changes in conditions of the subject property or adjoining properties can occur due to passage of time, natural processes, or works of man. In addition, applicable building standards/codes may change over time. Accordingly, findings, conclusions, and recommendations of this Report may be invalidated, wholly or partially, by changes outside of GNN's control. Provided that the site conditions are not disturbed or altered after the planned grading is completed, the report will be valid for a period of 3 to 5 years from the issued date of the Report.

In the event that any changes in the nature, design, or location of structures are planned, the findings, conclusions and recommendations contained in this Report shall not be considered valid unless the changes are reviewed by GNN and the findings, conclusions, and recommendations of this Report are modified or verified in writing.

This Report is issued with the understanding that the owner or the owner's representative has the responsibility to bring the findings, conclusions, and recommendations contained herein to the attention of the architect and design professional(s) for the project so that they are incorporated

into the plans and construction specifications, and any follow-up addendum for the project. The owner or the owner's representative also has the responsibility to verify that the general contractor and all subcontractors follow such recommendations during construction. It is further understood that the owner or the owner's representative is responsible for submittal of this Report to the appropriate governing agencies. The foregoing notwithstanding, no party other than the Client shall have any right to rely on this Report and GNN shall have no liability to any third party who claims injury due to reliance upon this Report, which is prepared exclusively for Client's use and reliance.

GNN has provided geotechnical services in accordance with generally accepted geotechnical engineering practices in this locality at this time. GNN expressly disclaims all warranties and guarantees, express or implied.

Client shall provide GNN an opportunity to review the final design and specifications so that earthwork, drainage and foundation recommendations may be properly interpreted and implemented in the design and specifications. If GNN is not accorded the review opportunity, GNN shall have no responsibility for misinterpretation of GNN's recommendations.

Although GNN can provide environmental assessment and investigation services for an additional cost, the current scope of GNN's services does not include an environmental assessment or an investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water, groundwater, or air on, below, or adjacent to the subject property.

APPENDICES

Appendix I

Vicinity Map (Figure 1)

Site Exploration Map (Figure 2)

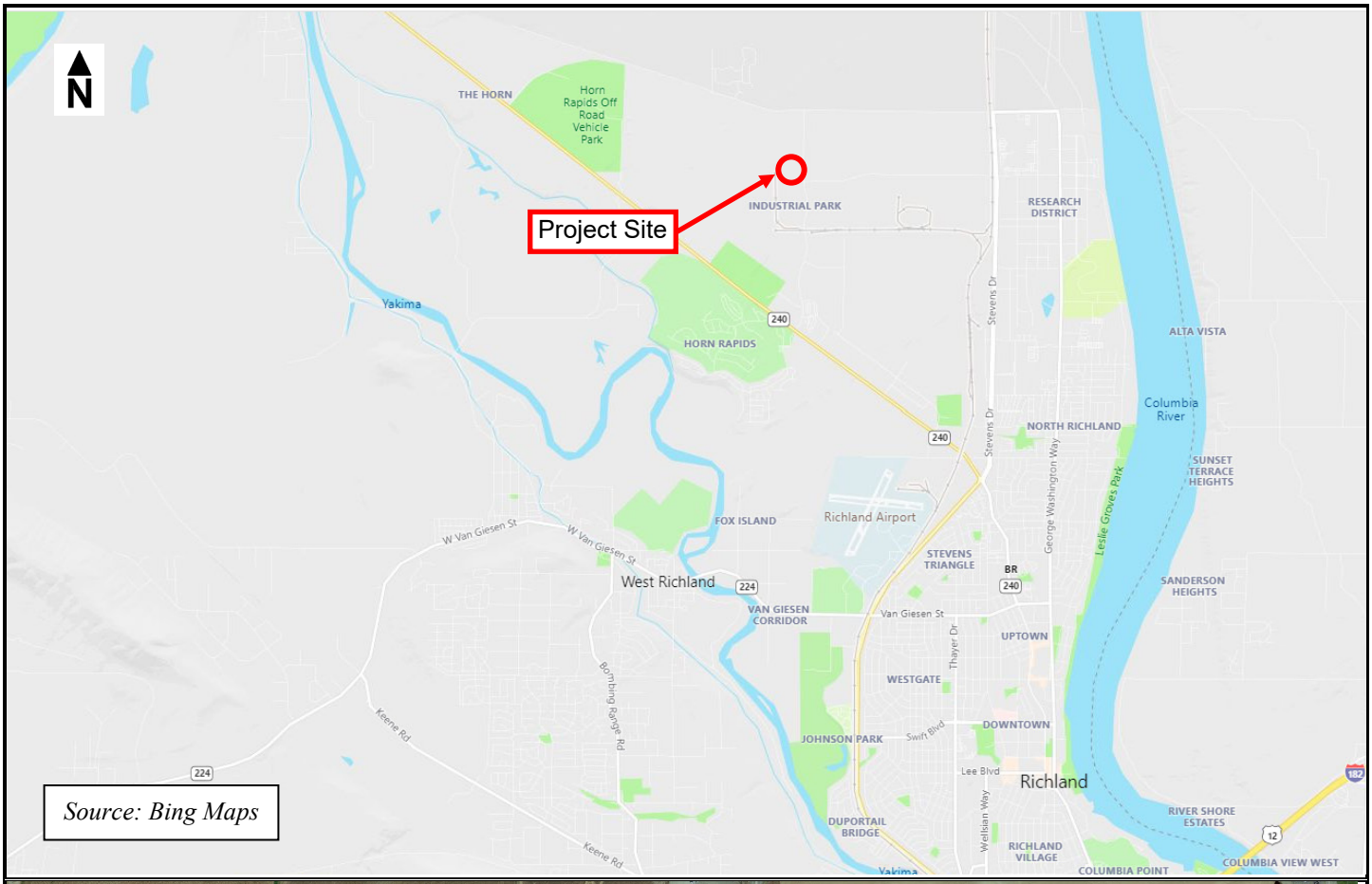

FIGURE 1: VICINITY MAP **PROJECT NO. 219-1190**

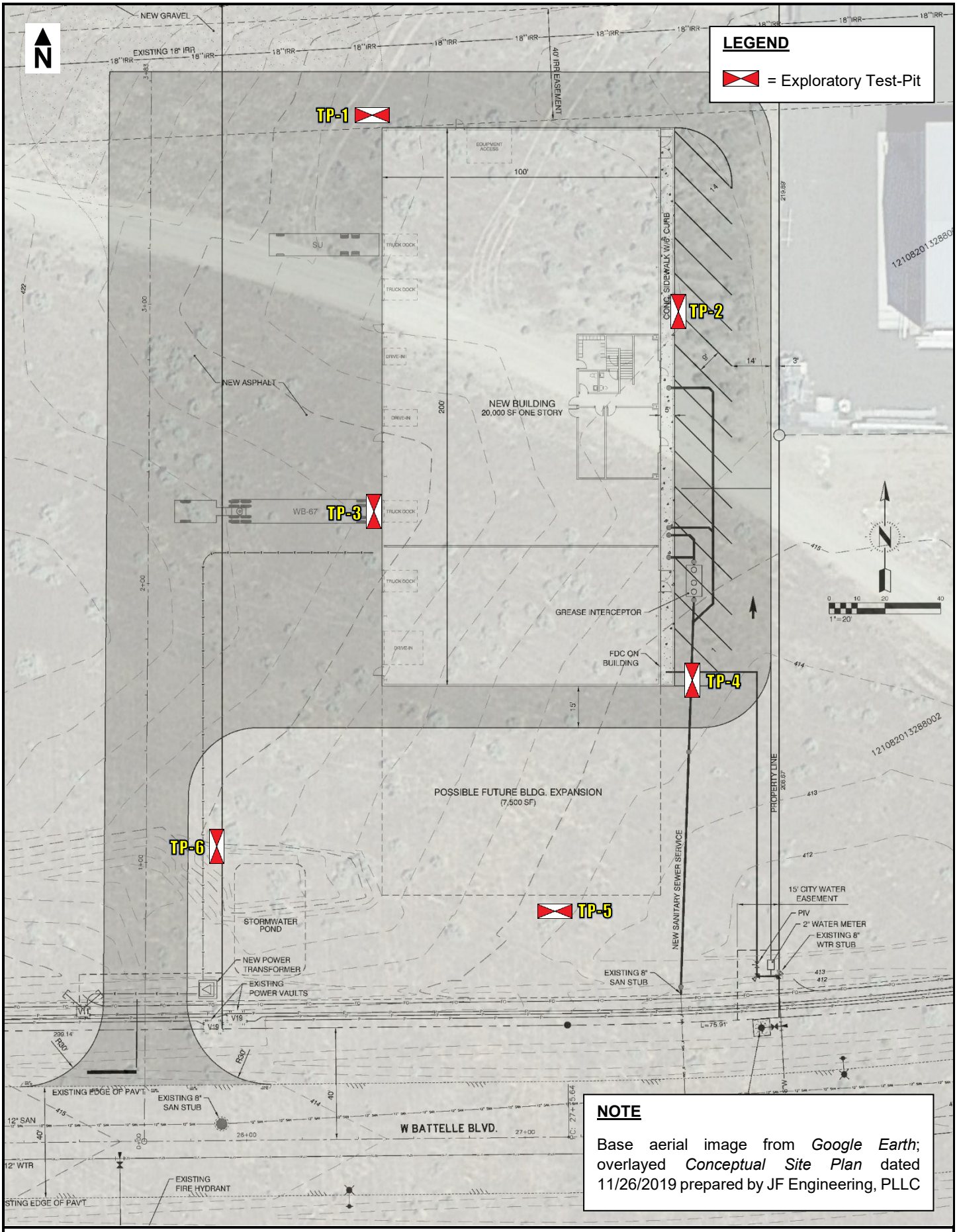

FIGURE 2: SITE EXPLORATION MAP **PROJECT NO. 219-1190**

Appendix II
Exploratory Test-Pit Logs
Key Chart (for Soil Classification)

GN Northern Inc.
11115 E. Montgomery, Suite C
Spokane Valley, WA, 99206
Telephone: (509) 248-9798
Fax: (509) 248-4220

TEST PIT NUMBER TP-1

CLIENT GF Blends
PROJECT NAME Proposed New 20,000 SF Building
PROJECT NUMBER 219-1190
PROJECT LOCATION Batelle Blvd., Richland, Washington
DATE STARTED 12/16/19 **COMPLETED** 12/16/19
GROUND ELEVATION _____ **TEST PIT SIZE** 32 x 72 inches
EXCAVATION CONTRACTOR Einar Frimodt & Sons
GROUND WATER LEVELS:
EXCAVATION METHOD John Deere 490 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY MYM **CHECKED BY** IM
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46°20'37.42"N, 119°19'3.24"W
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			SP-SM		FILL: POORLY GRADED SAND WITH SILT, (SP-SM) gray brown, fine to medium grained, moist, appears loose, some buried sage roots, trace trash
0.8			SP-SM		APPARENT FILL: POORLY GRADED SAND WITH SILT, (SP-SM) gray, fine to medium grained, dry, appears loose to medium dense, trace gravel
1.8	GB	MC = 2% Fines = 6%			SILTY SAND, (SM) brown, fine to medium grained, damp, appears loose to medium dense
2.5	GB	MC = 4% Fines = 13%			
5.0					- grades to SAND WITH SILT (SP-SM), gray-brown
7.5			SM		- grades to SAND (SP), gray
10.0					
12.5					
13.5					- No groundwater encountered at time of excavation Bottom of test pit at 13.5 feet.

GN Northern Inc.
11115 E. Montgomery, Suite C
Spokane Valley, WA, 99206
Telephone: (509) 248-9798
Fax: (509) 248-4220

TEST PIT NUMBER TP-2

CLIENT GF Blends
PROJECT NAME Proposed New 20,000 SF Building
PROJECT NUMBER 219-1190
PROJECT LOCATION Batelle Blvd., Richland, Washington
DATE STARTED 12/16/19 **COMPLETED** 12/16/19
GROUND ELEVATION _____ **TEST PIT SIZE** 32 x 72 inches
EXCAVATION CONTRACTOR Einar Frimodt & Sons
GROUND WATER LEVELS:
EXCAVATION METHOD John Deere 490 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY MYM **CHECKED BY** IM
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46°20'36.77"N. 119°19'1.69"W
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SP-SM		FILL: POORLY GRADED SAND WITH SILT, (SP-SM) gray brown, fine to medium grained, moist, appears loose, significant buried sage roots
0.6		SP-SM		APPARENT FILL: POORLY GRADED SAND WITH SILT, (SP-SM) gray, fine to medium grained, dry, appears loose to medium dense, trace gravel
1.3				SILTY SAND, (SM) brown, fine to medium grained, damp, appears loose to medium dense
2.5				
				- grades to SAND (SP), gray-brown
5.0		SM		
7.5				- becomes gray
10.0				- No groundwater encountered at time of excavation Bottom of test pit at 10.0 feet.

GN Northern Inc.
11115 E. Montgomery, Suite C
Spokane Valley, WA, 99206
Telephone: (509) 248-9798
Fax: (509) 248-4220

TEST PIT NUMBER TP-3

CLIENT GF Blends
PROJECT NAME Proposed New 20,000 SF Building
PROJECT NUMBER 219-1190
PROJECT LOCATION Batelle Blvd., Richland, Washington
DATE STARTED 12/16/19 **COMPLETED** 12/16/19
GROUND ELEVATION _____ **TEST PIT SIZE** 32 x 72 inches
EXCAVATION CONTRACTOR Einar Frimodt & Sons
GROUND WATER LEVELS:
EXCAVATION METHOD John Deere 490 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY MYM **CHECKED BY** IM
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46°20'36.05"N, 119°19'3.23"W
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			SM		SILTY SAND, (SM) brown, fine to medium grained, damp, appears loose to medium dense
2.5	GB	MC = 3% Fines = 3%			- grades to SAND (SP), gray-brown
5.0					- becomes gray
7.5					
10.0					
12.0					- No groundwater encountered at time of excavation Bottom of test pit at 12.0 feet.

GN Northern Inc.
11115 E. Montgomery, Suite C
Spokane Valley, WA, 99206
Telephone: (509) 248-9798
Fax: (509) 248-4220

TEST PIT NUMBER TP-4

CLIENT GF Blends
PROJECT NAME Proposed New 20,000 SF Building
PROJECT NUMBER 219-1190
PROJECT LOCATION Batelle Blvd., Richland, Washington
DATE STARTED 12/16/19 **COMPLETED** 12/16/19
GROUND ELEVATION _____ **TEST PIT SIZE** 32 x 72 inches
EXCAVATION CONTRACTOR Einar Frimodt & Sons
GROUND WATER LEVELS:
EXCAVATION METHOD John Deere 490 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY MYM **CHECKED BY** IM
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46°20'35.44"N, 119°19'1.63"W
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		SILTY SAND, (SM) brown, fine to medium grained, damp, appears loose to medium dense
2.5				- grades to SAND WITH SILT (SP-SM), gray-brown
5.0				- grades to SAND (SP), gray
7.5				
10.0			10.0	

- No groundwater encountered at time of excavation

Bottom of test pit at 10.0 feet.

GN Northern Inc.
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Spokane Valley, WA, 99206
Telephone: (509) 248-9798
Fax: (509) 248-4220

TEST PIT NUMBER TP-5

CLIENT GF Blends
PROJECT NAME Proposed New 20,000 SF Building
PROJECT NUMBER 219-1190
PROJECT LOCATION Batelle Blvd., Richland, Washington
DATE STARTED 12/16/19 **COMPLETED** 12/16/19
GROUND ELEVATION _____ **TEST PIT SIZE** 32 x 72 inches
EXCAVATION CONTRACTOR Einar Frimodt & Sons
GROUND WATER LEVELS:
EXCAVATION METHOD John Deere 490 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY MYM **CHECKED BY** IM
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46°20'34.65"N, 119°19'2.47"W
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					SILTY SAND, (SM) brown, fine to medium grained, damp, appears loose to medium dense
	GB	MC = 6% Fines = 11%	SM		- grades to SAND WITH SILT (SP-SM), gray-brown
2.5					
				4.0	
					POORLY GRADED SAND, (SP) gray, fine to medium grained, damp, appears loose to medium dense
5.0	GB	MC = 3% Fines = 1%			
7.5			SP		
10.0					
				11.0	
					- No groundwater encountered at time of excavation Bottom of test pit at 11.0 feet.

GN Northern Inc.
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Telephone: (509) 248-9798
Fax: (509) 248-4220

TEST PIT NUMBER TP-6

CLIENT GF Blends
PROJECT NAME Proposed New 20,000 SF Building
PROJECT NUMBER 219-1190
PROJECT LOCATION Batelle Blvd., Richland, Washington
DATE STARTED 12/16/19 **COMPLETED** 12/16/19
GROUND ELEVATION _____ **TEST PIT SIZE** 32 x 72 inches
EXCAVATION CONTRACTOR Einar Frimodt & Sons
GROUND WATER LEVELS:
EXCAVATION METHOD John Deere 490 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY MYM **CHECKED BY** IM
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 46°20'34.85"N, 119°19'4.00"W
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SP-SM		APPARENT FILL: POORLY GRADED SAND WITH SILT, (SP-SM) gray, fine to medium grained, damp, appears loose to medium dense
1.5				
		SM		SILTY SAND, (SM) brown, fine to medium grained, damp, appears loose to medium dense
2.5				
				- grades to SAND WITH SILT (SP-SM), gray-brown
4.5				- 2" to 3" layer of caliche with gravels
5.0		SP		POORLY GRADED SAND, (SP) gray, fine to medium grained, damp, appears loose to medium dense
7.5				
8.0				- No groundwater encountered at time of excavation Bottom of test pit at 8.0 feet.

Northern, Inc.
Kennewick, Yakima, Spokane, Hermiston (OR)

KEY CHART

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N-VALUE

COARSE-GRAINED SOILS			FINE-GRAINED SOILS		
DENSITY	N (BLOWS/FT)	FIELD TEST	CONSISTENCY	N (BLOWS/FT)	FIELD TEST
Very Loose	0 – 4	Easily penetrated with ½-inch reinforcing rod pushed by hand	Very Soft	0 – 2	Easily penetrated several inches by thumb
Loose	4 – 10	Difficult to penetrate with ½-inch reinforcing rod pushed by hand	Soft	2 – 4	Easily penetrated one inch by thumb
Medium -Dense	10 – 30	Easily penetrated with ½-inch rod driven with a 5-lb hammer	Medium-Stiff	4 – 8	Penetrated over ½-inch by thumb with moderate effort
Dense	30 – 50	Difficult to penetrate with ½-inch rod driven with a 5-lb hammer	Stiff	8 – 15	Indented about ½-inch by thumb but penetrated with great effort
Very Dense	> 50	penetrated only a few inches with ½-inch rod driven with a 5-lb hammer	Very Stiff	15 – 30	Readily indented by thumb
			Hard	> 30	Indented with difficulty by thumbnail

USCS SOIL CLASSIFICATION

MAJOR DIVISIONS				GROUP DESCRIPTION
Coarse-Grained Soils <50% passes #200 sieve	**Gravel** and **Gravelly Soils** <50% coarse fraction passes #4 sieve	**Gravel** (with little or no fines)	GW	Well-graded **Gravel**
			GP	Poorly Graded **Gravel**
		Gravel (with >12% fines)	GM	Silty **Gravel**
			GC	Clayey **Gravel**
	Sand and **Sandy Soils** >50% coarse fraction passes #4 sieve	**Sand** (with little or no fines)	SW	Well-graded **Sand**
			SP	Poorly graded **Sand**
		Sand (with >12% fines)	SM	Silty **Sand**
			SC	Clayey **Sand**
Fine-Grained Soils >50% passes #200 sieve	**Silt** and **Clay** Liquid Limit < 50		ML	**Silt**
			CL	Lean **Clay**
			OL	Organic **Silt** and C**lay** (low plasticity)
	Silt and **Clay** Liquid Limit > 50		MH	Inorganic **Silt**
			CH	Inorganic **Clay**
			OH	Organic **Clay** and **Silt** (med. to high plasticity)
Highly Organic Soils			PT	**Peat**
				Top Soil

LOG SYMBOLS

	2S	2" OD Split Spoon (SPT)
	3S	3" OD Split Spoon
	NS	Non-Standard Split Spoon
	ST	Shelby Tube
	CR	Core Run
	BG	Bag Sample
	TV	Torvane Reading
	PP	Penetrometer Reading
	NR	No Recovery
	GW	Groundwater Table

MODIFIERS

DESCRIPTION	RANGE
Trace	<5%
Little	5% – 12%
Some	>12%

MOISTURE CONTENT

DESCRIPTION	FIELD OBSERVATION
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but not visible water
Wet	Visible free water

SOIL CLASSIFICATION INCLUDES

1. Group Name
2. Group Symbol
3. Color
4. Moisture content
5. Density / consistency
6. Cementation
7. Particle size (if applicable)
8. Odor (if present)
9. Comments

MAJOR DIVISIONS WITH GRAIN SIZE

SIEVE SIZE						
12"	3"	3/4"	4	10	40	200
GRAIN SIZE (INCHES)						
12	3	0.75	0.19	0.079	0.0171	0.0029

Boulders	Cobbles	Gravel		Sand			Silt and Clay
		Coarse	Fine	Coarse	Medium	Fine	

Conditions shown on boring and testpit logs represent our observations at the time and location of the fieldwork, modifications based on lab test, analysis, and geological and engineering judgment. These conditions may not exist at other times and locations, even in close proximity thereof. This information was gathered as part of our investigation, and we are not responsible for any use or interpretation of the information by others.

Appendix III
Laboratory Testing Results

GN Northern Inc.
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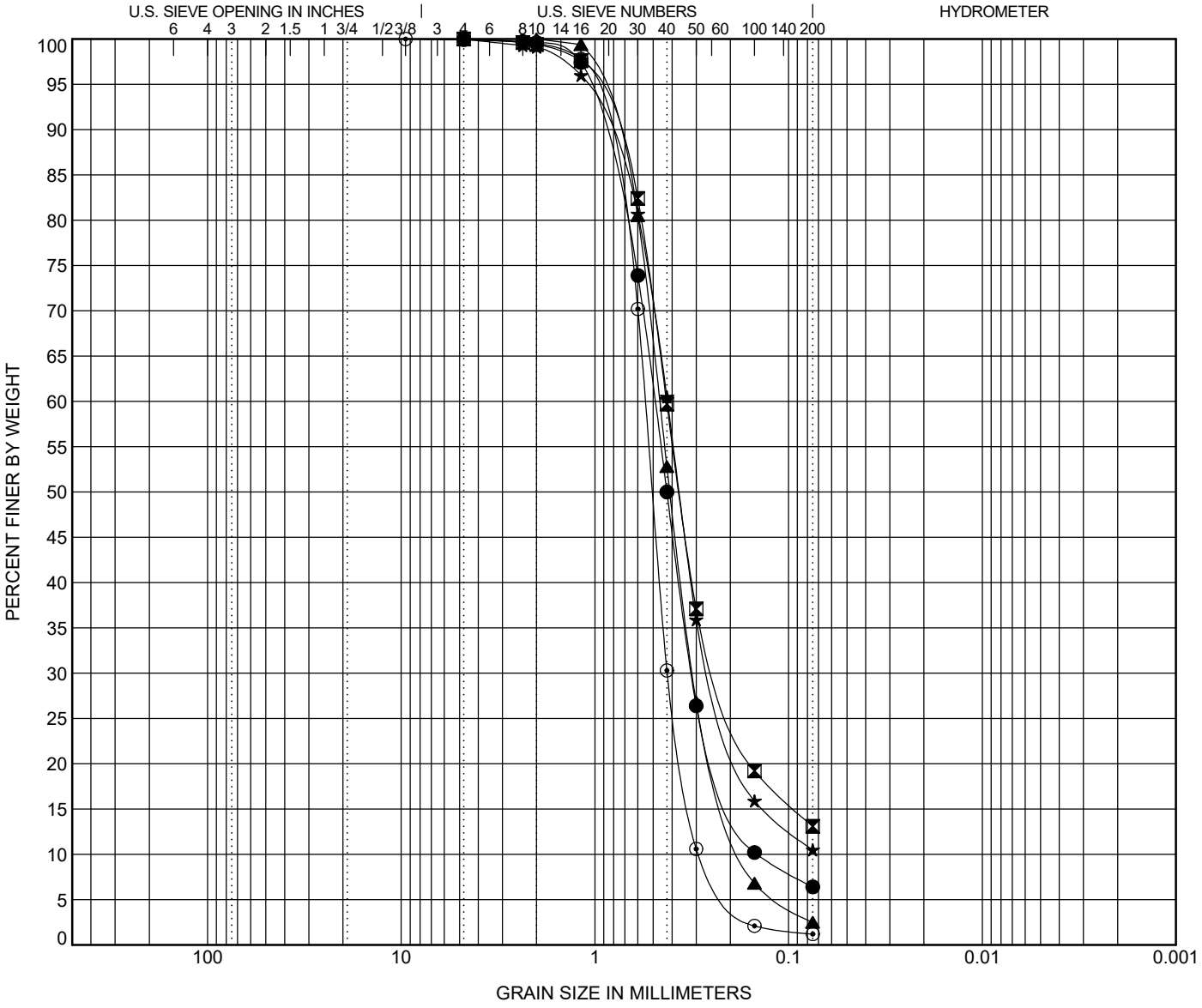
Telephone: (509) 248-9798
Fax: (509) 248-4220

GRAIN SIZE DISTRIBUTION

CLIENT GF Blends **PROJECT NAME** Proposed New 20,000 SF Building

PROJECT NUMBER 219-1190 **PROJECT LOCATION** Batelle Blvd., Richland, Washington



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	TP-1	1.3	POORLY GRADED SAND WITH SILT(SP-SM)				1.41	3.39
⊠	TP-1	2.0	SILTY SAND(SM)					
▲	TP-3	2.0	POORLY GRADED SAND(SP)				1.26	2.77
★	TP-5	1.5	POORLY GRADED SAND WITH SILT(SP-SM)				2.01	6.00
⊙	TP-5	4.5	POORLY GRADED SAND(SP)				1.14	1.92

	BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	TP-1	1.3	4.75	0.491	0.316	0.145	0.0	93.6	6.4	
⊠	TP-1	2.0	4.75	0.427	0.228		0.0	86.9	13.1	
▲	TP-3	2.0	2	0.465	0.313	0.168	0.0	97.5	2.5	
★	TP-5	1.5	4.75	0.422	0.245		0.0	89.5	10.5	
⊙	TP-5	4.5	9.5	0.549	0.423	0.286	0.1	98.7	1.2	

Appendix IV
Site & Exploration Photographs

View of site conditions across northern portion, looking west

View of site conditions across central portion, looking west

View of site conditions across eastern portion, looking north

View of site conditions across western portion, looking south

Exposed soil profile within test-pit TP-1

Exposed soil profile within test-pit TP-2

PLATE 1: SITE & EXPLORATION PHOTOGRAPHS **PROJECT NO. 219-1190**

Excavation at test-pit TP-3, view looking east

Exposed soil profile within test-pit TP-3

Exposed soil profile within test-pit TP-4

Exposed soil profile within test-pit TP-5

Excavation at test-pit TP-6, view looking east

Exposed soil profile within test-pit TP-6

PLATE 2: SITE & EXPLORATION PHOTOGRAPHS **PROJECT NO. 219-1190**

Appendix V
NRCS Soil Survey

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

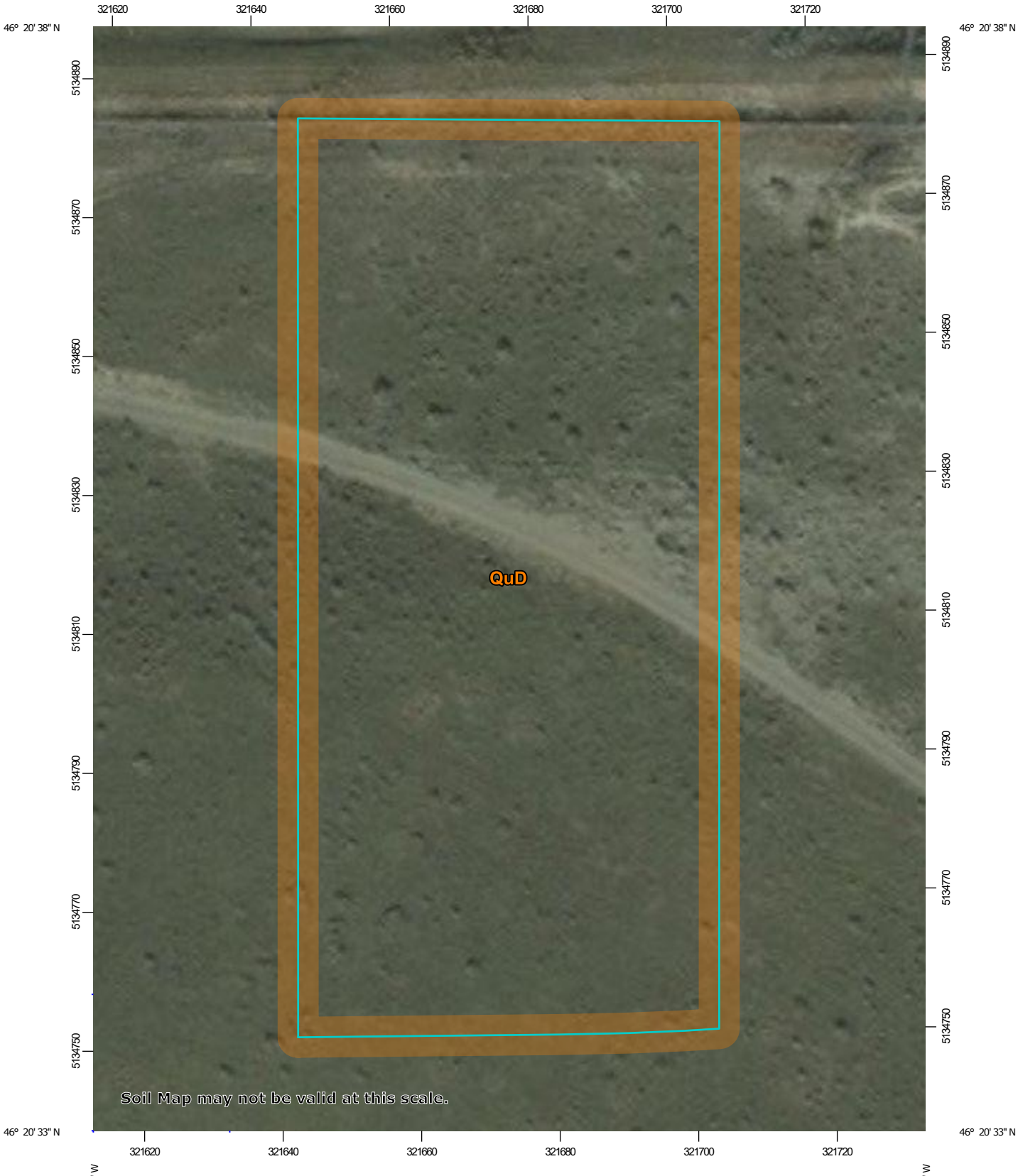
A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Benton County Area, Washington

GF Blends

December 24, 2019

Custom Soil Resource Report
Soil Map



Map Scale: 1:774 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 35 70 140 210

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

Benton County Area, Washington

QuD—Quincy loamy sand, 2 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2bd4
Elevation: 200 to 4,500 feet
Mean annual precipitation: 6 to 12 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 100 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Quincy and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Quincy

Setting

Landform: Terraces
Parent material: Eolian sands

Typical profile

H1 - 0 to 9 inches: loamy sand
H2 - 9 to 60 inches: loamy fine sand

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 3 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Hydric soil rating: No

Appendix VI
Washington Department of Ecology Well Logs

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. SE68719

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *(select one)*

☑ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm GPI

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☑ Driller ☐ Engineer ☐ Trainee Name (Print) Mike Corn

Driller/Engineer /Trainee Signature _____

Driller or Trainee License No. 2833

If trainee, licensed driller's Signature and License No. 2833

Type of Well *(select one)*

☐ Resource Protection

☑ Geotech Soil Boring

Property Owner Packaging Corporation of America

Site Address 3003 Kingsgate Way

City Richland County Benton

Location NE 1/4-1/4 NW 1/4 Sec 21 Twn 10N R 28 Select One ☒ EWM ☐ WWM

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 8.5 Static Level 38.3'

Work/Decommission Start Date 1/16/2019

Work/Decommission Completed Date 1/16/2019

Construction/Design	Well Data	Formation Description
HSA to a depth of 100' BGS.	B-5	0-28.5' Sand, tan/black. 28.5-29 Gravel/cobble. 29-39 Sand, fine, black. 39-86 Sand and gravels. 86-100 Tan silt, w/clay and gravel layers.

RECEIVED
JAN 25 2019
Dept of Ecology
Central Regional Office

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. 526877

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission (select one)

☒ Construction 306568

☐ Decommission ORIGINAL INSTALLATION Notice of Intent Number _____

Consulting Firm Shannon + Wilson

Unique Ecology Well ID Tag No. B-3

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Randall E Wilder

Driller/Engineer /Trainee Signature [signature]

Driller or Trainee License No. 2528

If trainee, licensed driller's Signature and License No. _____

Type of Well (select one)

☐ Resource Protection

☒ Geotech Soil Boring

Property Owner ATI Allvac

Site Address 3101 Kingsgate Way

City Richland County Benton

Location SE 1/4-1/4 SW1/4 Sec 16 Twn 10N R 28 Select One ☒ EWM ☐ WWM

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. 116083000001003

Cased or Uncased Diameter _____ Static Level 54'

Work/Decommission Start Date 5-5-08

Work/Decommission Completed Date 5-5-08

Construction/Design	Well Data	Formation Description
Abandoned with Bentonite		sand
6" Borehole		
50		50
		sand + Gravel
75		75

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JUN 10 2008

DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. 526877

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *(select one)*

☒ Construction 306569

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm Shannon + Wilson

Unique Ecology Well ID Tag No. B-4

Type of Well *(select one)*

☐ Resource Protection

☑ Geotech Soil Boring

Property Owner ATI Allvac

Site Address 3101 Kingsgate Way

City Richland County Benton

Location SE 1/4-1/4 SW 1/4 Sec 16 Twn 10N R 28 Select One ☒ EWM ☐ WWM

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. 116083000001003

Cased or Uncased Diameter _____ Static Level 55

Work/Decommission ~~Start Date~~ 5-6-08

Work/Decommission ~~Completed Date~~ 5-6-08

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Randall E Wilder

Driller/Engineer/Trainee Signature _____

Driller or Trainee License No. 2528

If trainee, licensed driller's Signature and License No. _____

Construction/Design	Well Data	Formation Description
Abandoned With Bentonite		sand
6" Borehole		sand + Gravel

50

75

50

75

RECEIVED
JUN 10 2008
DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE