CODE DESIGN REQUIREMENTS: BUILDING CODE: 2015 INTERNATIONAL BUILDING CODE (IBC) DESIGN LIVE LOADS: 20 PSF FLOORS ON GRADE 150 PSF DEAD LOADS:

ROOF 20 PSF RTUs (SEE PLANS) DESIGN WIND LOAD: 139 MPH DESIGN [ULTIMATE] (3 SECOND GUST) EXPOSURE "C" RISK CATEGORY II ENCLOSED STRUCTURE

NET UPLIFT: ZONE 1: 20 PSF ZONE 2: 25 PSF

COMPONENTS AND CLADDING WIND PRESSURES: VERTICAL DESIGN PRESSURES FOR ROOF ELEMENTS (SEE WIND PRESSURE PLAN): AREA: ZONE 1 ZONE 2 ZONE 3 -47.7 PSF 10 SF: -80.0 PSF -120.2 PSF 100 SF: -43.6 PSF -51.6 PSF -51.6 PSF HORIZONTAL DESIGN PRESSURES FOR WALL ELEMENTS: AREA: ZONE 4 ZONE 5 10 SF -49.3 PSF -56.8 PSF 100 SF: -42.6 PSF -47.4 PSF

NOTES 1. LINEAR INTERPOLATION IS ALLOWED BETWEEN THE AREAS LISTED ABOVE. SEE SECTION ABOVE FOR WIND SPEED, EXPOSURE FACTOR AND IMPORTANCE FACTOR.

2. THESE WIND PRESSURES SHALL BE USED FOR THE DESIGN OF EXTERIOR COMPONENT AND CLADDING MATERIALS NOT SPECIFICALLY DESIGNED AND

3. ZONE 5 IS DEFINED AS ANY WALL WITHIN 12'-0" OF ANY CORNER OF THE BUILDING. ALL OTHER LOCATIONS ARE DEFINED AS ZONE 4.

SNOW LOADING: GROUND SNOW LOAD, Pg = 5 PSF RAIN-ON-SNOW SURCHARGE LOAD = 5 PSF SNOW IMPORTANCE FACTOR = 1.0 EXPOSURE FACTOR, Ce = THERMAL FACTOR, Ct = 10 SPECIAL LOADS: 50 PLF HANDRAILS

HANDRAIL MOUNTINGS 200 LBS FIRE SPRINKLERS 250 LBS

GENERAL REQUIREMENTS:

DETAILED.

1. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF SHORING. SHEETING. TEMPORARY BRACING. GUYS OR TIE-DOWNS WHICH MIGHT BE NECESSARY. SUCH MATERIAL SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE PROJECT. REPRODUCTIONS OF CONTRACT DRAWINGS BY CONTRACTOR IN LIEU OF PREPARATION OF SHOP DRAWING SIGNIFIES ACCEPTANCE OF INFORMATION SHOWN AS CORRECT AND OBLIGATES HIMSELF TO ANY EXPENSE, REAL OR IMPLIED, ARISING FROM THEIR USE.

2. REFER TO ARCHITECTURAL DRAWINGS FOR FLOOR ELEVATIONS, SLOPES AND LOCATION OF DEPRESSED FLOOR AREAS, COMPARE THE STRUCTURAL SECTIONS WITH THE ARCHITECTURAL PLANS AND SECTIONS AND REPORT ANY DISCREPANCY TO THE ARCHITECT PRIOR TO FABRICATION OR INSTALLATION OF STRUCTURAL WORK.

3. PRINCIPAL OPENINGS THROUGH THE FRAME ARE SHOWN ON DRAWINGS. HOWEVER, EXAMINE ALL OTHER DRAWINGS SO AS TO PROVIDE EVERY OPENING REQUIRED NO MATTER WHERE IT IS SHOWN. VERIFY THE SIZE AND LOCATION REQUIREMENTS FOR ALL OPENINGS. UNLESS NOTED OTHERWISE, FRAME OPENINGS WITH L4 x 4 x 1/4 ANGLES. PIPE SLEEVES THROUGH ROOF DECK WILL NOT REQUIRE FRAMING UNLESS THE OPENING EXCEEDS 10" DIAMETER, FOR OPENINGS OVER 10", PROVIDE L2 1/2 x 2 1/2 x 1/4 FRAME. 4. REPORT OPENINGS NOT STRUCTURALLY DETAILED THAT INTERFERE WITH FRAMING.

5. SEE `A' SERIES DRAWINGS FOR LOCATION AND CONSTRUCTION OF WALKS AND PAVING.

6. CHANGES TO THE STRUCTURAL DRAWINGS DUE TO THE ACCEPTANCE OF ALTERNATES AND/OR SUBSTITUTES IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

7. THE STEEL ERECTOR SHALL DETERMINE, FURNISH AND INSTALL ALL REQUIRED TEMPORARY BRACING AS REQUIRED TO SECURE THE STRUCTURAL STEEL FRAMING DURING CONSTRUCTION AND UNTIL ALL PORTIONS OF THE LATERAL-LOAD-RESISTING SYSTEM(S) AND THE ROOF DIAPHRAGM ELEMENTS HAVE BEEN INSTALLED AND PROPERLY TIED TOGETHER. ALL COSTS ASSOCIATED WITH THE DESIGN AND INSTALLATION OF TEMPORARY BRACING MUST BE INCLUDED IN THE CONTRACTOR'S PRICE.

8. UNIT LOCATIONS, SIZES AND DESIGNATIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY. REFER TO THE MEP DRAWINGS FOR ALL UNIT SPECIFICATIONS. NOTIFY ARCHITECT AND ENGINEER PRIOR TO SETTING OF ANY UNIT THAT DIFFERS OR DEVIATES FROM THE INFORMATION SHOWN ON THE STRUCTURAL DRAWINGS, INCLUDING LOCATION, WEIGHT, OR QUANTITY. UNITS INSTALLED WITHOUT THE ENGINEER'S APPROVAL MAY REQUIRE RELOCATION OR STRENGTHENING OF THE STRUCTURE.

9. SUSPEND NO MECHANICAL, ELECTRICAL, PLUMBING OR OTHER EQUIPMENT FROM JOIST BRIDGING, BRACING, CEILING SUPPORT OR METAL DECK.

10. DO NOT INSTALL MECHANICAL CURBS OR OTHER SUPPORTS DIRECTLY ON METAL DECK UNLESS APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.

11. STRUCTURAL DRAWINGS SHALL NOT BE REPRODUCED OR REVISED IN ANY MANNER AS STRUCTURAL SHOP DRAWINGS WITHOUT PRIOR APPROVAL AND WRITTEN PERMISSION FROM THE ARCHITECT AND STRUCTURAL ENGINEER. CONTRACTOR / FABRICATOR SHALL TAKE FULL RESPONSIBILITY FOR THE ACCURACY OF ALL DIMENSIONS SHOWN. DRAWINGS SHALL NOT BE SCALED.

12. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW ON THE FOLLOWING ITEMS: CONCRETE MIX DESIGNS

- CONCRETE ACCESSORIES REINFORCING STEEL IN CONCRETE ELEMENTS STRUCTURAL STEEL (COLUMNS, BEAMS, JOISTS AND JOIST GIRDERS)
- MISCELLANEOUS STEEL EMBEDDED ITEMS IN CONCRETE
- ROOF METAL DECK LAYOUT AND ATTACHMENT TILT WALL PANEL LIFTING BOOKS (LIFTING INSERTS AND LIFTING REINFORCING)

13. THE OMISSION FROM THE SHOP DRAWINGS OF ANY ITEMS REQUIRED BY THE CONTRACT DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR THE RESPONSIBILITY OF FURNISHING AND INSTALLING SUCH ITEMS, REGARDLESS OF WHETHER THE SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED.

14. ALL SHOP DRAWINGS MUST BE REVIEWED AND STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL.

CONCRETE:

1. CONCRETE SHALL BE NORMAL WEIGHT (UNLESS NOTED OTHERWISE) AND SHALL CONFORM TO LATEST EDITION OF ACI 318, CHAPTER 5 REQUIREMENTS. CONCRETE WORK SHALL CONFORM TO ACI 301.

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2. MIN	IMUM COMPRESSION L	JLTIMAT	E STRENGTH	AT 28 DAYS:	3
7	FOOTINGS	-	3,000 PSI,	1 1/2" AGGREGATE	$\boldsymbol{\zeta}$
2	PILE CAPS & PIERS	-	3,500 PSI,	1 1/2" AGGREGATE	$\langle \land \rangle$
7	SLAB ON GRADE	-	3,500 PSI,	1" AGGREGATE	<u>\A</u>
>	GRADE BEAMS	-	3,000 PSI,	1" AGGREGATE	z
5	ELEVATED FLOORS	-	4,000 PSI,	1" AGGREGATE	$\left\{ \right.$
7	ALL OTHER	-	3,500 PSI,	1" AGGREGATE)
U		\mathcal{N}		mm	مر
3. MAX	(IMUM WATER TO CEM	ENT RA	TIO (W/C) 0.45	FOR SLAB ON GRADE, AL	L OTHER 0.50.

4. FLY ASH IS NOT ALLOWED TO BE USED IN THE CONCRETE MIX DESIGNS.

5. VERTICAL JOINTS ARE IN MIDDLE THIRD OF SPAN USING BULKHEADS

6. HORIZONTAL CONSTRUCTION JOINTS ARE NOT PERMITTED FOR HORIZONTAL CONCRETE MEMBERS. 7. NON-SHRINK GROUT - PRE-MIXED, NON-METALLIC. PLACE COLUMN BASE PLATES ON 1"

GROUT UNLESS NOTED ON SECTIONS OR PLANS. PRE-GROUTING OF BASE PLATES IS PROHIBITED. 8. EPOXY - HY 200 OR EQUAL.

REINFORCING STEEL:

. CONFORM TO ACI 318 AND 315, PARTS B	AND C, LATEST EDITION.
DEFORMED BARS	ASTM A615, GRADE 60
SMOOTH DOWELS AND TIES	ASTM A185
WELDED WIRE FABRIC	ASTM A185 OR A82, (FLAT SHEETS)
HEADED STUD ANCHORS	ASTM A108, 3/4" DIA X 4", 60 KSI
EXPANSION ANCHORS	A510 BY HILTI OR SIMPSON
ADHESIVE ANCHORS	ASTM A307 BY HILTI OR SIMPSON
DEFORMED BAR ANCHORS	ASTM A496, GRADE 70
ISTALL SUPPORTS WITH SAND PLATES TO) SUPPORT REINFORCING IN THE LOCATION
IDICATED ON DRAWINGS FOR SLAB-ON-G	RADE.

2. MINIMUM LAPS FOR UNSCHEDULED BARS	IN CONCRETE SHALL BE:
VERTICAL BARS -	38 BAR DIAMETERS
SLAB-ON-GRADE BARS -	38 BAR DIAMETERS
BOTTOM BEAM HORIZONTAL BARS -	38 BAR DIAMETERS
TOP BEAM HORIZONTAL BARS -	50 BAR DIAMETERS
LOCATION OF ALL LAPS MUST BE REVIEWED	AND APPROVED BY THE ENGINEER OF

RECORD.

3. CONCRETE PROTECTION (COVER): FOOTINGS 3" SIDE

1 1/2" TOP, 3" BOTTOM, 2" SIDES (3" IF EARTH-FORMED) GRADE BEAMS SLAB-ON-GRADE (SEE PLAN)

4. UNLESS NOTED OTHERWISE, TOP BARS IN HORIZONTAL BEAMS SHALL BE SPLICED AT MIDSPAN AND BOTTOM BARS SHALL BE SPLICED AT SUPPORTS. USE CLASS 'A' TENSION LAP SPLICES.

5. INSTALL 1- #5 x 4'-0" (90 DEGREE BEND WITH 2'-0" LEGS) TOP AND BOT IN EXTERIOR FACE OF GRADE BEAMS AT CORNERS AND 2- #5s AT 90 DEGREE INTERSECTIONS. 6. INSTALL 90 DEGREE BENDS WITH DEVELOPMENT LENGTH RETURNS FOR CONTINUOUS HORIZONTAL BARS AT CORNERS OF STRIP FOOTINGS AND WALLS. CORNER BARS ARE EQUIVALENT IN SIZE AND SPACING AS HORIZONTAL REINFORCEMENT.

FOUNDATION AND EARTHWORK:

1. REFER TO PROJECT SPECIFICATIONS AND GEOTECHNICAL REPORT FOR THE PREPARATION OF BUILDING AND SIDEWALK SUBGRADE.

2. SEE SOILS REPORT NO. H220949 PREPARED BY ALPHA TESTING, INC. DATED JUNE 13, 2022.

3. FOOTINGS HAVE BEEN DESIGNED FOR THE FOLLOWING ALLOWABLE BEARING PRESSURES:

BUILDING (SPREAD FOOTINGS) : GARAGE (AUGER CAST PILES) : DESIGN DEPTH 48'-0" BELOW EXIST GRADE 2,000 PSF TOTAL LOAD (SEE REPORT)

4. PER SOIL REPORT RECOMMENDATIONS OVER-EXCAVATE EXISTING SOILS AS REQUIRED TO PROVIDE A MINIMUM OF 12" OF SELECT STRUCTURAL FILL UNDER SLABS ON GRADE AND 5 FEET BEYOND ALL SIDEWALK LINES. COMPACT ALL FILLS TO ASTM 1557 DENSITY

5. FOOTING DEPTHS SHOWN ARE MINIMUM AND MUST CONFORM TO SOIL REPORT REQUIREMENTS. WHEN UNSUITABLE SOILS ARE ENCOUNTERED AT SPECIFIED BEARING STRATA, NOTIFY OWNER'S REPRESENTATIVE.

6. PROVIDE NEAT EXCAVATION FOR FOOTINGS. POUR AS SOON AS POSSIBLE AFTER EXCAVATION, CLEAN-OUT, INSPECTION AND INSTALLATION OF STEEL/DOWELS/ANCHOR BOLTS. NOTIFY GEOTECHNICAL ENGINEER AT LEAST 24 HOURS PRIOR TO DIGGING OF FOOTINGS TO SCHEDULE SITE VISITS. PROPER SOIL BEARING SHALL BE VERIFIED BY THE GEOTECHNICAL ENGINEER OR TESTING LAB PRIOR TO POURING FOOTINGS.

7. BACKFILL UTILITY TRENCHES WITH SELECT FILL.

8. SLAB-ON-GRADE DESIGN IS BASED ON A PVR OF ONE INCH MAXIMUM.

9. INSTALL SLAB ON GRADE OVER 10 MIL VAPOR BARRIER

TABLE B AUGER CAST PILES - RECOMMEND DESIGN PARAMETERS						
Soil Depth Below		Effective Soil	Allowable Ski	Allowable Unit		
Туре	Type Existing Grade, Unit Weight, Constraints ft pcf		Compression	Tension	End Bearing, psf	
CLAY (CH/CL)	0 - 4	125	NEGLECT	NEGLECT	NEGLECT	
CLAY (CH/CL)	4 - 28	125	500	400	NEGLECT	
CLAY (CH/CL)	28 - 33	63	300	250	NEGLECT	
CLAY (CH/CL)	33 - 43	63	550	450	9,000	
CLAY (CH/CL)	43 - 48	63	700	600	9,000	
CLAY (CH/CL)	48 - 53	63	700	600	7,200	
CLAY (CH/CL)	53 - 58	63	450	375	7,200	
SILTY SAND (SM)	58 - 72	58	1,100	900	9,000	
SILTY SAND (SM) / CLAYEY SAND (SC)	72 - 78	58	1,100	900	* NEGLECT (SEE NOTE BELOW)	
CLAY (CH/CL)	78 - 80	63	450	375	* NEGLECT (SEE NOTE BELOW)	

* NOTE: THE TEST BORINGS FOR THIS PROJECT EXTENDED TO A DEPTH OF 80 FT BELOW THE EXISTING GROUND SURFACE. PILES UTLIIZING END BEARING TO DERIVE PART OF THEIR CAPACITY SHOULD NOT BE DRILLED DEEPER THAN 72 FT BELOW EXISTING GROUND SURFACE. PILES DRILLED TO DEPTHS OF 72 TO 80 FT SHOULD CONSIDER SKIN FRICTION RESISTANCE ONLY. DEEPER TEST BORINGS WILL BE REQUIRED IF IT IS DESIRED TO UTLIZE END BEARING BELOW A DEPTH OF 72 FT OR IF PILES EXTEND BELOW A DEPTH OF 80 FT FROM EXISTING GRADES.

STEEL:

1. CONFORM TO AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", FOURTEENTH EDITION AND AISC "CODE OF STANDARD PRACTICE."

2. STEEL TYPES: ASTM A36 FOR PLATES, CHANNELS, AND OTHER STEEL NOT LISTED BELOW ASTM A572 (GRADE 50) OR A992 FOR ALL WIDE FLANGE BEAMS AND COLUMNS ASTM A500B FOR ROUND HSS SECTIONS ASTM A500B FOR TUBE SECTIONS

3. ANCHOR RODS SHALL CONFORM TO ASTM A36 OR F1554 (GRADE 36) FOR ALL STRAIGHT RODS THAT ARE THREADED AND NUTTED, UNLESS A HIGHER GRADE OF STEEL IS NOTED ON THE DRAWINGS. ALL ANCHOR RODS SHALL BE SET USING RIGID TEMPLATES. IF ANY ANCHOR ROD IS LOCATED INCORRECTLY OR IS INSTALLED WITH INSUFFICIENT PROJECTION, THEN NOTIFY THE ENGINEER FOR THE REQUIRED CORRECTIVE ACTION. DO NOT HEAT OR COLD-BEND ANY ANCHOR RODS OR SLOT ANY BASE PLATES WITHOUT THE APPROVAL OF THE ENGINEER.

4. ANCHOR RODS SHALL BE TIGHTENED TO A SNUG TIGHT CONDITION (THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH). ANCHOR RODS SHALL BE TIGHTENED AFTER THE NON-SHRINK GROUT IS INSTALLED AND HAS REACHED 75 PERCENT OF ITS REQUIRED STRENGTH.

5. PROVIDE FRAMED BEAM CONNECTIONS IN ACCORDANCE WITH PART 9, AISC MANUAL -3/4" DIA. ASTM A325 BOLTS. UNLESS LARGER REACTIONS ARE SHOWN ON THE DRAWINGS. DESIGN FOR SHEARS BASED ON "ALLOWABLE LOADS ON BEAMS" TABLE FROM AICS MANUAL PART 3. SPLICING PROHIBITED WITHOUT PRIOR APPROVAL AS TO LOCATION AND

6. FIELD CONNECTIONS SHALL BE EQUIVALENT TO STANDARD BOLTED CONNECTIONS USING 3/4" ASTM A325 (MINIMUM) BOLTS UNLESS OTHERWISE SHOWN. CONNECTIONS SHALL BE BOLTED OR WELDED.

7. BURNING OF HOLES IN STEEL MEMBERS IS PROHIBITED. ANY MEMBER WITH BURNED HOLES MUST BE REPLACED. PUNCH STRUCTURAL STEEL FOR WOOD BLOCKING AND NAILERS PER 'A' SERIES DRAWINGS 8. HOT DIP GALVANIZE AFTER FABRICATION ALL EXPOSED STRUCTURAL STEEL ITEMS AND

CONNECTIONS. REFER TO THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR OTHER ITEMS TO BE GALVANIZED. ADDITIONAL ITEMS TO GALVANIZE INCLUDE, BUT ARE NOT LIMITED TO: -SHELF ANGLES -EXPOSED PARAPET OR CANOPY FRAMING MEMBERS -BUILDING CLADDING SUPPORT STEEL THAT IS EXPOSED.

EQUAL. 9. STRUCTURAL STEEL SURFACE PREPARATION AND PAINTING SHALL CONFORM TO THE "STEEL STRUCTURES PAINTING MANUAL", VOLUMES 1 AND 2, AS PUBLISHED BY THE STEEL STRUCTURES PAINTING COUNCIL (SSPC).

GALVANIZING COMPOUND AS MANUFACTURED BY Z.R.C. PRODUCTS COMPANY, OR

FIELD WELDED CONNECTIONS SHALL HAVE WELDS COATED WITH Z.R.C. COLD

10. THE FOLLOWING STEEL SHALL BE SHOP PAINTED AFTER FABRICATION: -ALL STEEL NOT REQUIRED TO BE GALVANIZED -ALL STEEL JOISTS AND JOIST GIRDERS

11. ITEMS WHICH ARE TO BE EMBEDDED IN CONCRETE SHALL NOT BE SHOP PAINTED. 12. DO NOT PAINT THE SURFACES OF MEMBERS WHERE FIELD WELDING WILL OCCUR. 13. FOR ARCHITECTURALLY EXPOSED STEEL. GRIND SMOOTH ALL EXPOSED WELDS. PROVIDE 1/4" CAPS AT ALL EXPOSED TUBE ENDS. TOLERANCES ARE ONE HALF OF STANDARD MILL PRACTICE. ALL EXPOSED WELDS SHALL BE CONTINUOUS.

WELDING:

1. CONFORM TO "CODE FOR WELDING IN BUILDING CONSTRUCTION" BY THE AMERICAN WELDING SOCIETY, LATEST EDITION

2. WELDS NOT INDICATED ON DRAWINGS ARE TO BE FILLET ALL AROUND AS PRESCRIBED BY AISC SPECIFICATION. PROVIDE WELDING OF CONTINUOUS MEMBERS WITH A MINIMUM OF 2 INCHES OF 3/16 INCH FILLET STITCH WELDS AT 12 INCHES OC, STAGGERED EACH SIDE, UNLESS OTHERWISE NOTED.

3. FIELD PAINT ALL WELDS W/ "GALVILITE" BY Z.R.C. OR APPROVED EQUAL. ARC WELDING ELECTRODES METAL DECK -

ALL OTHER -

STRUCTURAL STUDS -E6022 OR E6011, 3/32" RODS E70XX LOW HYDROGEN, 250 DEGREE MIN. OVEN TEMP.

4. ALL FILLETS ARE 1/16" LESS THAN MINIMUM THICKNESS TO BE WELDED 5. SPLICING PROHIBITED WITHOUT PRIOR APPROVAL AS TO LOCATION AND TYPE 6. PROVIDE ULTRASONIC INSPECTION BY THE TESTING LABORATORY FOR ALL WELDS INDICATED AS PENETRATION WELDS.

2. HOLLOW CONCRETE MASONRY UNITS: CONFORM TO ASTM C90, LIGHT WEIGHT TYPE N1, WITH A MINIMUM COMPRESSIVE STRENGTH OF 1900 PSI ON THE NET AREA OF THE BLOCK. MORTAR FOR CMU: CONFORM TO ASTM C270, TYPE S WITH A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI. MORTAR FOR CMU AT BELOW GRADE WALL SHALL CONFORM TO ASTM C270, TYPE M.

3. COARSE GROUT: CONFORM TO ASTM C476 WITH A MAXIMUM AGGREGATE SIZE OF 3/8", AND A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI @ 28 DAYS. 4. ALL CELLS CONTAINING VERTICAL REINFORCING STEEL, LINTEL BEAMS AND BOND BEAMS: FILLED SOLID WITH FINE OR COARSE GROUT AS DESCRIBED ABOVE.

5. THE FIRST TWO CELLS AT WALL OPENINGS AND WALL ENDS: REINFORCE WITH 2- #5 VERTICAL EACH CELL. REINFORCING TO EXTEND FROM FOUNDATION TOP OF WALL. REINFORCING STEEL: LAPPED 48 BAR DIAMETERS MINIMUM WHERE SPLICED AND SHALL

BE WIRED TOGETHER. 6. VERTICAL BARS: HELD IN POSITION AT TOP AND BOTTOM AND AT INTERVALS NOT EXCEEDING 8"-0" WITH A MINIMUM CLEARANCE OF 1/4 INCH FROM THE MASONRY, AND NOT

LESS THAN ONE BAR DIAMETER BETWEEN BARS. VERTICAL WALL REINFORCING - #5 AT 24" OC. DOWEL TO SUPPORT WITH 1- #5 AT 24" OC W/ 3'-0" LAP TO VERT REINF.

7. VERTICAL REINFORCING BARS MAY BE SPLICED IN 6' TO 10' LENGTHS, PROVIDED THE SPLICES IN ADJACENT BARS ARE STAGGERED AND ARRANGED SO THAT NOT MORE THAN

1/2 OF THE TOTAL NUMBER OF BARS ARE SPLICED AT ANY LOCATION AND NOT MORE THAN

1/2" OF THE TOTAL NUMBER OF BARS ARE SPLICED AT MID-HEIGHT OF THE WALL. ALL BARS SHALL BE TIED AT SPLICES.

8. WHEN A FOUNDATION DOWEL DOES NOT LINE UP WITH A VERTICAL CORE, DO NOT SLOPE MORE THAN ONE HORIZONTAL TO SIX VERTICAL. REMOVE CELL DIVIDER WHEN

REQUIRED. 9. STANDARD WEIGHT 9 GAGE TRUSS TYPE "DUR-O-WALL", OR EQUAL APPROVED PLACED HORIZONTALLY AT 16" OC AT ALL WALLS ABOVE GRADE AND AT 8" OC BELOW GRADE.

10. WIRE REINFORCEMENT, "DUR-O-WALL" OR EQUAL, APPROVED: BE LAPPED AT LEAST 6 INCHES AT SPLICES AND SHALL CONTAIN AT LEAST ONE CROSS WIRE OF EACH PIECE OF REINFORCEMENT IN THE LAPPED DISTANCE.

11. HORIZONTAL REINFORCING BARS: PLACED IN CONTINUOUS MASONRY COURSES, CONSISTING OF BOND-BEAM OR LINTEL BLOCK UNITS, AND SOLIDLY GROUTED IN PLACE. LINTEL BEAMS: BARS EXTEND NOT LESS THAN 20 BAR DIAMETERS OR 16" (WHICHEVER IS

GREATER) PAST THE OPENING FACE. 12. LINTEL BEAMS: EXTEND 16" PAST FACE OF OPENINGS. CONTINUOUS AT CONTROL & EXPANSION JOINTS-PROVIDE DUMMY JOINT WHEN REQUIRED. UNLESS NOTED OTHERWISE, BOND BEAMS ARE DISCONTINUOUS AT CONTROL AND EXPANSION JOINTS.

REINFORCE BOND BEAMS WITH 2- #5 BARS, UNLESS NOTED OTHERWISE. 13. REFER TO ARCHITECTURAL DRAWINGS FOR CONTROL AND EXPANSION JOINT LOCATIONS. SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES IN JOINT LOCATIONS. IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY JOINT LOCATIONS, OR ABSENCE OF JOINTS, THAT DO NOT CONFORM TO THE ABOVE REFERENCED BUILDING

CODES. 14. POST-INSTALLED BOLTS INTO GROUTED MASONRY: BE A36 ALL THREAD RODS SET USING HILTI HIT HY250 ADHESIVE SYSTEM. ALL BOLTS PLACED IN GROUT VERTICAL CELLS GROUTED BOND BEAMS OR GROUTED LINTELS. ANCHORS INSTALLED IN HOLLOW CELLS WITHOUT PRIOR APPROVAL AND OF THE ENGINEER WILL BE REJECTED. A DIFFERENT

ANCHORING SYSTEM WILL BE REQUIRED IN HOLLOW UNITS. 15. DESIGN HAS BEEN BASED ON CONSTRUCTION THAT REQUIRES SPECIAL INSPECTION. REFER TO OTHER SECTION OF GENERAL NOTES AND SPECIFICATIONS FOR REQUIREMENTS.

STEEL JOISTS AND JOIST GIRDERS:

1. CONFORM TO SJI STANDARD SPECIFICATIONS FOR FABRICATION AND ERECTION. 2. JOISTS AND JOIST GIRDERS SHALL BE CAMBERED WITH STANDARD SJI CAMBER BASED ON THE JOIST LENGTH, UNLESS DETAILED OTHERWISE ON THE DRAWINGS. ALL SHALL HAVE FLAT BEARING.

3. K-SERIES JOIST SEATS ARE 2 1/2" HIGH AND JOIST GIRDER SEATS ARE 7 1/2" HIGH, UNLESS NOTED ON DRAWINGS.

4. WELD K-SERIES JOISTS TO SUPPORTS WITH 2- 2" x 1/8" FILLET WELDS PER END. FIELD BOLT JOIST NEAREST COLUMN WITH 2- 1/2" DIA BOLTS. 5. WHERE JOISTS BEAR ATOP COLUMN, PROVIDE 3/8" CAP PLATE WELDED CONTINUOUS

TO COLUMN. 6. HORIZONTAL AND DIAGONAL BRIDGING SHALL BE IN ACCORDANCE WITH SECTION 5.4 OF THE SJI STANDARDS, PROVIDE TYPE AND NUMBER OF ROWS OF BRIDGING PER SJI STANDARDS AND AS REQUIRED FOR UPLIFT DESIGN.

7. UNLESS DETAILED OTHERWISE, DIAGONAL BRIDGING SHALL BE PROVIDED AT SECOND JOIST SPACE AT JOIST PARALLEL TO END WALL CONDITIONS. HORIZONTAL BRIDGING SHALL BE PROVIDED AT THE END SPACE.

8. UNLESS DETAILED OTHERWISE, DIAGONAL BRIDGING SHALL BE PROVIDED AT EACH ROW OF BRIDGING AT FIRST TWO JOIST SPACES (EACH SIDE OF BEAM) WHEN JOIST ARE PARALLEL TO BEAM.

9. UNLESS DETAILED OTHERWISE ON CONTRACT DRAWINGS OR SHOP DRAWINGS, PROVIDE A BOTTOM CHORD BRACE NEAR MIDSPAN OF ALL STEEL BEAM AND JOIST GIRDERS AT ROOF LEVEL. WELD BRACES TO BEAM/GIRDER BOTTOM CHORD AND JOIST TOP CHORD PANEL POINT.

10. OFFSET ABUTTING JOISTS, WHEN REQUIRED, FOR 2 1/2" MIN BEARING ON BEAMS. SUSPEND NO LOADS FROM BOTTOM CHORDS OF JOISTS (EXCEPT AT PANEL POINTS) INSTALL BRIDGING IN ACCORDANCE WITH SJI. UNLESS OTHERWISE REQUIRED TO MEET NET UPLIFT LOADING. SEE SECTIONS.

11. PROVIDE BOTTOM CHORD STABILIZER PLATE TO THE COLUMNS AT JOIST GIRDERS FOR LATERAL STABILITY DURING CONSTRUCTION. THE JOIST GIRDER BOTTOM CHORD SHALL NOT BE WELDED TO THE STABILIZER PLATE. 12. AT ROOF AREAS, THE BOTTOM CHORD AND/OR BRIDGING SHALL BE DESIGNED FOR SCHEDULED NET UPLIFT.

13. ROOF EXPANSION JOINT MATERIAL: PROVIDE (2) 1/8" FLUORGOLD BONDED TO 10 GA. STEEL PLATES. WELD ONE PLATE TO JOIST, JOIST GIRDER OR BEAM. WELD ONE PLATE TO BEARING SEAT OR: PROVIDE (2) 1/8" VIRGIN TEFLON (FIBERGLASS FILLED) BEARING PADS WITH FACTORY BONDED 10 GA. STEEL BACKING PLATE. ATTACH AS NOTED ABOVE.

1" DEEP, 24 GAUGE (MIN. S = 0.098 in³), TYPE C METAL DECK, G-60 GALVANIZED. Fy = 60 KSI. VULCRAFT CO OR EQUIVALENT. ATTACH TO SUPPORTS IN A 36/5 PATTERN WITH 5/8" PUDDLW WELDS SIDE LAPS FASTENED WITH 1- #10 TEK SCREWS PER SPAN. 4" OVERALL THICKNESS. REINFORCED WITH WWF 6x6-W4.0xW4.0 (MID).

5. ATTACH DECK TO PARALLEL SUPPORTS WITH #12 TEK SCREWS AT 12" OC. ALIGN LOW FLUTE OF DECK WITH PARALLEL SUPPORT FOR WELDING. 6. ATTACH DECK SUPPORTED BY CONTINUOUS EDGE ANGLES WITH 5/8" PUDDLE WELDS AT 12"OC.

1. CONFORM TO SPECIFICATIONS OF THE STEEL DECK INSTITUTE LATEST EDITION.

3. DECK SHALL BE DETAILED TO SPAN OVER FOUR SUPPORTS (3 SPAN CONDITION)

1 1/2" DEEP, 22 GAUGE (MIN. S = 0.186 in^3), TYPE B METAL DECK, G-60

SIDE LAPS FASTENED WITH 5- #10 TEK SCREWS PER SPAN.

GALVANIZED. Fy = 33 KSI. VULCRAFT CO OR EQUIVALENT.

2. DECK FABRICATION AND INSTALLATION SHALL CONFORM TO SDI. DECK STEEL SHALL

WHEREVER POSSIBLE. NOTIFY ENGINEER OF ALL ONE SPAN CONDITIONS. END LAPS SHALL

ATTACH TO SUPPORTS IN A 36/5 PATTERN WITH 5/8" PUDDLW WELDS

COLD-FORMED METAL:

METAL ROOF DECKING:

4. ROOFS:

FLOORS

CONFORM TO ASTM A653 FOR GALVANIZED DECK.

BE 3 INCHES AND SHALL OCCUR OVER A SUPPORT.

1. DESIGN ALL MEMBERS AND CONNECTIONS IN ACCORDANCE WITH AMERICAN IRON AND STEEL INSTITUTE (AISI) "SPECIFICATIONS FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS", LATEST.

2. MEMBERS SHALL BE FABRICATED IN ACCORDANCE WITH AISI SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS, LATEST EDITION. ALL MEMBERS SHALL BE GALVANIZED AND CONFORM TO ASTM A653 AND A955.

3. COLD-FORMED STRUCTURAL STUDS- GALVANIZED, TYPE C, 1 5/8" FLANGE. 16 GA (Fy = 50 ksi) AND 18 GA (Fy = 33 ksi) 3 5/8" 16 GA, MIN S = 0.482, 18 GA, MIN S = 0.392 6" 16 GA, MIN S = 0.954, 18 GA, MIN S = 0.772 8" 16 GA, MIN S = 1.435, 18 GA, MIN S = 1.159

4. UNLESS DETAILED ON THE DRAWINGS, CONNECTIONS MAY BE FASTENED WITH SELF-DRILLING SCREWS OR WELDED. FASTEN CONNECTIONS WITH (3) #12 TEK SCREWS OR 1/16" x 3" FILLET WELD SHALL BE USED AS A MINIMUM AT EACH CONNECTION. 5. RE-TOUCH WELDS WITH ZINC-RICH PAINT. WIRE TYING OF COMPONENTS NOT

PERMITTED 6. METAL GAGE MEMBERS TO BE CLOSED OFF AT BOTH ENDS WITH CONTINUOUS METAL

TRACK OF EQUAL GAGE OR GREATER THICKNESS THAN METAL GAGE MEMBERS. 7. DETAIL STUD WALLS SUPPORTED BY A LOWER FLOOR LEVEL AND EXTENDING UP TO ROOF STRUCTURE OR PAST A SECONDARY FLOOR ABOVE WITH EITHER A SLIP TRACK AT

THE UNDERSIDE OF THE FLOOR/ROOF STRUCTURE ABOVE OR WITH A SIDE CONNECTION THAT ALLOWS VERTICAL MOVEMENT OF THE FLOOR/ROOF STRUCTURE ABOVE. 8. CUT FRAMING COMPONENTS SQUARELY FOR ATTACHMENT TO PERPENDICULAR

MEMBERS OR AS REQUIRED FOR AN ANGULAR FIT AGAINST ABUTTING MEMBER. ANCHOR RUNNERS SECURELY TO THE SUPPORTING STRUCTURE. SUBMIT PROPOSED CONNECTION FOR APPROVAL 9. SUBMIT SHOP DRAWINGS TO OWNERS' REPRESENTATIVE PRIOR TO FABRICATION OF

STRUCTURAL TESTS AND SPECIAL INSPECTIONS:

1. REFER TO THE REFERENCED BUILDING CODE (CHAPTER 17) FOR ADDITIONAL INFORMATION, DEFINITIONS AND TESTING REFERENCES REGARDING SPECIAL INSPECTIONS.

2. THIS SECTION IS LIMITED ONLY TO STRUCTURAL PORTIONS OF THE PROJECT. REFER TO THE ARCHITECTURAL AND MEP ENGINEER'S DRAWINGS AND/OR SPECIFICATIONS FOR ADDITIONAL ITEMS OF A NON-STRUCTURAL NATURE REQUIRING SPECIAL INSPECTIONS. 3. THE OWNER SHALL HIRE A QUALIFIED SPECIAL INSPECTION TESTING LAB AND/OR QUALIFIED GEOTECHNICAL ENGINEER (PER IBC SECTION 1704) TO PERFORM THE

FOLLOWING SPECIAL INSPECTIONS: STEEL CONSTRUCTION CONCRETE CONSTRUCTION MASONRY CONSTRUCTION SOILS AND FOUNDATION ELEMENTS EXTERIOR INSULATION FINISHED SYSTEM (EIFS) (PER IBC 1705.17) OTHER ITEMS SPECIFIED IN THE SPECIFICATIONS

(PER 1705.2) (PER IBC 1705.3) (PER IBC 1705.4) (PER IBC 1705.6)

4. THE OWNER SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE SPECIAL INSPECTIONS LISTED IN THIS SECTION. EXCEPT FOR ADDITIONAL INSPECTIONS REQUIRED DUE TO NON-CONFORMANCE OF WORK. THE GENERAL CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL COSTS INCURRED IF THE SPECIAL INSPECTOR MAKES ADDITIONAL TRIPS, REPORTS, ETC. FOR WORK FOUND TO BE NON-CONFORMING TO THE APPROVED CONSTRUCTION DOCUMENTS.

5. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE SPECIAL INSPECTOR(S) AND ENGINEER OF RECORD 72 HOURS PRIOR TO COMMENCING ANY NEW TYPE OF STRUCTURAL WORK COVERED BY THIS SPECIAL INSPECTION SECTION.

6. THE SPECIAL INSPECTOR(S) SHALL FURNISH COPIES OF ALL INSPECTION REPORTS TO THE ENGINEER OF RECORD RESPONSIBLE FOR THE PORTION OF THE WORK BEING REVIEWED, THE ARCHITECT, BUILDING OFFICIAL, AND THE GENERAL CONTRACTOR. 7. THE GENERAL CONTRACTOR SHALL CONTACT ENGINEER OF RECORD AND/OR THE

ARCHITECT IF THERE IS ANY QUESTION REGARDING DEFICIENCIES NOTED BY SPECIAL INSPECTOR'S REPORTS.

8. AT THE COMPLETION OF EACH TYPE OF STRUCTURAL WORK, THE SPECIAL INSPECTOR SHALL SUBMIT A SIGNED REPORT CERTIFIED BY A LICENSED ENGINEER IN THE STATE OF THE PROJECT. THIS REPORT SHALL STATE WHETHER THE INSPECTED WORK WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.







NOTES SHEET:

ON OCTOBER 26, 2022. **ISSUE HISTORY:**

PROJECT NUMBER: **ISSUE DATE:** SHEET NAME: STRUCTURAL GENERAL



GEOTECHNICAL ENGINEER ALPHA TESTING 6513 W. LITTLE YORK RD. HOUSTON, TEXAS 77040 817.496.5600

CIVIL ENGINEER CIVIL-CON CONSULTANTS, LLC 448 W. 19TH ST. HOUSTON, TEXAS 77008 713.992.4148

STRUCTURAL ENGINEER PRIME STRUCTURAL ENGINEERING 22136 WESTHEIMER PKWY. #228 KATY, TEXAS 77450 254.640.8226

MEP ENGINEER SPECTRUM DESIGN ENGINEERS 19 SIERRA OAKS DR. SUGAR LAND, TEXAS 77479 832.766.6076

PRECAST CONCRETE SUPPLIER MANCO STRUCTURES, LTD 6101 FM 3009 SCHERTZ, TEXAS 78154 210.690.1705

PROJECT: NORTHWEST HYUNDAI

PROJECT ADDRESS: 19120 NORTHWEST FWY HOUSTON, TEXAS 77065

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Legend		
	Quantity	Unit
	546.24	ft
on fill reinf. w/ #3 @ 16" o.c.	23,275	sf
	6.04	ft
	62	Count
" x 24" x 3'-0" Refer det: 10/S401	14	Count
	107	cu ft
	488	cu ft
	384	cu ft
	294	cu ft
	768	cu ft
	486	cu ft
	799	cu ft
	242	cu ft
	72	cu ft
I CLS Refer det: 9/S401	357	cu ft
	1	Count
	320	cu ft
	3,840	cu ft
	2,816	cu ft
	24	Count

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	Legend						
	Description	Quantity	Unit				
	1/S403	79.59	ft				
/	2/S402	377.91	ft				
********	3/S403	46.13	ft				
/	4/S402	109.46	ft				
THURSDAY, STATE	5/S403	182.53	ft				
	6" thick concrete slab on fill reinf. w/ #4 @ 16" o.c.	20,105	sf				
/	6/S403	12.99	ft				
/	7/S403	64.39	ft				
/	8" thick concrete slab on fill reinf. w/ #4 @ 12" o.c.	194	sf				
	8" thick concrete slab reinf. w/ #4 @ 16" o.c.	106	sf				
/	8/S400	62.94	ft				
/	8/S403	113.43	ft				
	Augar cast piles	152	Count				
	Concrete plinth Size: 42" x 42" x 2'-0" Refer det: 1/S402	337	cu ft				
	Line	2	Count				
	PC2	1,600	cu ft				
	PC4	2,000	cu ft				
	PC5	626	cu ft				
	PC6	640	cu ft				
	PC12	12,547	cu ft				
	Rectangle	28	Count				







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MEP ENGINEER SPECTRUM DESIGN ENGINEERS 19 SIERRA OAKS DR. SUGAR LAND, TEXAS 77479 832.766.6076

PRECAST CONCRETE SUPPLIER MANCO STRUCTURES, LTD 6101 FM 3009 SCHERTZ, TEXAS 78154 210.690.1705

PROJECT:

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PROJECT ADDRESS: 19120 NORTHWEST FWY HOUSTON, TEXAS 77065

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AREA 'B'

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SHEET:

FOUNDATION PLAN -

S200.B

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	Legend					
	Description	Quantity	Unit			
	1/S403	194.82	ft			
/	2/S402	546.92	ft			
	2/S403	21.37	ft			
*******	3/S403	44.31	ft			
annan an a	5/S403	169.49	ft			
	6" thick concrete slab on fill reinf. w/ #4 @ 16" o.c.	24,932	sf			
/	6/S403	9.00	ft			
/	7/S403	104.75	ft			
/	8" thick concrete slab on fill reinf. w/ #4 @ 12" o.c.	853	sf			
/	8/S403	77.74	ft			
/	11/S403	28.33	ft			
	Augar cast piles	199	Count			
	Concrete plinth Size: 42" x 42" x 2'-0" Refer det: 1/S402	328	cu ft			
/	Line	2	Count			
	PC2	1,600	cu ft			
	PC4	2,000	cu ft			
	PC6	1,280	cu ft			
	PC12	16,939	cu ft			
	PC12A	1,536	cu ft			
	Rectangle	24	Count			
	Retaining wall footing Size: 5'-3" x 1'-0"	109	cu ft			



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ISSUE HISTORY:

PROJECT NUMBER: ISSUE DATE: SHEET NAME: **FOUNDATION PLAN -**AREA 'C'

SHEET:

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STRUCTURAL ENGINEER PRIME STRUCTURAL ENGINEERING 22136 WESTHEIMER PKWY. #228 KATY, TEXAS 77450 254.640.8226

MEP ENGINEER SPECTRUM DESIGN ENGINEERS 19 SIERRA OAKS DR. SUGAR LAND, TEXAS 77479 832.766.6076

PRECAST CONCRETE SUPPLIER MANCO STRUCTURES, LTD 6101 FM 3009 SCHERTZ, TEXAS 78154 210.690.1705

PROJECT:

NORTHWEST HYUNDAI

PROJECT ADDRESS: 19120 NORTHWEST FWY HOUSTON, TEXAS 77065

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7. CONTRACTOR / STEEL FABRICATOR TO COORDINATE ROOF PENETRATIONS WITH MECHANICAL CONTRACTOR.

KEY PLAN

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ROJECT NUMBER:	LA2216
SSUE DATE:	06/18/22
HEET NAME:	
ROOF FRAMING PLAN - AREA 'A'	
HEET:	

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	Legend
	Description
/	#4 x 8'-0" @ 24" o.c. in middle of each slab layer
/	#5 cont. in middle of each slab layer
	2.2/4" thick normal weight concrete alob on 2.2/4" thick insulation composite on 2.2/4" thick normal weight concrete tenning alob over present double toos r



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GARAGE LEVEL 2 - AREA B

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	Legend
	Description
/	#4 x 8'-0" @ 24" o.c. in middle of each slab layer
/	#5 cont. in middle of each slab layer
	2-3/4" thick normal weight concrete slab on 3-3/4" thick insulation composite on 2-3/4" thick normal weight concrete topping slab over precast double tees re

KEY PLAN

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PROJECT:

NORTHWEST HYUNDAI

PROJECT ADDRESS: 19120 NORTHWEST FWY HOUSTON, TEXAS 77065

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GARAGE LEVEL 2 - AREA C

S212.C

.26.2022	ISSUE FOR BID	

	Legend		
	Description	Quantity	Unit
/	#4 x 8'-0" @ 24" o.c. in middle of each slab layer	543.98	ft
/	#5 cont. in middle of each slab layer	2,159.09	ft
	3" thick normal wight concrete topping slab over precast double tees reinf. w/ 6x6-W2.9xW2.9	21,314	sf

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GARAGE LEVEL 3 - AREA B

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	Legend		
	Description	Quantity	Unit
/	#4 x 8'-0" @ 24" o.c. in middle of each slab layer	720.01	ft
/	#5 cont. in middle of each slab layer	2,603.76	ft
	3" thick normal wight concrete topping slab over precast double tees reinf. w/ 6x6-W2.9xW2.9	26,966	sf

KEY PLAN

GARAGE LEVEL 3 - AREA C SHEET: S213.C

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	Legend		
	Description	Quantity	Unit
/	#4 x 8'-0" @ 24" o.c. in middle of each slab layer	543.98	ft
/	#5 cont. in middle of each slab layer	2,159.09	ft
	3" thick normal wight concrete topping slab over precast double tees reinf. w/ 6x6-W2.9xW2.9	21,314	sf

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GARAGE LEVEL 4 - AREA B

S214.B

(2) #5 CONT IN
MIDDLE OF TOPPING
SLAB (TYPICAL)

LA2216

06/18/22

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07.28.2022		ISSUE FOR PERMIT
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	Legend						
	Description	Quantity	Unit				
/	#4 x 8'-0" @ 24" o.c. in middle of each slab layer	720.01	ft				
/	#5 cont. in middle of each slab layer	2,603.76	ft				
	3" thick normal wight concrete topping slab over precast double tees reinf. w/ 6x6-W2.9xW2.9	26.966	sf				

KEY PLAN

SHEET NAME: GARAGE LEVEL 4 - AREA C SHEET: S214.C

GEOTECHNICAL ENGINEER ALPHA TESTING 6513 W. LITTLE YORK RD. HOUSTON, TEXAS 77040 817.496.5600

CIVIL ENGINEER CIVIL-CON CONSULTANTS, LLC 448 W. 19TH ST. HOUSTON, TEXAS 77008 713.992.4148

STRUCTURAL ENGINEER PRIME STRUCTURAL ENGINEERING 22136 WESTHEIMER PKWY. #228 KATY, TEXAS 77450 254.640.8226

MEP ENGINEER SPECTRUM DESIGN ENGINEERS 19 SIERRA OAKS DR. SUGAR LAND, TEXAS 77479 832.766.6076

PRECAST CONCRETE SUPPLIER MANCO STRUCTURES, LTD 6101 FM 3009 SCHERTZ, TEXAS 78154 210.690.1705

PROJECT:

PROJECT ADDRESS: 19120 NORTHWEST FWY HOUSTON, TEXAS 77065

SEAL/SIGNATURE:

LA2216

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	Legend			
	Description	Quantity	Unit	
/	#4 x 8'-0" @ 24" o.c. in middle of each slab layer	543.98	ft	
/	#5 cont. in middle of each slab layer	2,159.09	ft	
	3" thick normal wight concrete topping slab over precast double tees reinf. w/ 6x6-W2.9xW2.9	21,314	sf	

GEOTECHNICAL ENGINEER ALPHA TESTING 6513 W. LITTLE YORK RD. HOUSTON, TEXAS 77040 817.496.5600 **CIVIL ENGINEER** CIVIL-CON CONSULTANTS, LLC 448 W. 19TH ST. HOUSTON, TEXAS 77008 713.992.4148 STRUCTURAL ENGINEER PRIME STRUCTURAL ENGINEERING 22136 WESTHEIMER PKWY. #228 KATY, TEXAS 77450 254.640.8226 MEP ENGINEER SPECTRUM DESIGN ENGINEERS 19 SIERRA OAKS DR. SUGAR LAND, TEXAS 77479 832.766.6076 PRECAST CONCRETE SUPPLIER MANCO STRUCTURES, LTD 6101 FM 3009 SCHERTZ, TEXAS 78154 210.690.1705 PROJECT: NORTHWEST HYUNDAI PROJECT ADDRESS: HOUSTON, TEXAS 77065 SEAL/SIGNATURE: × JAVIER A. SANCHEZ 124877 THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JAVIER A SANCHEZ, P.E. 124877 ON <u>SEPTEMBER 26, 2022</u>. 09.2

19120 NORTHWEST FWY

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GARAGE LEVEL 5 - AREA B

S215.B

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.28.2022	ISSUE FOR PERMIT
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	Legend		
	Description	Quantity	Unit
/	#4 x 8'-0" @ 24" o.c. in middle of each slab layer	720.01	ft
/	#5 cont. in middle of each slab layer	2,603.76	ft
	3" thick normal wight concrete topping slab over precast double tees reinf. w/ 6x6-W2.9xW2.9	26,966	sf

KEY PLAN

SHEET: S215.C

GEOTECHNICAL ENGINEER ALPHA TESTING 6513 W. LITTLE YORK RD. HOUSTON, TEXAS 77040 817.496.5600

CIVIL ENGINEER CIVIL-CON CONSULTANTS, LLC 448 W. 19TH ST. HOUSTON, TEXAS 77008 713.992.4148

STRUCTURAL ENGINEER PRIME STRUCTURAL ENGINEERING 22136 WESTHEIMER PKWY. #228 KATY, TEXAS 77450 254.640.8226

MEP ENGINEER SPECTRUM DESIGN ENGINEERS 19 SIERRA OAKS DR. SUGAR LAND, TEXAS 77479 832.766.6076

PRECAST CONCRETE SUPPLIER MANCO STRUCTURES, LTD 6101 FM 3009 SCHERTZ, TEXAS 78154 210.690.1705

PROJECT:

NORTHWEST HYUNDAI

PROJECT ADDRESS: 19120 NORTHWEST FWY HOUSTON, TEXAS 77065

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GARAGE LEVEL 5 - AREA C

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		Legend		
		Description	Quantity	Ur
	/	#4 x 8'-0" @ 24" o.c. in middle of each slab layer	543.98	ft
ſ	/	#5 cont. in middle of each slab layer	2,159.09	ft
ſ		2-3/4" thick normal wight concrete slab on membrane on 2-3/4" thick normal weight concrete topping slab over precast double tees reinf. w/ 6x6-W2.9xW2.9	21,314	sf

GEOTECHNICAL ENGINEER ALPHA TESTING 6513 W. LITTLE YORK RD. HOUSTON, TEXAS 77040 817.496.5600

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PROJECT: NORTHWEST HYUNDAI

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(2) #5 CONT IN
MIDDLE OF EA SLAB
LAYER (TYPICAL)

LA2216

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DELTA DESCRIPTION

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GARAGE LEVEL 6 - AREA B

S216.B

	Legend	
	Description	[
/	#4 x 8'-0" @ 24" o.c. in middle of each slab layer	1
/	#5 cont. in middle of each slab layer	
	2-3/4" thick normal wight concrete slab on membrane on 2-3/4" thick normal weight concrete topping slab over precast double tees reinf. w/ 6x6-W2.9xW2.9	

KEY PLAN

SHEET: S216.C

GEOTECHNICAL ENGINEER ALPHA TESTING 6513 W. LITTLE YORK RD. HOUSTON, TEXAS 77040 817.496.5600

CIVIL ENGINEER CIVIL-CON CONSULTANTS, LLC 448 W. 19TH ST. HOUSTON, TEXAS 77008 713.992.4148

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PRECAST CONCRETE SUPPLIER MANCO STRUCTURES, LTD 6101 FM 3009 SCHERTZ, TEXAS 78154 210.690.1705

PROJECT:

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GARAGE LEVEL 6 - AREA C

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FOOTING AND PILE CAP SCHEDULE						
		DIMENSIONS		REINFC	RCING	
MARKED	LENGTH	WIDTH	THICKNESS	REINFORCING BOTTOM	REINFORCING TOP	REMARKS
			•			
F1	4' - 0"	4' - 0"	1' - 4"	(5) #5 E.W.		
F2	5' - 0"	5' - 0"	1' - 4"	(6) #5 E.W.		
F3	6' - 0"	6' - 0"	1' - 4"	(6) #5 E.W.		
F4	7' - 0"	7' - 0"	2' - 0"	(9) #6 E.W.		
F5	8' - 0"	8' - 0"	2' - 0"	(10) #6 E.W.		
F6	9' - 0"	9' - 0"	2' - 0"	(11) #6 E.W.		
F7	10' - 0"	10' - 0"	2' - 0"	(12) #6 E.W.		
F8	11' - 0"	11' - 0"	2' - 0"	(13) #6 E.W.		
F9	4' - 0"	9' - 0"	2' - 0"	(5) #6 (LONG) & (11) #6 (SHORT)		The last
PC2	10' - 0"	4' - 0"	4' - 0"	#8 @ 16" OC (SHORT) & #8 @ 8" OC (LONG)	#8 @ 16" OC (SHORT) & #8 @ 14" OC (LONG)	
PC4	10' - 0"	10' - 0"	4' - 0"	#8 @ 8" OC	#8 @ 8" OC	
PC5	12' - 6"	12' - 6"	4' - 0"	#9 @ 12" OC	#9 @ 12" OC	
PC6	16' - 0"	10' - 0"	4' - 0"	#9 @ 11" OC	#9 @ 11" OC	
PC12	22' - 0"	16' - 0"	4' - 0"	#11 @ 16" OC (SHORT) & #11 @ 9" OC (LONG)	#11 @ 16" OC (SHORT) & #11 @ 9" OC (LONG)	
PC12A	24' - 0"	16' - 0"	4' - 0"	#11 @ 16" OC (SHORT) & #11 @ 9" OC (LONG)	#11 @ 16" OC (SHORT) & #11 @ 9" OC (LONG)	

TOP OF PIER (BOT OF PILE CAP) PILE CAP- SEE DETAILS FOR SIZE-SEE PLAN FOR LOCATION _ __ ! **_**___ TOP OF PIER (BOT OF PILE CAP) **____** - (3) #3 TIES @ 4" OC **____ ___** ____ **____ ____** AUGER CAST PIER NOTES TYPICAL PIER REINF-(8) # 6 VERT W/ #4 1. A GEOTECHNICAL REPORT IS AVAILABLE FOR REVIEW IN THE TIES@ 10" OC "EXCAVATION, BACKFILLING & FOUNDATION" SECTION OF THE GENERAL NOTES. ╺╋╾╺╾**╌**╴╴╴**╌**┢╴ 2. THE INDEPENDENT TESTING LABORATORY SHALL CONFIRM THE ALLOWABLE SOIL BEARING CAPACITY IN THE FIELD AT THE ELEVATION DESIGNATED AS THE PLANE OF BEARING FOR THE AUGER CAST PIER . 3. THE INDEPENDENT TESTING LABORATORY SHALL INSPECT THE BOTTOM AND SIDES OF THE AUGER CAST PIER PRIOR TO PLACING REINFORCING AND CONCRETE. 4. LOCATE AUGER CAST PIERS PER PILE CAP DETAILS. 5. MAINTAIN CLOSE AND ACCURATE DRILLING PRACTICES TO ACHIEVE CLOSE TOLERANCES WITH THE REINFORCING STEEL. 6. ALL REINFORCING STEEL FOR AUGER CAST PIERS SHALL BE DEFORMED NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60. 7. ALL SCHEDULED REINFORCEMENT SHALL BE UNIFORMLY DISTRIBUTED. 8. DEPOSIT CONCRETE TO ITS FINAL POSITION BY THE USE OF A TREMIE. 9. CONSOLIDATE CONCRETE IN ITS FINAL POSITION BY VIBRATING. · ← _ _ _ _ → ____ ╺╘╴╴╴╴╴╶┾

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24" DIAMETER

EXTEND VERTICAL REINFORCEMENT INTO PILE CAP, MINIMUM 36", HOOK AT

TOP, MIN 8"

2 AUGER CAST PILE DETAIL 3/4" = 1'-0"

BEARING STRATUM

COLUMN SCHEDULE					
MARK	SIZE	BASE PLATE		COMMENTS	
C1	HSS10.000 x 0.500 HSS8.625 x 0.375	SEE COMMENT	S	SEE DETAIL 1/S300	
C2	HSS8.625 x 0.375	1" x 14" x 14"		BOT B.P0'-7" BFF, 1 1/2" BOLT EDGE, 3/4"Ø x 1'-8" ANCHOR BOLTS	
C 3	HSS8.625 x 0.250	1" x 14" x 14"		BOT B.P0'-7" BFF, 1 1/2" BOLT EDGE, 3/4"Ø x 1'-8" ANCHOR BOLTS	
$\langle C4 \rangle$	HSS8.625 x 0.250	1" x 14" x 14"	•	BOT B.P0'-7" BFF, 1 1/2" BOLT EDGE, 3/4"Ø x 1'-8" ANCHOR BOLTS	
$\left< C5 \right>$	HSS8x8x3/8	1" x 14" x 14"		BOT B.P0'-7" BFF, 1 1/2" BOLT EDGE, 3/4"Ø x 1'-8" ANCHOR BOLTS	
C6	HSS6x6x5/8	1" x 12" x 12"		BOT B.P0'-7" BFF, 1 1/2" BOLT EDGE, 3/4"Ø x 1'-8" ANCHOR BOLTS	
C7	HSS6x6x1/2	1" x 12" x 12"		BOT B.P0'-7" BFF, 1 1/2" BOLT EDGE, 3/4"Ø x 1'-8" ANCHOR BOLTS	
C8	HSS6x6x1/2	1" x 12" x 12"	• •	BOT B.P0'-7" BFF, 1 1/2" BOLT EDGE, 3/4"Ø x 1'-8" ANCHOR BOLTS	
C 9	HSS6x6x1/2	1" x 12" x 12"		BOT B.P0'-7" BFF, 1 1/2" BOLT EDGE, 3/4"Ø x 1'-8" ANCHOR BOLTS	
C10	HSS6x6x3/8	1" x 12" x 12"	• •	BOT B.P0'-7" BFF, 1 1/2" BOLT EDGE, 3/4"Ø x 1'-8" ANCHOR BOLTS	
(C11)	HSS6x6x3/8	1" x 12" x 12"		BOT B.P0'-7" BFF, 1 1/2" BOLT EDGE, 3/4"Ø x 1'-8" ANCHOR BOLTS	
C 12	HSS6x6x1/4	1" x 12" x 12"		BOT B.P0'-7" BFF, 1 1/2" BOLT EDGE, 3/4"Ø x 1'-8" ANCHOR BOLTS	
C 13	HSS6x6x1/4	1" x 12" x 12"	• •	BOT B.P0'-7" BFF, 1 1/2" BOLT EDGE, 3/4"Ø x 1'-8" ANCHOR BOLTS	
C14	HSS6x6x1/4	1" x 12" x 12"		BOT B.P0'-7" BFF, 1 1/2" BOLT EDGE, 3/4"Ø x 1'-8" ANCHOR BOLTS	
C 15	HSS6x6x1/4	1/2" x 12" x 6 1/2"	0 0 0 0 0	SEE SECTION 3/S605 FOR ADDITIONAL NOTES	
C 16	HSS6x4x1/4	1/2" x 8" x 6"	•	OFFSET OPP. OPENING, BOLT TO TOP OF SLAB W/ 3/4"Ø x 4" ANCHOR	
(C17)	HSS6x2x1/4	1/2" x 6" x 6"	•	OFFSET OPP. OPENING, BOLT TO TOP OF SLAB W/ 3/4"Ø x 4" ANCHOR	

SLOPED COLUMNS TOP CAP PLATE

SLOPED COLUMN PLANS

832.766.6076 PRECAST CONCRETE SUPPLIER MANCO STRUCTURES, LTD

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PROJECT:

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KATY, TEXAS 77450 254.640.8226

SPECTRUM DESIGN ENGINEERS

448 W. 19TH ST. HOUSTON, TEXAS 77008 713.992.4148

CIVIL ENGINEER

GEOTECHNICAL ENGINEER

6513 W. LITTLE YORK RD. HOUSTON, TEXAS 77040

ALPHA TESTING

MEP ENGINEER

19 SIERRA OAKS DR.

SUGAR LAND, TEXAS 77479

CIVIL-CON CONSULTANTS, LLC

STRUCTURAL ENGINEER PRIME STRUCTURAL ENGINEERING 22136 WESTHEIMER PKWY. #228

817.496.5600

ARCHITECTURE

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STRUCTURAL ENGINEER PRIME STRUCTURAL ENGINEERING 22136 WESTHEIMER PKWY. #228 KATY, TEXAS 77450 254.640.8226

CIVIL ENGINEER CIVIL-CON CONSULTANTS, LLC 448 W. 19TH ST. HOUSTON, TEXAS 77008 713.992.4148

GEOTECHNICAL ENGINEER ALPHA TESTING 6513 W. LITTLE YORK RD. HOUSTON, TEXAS 77040 817.496.5600

SPREAD FOOTING

GEOTECHNICAL ENGINEER ALPHA TESTING 6513 W. LITTLE YORK RD. HOUSTON, TEXAS 77040 817.496.5600

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MEP ENGINEER SPECTRUM DESIGN ENGINEERS 19 SIERRA OAKS DR. SUGAR LAND, TEXAS 77479 832.766.6076

PRECAST CONCRETE SUPPLIER MANCO STRUCTURES, LTD 6101 FM 3009 SCHERTZ, TEXAS 78154 210.690.1705

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FOUNDATION DETAILS

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Legend				
Description	Quantity	Unit		
10/S401	10	cu ft		
Grade beam Size: 1'-0" wide x 2'-8" deep	17	cu ft		
Grade beam Size: 1'-0" wide x 3'-0" deep	1,836	cu ft		
Rectangle	19	Count		

FOUNDATION DETAILS

ISSUE DATE:

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SUE HISTORY:				
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NORTHWEST HYUNDAI

19120 NORTHWEST FWY

HOUSTON, TEXAS 77065

SPECTRUM DESIGN ENGINEERS

SUGAR LAND, TEXAS 77479

MEP ENGINEER

832.766.6076

19 SIERRA OAKS DR.

CIVIL ENGINEER 448 W. 19TH ST. HOUSTON, TEXAS 77008 713.992.4148

CIVIL-CON CONSULTANTS, LLC

STRUCTURAL ENGINEER

PRIME STRUCTURAL ENGINEERING 22136 WESTHEIMER PKWY. #228 KATY, TEXAS 77450 254.640.8226

6513 W. LITTLE YORK RD. HOUSTON, TEXAS 77040 817.496.5600

GEOTECHNICAL ENGINEER ALPHA TESTING

Legend			
Description	Quantity	Unit	
Concrete beam @ stairwell & elevator pit Size: 30" x 56"	1,278	cu ft	
Grade beam Size: 2'-0" wide x 2'-0" deep	3,695	cu ft	
Rectangle	8	Count	

SPECTRUM DESIGN ENGINEERS 19 SIERRA OAKS DR. SUGAR LAND, TEXAS 77479 832.766.6076 PRECAST CONCRETE SUPPLIER MANCO STRUCTURES, LTD 6101 FM 3009

NORTHWEST HYUNDAI PROJECT ADDRESS: 19120 NORTHWEST FWY HOUSTON, TEXAS 77065

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SCHERTZ, TEXAS 78154

210.690.1705

PROJECT:

PRIME STRUCTURAL ENGINEERING 22136 WESTHEIMER PKWY. #228 KATY, TEXAS 77450 254.640.8226 MEP ENGINEER

713.992.4148 STRUCTURAL ENGINEER

CIVIL-CON CONSULTANTS, LLC 448 W. 19TH ST. HOUSTON, TEXAS 77008

CIVIL ENGINEER

HOUSTON, TEXAS 77040 817.496.5600

GEOTECHNICAL ENGINEER ALPHA TESTING 6513 W. LITTLE YORK RD.

Legend				
Description	Quantity	Unit		
12" thick retaining wall	153	cu ft		
Grade beam @ slab joint Size: 1'-0" wide x 3'-0" deep	592	cu ft		
Lift infill slab	644	cu ft		
Ramp transition concrete	66	cu ft		
Rectangle	16	Count		
Thickened slab edge @ entrance	154	cu ft		
Thickened slab edge at garage CMU walls	303	cu ft		
Thickened slab edge on retaining wall	29	cu ft		
Thickened slab edge on steel column	50	cu ft		
Thickened slab on low CMU wall	273	cu ft		

GEOTECHNICAL ENGINEER ALPHA TESTING 6513 W. LITTLE YORK RD. HOUSTON, TEXAS 77040 817.496.5600

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MEP ENGINEER SPECTRUM DESIGN ENGINEERS 19 SIERRA OAKS DR. SUGAR LAND, TEXAS 77479 832.766.6076

PRECAST CONCRETE SUPPLIER MANCO STRUCTURES, LTD 6101 FM 3009 SCHERTZ, TEXAS 78154 210.690.1705

PROJECT:

PROJECT ADDRESS: 19120 NORTHWEST FWY HOUSTON, TEXAS 77065

SEAL/SIGNATURE:

ISSUE HISTORY:

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07.28.2022		ISSUE FOR PERMIT
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10.26.2022	В	ADDENDUM 1

PROJECT NUMBER:

ISSUE DATE:

SHEET NAME:

LA2216 07/26/22

SHEET:

FOUNDATION DETAILS

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BEAM-TO-BEAM CONNECTION

MEP ENGINEER SPECTRUM DESIGN ENGINEERS 19 SIERRA OAKS DR. SUGAR LAND, TEXAS 77479 832.766.6076

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DOCUMENT WAS AUTHORIZED BY	
JAVIER A SANCHEZ, P.E. 124877	
ON <u>SEPTEMBER 26, 2022</u> .	

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HOUSTON, TEXAS 77065

PROJECT ADDRESS: 19120 NORTHWEST FWY

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HOUSTON, TEXAS 77040

817.496.5600

GEOTECHNICAL ENGINEER ALPHA TESTING 6513 W. LITTLE YORK RD.

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LA2216 08/29/22

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JAVIER A. SANCHEZ

DESCRIPTION

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19120 NORTHWEST FWY HOUSTON, TEXAS 77065

PROJECT ADDRESS:

PROJECT: NORTHWEST HYUNDAI

SPECTRUM DESIGN ENGINEERS 19 SIERRA OAKS DR. SUGAR LAND, TEXAS 77479 832.766.6076 PRECAST CONCRETE SUPPLIER MANCO STRUCTURES, LTD

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6101 FM 3009

210.690.1705

SCHERTZ, TEXAS 78154

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PRIME STRUCTURAL ENGINEERING 22136 WESTHEIMER PKWY. #228

6513 W. LITTLE YORK RD. HOUSTON, TEXAS 77040

817.496.5600

GEOTECHNICAL ENGINEER ALPHA TESTING

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PROJECT ADDRESS: 19120 NORTHWEST FWY

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GEOTECHNICAL ENGINEER ALPHA TESTING 6513 W. LITTLE YORK RD.

9 INTERIOR COLUMN CONNECTION DETAIL 3/4" = 1'-0"

6 INTERIOR INVERTED "T" BEAM SECTION 3/4" = 1'-0"

2 EXTERIOR SECTION 3/4" = 1'-0"

GRID

- CONT. WALL BEYOND / TOP OF WALL BEYOND 2'-0" /--- V-JOINT W/ SEALANT F.F.E. RE: PLAN ┸━╲━┸

1-#4 CONT. ____/ P/C DBL TFF

3 EXTERIOR SECTION AT TYPICAL LEVELS

PRECAST DETAILS

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SPECTRUM DESIGN ENGINEERS

SUGAR LAND, TEXAS 77479

MEP ENGINEER

832.766.6076

PROJECT:

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HOUSTON, TEXAS 77040 817.496.5600

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PRIME STRUCTURAL ENGINEERING

GEOTECHNICAL ENGINEER ALPHA TESTING 6513 W. LITTLE YORK RD. HOUSTON, TEXAS 77040 817.496.5600

ARCHITECTURE

SECTION 1/2" = 1'-0"

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SECTIONS

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SCHERTZ, TEXAS 78154

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GEOTECHNICAL ENGINEER

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PRIME STRUCTURAL ENGINEERING

GEOTECHNICAL ENGINEER ALPHA TESTING 6513 W. LITTLE YORK RD. HOUSTON, TEXAS 77040

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GEOTECHNICAL ENGINEER

SECTION 1/2" = 1'-0"

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