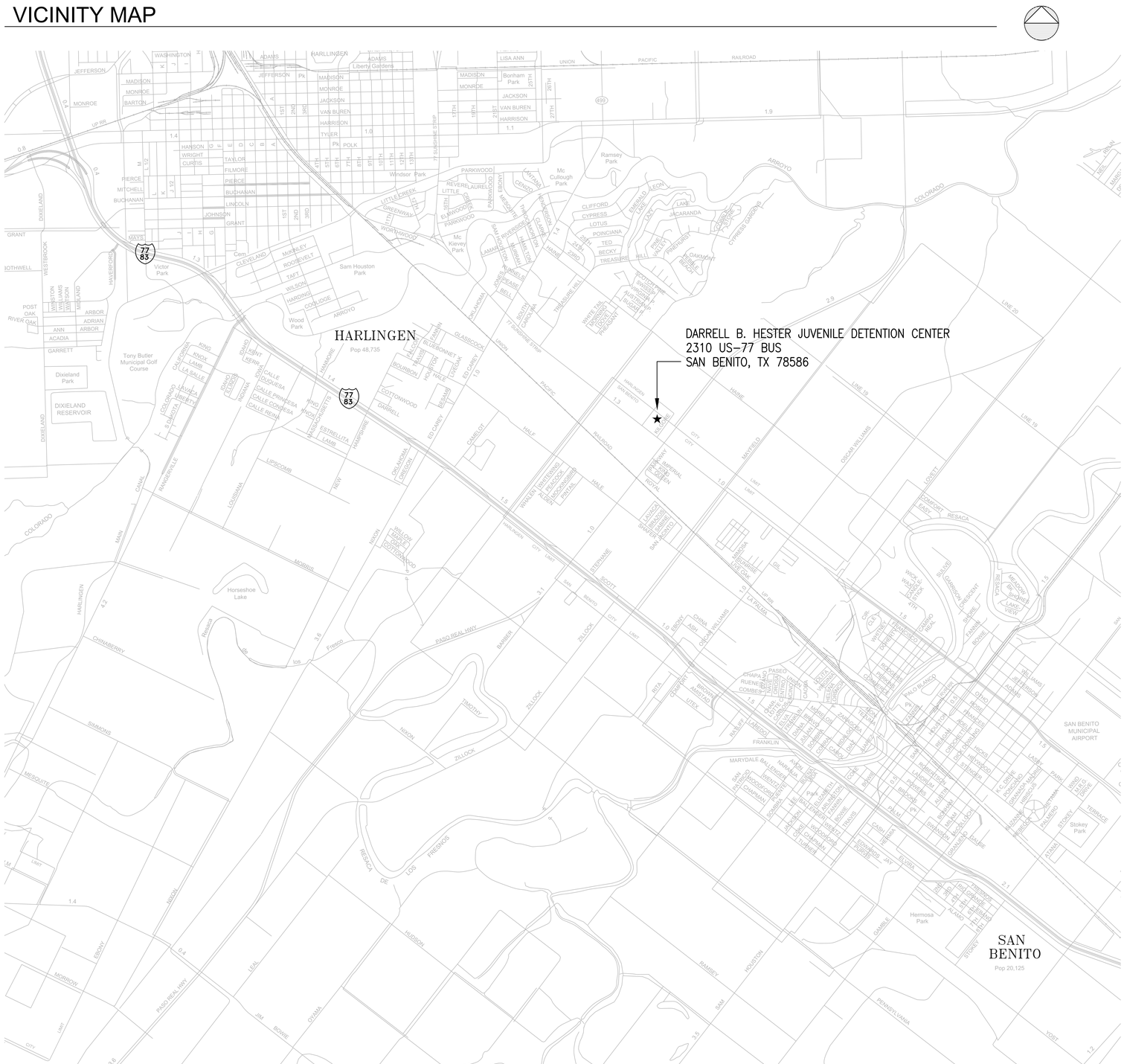
DARRELL HESTER JUVENILE DETENTION CENTER
SMOKE EVACUATION AND HVAC SYSTEMS UPGRADES
RFP #231001

SAN BENITO, TEXAS

VICINITY MAP



DATE OF ISSUE

SEPTEMBER 25, 2023

LIST OF DRAWINGS

SCOPE OF WORK

SCOPE OF WORK: PROVIDE ALL MATERIALS AND LABOR ASSOCIATED WITH COMPLETE OPERATIONAL SYSTEMS. MAJOR ITEMS OF WORK INCLUDE, BUT ARE NOT LIMITED TO:

1. SEE DRAWINGS FOR DIVISION OF SCOPE OF WORK UNDER BASE AND ALTERNATE PROPOSALS.
   a. BASE PROPOSAL: HVAC AND CONTROLS WORK.
   b. ALTERNATE PROPOSAL #1: ADDITION OF CHILLER 2.
2. DEMOLITION WORK:
   a. REMOVE AND DISPOSE OF EXISTING SMOKE EVACUATION SYSTEM INCLUDING EXHAUST FANS (EFS), RELATED MAKE UP AIR (MUAS) FANS PORTIONS OF DUCTWORK, MOTORIZED DAMPERS, SENSORS AND SMOKE EVACUATION CONTROL SYSTEMS.
   b. REMOVE AND DISPOSE OF EXISTING ENVIRONMENTAL AIR EFS, RELATED DUCTWORK, MOTORIZED DAMPERS, SENSORS AND CONTROLS.
   c. DEMOLISH FOR RELOCATION, SECTIONS OF EXISTING GAS PIPING TO ACCOMMODATE NEW RTUS.
   d. SEE DRAWINGS FOR REMOVAL OF ASSOCIATED MATERIALS SUCH AS SUPPORT ASSEMBLIES, ROOF CURBS, DUCTWORK CONNECTIONS, CONDENSATE DRAIN PIPING, GAS PIPING, MISCELLANEOUS MATERIALS, CONTROLS, AND DEVICES ASSOCIATED WITH DEMOLISHED EQUIPMENT, INCLUDING AND NOT LIMITED TO, HANGERS, SUPPORTS, MOUNTING HARDWARE, CONDUIT & POWER WIRING, ETC. CLEAR AREA AND PREPARE FOR NEW WORK.
   e. SAVE EXISTING SMOKE DETECTORS, WIRING AND SAFETIES FOR REUSE. DOCUMENT DEVICES THAT ARE NOT IN WORKING ORDER.
   f. WHERE INDICATED, SAVE EXISTING POWER WIRING, CONDUIT AND CIRCUIT BREAKERS FOR REUSE. VERIFY SIZE AND CONDITION OF CIRCUIT BREAKERS, CONDUITS AND WIRING TO BE REUSED. DEMOLISH ELECTRICAL EQUIPMENT AND OTHER MISCELLANEOUS MATERIALS AS NOTED IN THE DRAWINGS.
   g. FOR REPLACED EQUIPMENT DEMOLISH OLD BAS CONTROL SYSTEMS THAT WILL NO LONGER BE USED.
3. NEW WORK: PROVIDE ALL MATERIALS AND LABOR ASSOCIATED WITH NEW FULLY OPERATIONAL MECHANICAL AND CONTROLS SYSTEMS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   a. AIR-COOLED CHILLERS WITH INTEGRAL PRIMARY PUMPS, SECONDARY CHILLED WATER PUMPS, AIR SEPARATORS, EXPANSION TANK, GAUGES, FITTINGS, VALVES, HARDWARE, HYDRONIC SPECIALTIES, AND CHEMICAL TREATMENT. PROVIDE CONCRETE PADS AND RAIN CANOPY FOR PUMPS AND HYDRONIC SPECIALTIES. COORDINATE WITH STRUCTURAL DRAWINGS.
   b. HYDRONIC DISTRIBUTION SYSTEMS, INCLUDING UNDERGROUND INSULATED PIPING, PAINTED, INSULATED AND JACKETED CHILLED WATER PIPING, PIPE CONNECTIONS, VALVES, PIPING SPECIALTIES, HOT DIPPED GALVANIZED PIPE STANCHIONS AND PIPING SUPPORTS, AS INDICATED ON PIPING PLANS AND SCHEMATICS. PROVIDE INSULATION ON COLD SURFACES CAPABLE OF GENERATING CONDENSATION. ALUMINUM JACKETING FOR ALL PIPING EXPOSED OUTDOORS AND IN THE PUMP ROOM.
   c. INSULATED CHILLED WATER PIPING, VALVES, FITTINGS, PUMP BODIES AND COLD SURFACES THAT ARE CAPABLE OF GENERATING CONDENSATION.
   d. HYDRONIC CENTRAL STATION DEDICATED OUTSIDE AIR SYSTEM ROOFTOP UNITS (DOAS – RTUS), ROOF CURBS, SUPPORT ASSEMBLY, DUCT TRANSITIONS, PIPING, MISCELLANEOUS MATERIALS, UTILITIES AND ACCESSORIES, INDICATED IN THE DRAWINGS.
   e. RELOCATE AND PROVIDE NEW GAS PIPING AND SUPPORTS.
   f. PROVIDE NEW ENVIRONMENTAL AIR EFS, SMOKE EVACUATION EFS AND MUAS,
   g. DUCTWORK MODIFICATIONS, MOTORIZED DAMPERS, AND OTHER ACCESSORIES TO DELIVER A COMPLETE AND OPERATIONAL SYSTEM.
   h. TESTING, ADJUSTING, & BALANCING (TAB).
   i. CONTROLS: FOR NEW AND REPLACED EQUIPMENT, PROVIDE NEW BAS, COORDINATE WITH EQUIPMENT SUPPLIER TO PROVIDE FULLY INTEGRATED AND OPERATIONAL CONTROLS, INCLUDING UNITARY CONTROLLERS, SOFTWARE, SENSORS, TRAINING, ETC.
   j. SHOP DRAWING SUBMITTALS FOR ALL MECHANICAL SYSTEMS INCLUDING BUT NOT LIMITED TO EQUIPMENT, DUCTWORK AND PIPING. COORDINATION DRAWINGS FOR PLACING OF MECHANICAL SYSTEMS IN RELATION TO WORK BY OTHER DISCIPLINES.
   k. COORDINATE ELECTRICAL WORK WITH DIV. 26 AS REQUIRED.
   l. COORDINATE SMOKE EVACUATION SYSTEMS AND FIRE ALARM RELATED WORK WITH FIRE ALARM CONTRACTOR. PROVIDE SMOKE DETECTORS, WIRING AND CONTROLS FOR UNITS, 2000 CFM AND LARGER, WHERE NONE EXIST AND WHERE NOTED IN ELECTRICAL PLANS.
   m. PROVIDE CUTTING AND PATCHING AND TOUCH UP PAINTING AS REQUIRED.
   n. PROVIDE ARCHITECTURAL, STRUCTURAL, CONCRETE, PAINTING WORK PER PLANS.
4. PROVIDE WINDSTORM CERTIFICATION FOR EXTERIOR WORK. CONTRACTOR IS RESPONSIBLE FOR PROVIDING WINDSTORM CERTIFICATION INSPECTIONS AND CERTIFICATIONS FOR ROOFTOP EQUIPMENT. CONTRACTOR MUST NOTIFY INSPECTOR PRIOR TO INSTALLING EQUIPMENT, AND APPRISE INSPECTOR OF WORK SCHEDULING INVOLVING EQUIPMENT REQUIRING WIND INSPECTION / CERTIFICATION, SO THAT INSPECTIONS MAY BE CARRIED OUT AT REQUIRED STAGE(S) OF CONSTRUCTION. COST FOR INSPECTION SHALL BE BORNE BY THE CONTRACTOR. INSPECTOR SHALL BE CERTIFIED BY THE TEXAS DEPARTMENT OF INSURANCE (SEE WWW.TDI.STATE.TX.US FOR A LIST OF CERTIFIED INSPECTORS).
5. COMMISSIONING: PROVIDE ASSISTANCE WITH COMMISSIONING SERVICES PER SPECIFICATIONS. THIS INCLUDES COMPLETING SYSTEMS READINESS CHECKLISTS, PERFORMING FUNCTIONAL TESTING, PROVIDING OPERATOR TRAINING, ETC.
6. ALLOWANCES: THE OWNER HAS SET ASIDE ALLOWANCES FOR UNFORESEEN CIRCUMSTANCES. SEE SECTION 012100.

COMMISSIONERS COURT

EDDIE TREVIÑO JR.	COUNTY JUDGE
SOFIA C. BENAVIDES	COMMISSIONER PCT. 1
JOEY LOPEZ	COMMISSIONER PCT. 2
DAVID A. GARZA	COMMISSIONER PCT. 3
GUS RUIZ	COMMISSIONER PCT. 4

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SAN BENITO TEXAS

ethos engineering
1126 SOUTH COMMERCE ST.
HARLINGEN, TX
PHONE: 956-230-3435
TEXAS REGISTERED
ENGINEERING FIRM
F-15998

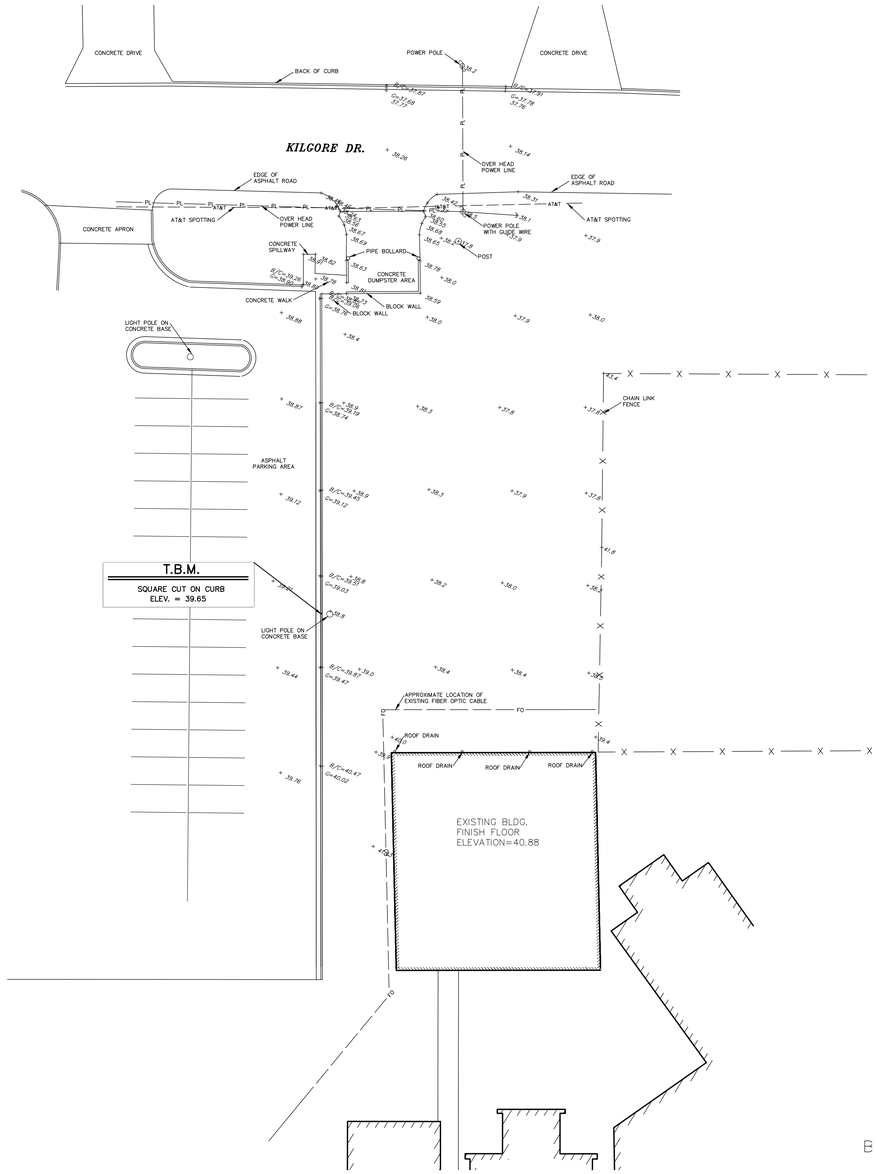
DATE: SEPTEMBER 25, 2023
CHECKED BY:
DRAWN BY:
PROJECT NO.: 23x40
CAD FILE:
SHEET:
COVER

GRAPHIC SCALE

20 0 10 20 40 80

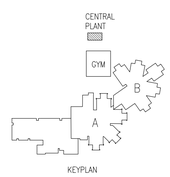
(IN FEET)
1 inch = 20 ft.

MERIDIAN OF
CAMERON COUNTY
JUVENILE
DETENTION
CENTER
SUBDIVISION



INDEX OF SITE WORK SHEETS

C1 TOPOGRAPHIC SURVEY
C2 GRADING PLAN
C3 STORM WATER POLLUTION PREVENTION PLAN REQUIREMENTS



TOPOGRAPHIC SURVEY

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JAMES E. ROSE
44096
LICENSED
PROFESSIONAL ENGINEER

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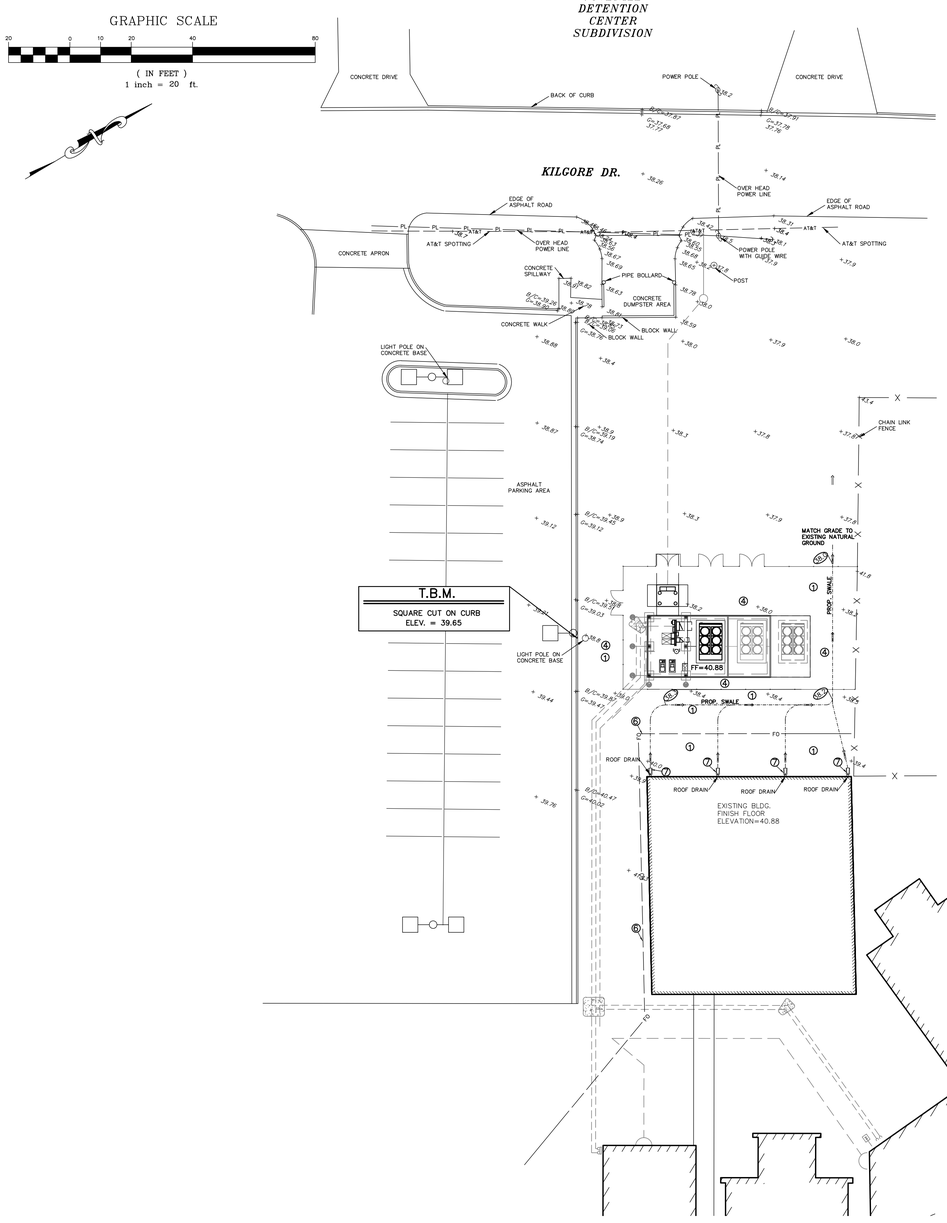
CAD FILE:
SHEET: C-1 OF C3

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.



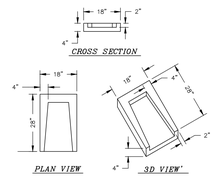
CALL TEXAS 811 FOR SPOTTING OF UTILITIES
PRIOR TO ANY TYPE OF CONSTRUCTION!
1-800-344-8377

LEGEND

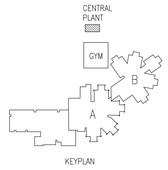
- INDICATES PROPOSED GROUND SURFACE SPOT ELEVATION
- INDICATES PROPOSED DIRECTION OF GRADE
- INDICATES SIDEWALK TRENCH UNDER DRAIN
- INDICATES SPLASH BOX
- INDICATES PROPOSED SWALE
- (37.5) INDICATES TYPICAL PROPOSED FINISHED GROUND SURFACE CONTOUR
- (TC 39.79) INDICATES PROPOSED TOP OF CURB ELEV.
- (TS 39.83) INDICATES PROPOSED TOP OF SIDEWALK ELEV.
- (P 39.75) INDICATES PROPOSED PAVEMENT ELEVATION
- (G 39.75) INDICATES PROPOSED GUTTER ELEVATION

GRADING PLAN NOTES

1. GRADE ALL AREAS (SMOOTH AND FINELY GRADED AS NEEDED TO RECIEVE HYDROMULCHING OR SOD) TO DRAIN TO THE NEAREST DRAINAGE OUTLET OR SWALE
2. ALL DEBRIS AND EXCESS EARTH MATERIAL GENERATED BY THE SITEWORK OPERATIONS WILL BECOME PROPERTY OF THE CONTRACTOR TO BE REMOVED FROM THE SITE AND PROPERLY DISPOSED AT HIS EXPENSE.
3. NO SIDEWALKS SHALL HAVE A CROSS SLOPE GREATER THAN 2% OR LONGITUDINAL SLOPE GREATER THAN 5%.
4. BACKFILL ALL PAVEMENT EDGES AND SIDEWALKS TO 3"BELOW TOP OF PAVEMENT OR SIDEWALK AND SLOPE UNIFORMLY AT AVAILABLE SLOPE TO NEAREST DRAINAGE OUTLET OR TO EXISTING GROUND AT 10%
5. NO IRRIGATION SPRINKLER HEADS OR PIPING SHALL BE INSTALLED IN ANY AREA UNTILL FINAL GRADING IN THAT AREA HAS BEEN COMPLETED AND APPROVED BY SITEWORK ENGINEER.
6. APPROXIMATE LOCATION OF EXISTING FIBER OPTIC CABLE AND CONDUIT. CONTRACTOR TO CALL FOR SPOTTING AND VERIFY LOCATION BEFORE COMMENCING ANY WORK.
7. PROPOSED SPLASH BLOCK



CONCRETE SPLASH BLOCK
3000 PSI CONCRETE
SCALE: N.T.S



KEYPLAN

GRADING PLAN

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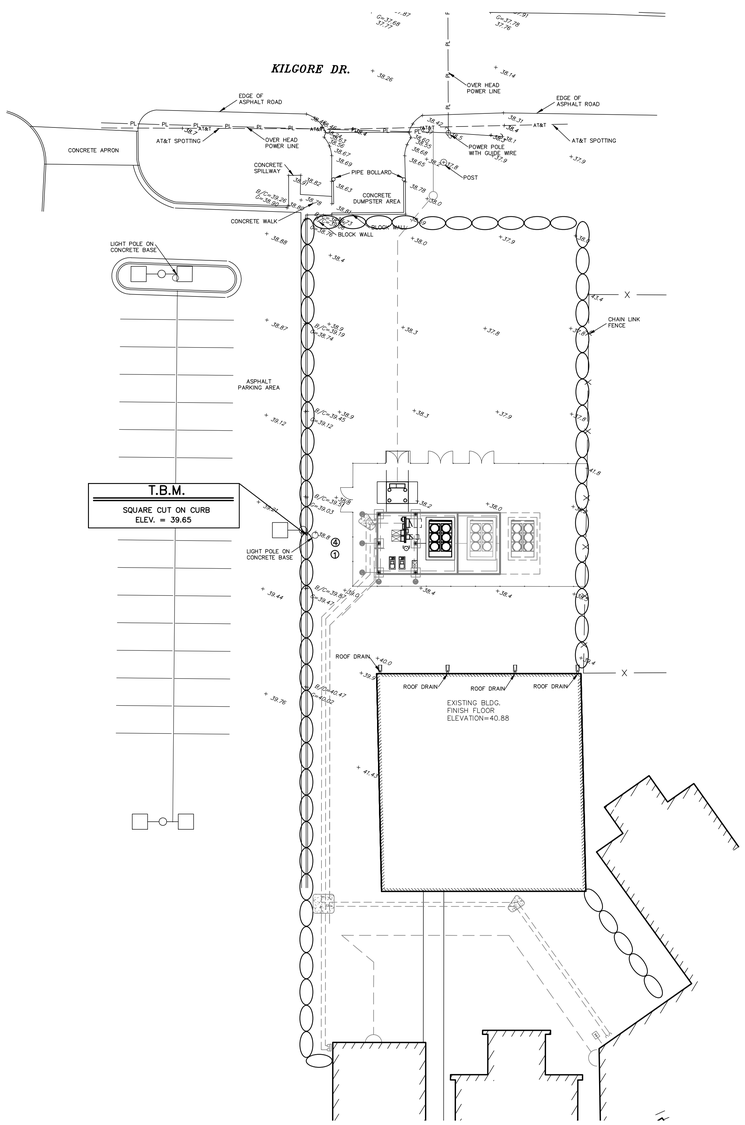
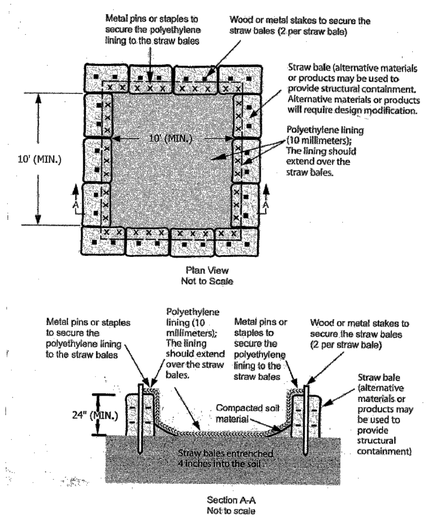
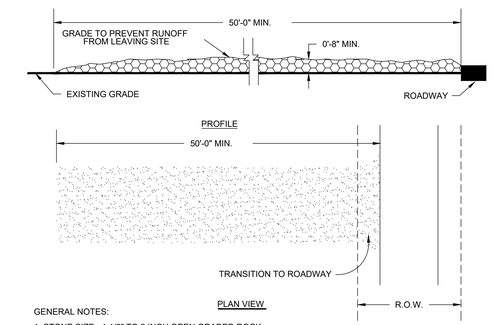




4 CONCRETE WASHOUT

N.T.S.



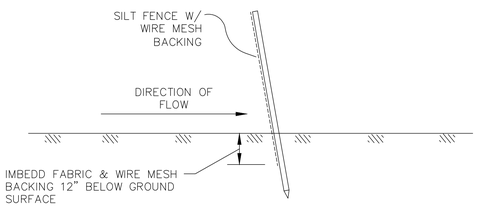
GENERAL NOTES:

1. STONE SIZE - 1 1/2" TO 2 INCH OPEN GRADED ROCK.
2. LENGTH - AS EFFECTIVE, BUT NOT LESS THAN 50 FEET.
3. THICKNESS - NOT LESS THAN 8 INCHES.
4. WIDTH - NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. WASHING - WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE USING APPROVED METHODS.
6. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED WASHED, OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE - ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

1 STABILIZED CONSTRUCTION ENTRANCE DETAIL

N.T.S.

MAY NOT BE NECESSARY IF EXISTING PAVED ENTRANCES ARE USED SUBJECT TO NOTES NO. 5 AND NO. 6

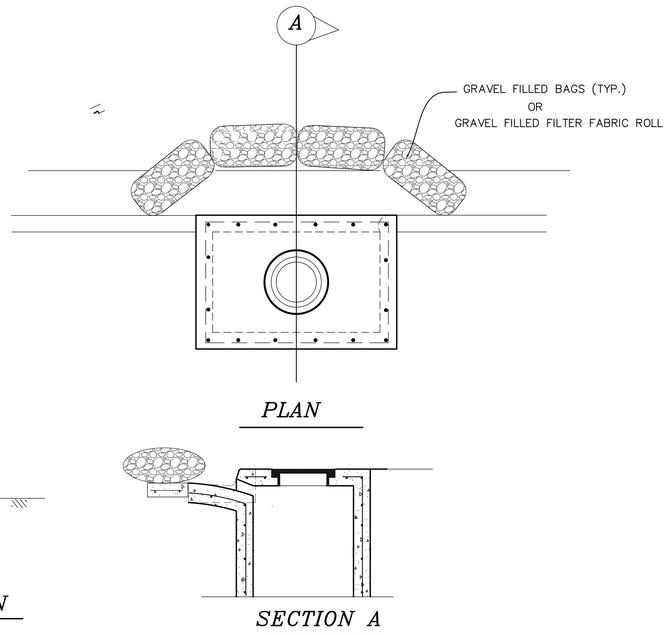


2 SILT FENCE INSTALLATION

N.T.S.

TO BE INSTALLED WHEREVER THERE IS POTENTIAL FOR RUNOFF TO LEAVE SITE OR ENTER DRAINAGE SYSTEM.

LEGEND	
	24" HIGH SILT FENCE

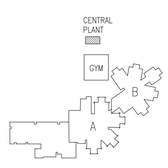


3 GRAVEL FILLED BAGS AT INLETS

CONTRACTOR'S RESPONSIBILITY FOR PREPARATION AND IMPLEMENTATION OF STORMWATER POLLUTION PREVENTION PLAN

1. IT IS THE INTENT OF THE INFORMATION PROVIDED WITHIN THESE SPECIFICATIONS TO BE USED BY THE CONTRACTOR AS THE GENERAL GUIDELINES OF THE **STORM WATER POLLUTION PREVENTION PLAN** FOR THIS PROJECT TO ESTABLISH A MINIMUM BASIS OF COMPLIANCE WITH THE FEDERAL REGULATIONS.
2. THE CONTRACTOR'S **STORM WATER POLLUTION PREVENTION PLAN** SHOULD ADDRESS THREE GOALS:
   A. DIVERSION OF UPSLOPE WATER AROUND DISTURBED AREAS OF THE SITE;
   B. LIMITS THE EXPOSURE OF DISTURBED AREAS TO THE SHORTEST DURATION POSSIBLE; AND
   C. REMOVAL OF SEDIMENT FROM STORM WATER BEFORE IT LEAVES THE SITE.
3. ✳ IF AREA OF THE PROJECT REQUIRES, THE CONTRACTOR SHALL PREPARE AND FILE TO THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY STORM WATER & GENERAL PERMITS TEAM (TCEQ) NOTICE OF INTENT (NOI) FORMS BEFORE (SEVEN DAYS IF BY MAIL–24 HOURS IF ON LINE) BEGINNING ANY CONSTRUCTION.
4. THE CONTRACTOR SHALL MAKE THE **STORM WATER POLLUTION PREVENTION PLAN** AVAILABLE, UPON REQUEST, TO TCEQ.
5. THE CONTRACTOR MUST AMEND PLANS WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF THE PLAN, OR WHEN THE EXISTING PLAN PROVE INEFFECTIVE. MODIFICATIONS INCLUDING DESIGN AND ALL ADDITIONAL MATERIALS AND WORK, SHALL BE ACCOMPLISHED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
6. STABILIZATION MEASURES ARE TO BE INSPECTED AT A MINIMUM OF ONCE EVERY 14 DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES. REPAIRS AND INADEQUACIES REVEALED BY THE INSPECTION MUST BE REMEDIED WITHIN 7 CALENDAR DAYS.
7. ALL INSPECTION REPORTS SUMMARIZING INSPECTION ACTIVITIES, REMEDIAL ACTION TAKEN, AND ACTUAL IMPLEMENTATION OF THE **STORM WATER POLLUTION PREVENTION PLAN** SHALL BE RETAINED AND MADE PART OF THE PLAN.
8. ALL CONTRACTORS AND SUBCONTRACTORS IDENTIFIED IN THE PLAN MUST CERTIFY AS TO AN UNDERSTANDING OF THE TPDES GENERAL PERMIT BEFORE CONDUCTING ANY ACTIVITY IDENTIFIED IN THE **STORM WATER POLLUTION PREVENTION PLAN.**
9. THE CONTRACTOR SHALL ADOPT APPROPRIATE CONSTRUCTION SITE MANAGEMENT PRATICES TO PREVENT THE DISCHARGE OF OILS, GREASE, PAINTS, GASOLINE, AND OTHER POLLUTANTS TO STORM WATER. APPROPRIATE PRACTICES CAN INCLUDE:
   – DESIGNATED AREAS FOR EQUIPMENT MAINTENANCE AND REPAIR;
   – REGULAR COLLECTION OF WASTE;
   – CONVENIENTLY LOCATED WATER RECEPTACLES; AND
   – DESIGNATING AND CONTROLING EQUIPMENT WASH–DOWN.
10. THE CONTRACTOR SHALL AMEND OR MODIFY THIS PLAN AS REQUIRED BY CONSTRUCTION MEANS, METHODS AND SEQUENCE. MODIFICATIONS SHALL NOT COMPROMISE THE INTENT OF THE REQUIREMENTS OF THE LAW OR THE PLANS. MODIFICATIONS SHALL NOT BE BASIS FOR ADDITIONAL COST TO THE OWNER.
11. THE CONTRACTOR SHALL CONSTRUCT A STABILIZED CONSTRUCTION ENTRANCE AT ALL TRAFFIC ENTRANCE/EXIT POINTS PRIOR TO EXITING ONTO AND PAVED ROADWAYS. (SEE DETAIL 1.)
12. THE CONTRACTOR SHALL PROTECT ALL POTENTIAL POINTS OF DISCHARGE OF RUNOFF (INLETS, GUTTERS, SWALES AND UNVEGETATED RESACA BANK AREAS) WITH SILT FENCING HAY BALES, GRAVEL FILLED BAGS AS SHOWN ON DETAILS 2, 3, AND 4 OR EQUIVALENT MEANS APPROVED BY ENGINEER.
13. FINAL STABILIZATION SHALL BE ACCOMPLISHED BY INSTALLING 2 FEET WIDE STRIP OF SOD BEHIND CURB OR SIDEWALK CONTRACTOR SHALL WATER THE SOD IMMEDIATELY AFTER INSTALLATION AND 3 TIMES PER WEEK FOR 2 WEEKS AFTER INSTALLATION.

✳ *NOTE: THE TOTAL AREA OF THIS PROJECT IS LESS THAN 5 ACRES THEREFORE, THE FILING OF NOTICE OF INTENT (NOI) AND NOTICE OF TERMINATION (NOT) IS NOT REQUIRED. ALL OTHER REQUIREMENTS SHALL APPLY.*



STORM WATER POLLUTION PREVENTION PREVENTION PLAN REQUIREMENTS

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SHEET: C-3 OF C3

GENERAL STRUCTURAL NOTES

THESE GENERAL NOTES SHALL APPLY UNLESS OTHERWISE SPECIFICALLY NOTED ON PLANS OR DETAILS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SHALL COORDINATE ALL STRUCTURAL PLANS AND DETAILS WITH ARCHITECTURAL & MECHANICAL DRAWINGS BEFORE STARTING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR CONTRACTOR MEANS AND METHODS OF CONSTRUCTION OR SITE SAFETY. DESIGN, CONSTRUCTION, WORKMANSHIP AND MATERIALS SHALL COMPLY WITH THE CONTROLLING PROVISIONS OF THE 2018 EDITION OF THE **INTERNATIONAL BUILDING CODE (IBC)**.

DESIGN CRITERIA

1. BASIS FOR DESIGN AND CODE COMPLIANCE

   A. GOVERNING BUILDING CODE..IBC 2018 EDITION

2. GRAVITY DESIGN
   ROOF:
   DEAD LOAD..SELF–WEIGHT OF STRUCTURE & ROOFING SYSTEM
   LIVE LOAD..20 PSF (REDUCIBLE)

3. WIND DESIGN BASED ON:

   A. ASCE 7–16 REQUIREMENTS

   DESIGN WIND SPEED ....154 MPH
   RISK CATEGORY IV
   WIND EXPOSURE CATEGORY C
   INTERNAL PRESSURE COEFFICIENT (GCpi) .... +/–0.18
   Kzt 1.0
   Kd 0.85

4. THESE BUILDINGS ARE DESIGNED TO MEET ASCE 7–16 WIND PRESSURES. ALL COMPONENTS AND CLADDINGS (E.G. WINDOWS, DOORS, ARCHITECTURAL SIDINGS AND ROOFING); MUST MEET MINIMUM WIND CODE REQUIREMENTS. IN ADDITION AS ADOPTED BY THE TEXAS DEPARTMENT OF INSURANCE, GLAZED EXTERIOR OPENINGS IN THE LOWER 60 FEET OF THE BUILDING SHALL BE IMPACT RESISTANT MEETING ASTM E 1996 FOR LARGE MISSILES OR PROTECTED WITH AN IMPACT RESISTANT COVERING.

5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL TDI WINDSTORM FIELD INSPECTIONS AND WINDSTORM CERTIFICATION OF ALL BUILDINGS. CONTRACTOR SHALL REFERENCE SPEC. 011100.

PROJECT WINDSTORM REQUIREMENTS

1. THE GENERAL CONTRACTOR MUST SUBMIT COMPONENT AND CLADDING WIND PRESSURE RATINGS AND REQUIRED ATTACHMENT PROCEDURES TO THE TEXAS DEPARTMENT OF INSURANCE (TDI) APPOINTED QUALIFIED INSPECTOR (WINDSTORM INSPECTOR) FOR REVIEW. SUBMITTAL INFORMATION SHALL INCLUDE DOCUMENTATION FOR EITHER A TESTED ASSEMBLY (THIRD PARTY WIND TEST REPORT) OR AN ENGINEERED ASSEMBLY (ENGINEERED SHOP DRAWINGS AND CALCULATIONS SEALED BY A TEXAS PROFESSIONAL ENGINEER) OF THE PROPOSED ASSEMBLY.
2. THE GENERAL CONTRACTOR SHALL CONTACT THE WINDSTORM INSPECTOR TO COORDINATE AND SCHEDULE REQUIRED PERIODIC INSPECTIONS OF THE INSTALLATION OF THE EXTERIOR COMPONENTS AND CLADDINGS.
3. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING CONSTRUCTION SERVICES AS NEEDED TO SATISFY THE REQUIREMENTS OF THE CONSTRUCTION DRAWINGS AND SPECIFICATIONS, THE REFERENCED BUILDING CODE AND THE TEXAS DEPARTMENT OF INSURANCE WINDSTORM INSPECTION PROGRAM. ALL CONSTRUCTION ADMINISTRATION COSTS ASSOCIATED WITH SUBMITTAL PREPARATION, SUBMITTAL REVIEW, INSPECTION COORDINATION, INCLUDING ALL GENERAL CONDITIONS, OVERHEAD AND PROFIT, SHALL BE INCLUDED IN THE GENERAL CONTRACTOR'S BID.
4. FOR THE NEW EXTERIOR MECHANICAL EQUIPMENT AND EXPOSED EXTERIOR DUCTWORK, THE ENGINEERING DESIGN FOR THESE EXTERIOR ASSEMBLIES, INCLUDING THEIR SUPPORT COMPONENTS (CURBS, STANDS, SLEEPERS, ETC.) AND ANCHORING OF THESE ITEMS TO THE STRUCTURE, SHALL BE SPECIFIED AS A DELEGATED DESIGN TO BE PERFORMED BY THE EQUIPMENT AND DUCTWORK MANUFACTURER. HENCE, THIS RESPONSIBILITY FALLS ON THE GENERAL CONTRACTOR, THEIR SUBCONTRACTORS AND THEIR VENDORS. NEITHER THE STRUCTURAL ENGINEER OR WINDSTORM INSPECTOR IS RESPONSIBLE FOR DESIGNING THE ROOFTOP EQUIPMENT ASSEMBLIES OR DUCTWORK, NOR OF THE ANCHORING OF THESE ASSEMBLIES TO THE STRUCTURE. SUBMITTALS OF THE ENGINEERED ASSEMBLIES NEED TO BE PROVIDED BY THE GENERAL CONTRACTOR FOR REVIEW AND FOR USE IN PERFORMING THE FIELD INSPECTIONS.

FOUNDATION DESIGN CRITERIA

1. FOUNDATION DESIGN IS IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, AND IS BASED ON THE GEOTECHNICAL REPORT #88115043 PREPARED BY TERRACON, PHARR, TEXAS, DATED MARCH 30, 2011.

   GRADE BEAMS, FOOTINGS, AND SLAB:

   BEARING CAPACITY .... 3.0 KSF

   GROUNDWATER NOT WAS ENCOUNTERED AT DURING OR AFTER TERMINATION OF DRILLING OPERATIONS (MAY FLUCTUATE WITH SEASON).

2. THE GEOTECHNICAL ENGINEER OF RECORD SHALL BE RETAINED TO PERFORM TESTING AND INSPECTIONS DURING SITE PREPARATION AND PLACEMENT OF BUILDING PAD FILL AS REQUIRED BY SPECIFICATIONS AND GENERAL STRUCTURAL NOTES.

HAZARDOUS MATERIALS ABATEMENT/ MANAGEMENT

1. THE ENGINEER HAS NO RESPONSIBILITY OR LIABILITY FOR DESIGN, REMOVAL OF, OR TESTING FOR ASBESTOS/LEAD, OR FOR ABATEMENT /MANAGERIAL TREATMENTS, MONITORING, AND LEGAL DISPOSAL OF MATERIALS. CONTRACTOR SHALL DETERMINE IF ANY HAZARDOUS MATERIAL ABATEMENT/ MANAGEMENT IS REQUIRED AND SHALL INCLUDE COSTS THEREOF IN THE BID.

CONSTRUCTION NOTES ON THE REPAIR WORKS ON EXISTING STRUCTURE

1. BEFORE PROCEEDING WITH ANY WORK WITHIN THE EXISTING FACILITY. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH EXISTING STRUCTURAL AND OTHER CONDITIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL NECESSARY BRACING. SHORING AND OTHER SAFEGUARDS TO MAINTAIN ALL PARTS OF THE EXISTING WORK IN A SAFE CONDITION DURING THE PROCESS OF DEMOLITION AND CONSTRUCTION AND TO PROTECT FROM DAMAGE THOSE PORTIONS OF THE EXISTING WORK WHICH ARE TO REMAIN.
2. THE CONTRACTOR SHALL FIELD VERIFY THE DIMENSIONS. ELEVATIONS, ETC. NECESSARY FOR THE PROPER CONSTRUCTION AND ALIGNMENT OF THE NEW PORTIONS OF THE WORK TO THE EXISTING WORK. THE CONTRACTOR SHALL MAKE ALL MEASUREMENTS NECESSARY FOR FABRICATION AND ERECTION OF STRUCTURAL MEMBERS. ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
3. WELDING TO AND WITHIN AN EXISTING FACILITY PRESENTS POTENTIAL HAZARDS INCLUDING:

   A. FIRE HAZARD – DUE TO THE EXISTING CONSTRUCTION AND BUILDING CONTENTS.

   B. STRUCTURAL LIQUEFACTION – DUE TO WELDING ACROSS THE FULL SECTION OF STRUCTURAL STEEL MEMBERS.

   RECOMMENDATIONS TO PREVENT THESE HAZARDS INCLUDE.

   A. FIRE HAZARD – PROTECT EXISTING COMBUSTIBLES PRIOR TO WELDING. KEEP A SEPARATE WATCHMAN AND SEVERAL FIRE EXTINGUISHERS ON HAND.

   B. STRUCTURAL LIQUEFACTION – WELD IN SMALL INCREMENTS. ALLOW WELDS TO HARDEN BEFORE CONTINUING TO THE NEXT INCREMENT.

   C. DO NOT LEAVE THE SITE UNTIL SATISFIED THAT NO FIRE HAZARD EXISTS.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND ERECTION OF ALL SHORING NECESSARY TO SAFEGUARD THE EXISTING STRUCTURE.

EXISTING CONDITIONS

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS. DIMENSIONS SHOWN ON THE PLANS ARE APPROXIMATE. CONTRACTOR SHALL OBTAIN ALL FIELD MEASUREMENTS AS NECESSARY TO COORDINATE NEW CONSTRUCTION TO EXISTING CONDITIONS.
2. IF EXISTING CONDITIONS DIFFER FROM THE DRAWINGS, INFORM THE ENGINEER AND ADDITIONAL DETAILS OR INTERPRETATION WILL BE PROVIDED. DO NOT PROCEED WITHOUT VERIFICATION.
3. THE CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED WORK AND FULLY ACQUAINT THEMSELVES WITH THE EXISTING CONDITIONS.

DEMOLITION NOTES

1. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING STRUCTURE AND SURROUNDING BUILDINGS DURING CONSTRUCTION.
2. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY WATERTIGHTNESS OF THE BUILDING DURING DEMOLITION AND RECONSTRUCTION.
3. GENERAL CONTRACTOR SHALL COORDINATE WITH ENGINEER ITEMS THAT ARE UNCLEAR PRIOR TO ANY DEMOLITION.
4. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE PROJECT SITE TO DETERMINE DEMOLITION REQUIREMENTS AT THIS PROJECT. CONTRACTOR SHALL INCLUDE IN THEIR BID ALL THE DEMOLITION REQUIREMENTS TO COMPLETE THIS PROJECT.
5. GENERAL CONTRACTOR SHALL LOCATE AND LABEL ALL UTILITIES BEFORE COMMENCEMENT OF DEMOLITION & CONSTRUCTION ACTIVITIES. UTILITIES SHALL BE CLEARLY MARKED SO THAT ANY SUBCONTRACTOR VISITING THIS SITE CAN EASILY IDENTIFY UTILITIES. ANY COSTS TO REPAIR DAMAGES IF UTILITIES ARE NOT PROPERLY IDENTIFIED, ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND DISPOSING DEBRIS & MATERIAL AWAY FROM SITE ACCORDING TO GOVERNING LOCAL, STATE OR FEDERAL REGULATIONS.
7. ANY AREA DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE OWNER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.

PENETRATIONS

1. PENETRATIONS THROUGH EXISTING ELEMENTS SHALL COMPLY WITH THE DRAWINGS AND SPECIFICATIONS.
2. DO NOT CUT JOISTS, BEAMS OR COLUMNS WITHOUT PRIOR APPROVAL.
3. PENETRATIONS THROUGH LOAD–BEARING ELEMENTS SHALL BE TEMPORARILY SHORED TO PREVENT COLLAPSE, AS SPECIFIED BELOW.

TEMPORARY BRACING, FALSEWORK AND FORMWORK

1. CONTRACTOR SHALL PROVIDE ENGINEERED SHORING PLAN PRIOR TO START OF ROOF COLUMN DEMOLITION. SHORING PLAN SHALL BE SIGNED AND SEALED BY A STATE OF TEXAS PROFESSIONAL ENGINEER.
2. THE DESIGN, ENGINEERING, FABRICATION, CONSTRUCTION, ERECTION, REMOVAL AND OVERALL SAFETY OF ALL TEMPORARY SUPPORTS SUCH AS FALSEWORK, FORMWORK, SHORES AND BRACING REQUIRED FOR THE EXECUTION OF THE CONTRACT ARE NOT INCLUDED IN THE DRAWINGS AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. THE ENGINEER'S EFFORTS ARE AIMED AT DESIGNING A PROJECT WHICH WILL BE SAFE AFTER FULL COMPLETION. THE ENGINEER HAS NO EXPERIENCE IN, AND TAKES NO RESPONSIBILITY FOR, CONSTRUCTION MEANS AND METHODS OR JOB SITE SAFETY DURING CONSTRUCTION. SAFETY IS EXCLUSIVELY THE CONTRACTOR'S RESPONSIBILITY. PROCESSING AND/OR APPROVING SUBMITTALS MADE BY CONTRACTOR WHICH MAY CONTAIN INFORMATION RELATED TO SHORING, CONSTRUCTION METHODS OR SAFETY ISSUES, OR PARTICIPATION IN MEETINGS WHERE SUCH ISSUES MIGHT BE DISCUSSED, MUST NOT BE CONSTRUED AS VOLUNTARY ASSUMPTION BY ENGINEER OF ANY RESPONSIBILITY FOR THESE SAFETY PROCEDURES.

SAFETY

1. PERFORM ALL WORK IN A SAFE AND CONSCIENTIOUS MANNER TO PREVENT INJURIES.
2. CONTRACTOR SHALL MAINTAIN OSHA STANDARDS FOR JOB SAFETY AND WORKER PROTECTION, INCLUDING, BUT NOT LIMITED TO ADEQUATE PROTECTION, BARRICADES, SIGNS, ETC.
3. THE GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR SAFETY. THE ENGINEER EXPRESSLY EXCLUDES ANY RESPONSIBILITY FOR CONTRACTOR SAFETY OR SAFETY OF JOBSITE.

FOUNDATION NOTES

1. REMOVE **AT LEAST 48" INCHES** OF THE EXISTING SITE SOIL, VEGETATION, DEBRIS, ETC., FROM THE PROPOSED BUILDING AREA TO A DISTANCE OF 5'–0" OUTSIDE THE BUILDING AREA (EXTERIOR OF THE FOUNDATION, INCLUDING ATTACHED IMPROVEMENTS SUCH AS SIDE WALKS AND CANOPIES). DEPTH OF REMOVAL SHALL BE VERIFIED BY THE GEOTECHNICAL ENGINEER AT THE TIME OF CONSTRUCTION.
2. AFTER TOP SOIL HAS BEEN REMOVED, THE SUBGRADE SHALL BE PROOF–ROLLED WITH APPROPRIATE CONSTRUCTION EQUIPMENT WEIGHING AT LEAST 20 TONS UNTIL THE GRADE OFFERS A RELATIVELY UNYIELDING SURFACE. SOFT SOIL AND YIELDING AREAS SHALL BE OVER EXCAVATED AND REPLACED WITH COMPACTED SELECT FILL IN ACCORDANCE WITH THE REQUIREMENTS BELOW.
3. PROOFROLLING OPERATIONS AND EXCAVATION/BACKFILL ACTIVITIES SHOULD BE PERFORMED DURING A PERIOD OF DRY WEATHER AND OBSERVED BY THE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE TO DOCUMENT SUBGRADE CONDITIONS AND PREPARATION. IF SUBGRADE SOILS ARE ALLOWED TO BECOME WET OR SATURATED, REMOVAL AND REPLACEMENT OF SOFT SOILS OR LIME STABILIZATION PROCEDURES SHALL BE PERFORMED AT THE CONTRACTOR'S EXPENSE. THE GEOTECHNICAL ENGINEER SHALL BE CONTACTED FOR ADDITIONAL RECOMMENDATIONS, IF REQUIRED.
4. SCARIFY, MOISTURE CONDITION, AND COMPACT THE TOP 8" OF THE EXPOSED SUBGRADE TO 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY AT OPTIMUM AND +3% OF OPTIMUM MOISTURE CONTENT, IN ACCORDANCE WITH TEST METHOD ASTM D–698 STANDARD PROCTOR. MOISTURE CONTENT SHALL BE AS NOTED IMMEDIATELY PRIOR TO PLACING SELECT FILL.
5. RESTORE GRADE USING SELECT FILL MEETING THE REQUIREMENTS OF SELECT FILL **MINIMUM OF 48 IN** OR AS REQUIRED TO PROVIDE THE SPECIFIED **FINISH FLOOR ELEVATION**, WHICHEVER IS GREATER, AND PROPER SITE DRAINAGE, COMPACTED IN ACCORDANCE WITH THE REQUIREMENTS BELOW. FINISH FLOOR SHALL BE VERIFIED WITH ARCHITECT AND CIVIL ENGINEER.
6. SELECT FILL SHALL BE COMPACTED IN THE FIELD IN LIFTS NOT TO EXCEED 8" LOOSE MEASURE (6" COMPACTED LIFT) TO A MINIMUM OF 98% OF STANDARD PROCTOR MAXIMUM DRY DENSITY FROM –2% OF OPTIMUM TO +2% ABOVE OPTIMUM MOISTURE CONTENT AS EVALUATED BY ASTM D–698 STANDARD PROCTOR.
7. SELECT FILL SHALL HAVE A PLASTICITY INDEX (PI) OF 7–18% WITH A MAXIMUM LIQUID LIMIT (LL) OF 40% AND NO CLAY BALLS LARGER THAN 4" IN DIAMETER.
8. FOUNDATION CONCRETE SHALL NOT BE PLACED ON SELECT FILL SOILS THAT HAVE BEEN DISTURBED BY RAINFALL OR WATER SEEPAGE. IF BEARING SOILS ARE SOFTENED BY WATER INTRUSION, OR BY DESICCATION, THE UNSUITABLE SOILS SHALL BE REMOVED FROM THE FOUNDATION EXCAVATION AND BE REPLACED WITH PROPERLY COMPACTED SELECT FILL PRIOR TO PLACEMENT OF FOUNDATION CONCRETE. ALL SOIL REMOVAL AND REPLACEMENT COSTS, INCLUDING ASSOCIATED COSTS TO REMOVE AND REINSTALL REINFORCEMENT AND VAPOR RETARDER MATERIALS, SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR. DEPTH OF SOIL REMOVAL AND RECOMPACTION REQUIREMENTS SHALL BE COORDINATED WITH THE GEOTECHNICAL ENGINEER.
9. SAMPLES OF PROPOSED SELECT FILL SHALL BE FURNISHED TO THE TESTING LABORATORY 7 DAYS PRIOR TO INSTALLATION TO PERMIT TIME FOR SPECIFICATION COMPLIANCE INSPECTION AND REVIEW BY THE GEOTECHNICAL ENGINEER.
10. LABORATORY MOISTURE–DENSITY CURVES SHALL BE DEVELOPED FOR SUBGRADE AND FILL. PROCTOR CURVES AND FIELD DENSITY TESTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. A MINIMUM OF ONE (1) IN PLACE DENSITY TEST PER 5,000 SQUARE FEET OF SLAB AREA SHALL BE TAKEN ON EACH LIFT DURING PLACEMENT OF SELECT FILL. DENSITY REPORTS SHALL BE TRANSMITTED TO ENGINEER WITHIN 3 DAYS AFTER TESTS ARE MADE.
11. GRAIN SIZE ANALYSIS AND ATTERBERG LIMITS TESTS SHALL BE PERFORMED DURING FILL PLACEMENT AT A RATE OF ONE TEST PER 2,000 CUBIC YARDS OF FILL BROUGHT TO THE SITE. SAMPLES FOR TEST SHALL BE TAKEN FROM JOBSITE MATERIALS.
12. SITE SHALL BE GRADED SO THAT WATER DOES NOT POND WITHIN 10 FEET OF THE PERIMETER FOUNDATION BEAM DURING OR AFTER CONSTRUCTION. THE SLOPE OF THE GROUND SURFACE AWAY FROM THE STRUCTURE SHOULD BE A MINIMUM OF FIVE (5%) PERCENT FOR A DISTANCE OF AT LEAST TEN (10') FEET. ELEVATION OF GROUND SURFACE ADJACENT TO THE FOUNDATION SHOULD BE AT LEAST 6 INCHES BELOW FINISH FLOOR.
13. FINAL DRAINAGE IS VERY IMPORTANT TO THE PERFORMANCE OF THE FOUNDATION. LANDSCAPING, PLUMBING, AND DOWNSPOUT DRAINAGE ARE ALSO VERY IMPORTANT. IT IS VITAL THAT ALL ROOF DRAINAGE BE TRANSPORTED AWAY FROM BUILDINGS SO THAT NO AREAS OF WATER POND AROUND BUILDINGS, WHICH CAN RESULT IN SOIL VOLUME CHANGE UNDER THE FOUNDATION. PLUMBING LEAKS SHOULD BE REPAIRED AS SOON AS POSSIBLE IN ORDER TO MINIMIZE THE MAGNITUDE OF MOISTURE CHANGE UNDER THE SLAB. LARGE TREES AND SHRUBS SHOULD NOT BE PLANTED IN THE IMMEDIATE VICINITY OF THE STRUCTURE, SINCE THE ROOT SYSTEMS CAN CAUSE A SUBSTANTIAL REDUCTION IN SOIL VOLUME IN THE VICINITY OF THE TREE DURING DRY PERIODS. BUSHES AND TREES SHOULD BE PLANTED A REASONABLE DISTANCE AWAY FROM THE STRUCTURE SO THAT THEIR CANOPY OR "DRIP LINE" DOES NOT EXTEND BEYOND THE PERIMETER OF THE FOUNDATION. WATERING OF VEGETATION SHOULD BE PERFORMED IN A TIMELY AND CONTROLLED MANNER. PROLONGED WATERING SHOULD BE AVOIDED.

CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE SPECIFICATION, A.C.I. #301 AND BUILDING CODE REQUIREMENTS, A.C.I. #318, LATEST EDITION.
2. ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, MUST FOLLOW THE A.C.I. "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE", A.C.I. #315, LATEST EDITION.
3. CONCRETE SHALL HAVE A MINIMUM COMPRESSION STRENGTH OF 3,000 PSI AT 28 DAYS.
4. A MAXIMUM OF 25% FLYASH MAY BE USED AS A CEMENT SUBSTITUTE AND SHALL CONFORM TO ASTM C618, CLASS C. THE WATER/CEMENT RATIO SHALL NOT EXCEED 0.6 AND SLUMPS SHALL BE 5 INCHES (±1 INCH). CONCRETE FOR PIERS SHALL BE DESIGNED TO ACHIEVE SPECIFIED STRENGTH WHEN PLACED WITH A SEVEN (7) INCH (±1) SLUMP. AGGREGATE SHALL BE WELL–GRADED, 1" MAXIMUM FOR THE SLAB ON GRADE, 1" MAXIMUM FOR CAST–IN–PLACE BEAMS AND ABOVE GRADE SLABS. COARSE AGGREGATE SHALL MEET ASTM C33, GRADATION #57. A QUALIFIED TESTING LABORATORY SHALL BE RETAINED TO FURNISH MIX DESIGNS FOR ALL CLASSES OF CONCRETE. A SAMPLE OF FOUR CYLINDERS SHALL BE TAKEN NOT LESS THAN ONCE A DAY, NOR LESS THAN ONCE FOR EACH 100 YD3 OF CONCRETE. ONE CYLINDER SHALL BE TESTED AT 7 DAYS AND TWO AT 28 DAYS. THE FOURTH CYLINDER MAY BE DISPOSED OF AFTER 45 DAYS IF NOT USED.
5. ADMIXTURES CONTAINING WATER SOLUBLE CHLORIDE IONS GREATER THAN 0.06% BY WEIGHT OF CEMENT SHALL NOT BE USED.
6. REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A–615, GRADE 60. #3 BARS MAY BE GRADE 40.
7. STANDARD PROTECTIVE COVER OF REINFORCING BARS UNLESS OTHERWISE NOTED SHALL BE:

   WHERE CAST AGAINST DIRT OR FILL .... 3 IN.
   EXPOSED TO EARTH OR WEATHER .... 2 IN.
   SLABS AND WALLS .... 1 IN.
   OTHER .... 1–1/2 IN.

8. WELDED WIRE FABRIC MATS SHALL BE ASTM A185.
9. ALL ACCESSORIES SHALL BE IN ACCORDANCE WITH ACI 315, LATEST EDITION.
10. SLAB MAT TO BE SUPPORTED BY PLASTIC CHAIRS SPACED AT 4 FEET ON CENTER EACH WAY (MAX). BEAM CAGES SUPPORTED BY BATTS AT 4 FEET ON CENTER.
11. VERTICAL CONSTRUCTION JOINTS IN FLOOR SHALL BE COORDINATED WITH STRUCTURAL ENGINEER PRIOR TO FORMING SLAB. CRACK CONTROL JOINTS SHALL BE PROVIDED AT LOCATIONS SHOWN ON THE PLANS. CONTROL JOINTS SHALL BE SAWCUT (IMMEDIATELY SUBSEQUENT TO FINISHING SLAB) WITH "SOFF–CUT" SYSTEM. JOINTS SHALL BE CLEANED AND FILLED WITH "SONOLASTIC SL1" WITHIN TWO (2) DAYS AFTER SAWCUTTING. NO HORIZONTAL JOINTS WILL BE PERMITTED IN SLABS OR BEAMS UNLESS APPROVED BY THE ENGINEER.
12. INCLUDE IN BID AN ALLOWANCE FOR **1.0 TON** OF REINFORCING BARS TO BE USED AS DIRECTED IN FIELD FOR SPECIAL CONDITIONS AT A COST OF **$2,000.00 PER TON** (LABOR FOR PLACING SAME TO BE INCLUDED). ANY UNUSED ALLOWANCE WILL BE CREDITED TO THE OWNER AT THE END OF THE PROJECT.
13. PROVIDE 2 TOP & BOTTOM CORNER BARS AT ALL DISCONTINUOUS GRADE BEAMS AND FOUNDATION CORNERS. CORNER BARS SHALL BE 4'–0" IN LENGTH (2'–0" LEGS). SIZE OF THE CORNER BARS SHALL MATCH THE SIZE OF THE GRADE BEAM REINFORCING AS SHOWN BY STRUCTURAL DRAWINGS.
14. MAINTAIN A MINIMUM OF ONE AND ONE–HALF (1–1/2) TIMES THE MAXIMUM COARSE AGGREGATE SIZE BETWEEN ALL REINFORCING BARS (EXCEPT AT LAPS).
15. BARS SCHEDULED OR DETAILED "CONT" SHALL BE LAPPED 40 BAR DIAMETERS (24 INCHES MINIMUM) UNLESS OTHERWISE NOTED.
16. WHERE CONCRETE IS TO HAVE UNEXPOSED SURFACES, THE FORMS MAY BE CONSTRUCTED OF #2 LUMBER OR BETTER. WHERE SURFACES ARE EXPOSED, SUCH AS FOR FINISH PAINTING OR STUCCO DASH, THE FORMS SHALL BE COMMERCIAL STANDARD DOUGLAS FIR, MOISTURE–RESISTANT CONCRETE FORM PLYWOOD; MINIMUM 5–PLY AND AT LEAST 9/16" THICK, OR FORMS LINED WITH COMMERCIAL STANDARD DOUGLAS FIR, CONCRETE FORM EXTERIOR, 3–PLY, NOT LESS THAN 1/4" THICK. WHERE CONCRETE IS EXPOSED, A SMOOTH SURFACE IS REQUIRED, FREE FROM FINS, HONEYCOMB, FORM MARKS OR OTHER DEFECTS.
17. EXPOSED SURFACES OF CONCRETE AT THE PERIMETER OF THE FOUNDATION SHALL BE FORMED WITH 2x10 #2 LUMBER OR BETTER. A SMOOTH SURFACE IS REQUIRED, FREE FROM FINS, HONEYCOMB, FORM MARKS OR OTHER DEFECTS.
18. CONSTRUCT FORMS SO THAT JOINTS ARE LEAKPROOF. MAINTAIN FORMS SUFFICIENTLY RIGID TO PREVENT DEFORMATION UNDER LOAD.
19. CONCRETE MAY BE PLACED WITH CHUTES UP TO 25' MAXIMUM. SLUMP SHALL NOT EXCEED 6" AT TRUCK DISCHARGE POINT.

CONCRETE CONTINUED:

20. CONCRETE PLACED BY PUMPING SHALL MEET THE FOLLOWING REQUIREMENTS:

    A. COARSE AGGREGATE SHALL BE GRADED FROM A MAXIMUM OF 1" DOWN

    B. MAXIMUM ALLOWABLE INCREASE IN CEMENT FACTOR SHALL BE 1/2 SACK PER CUBIC YARD OVER NORMAL MIX DESIGN.

    C. MAXIMUM WATER CEMENT RATIO SHALL BE 7–1/2 GALLONS PER SACK OF CEMENT. IF MORE WORKABILITY IS REQUIRED, AN ADMIXTURE MAY BE USED.

    D. MAXIMUM WEIGHT RATIO OF FINE AGGREGATES TO COARSE AGGREGATES SHALL NOT EXCEED 2/3.

    E. REFER TO A.C.I. #301, LATEST EDITION, SECTION 800, FOR OTHER PUMPING REQUIREMENTS.

    F. IN NO CASE SHALL CONCRETE BE PUMPED THROUGH AN ALUMINUM TUBE.

    G. SLUMP SHALL NOT EXCEED 6" AT TRUCK DISCHARGE POINT.

21. FLOOR FINISH (TOLERANCES)

    A. STEEL TROWEL FINISH 1/8" IN 10'

    B. FLOAT FINISH 1/4" IN 10'

    C. SCRATCH FINISH 1/2" IN 10'

22. CONCRETE TO BE CURED IN ACCORDANCE WITH ACI RECOMMENDATIONS. PROPOSED METHOD OF CURING TO BE COORDINATED WITH ENGINEER PRIOR TO CONCRETE PLACEMENT.
23. SHOP DRAWINGS SHALL BE PREPARED FOR ALL REINFORCING STEEL AND SUBMITTED FOR REVIEW BY ENGINEER. SUBMITTALS SHALL INCLUDE ELECTRONIC (PDF) COPIES OF EACH DRAWING. ENGINEERING DRAWINGS SHALL NOT BE REPRODUCED AND USED AS SHOP DRAWINGS.
24. THE CONTRACTOR SHALL REVIEW AND ANNOTATE SHOP DRAWINGS BEFORE SUBMITTING THEM TO THE ARCHITECT/ENGINEER FOR REVIEW. THE CONTRACTOR SHALL ALLOW ARCHITECT/ENGINEER 10 WORKING DAYS FOR REVIEW OF SHOP DRAWINGS.
25. ENGINEER TO BE NOTIFIED 48 HOURS PRIOR TO PLACEMENT OF FOUNDATION AND OF STRUCTURAL CONCRETE TO SCHEDULE REQUIRED OBSERVATIONS.

STRUCTURAL STEEL

1. TOP OF BEAM/PLATE (TOB OR TOP) IS USED INTERCHANGEABLY ON PLANS. REFERENCE APPLICABLE SECTION FOR CLARIFICATION.
2. STRUCTURAL STEEL WIDE FLANGE MEMBERS SHALL CONFORM TO ASTM SPECIFICATION A 572 AND/OR ASTM A 992 (Fy = 50 KSI) UNLESS OTHERWISE SHOWN OR NOTED. PLATE AND ANGLES MAY BE A36 (Fy = 36 KSI).
3. ALL STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM SPECIFICATION A–500, GRADE B (Fy=46 KSI). STEEL PIPE SHALL COMPLY WITH ASTM A53 TYPE E OR S (Fy=35 KSI).
4. ALL STRUCTURAL STEEL SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION.
5. ALL BOLTS SHALL BE 3/4 DIAMETER ASTM A325. WASHERS SHALL BE PROVIDED AT OVERSIZED HOLES AND AT SLOTTED CONNECTIONS AT EXPANSION JOINTS. A325 CONNECTIONS SHALL BE BEARING TYPE CONNECTIONS UNLESS NOTED OTHERWISE. ANCHOR BOLTS MAY BE ASTM A307 UNLESS NOTED OTHERWISE.
6. REFER TO MANUFACTURER & MECHANICAL PLANS FOR VERIFICATION OF ALL BOLTS, BLOCKING ANCHORS, ETC., FOR THE ANCHORAGE OF THEIR RESPECTIVE ITEMS.
7. ALL BEAMS SHALL BE FULL LENGTH WITHOUT SPLICES UNLESS INDICATED ON PLANS OR APPROVED BY THE ENGINEER IN WRITING.
8. ALL SHOP AND FIELD WELDS SHALL BE MADE BY WELDERS WHO HAVE BEEN QUALIFIED AND CERTIFIED TO MAKE THE REQUIRED WELDS IN ACCORDANCE WITH THE LATEST AMERICAN WELDING SOCIETY SPECIFICATIONS (A.W.S. D–1.1).
9. WELDS SHALL BE MADE WITH COVERED MILD STEEL ELECTRODES COMPLYING WITH AWS D1 72 CODE AND SERIES E 70XX.
10. ERECTION CONNECTORS SHALL BE PROVIDED IN ORDER TO PROPERLY ALIGN AND BE TRUE AND PLUMB WHEN WELDS ARE MADE.
11. ALL COMPLETE PENETRATION WELDS, BOTH SHOP AND FIELD, SHALL BE TESTED BY A QUALIFIED TESTING LABORATORY UTILIZING ULTRA SONIC TESTING PROCEDURES IN ACCORDANCE WITH A.W.S. D–1.1. ANY WELDS FOUND DEFECTIVE SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER. ALL X–RAYED WELDS SHALL BE GROUND SMOOTH.
12. THE FABRICATOR SHALL SUPPLY BACK–UP PLATES AND EXTENSION TABS FOR ALL COMPLETE PENETRATION WELDS.
13. ALL STEEL MEMBERS, UNLESS NOTED OTHERWISE, SHALL BE HOT DIPPED GALVANIZED. DO NOT PRIME ITEMS TO BE EMBEDDED IN CONCRETE OR FIRE PROOFED W/ SPRAY ON MATERIAL WITHOUT COORDINATION W/ MECHANICAL ENGINEER.
14. WELDED HEADED STUDS (WHS) SHALL BE "NELSON ANCHORS", OR EQUAL, Fs = 60 KSI, DIAMETER AND LENGTH AS SHOWN ON PLANS. STUDS TO BE WELDED& SHOP TESTED IN ACCORDANCE W/ THE MANUFACTURER'S RECOMMENDATIONS.
15. AFTER ERECTION, PRIME WELDS, ABRASIONS AND SURFACES NOT PRIMED. USE PRIMER CONSISTENT WITH SHOP COAT. GALVANIZED SURFACES (HOT DIPPED OR COLD) SHALL BE CLEANED AND PAINTED WITH "ZRC".
16. FIELD WELDS AND BOLTED CONNECTIONS SHALL BE VISUALLY INSPECTED BY A QUALIFIED INDEPENDENT INSPECTOR. THE INSPECTOR SHALL PROVIDE A WRITTEN REPORT TO THE STRUCTURAL ENGINEER.
17. A SINGLE ELECTRONIC FILE (PDF FORMAT) SHOP DRAWINGS SHALL BE PREPARED FOR ALL STRUCTURAL STEEL COMPONENTS AND SUBMITTED FOR REVIEW BY ENGINEER. ENGINEERING DRAWINGS SHALL NOT BE REPRODUCED AND USED AS SHOP DRAWINGS.
18. THE CONTRACTOR SHALL REVIEW AND ANNOTATE SHOP DRAWINGS BEFORE SUBMITTING THEM TO THE ARCHITECT/ENGINEER FOR REVIEW. THE CONTRACTOR SHALL ALLOW ARCHITECT/ENGINEER 10 WORKING DAYS FOR REVIEW OF SHOP DRAWINGS.
19. THE STRUCTURAL ENGINEER SHALL BE NOTIFIED FOR A FRAMING OBSERVATION IMMEDIATELY AFTER ROOF PANELS ARE INSTALLED AND BEFORE INSTALLATION OF THE CEILING.

FASTENERS

1. CAST–IN–PLACE AND POST–INSTALLED ANCHORS SHALL BE PER ANCHOR DIAMETER AND EMBEDMENT DEPTH NOTED ON THE DRAWINGS. POST–INSTALLED ANCHORS SHALL BE UTILIZED ONLY WHERE SPECIFIED. ALL ANCHORS SHALL BE HOT–DIPPED GALVANIZED PER ASTM A153.
2. ALL ANCHORS NOTED BELOW SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL CONTACT MANUFACTURER'S REPRESENTATIVE FOR THE INITIAL TRAINING AND INSTALLATION OF ANCHORS, AND FOR PRODUCT RELATED QUESTIONS AND AVAILABILITY.
3. SPECIAL INSPECTIONS SHALL BE PROVIDED FOR ALL MECHANICAL AND ADHESIVE ANCHORS PER THE APPLICABLE EVALUATION REPORT NOTED BELOW. SPECIAL INSPECTIONS SHALL BE PERFORMED BY INDEPENDENT TESTING LABORATORY PERFORMING QA/QC SERVICES ON PROJECT.
4. EXPANSION BOLTS (EB) IN CONCRETE/CMU SHALL BE TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC–ES AC193. ACCEPTABLE PRODUCTS:

   A. KWIK BOLT III (ICC–ES ESR–2302) BY HILTI (CONCRETE)

   B. KWIK BOLT III (ICC–ES–ESR–1385) BY HILTI (MASONRY)

   C. STRONG–BOLT 2 (ICC–ES ESR–3037) BY SIMPSON STRONG–TIE (CONCRETE)

   D. WEDGE–ALL ANCHOR (ICC–ES ESR–1396) BY SIMPSON STRONG–TIE (MASONRY)

5. HEAVY DUTY SLEEVE ANCHORS IN CONCRETE/CMU SHALL BE TESTED AND QUALIFIED OR USE IN ACCORDANCE WITH ACI 355.2 AND ICC–ES AC193. EXPANSION BOLTS (EB) SHALL NOT BE SUBSTITUTED FOR SLEEVE ANCHORS WITHOUT PRIOR WRITTEN APPROVAL BY STRUCTURAL ENGINEER. ACCEPTABLE PRODUCTS:

   A. HSL–3 (ICC–ES ESR–1545) BY HILTI (CONCRETE)

6. SCREW ANCHORS IN CONCRETE SHALL BE TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC–ES AC193. ACCEPTABLE PRODUCTS:

   A. KWIK HUS–EZ (ICC–ES ESR–3027) BY HILTI (CONCRETE)

   B. KWIK HUS–EZ (ICC–ES ESR–3056) BY HILTI (MASONRY)

   C. TITEN HD (ICC–ES ESR–2713) BY SIMPSON STRONG–TIE (CONCRETE)

   D. TAPCON ANCHORS (ICC–ES ESR–1671) (MASONRY)

   E. POWERS WEDGE BOLT (ICC–ES ESR–1678) (MASONRY)

7. UNDERCUT ANCHORS IN CONCRETE SHALL BE TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC–ES AC193. ACCEPTABLE PRODUCTS:

   A. HDA (ICC–ES ESR–1546) BY HILTI (CONCRETE)

   B. TORQ–CUT (ICC–ES ESR–2705) BY SIMPSON STRONG–TIE (CONCRETE)

8. POWDER ACTUATED FASTENERS IN CONCRETE/CMU SHALL BE TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC–ES AC193. ACCEPTABLE PRODUCTS:

   A. X–U (ICC–ES ESR–2269) BY HILTI (CONCRETE/MASONRY/STEEL)

   B. POWDER ACTUATED FASTENERS (ICC–ES ESR–2138) BY SIMPSON STRONG TIE CONCRETE/MASONRY)

9. ADHESIVE ANCHORS IN CONCRETE/CMU SHALL BE TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.4 AND ICC–ES AC308. ACCEPTABLE PRODUCTS:

   A. HIT–RE 500–V3 (ICC–ES ESR–3814) BY HILTI (CONCRETE)

   B. HIT–HY 270 (ICC–ES ESR–4143) BY HILTI (MASONRY)

   C. SET–XP (ICC–ES ESR–2508) BY SIMPSON STRONG–TIE (CONCRETE)

   D. SET (ICC–ES ESR–1772) BY SIMPSON STRONG–TIE (MASONRY)

10. J–BOLTS SHALL BE FABRICATED FROM ASTM A36/A307 ROD. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. EXPANSION BOLTS/SLEEVE ANCHORS SHALL NOT BE SUBSTITUTED FOR J–BOLTS WITHOUT PRIOR WRITTEN APPROVAL BY STRUCTURAL ENGINEER.

FASTENERS CONTINUED:

11. HEADED ANCHOR RODS SHALL BE FABRICATED FROM ASTM F1554 MATERIAL, FY=36 KSI.
12. SUBSTITUTION REQUESTS FOR PRODUCTS LISTED ABOVE SHALL BE SUBMITTED BY THE CONTRACTOR TO THE STRUCTURAL ENGINEER ALONG WITH CALCULATIONS THAT ARE PREPARED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER. THE CALCULATIONS SHALL DEMONSTRATE THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERTINENT EQUIVALENT PERFORMANCE VALUES OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARDS. SUBSTITUTED ANCHORS SHALL HAVE A VALID CURRENT EVALUATION (ICC–ES OR IAPMO–ES) REPORT.
13. REFERENCE STRUCTURAL STEEL NOTES FOR BOLTS CONNECTING STRUCTURAL STEEL COMPONENTS.

EXTERIOR COMPONENTS & CLADDINGS

ALL EXTERIOR COMPONENT AND CLADDING SYSTEMS (E.G. WINDOWS, CURTAIN WALLS, STOREFRONTS, DOORS, ARCHITECTURAL SIDINGS, METAL WALL AND ROOF PANELS, ROOFING SYSTEMS, SKYLIGHTS) MUST MEET MINIMUM WIND CODE REQUIREMENTS. CONTRACTOR MUST SUBMIT COMPONENT AND CLADDING ASSEMBLY WIND PRESSURE AND IMPACT RESISTANCE TESTING RATINGS AND REQUIRED ATTACHMENT PROCEDURES TO STRUCTURAL ENGINEER FOR REVIEW. ROOF TOP MECHANICAL EQUIPMENT AND THEIR SUPPORT COMPONENTS, AND ANCHORING OF THESE ITEMS TO THE STRUCTURE, SHALL BE DELEGATED DESIGN TO BE PERFORMED BY THE EQUIPMENT'S MANUFACTURER, TO MEET THE WIND PRESSURES CALCULATED PER ASCE 7–16 SECTION 29.4.1, USING THE WIND DESIGN PARAMETERS LISTED ON THE GENERAL STRUCTURAL NOTES DESIGN CRITERIA.

1. TESTED ASSEMBLIES
   A. THE CONTRACTOR SHALL INSTALL PROJECT SPECIFIC ASSEMBLIES THAT HAVE BEEN TESTED AND MEET THE APPLICABLE PERFORMANCE REQUIREMENTS LISTED BELOW. PROJECT ASSEMBLIES SHALL BE INSTALLED IN SAME MANNER AS TESTED ASSEMBLIES INCLUDING SYSTEM COMPONENTS, REINFORCEMENT, GLAZING, HARDWARE, ANCHORS AND FASTENING LOCATIONS, SEALANTS & ALL ACCESSORIES, AS APPLICABLE.

2. ASSEMBLY PERFORMANCE REQUIREMENTS
   A. STRUCTURAL PERFORMANCE: TESTED ASSEMBLY THAT PASSES STRUCTURAL PERFORMANCE REQUIREMENTS WHEN TESTED IN ACCORDANCE WITH THE APPLICABLE PERFORMANCE STANDARD(S) LISTED BELOW, AT A MINIMUM OF THE POSITIVE AND NEGATIVE DESIGN WIND–LOAD PRESSURES INDICATED ON THE STRUCTURAL DRAWINGS. TESTED ASSEMBLY SHALL BE NO SMALLER IN WIDTH AND LENGTH THAN ASSEMBLY INDICATED FOR USE ON THE PROJECT AND SHALL MATCH PROJECT ASSEMBLY INCLUDING ALL COMPONENTS AND SUBSTRATE(S).

   B. WINDBORNE–DEBRIS–IMPACT RESISTANCE: TESTED ASSEMBLY THAT PASSES LARGE–MISSILE IMPACT PROTECTION TESTING REQUIREMENTS ACCORDING TO ASTM E 1996 WHEN TESTED ACCORDING TO ASTM E 1886. TESTED ASSEMBLY SHALL BE NO SMALLER IN WIDTH AND LENGTH THAN ASSEMBLY INDICATED FOR USE ON THE PROJECT AND SHALL MATCH PROJECT ASSEMBLY INCLUDING ALL COMPONENTS AND SUBSTRATE(S).

3. ASSEMBLY PERFORMANCE STANDARDS
   A. ASTM E 330 – STANDARD TEST METHOD FOR STRUCTURAL PERFORMANCE OF EXTERIOR WINDOWS, DOORS, SKYLIGHTS AND CURTAIN WALLS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE

   B. ASTM E 1592 – STANDARD TEST METHOD FOR STRUCTURAL PERFORMANCE OF SHEET METAL ROOF AND SIDING SYSTEMS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE

   C. ASTM E 1886 – STANDARD TEST METHOD FOR PERFORMANCE OF EXTERIOR WINDOWS, CURTAIN WALLS, DOORS, AND STORM SHUTTERS IMPACTED BY MISSILE(S) AND EXPOSED TO CYCLIC PRESSURE DIFFERENTIALS

   D. ASTM E 1996 – STANDARD SPECIFICATION FOR PERFORMANCE OF EXTERIOR WINDOWS, CURTAIN WALLS, DOORS AND IMPACT PROTECTIVE SYSTEMS IMPACTED BY WINDBORNE DEBRIS IN HURRICANES

   E. FM 4450 – APPROVAL STANDARD FOR CLASS 1 INSULATED STEEL DECK ROOFS

   F. FM 4470 – APPROVAL STANDARD FOR SINGLE–PLY, POLYMER–MODIFIED BITUMEN SHEET, BUILT–UP ROOF (BUR) AND LIQUID APPLIED ROOF ASSEMBLIES FOR USE IN CLASS 1 AND NONCOMBUSTIBLE ROOF DECK CONSTRUCTION

   G. FM 4474 – AMERICAN NATIONAL STANDARD FOR EVALUATING THE SIMULATED WIND UPLIFT RESISTANCE OF ROOF ASSEMBLIES USING STATIC POSITIVE AND/OR NEGATIVE DIFFERENTIAL PRESSURES

   H. UL 580 – STANDARD FOR TESTS FOR UPLIFT RESISTANCE OF ROOF ASSEMBLIES

   I. UL 1897 – STANDARD FOR UPLIFT TESTS FOR ROOF COVERING SYSTEMS

4. ASSEMBLY SUBMITTALS
   A. SUBMITTALS SHALL CONSIST OF PROJECT SPECIFIC SHOP DRAWINGS AND ASSEMBLY TEST REPORTS, AS DESCRIBED BELOW. SUBMITTALS SHALL BE COMPLETE, CLEAR AND LEGIBLE; INCOMPLETE SUBMITTALS WILL BE REJECTED.

   B. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING ITEMS:

   1) SYSTEM DESCRIPTION INCLUDING MANUFACTURER'S NAME AND SPECIFIC PRODUCT MODEL NUMBER, NAME OR DESIGNATION.
   2) MANUFACTURER'S PRODUCT DATA/TECHNICAL INFORMATION AND DETAILS.
   3) SYSTEM LAYOUT PLANS, ELEVATIONS, CROSS–SECTIONS AND DETAILS AS APPLICABLE TO THE PROJECT.
   4) DESCRIPTION OF SYSTEM'S ASSEMBLY COMPONENTS (E.G. ROOF LAYERS, FRAME MEMBERS, REINFORCEMENT, DOOR TYPE, GLAZING, HARDWARE, ANCHORS AND FASTENING LOCATIONS, SEALANTS, ACCESSORIES). ALL COMPONENTS SHALL MATCH THOSE SPECIFIED ON ASSEMBLY TEST REPORTS.
   5) SHOP DRAWINGS SHALL INDICATE THE SYSTEM ATTACHMENT METHOD INCLUDING ANCHOR TYPE AND FASTENER LOCATIONS FOR EACH DIFFERENT TYPE OF SUBSTRATE. SYSTEM ATTACHMENT SHALL BE PER ASSEMBLY TEST REPORTS.
   6) ASSEMBLY TEST REPORTS OFTEN PROVIDE OPTIONS FOR MATERIALS AND FASTENING METHODS. SHOP DRAWINGS SHALL BE SPECIFIC TO THE MATERIAL OR METHOD THAT THE CONTRACTOR IS PROPOSING TO INSTALL ON THE PROJECT.
   7) CROSS–REFERENCING BETWEEN THE SHOP DRAWINGS AND THE ASSEMBLY TEST REPORTS IS ENCOURAGED, BUT THE SHOP DRAWINGS SHALL BE DETAILED ENOUGH TO STAND INDEPENDENT OF THE TEST REPORTS.

   C. ASSEMBLY TEST REPORTS SHALL INCLUDE THE FOLLOWING ITEMS:

   1) PERFORMANCE RATINGS BASED ON EVALUATION OF COMPREHENSIVE TESTING IN ACCORDANCE WITH THE APPLICABLE PERFORMANCE STANDARD(S) LISTED ABOVE.
   2) TESTING AND DEVELOPMENT OF REPORTS SHALL BE PERFORMED BY A QUALIFIED THIRD–PARTY TESTING AGENCY.
   3) TEST REPORTS SHALL BE SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION.
   4) TEST REPORTS SHALL BE RECENT TO INCLUDE THE MOST CURRENT SYSTEM MANUFACTURER'S COMPONENTS AND AVAILABLE FASTENERS AND ACCESSORIES. EXPIRED TEST REPORTS SHALL BE REJECTED.
   5) TEST REPORTS SHALL BE SUBMITTED FOR EACH DIFFERENT TYPE OF ASSEMBLY ON THE PROJECT INCLUDING VARIATIONS OF SYSTEM COMPONENTS AND SUBSTRATES.

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RFP #231001

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9-25-2023

TEXAS

DARRELL HESTER JUVENILE DETENTION CENTER
SMOKE EVACUATION AND HVAC SYSTEMS UPGRADES

SAN BENITO

ethos engineering
1126 SOUTH COMMERCE ST.
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F-15998

DATE: SEPTEMBER 25, 2023
CHECKED BY: BD
DRAWN BY: JLR
PROJECT NO.: 1178-37
CAD FILE:
SHEET:
S1.1

GENERAL STRUCTURAL NOTES

SPECIAL INSPECTIONS

SPECIAL INSPECTIONS INDEPENDENT OF THE CONTRACTOR, THE ARCHITECT, OR THE ENGINEER, SHALL BE PROVIDED BY A SPECIAL INSPECTOR EMPLOYED BY THE OWNER ACCORDING TO CHAPTER 17 OF THE IBC 2018. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS. THE SPECIAL INSPECTOR SHALL SEND WRITTEN REPORTS TO THE OWNER, THE ARCHITECT, THE ENGINEER AND THE CONTRACTOR. THE REPORTS SHALL INDICATE IF WORK INSPECTED WAS DONE IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THE DISCREPANCIES ARE NOT CORRECTED, THE SPECIAL INSPECTOR SHALL BRING THE DISCREPANCIES TO THE ATTENTION OF THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING THAT THE SPECIAL INSPECTION WORK WAS, TO THE BEST OF THEIR KNOWLEDGE, IN OR NOT IN CONFORMANCE WITH THE DRAWINGS, SPECIFICATIONS AND APPLICABLE WORKMANSHIP PROVISIONS OF THE IBC 2018.

CONTINUOUS OR PERIODIC SPECIAL INSPECTION IS REQUIRED FOR THE FOLLOWING WORK:

REQUIRED VERIFICATION AND INSPECTION OF SOILS

VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
VERIFY SOILS BELOW SHALLOW FOUNDATIONS ARE SUITABLE TO ACHEIVE THE BEARING CAPACITY FOR WHICH THEY WERE DESIGNED		X
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X
PERFORM CLASSIFICATION AND TESTING OF COMPACTED SELECT FILL MATERIALS		X
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF SELECT FILL	X	
PRIOR TO PLACEMENT OF COMPACTED SELECT FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY		X

REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

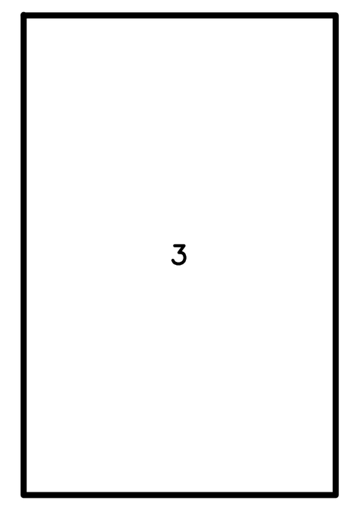
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND PLACEMENT		X
INSPECT BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE	X	
VERIFY USE OF REQUIRED DESIGN MIX		X
PERFORM SLUMP AND AIR CONTENT TEST, AND DETERMINE THE TEMPERATURE OF THE CONCRETE AT THE TIME OF SAMPLING FRESH CONCRETE FOR MAKING SPECIMENS FOR STRENGTH TESTS PER ACI 318	X	
INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	
INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		X
INSPECTION OF PRESTRESSED CONCRETE APPLICATION OF PRESTRESSING FORCES AND GROUTING OF BONDED PRESTRESSING TENDONS	X	
VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS		X
ERECTION OF PRECAST CONCRETE MEMBERS		X
INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED		X

REQUIRED VERIFICATION AND INSPECTION OF ANCHORS

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
CAST-IN-PLACE, POST-INSTALLED, MECHANICAL AND EPOXY SET ANCHORS: AS APPLICABLE, THE INSPECTION PROGRAM SHALL VERIFY THE ANCHOR TYPE, EMBEDMENT, TIGHTENING TORQUE, DIMENSIONS, HOLE DEPTH & DIAMETER AND CLEANOUT, EPOXY MIXING AND PLACEMENT PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND THE CURRENT ICC-ES EVALUATION REPORT	FREQUENCY OF INSPECTION SHALL BE IN ACCORDANCE WITH THE CURRENT ICC-ES EVALUATION REPORT, OR PER THE SPECIAL INSPECTION REQUIREMENTS OF THE ANCHOR SUBSTRATE, WHICHEVER IS MORE STRINGENT	

REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS		X
INSPECTION OF HIGH STRENGTH BOLTING		X
INSPECTION OF WELDING:		
COMPLETE AND PARTIAL PENETRATION GROOVE WELDS	X	
MULTIPASS FILLET WELDS	X	
SINGLE-PASS FILLET WELDS		X
FLOOR AND ROOF DECK WELDS		X
INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS		X



CAMERON COUNTY DARRELL B. HESTER SMOKE EVACUATION SYSTEM UPGRADE CENTRAL PLANT CANOPY DESIGN WIND PRESSURE DIAGRAM

DESIGN WIND PRESSURE FOR ROOF COMPONENTS & CLADDING	
ZONE	P- (UPLIFT)
3	-84 PSF

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9·25·2023

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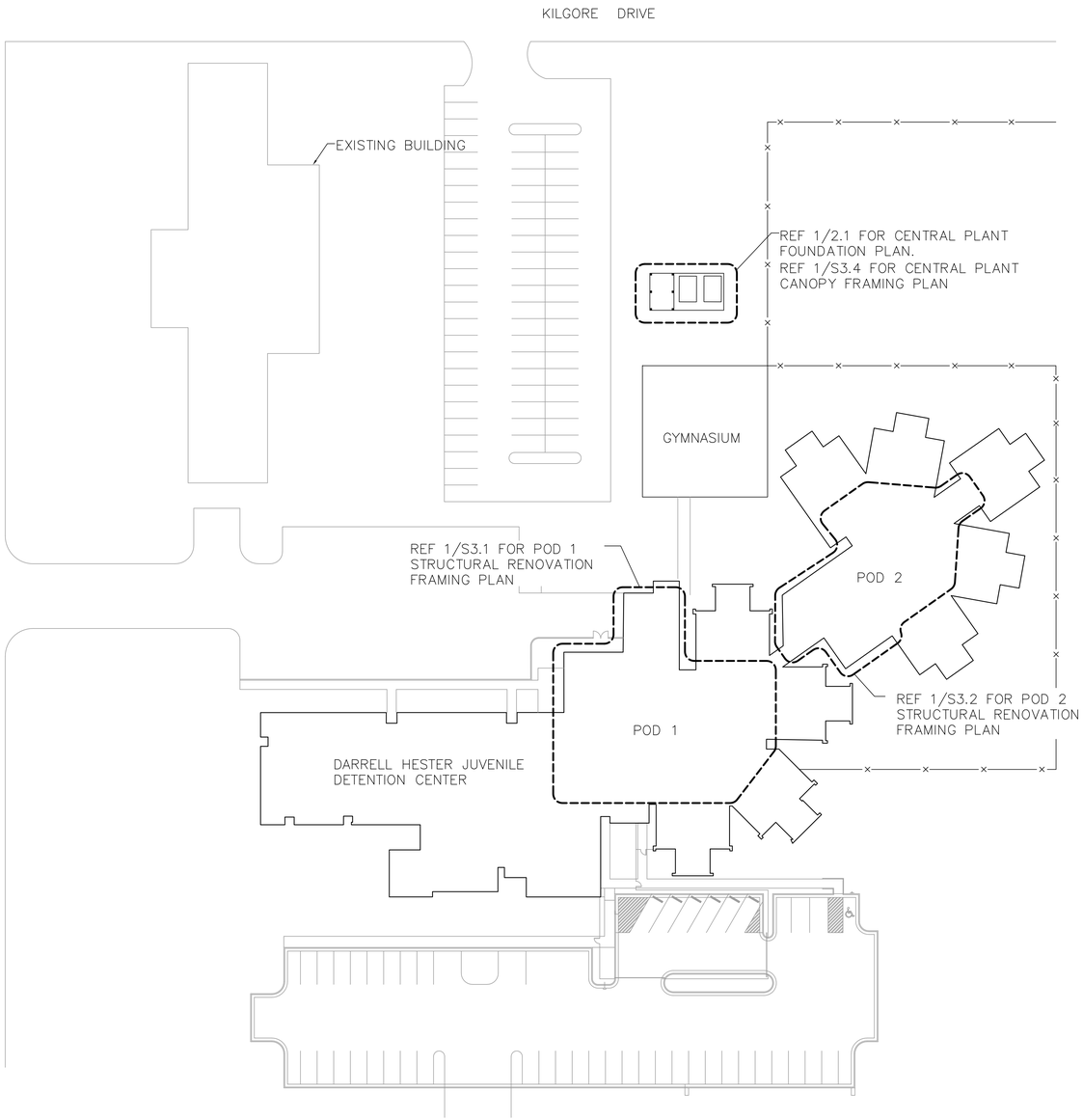

1 STRUCTURAL SCOPE SITE PLAN

NTS

N

PLAN NORTH

TRUE NORTH

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BRANDON D. RUBIANO 85369 LICENSED PROFESSIONAL ENGINEER 9-25-2023

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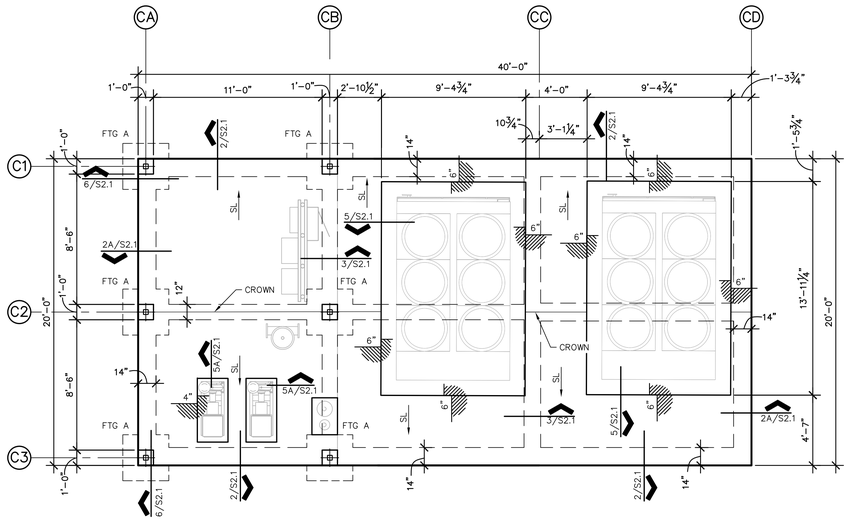


1 CENTRAL PLANT FOUNDATION PLAN

1/4" = 1'-0"

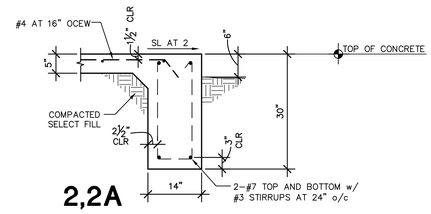
N

PLAN NORTH

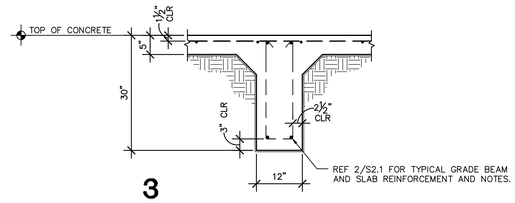
NOTES:

1. COORDINATE FOUNDATION LOCATION AND ORIENTATION WITH MEP AND CIVIL SITE PLAN.
2. COORDINATE AND VERIFY SIZE OF CHILLERS WITH M.E.P. ENGINEER AND CHILLER MANUFACTURER PRIOR TO PLACING FOUNDATION.

FOOTING SCHEDULE		
MARK	SIZE	REINFORCEMENT
FTG A	3'-0" x 3'-0"	#5 AT 12" O.C.E.W.



2,2A



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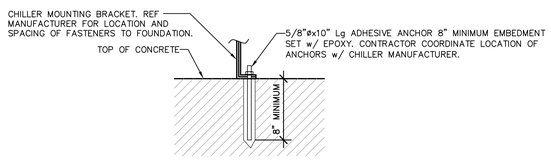
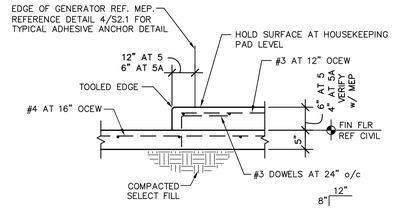
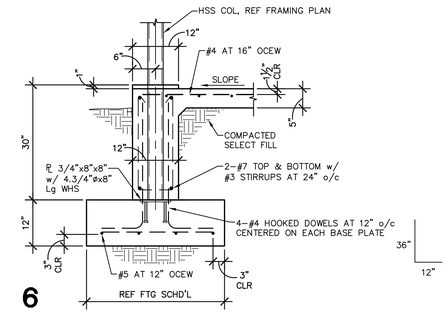


4 TYPICAL ADHESIVE DETAIL



5,5A TYPICAL HOUSEKEEPING PAD DETAIL

NOTE: COORDINATE SIZE, LOCATION & QUANTITIES OF HOUSEKEEPING PADS WITH MEP & ARCHITECTURAL



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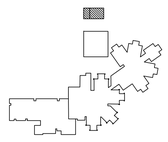
SMOKE EVACUATION AND HVAC SYSTEMS UPGRADES

SAN BENITO TEXAS



KEYPLAN

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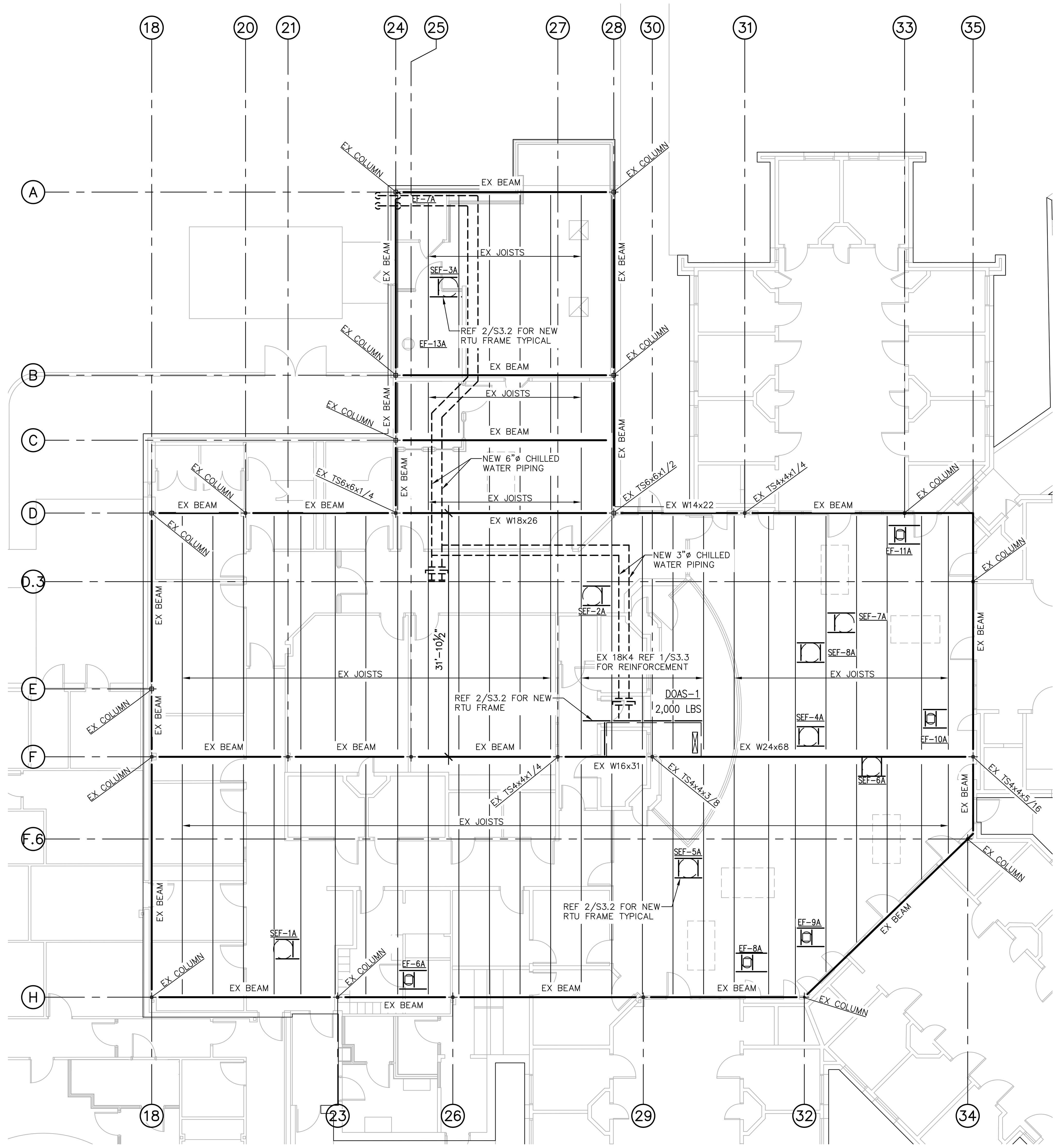

1 STRUCTURAL RENOVATION FRAMING PLAN

1/8" = 1'-0" POD 1

N
PLAN NORTH

NOTES:

1. SCOPE OF WORK:

   A – MODIFY EXISTING ROOF OPENING FRAME AS REQUIRED TO INSTALL NEW FRAME FOR NEW OPENING SIZE.

   B – INSTALL NEW ROOF OPENING FRAME PER DETAIL 2/S3.2.

   C – INSTALL NEW METAL ROOF DECK AS REQUIRED TO CLOSE-OFF AREAS BETWEEN NEW AND EXISTING ROOF OPENINGS.

   D – INSTALL NEW ROOFING INTEGRATED WITH EXISTING ROOF AND ONTO NEW RTU CURBS AS REQUIRED FOR A COMPLETE WATERPROOF INSTALLATION (BY OTHERS).

2. NEW ROOF DECK SHALL BE 1.5B 22GA GALV DECK BY VULCRAFT OR APPROVED EQUAL. (I_p=0.155 IN^4/FT; S_p=0.186 IN^3/FT; I_n=0.183 IN^4/FT; S_n=0.192 IN^3/FT; F_y=33KSI). ATTACH DECK TO SUPPORTS USING 5/8" PUDDLE WELDS ON A 36/7 PATTERN AND 7–#10 TEK SCREW SIDE LAP FASTENERS.

3. PRIOR TO INSTALLATION OF MECHANICAL EQUIPMENT, NOTIFY ENGINEER IF EQUIPMENT WEIGHTS OR LOCATIONS VARY FROM THAT SHOWN ON PLAN TO ALLOW VERIFICATION OF STRUCTURAL CAPACITY OF FRAMING MEMBERS.

4. REFER TO MECHANICAL AND MANUFACTURER'S DRAWINGS FOR FASTENING OF THE ROOF CURB AND HVAC UNITS TO RTU SUPPORT FRAMES.

5. EXISTING FRAMING PLANS WERE DEVELOPED BASED ON STRUCTURAL RECORD DRAWINGS TITLED "CAMERON COUNTY JUVENILE DETENTION FACILITY" SHEET S2.1 DATED 08/19/93 BY JASTER QUINTANILLA & ASSOCIATES INC. CONTRACTOR SHALL REFER TO RECORD DRAWINGS FOR ADDITIONAL INFORMATION REQUIRED.

6. ALL STRUCTURAL STEEL NOTED ON FRAMING PLAN IS EXISTING UNLESS NOTED OTHERWISE.

CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS & EXISTING CONDITIONS IN THE FIELD. CONTACT ENGINEER IF CONDITIONS VARY FROM THOSE SHOWN ON THE DRAWINGS.

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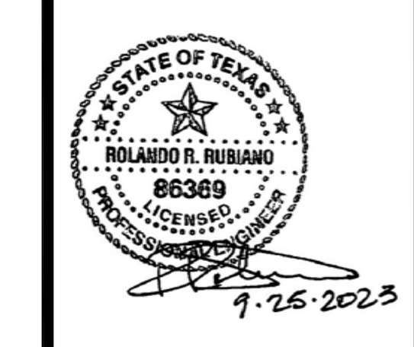

TEXAS

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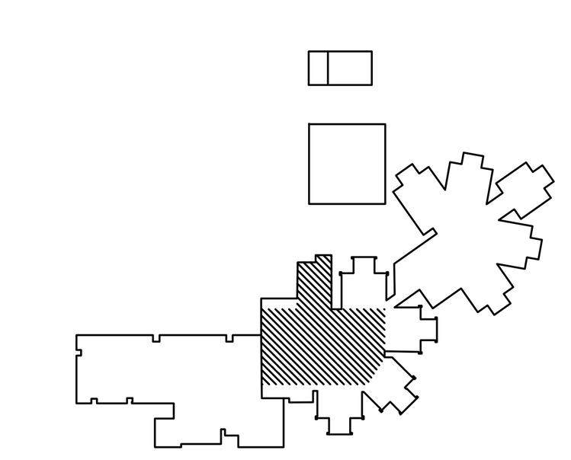
SMOKE EVACUATION AND HVAC SYSTEMS UPGRADES

SAN BENITO


KEYPLAN

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F-15998

DATE: SEPTEMBER 25, 2023
CHECKED BY: BD
DRAWN BY: JLR
PROJECT NO.: 1178-37
CAD FILE:
SHEET: S3.1

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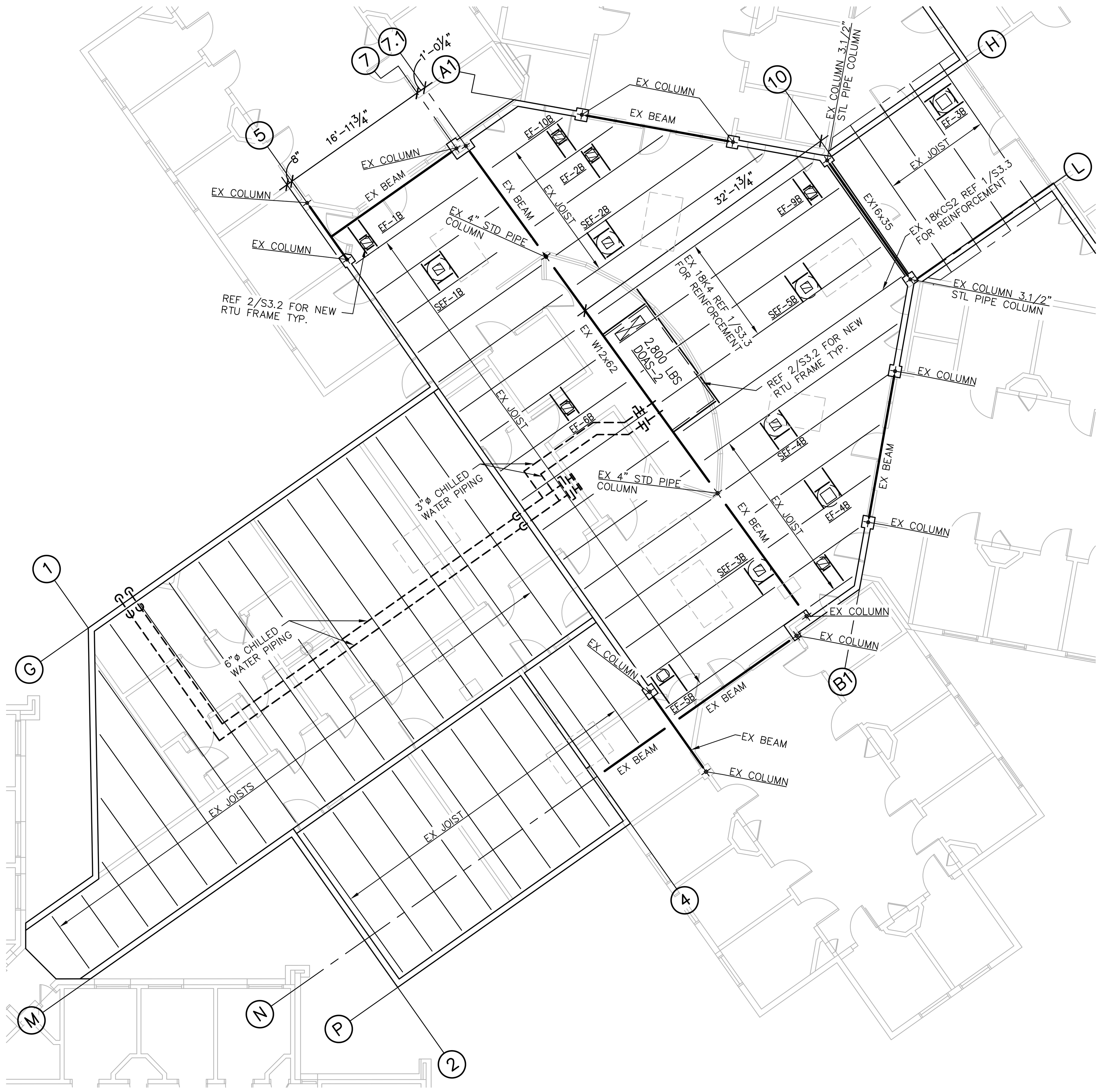


1 STRUCTURAL RENOVATION FRAMING PLAN

1/8" = 1'-0" POD 2

N
PLAN NORTH

NOTES:

1. SCOPE OF WORK:

   A – MODIFY EXISTING ROOF OPENING FRAME AS REQUIRED TO INSTALL NEW FRAME FOR NEW OPENING SIZE.

   B – INSTALL NEW ROOF OPENING FRAME PER DETAIL 2/S3.2.

   C – INSTALL NEW METAL ROOF DECK AS REQUIRED TO CLOSE-OFF AREAS BETWEEN NEW AND EXISTING ROOF OPENINGS.

   D – INSTALL NEW ROOFING INTEGRATED WITH EXISTING ROOF AND ONTO NEW RTU CURBS AS REQUIRED FOR A COMPLETE WATERPROOF INSTALLATION (BY OTHERS).

2. NEW ROOF DECK SHALL BE 1.5B 22GA GALV DECK BY VULCRAFT OR APPROVED EQUAL. ($Ip=0.155\ IN^4/FT$; $Sp=0.186\ IN^3/FT$; $In=0.183\ IN^4/FT$; $Sn=0.192\ IN^3/FT$; Fy=33KSI). ATTACH DECK TO SUPPORTS USING 5/8" PUDDLE WELDS ON A 36/7 PATTERN AND 7-#10 TEK SCREW SIDE LAP FASTENERS.

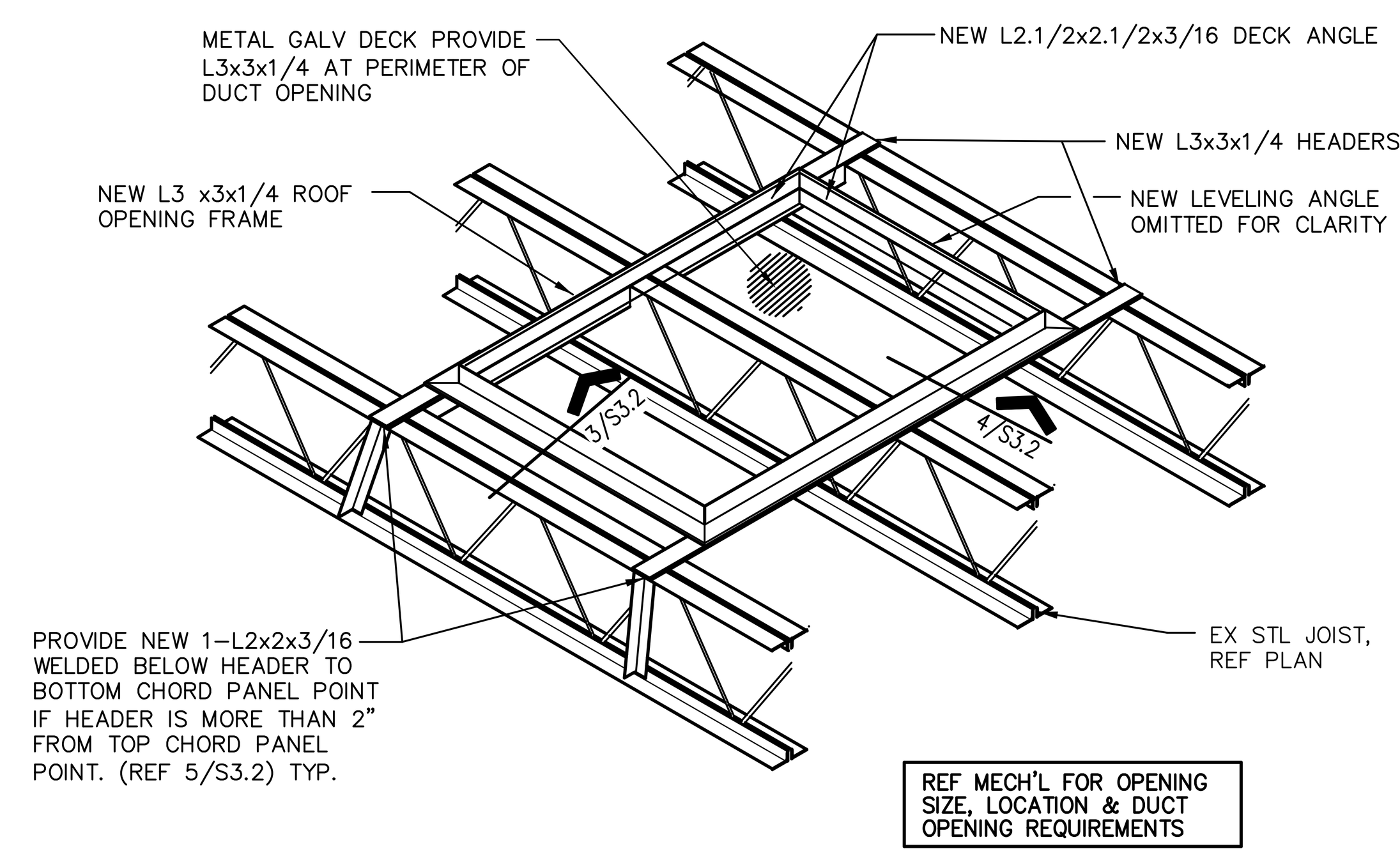
3. PRIOR TO INSTALLATION OF MECHANICAL EQUIPMENT, NOTIFY ENGINEER IF EQUIPMENT WEIGHTS OR LOCATIONS VARY FROM THAT SHOWN ON PLAN TO ALLOW VERIFICATION OF STRUCTURAL CAPACITY OF FRAMING MEMBERS.

4. REFER TO MECHANICAL AND MANUFACTURER'S DRAWINGS FOR FASTENING OF THE ROOF CURB AND HVAC UNITS TO RTU SUPPORT FRAMES.

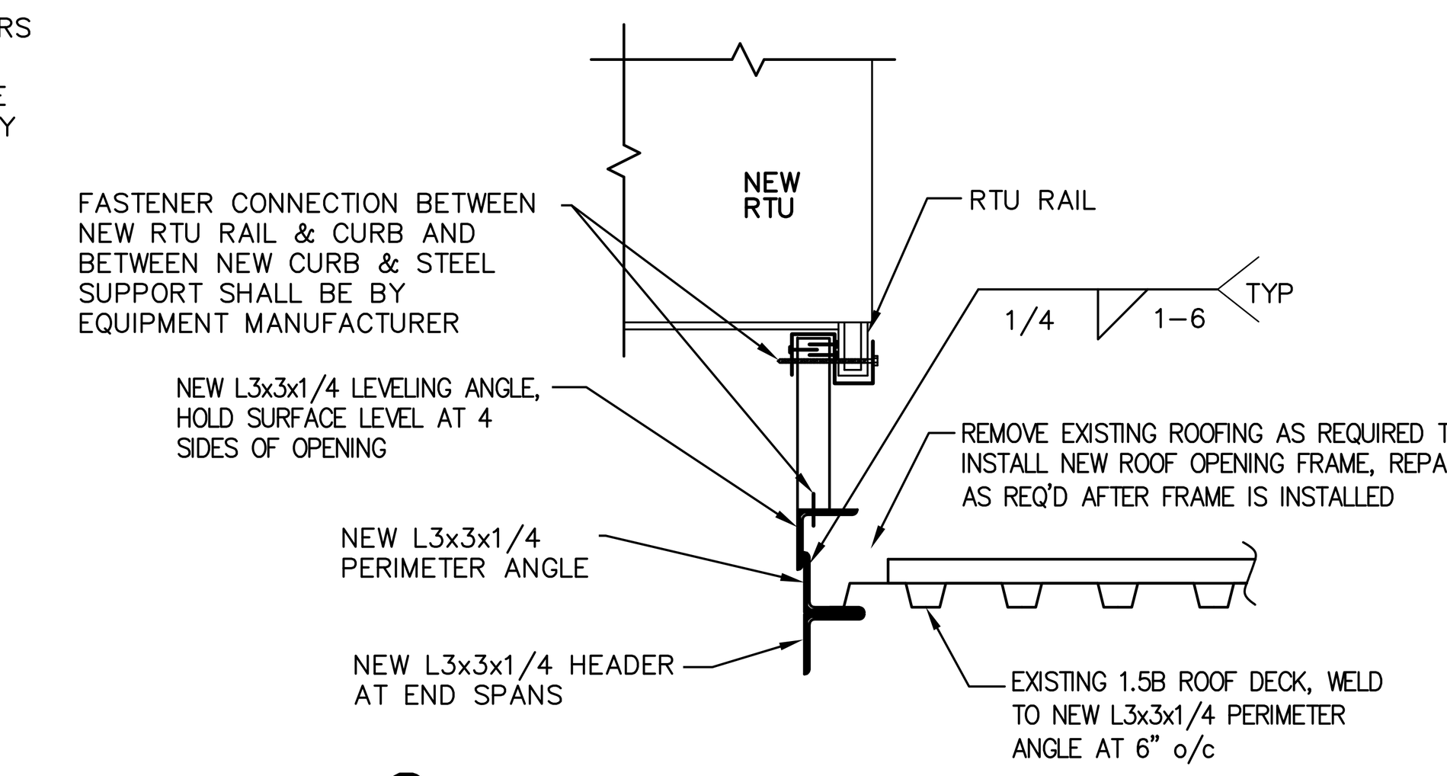
5. EXISTING FRAMING PLANS WERE DEVELOPED BASED ON STRUCTURAL RECORD DRAWINGS TITLED ADDITION TO DARRELL B. HESTER JUVENILE JUSTICE CENTER SHEET S-5 DATED 08/31/2001 BY ALCOCER GARCIA ASSOCIATES DESIGN CONSULTANTS. CONTRACTOR SHALL REFER TO RECORD DRAWINGS FOR ADDITIONAL INFORMATION REQUIRED.

6. ALL STRUCTURAL STEEL NOTED ON FRAMING PLAN IS EXISTING UNLESS NOTED OTHERWISE.

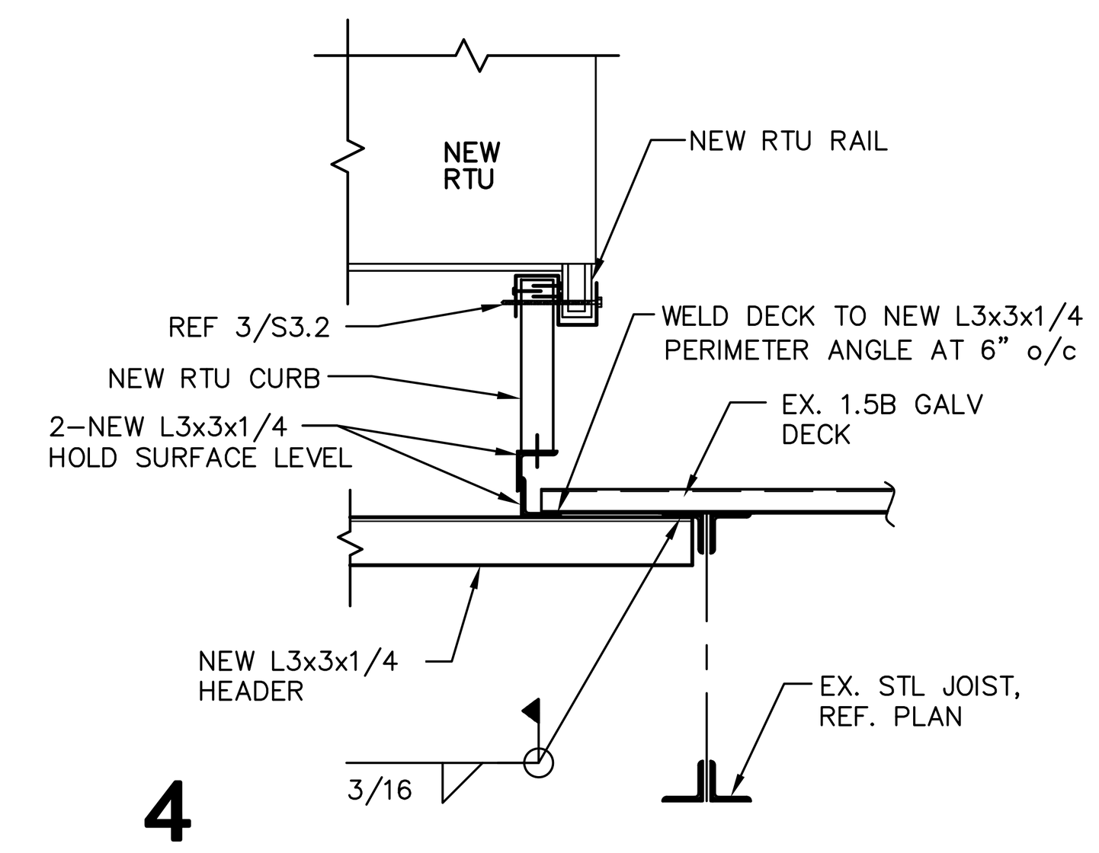
CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS & EXISTING CONDITIONS IN THE FIELD. CONTACT ENGINEER IF CONDITIONS VARY FROM THOSE SHOWN ON THE DRAWINGS.



2 ROOF OPENING FRAME DETAIL



3 NEW RTU SUPPORT FRAME



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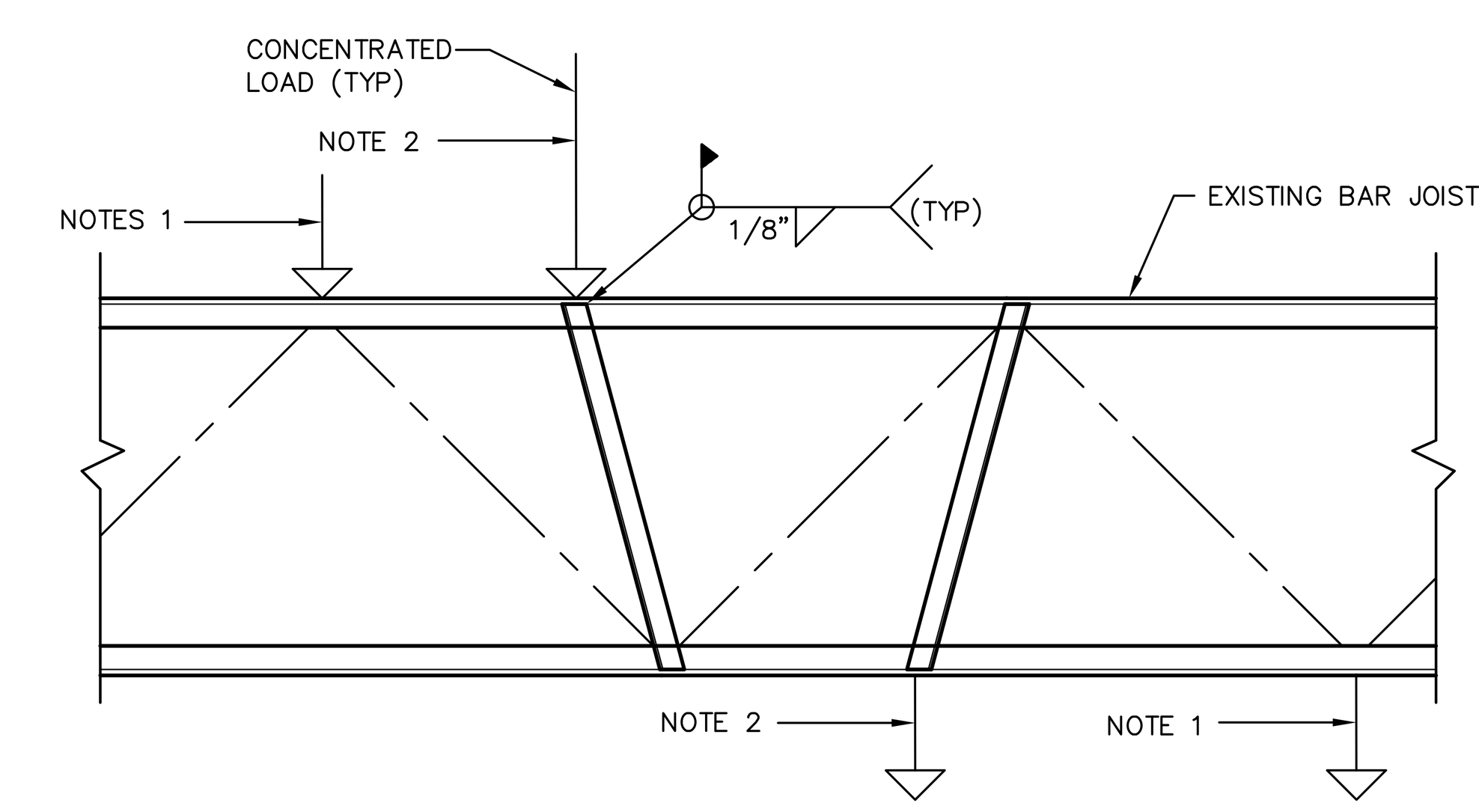
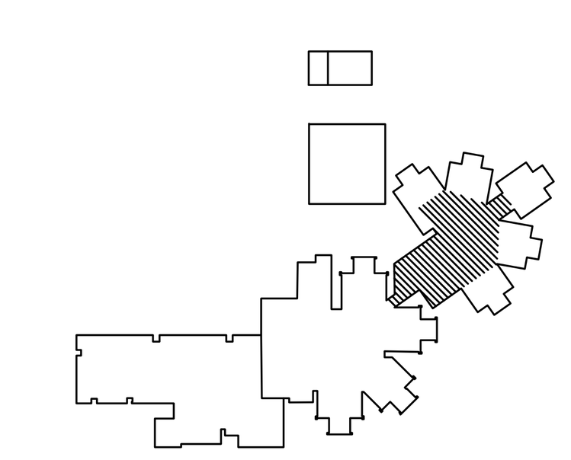


5 TYP. CONCENTRATED LOAD DETAIL

NOTES:

1. CONCENTRATED LOAD LOCATED AT JOIST PANEL POINT LOCATION – NO ADDTIONAL ANGLES REQUIRED.

2. CONCENTRATED LOAD (100 LBS. OR HEAVIER) NOT LOCATED AT JOIST PANEL POINT LOCATION – PROVIDE L2x2x1/4 TO PANEL POINT AS SHOWN.



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9-25-2023

TEXAS

DARRELL HESTER JUVENILE DETENTION CENTER SMOKE EVACUATION AND HVAC SYSTEMS UPGRADES

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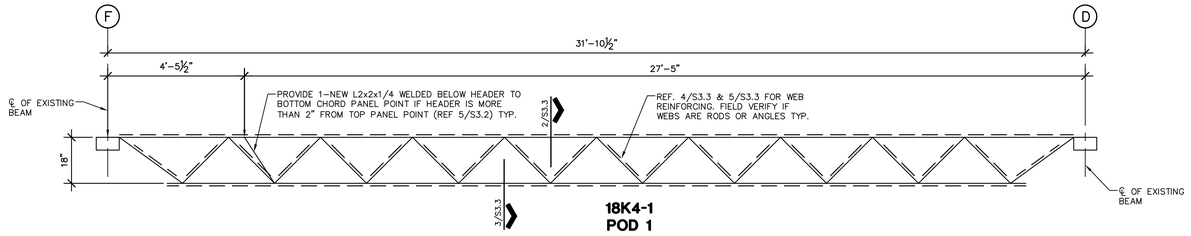

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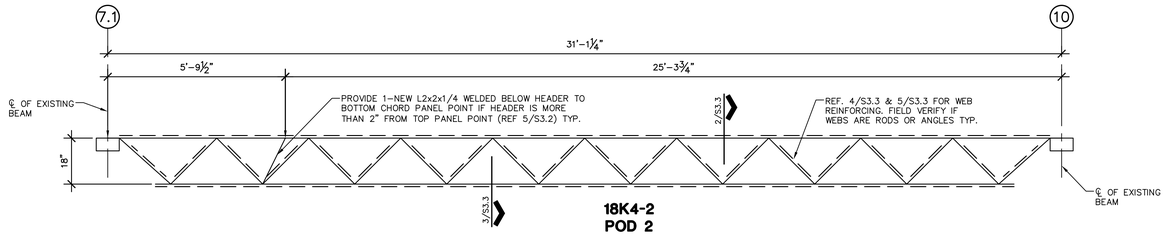
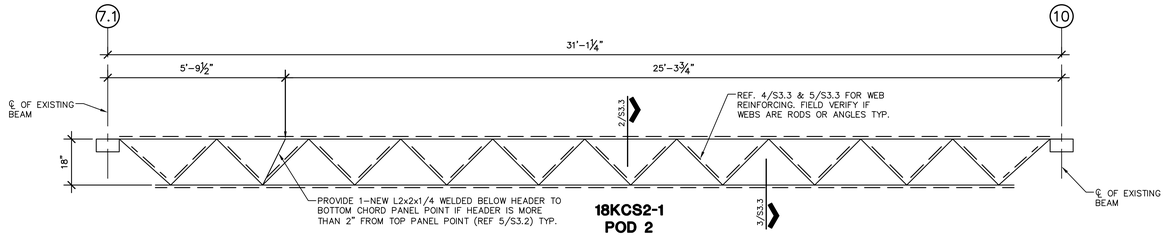
POD 1



18K4-2
POD 2



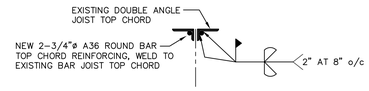
18KCS2-1
POD 2

1 EXISTING JOIST REINFORCING PROFILES

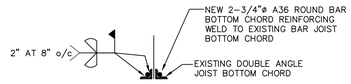
1/2" = 1'-0"

NOTES:

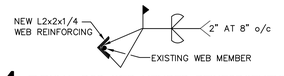
1. ALL EXISTING JOIST REINFORCEMENT PROFILES ARE SCHEMATIC AND PROVIDED FOR PRICING PURPOSES. ALL DIMENSIONS AND JOIST WEB LAYOUTS WILL NEED TO BE FIELD VERIFIED AFTER EXISTING JOIST ARE EXPOSED IN THE FIELD.
2. GENERAL CONTRACTOR WILL NEED TO CONTACT GRA TO SCHEDULE FIELD OBSERVATIONS TO OBSERVE EXISTING BAR JOIST AT NEW RTU LOCATIONS. CONTRACTOR WILL NEED TO PROVIDE A LIFT OR LADDERS ON SITE TO BE USED AS DIRECTED BY GRA PERSONNEL TO GAIN ACCESS TO EXISTING BAR JOIST.
3. ONCE GRA HAS ANALYZED THE EXISTING BAR JOIST. THE JOIST REINFORCEMENT JOIST PROFILES ON 1/S3.2 WILL BE REVISED AS REQUIRED, INCORPORATING REPAIR DETAILS 2-5/S3.3.
4. REFERENCE PLAN FOR DEDUCTIVE ALTERNATES. CONTRACTOR TO REFER TO BID PROPOSAL FOR FURTHER INSTRUCTIONS.



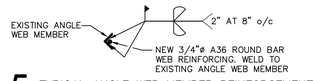
2 TYPICAL TOP CHORD REINFORCEMENT



3 TYPICAL BOTTOM CHORD REINFORCEMENT



4 TYPICAL ROD WEB MEMBER REINFORCEMENT



5 TYPICAL ANGLE WEB MEMBER REINFORCEMENT

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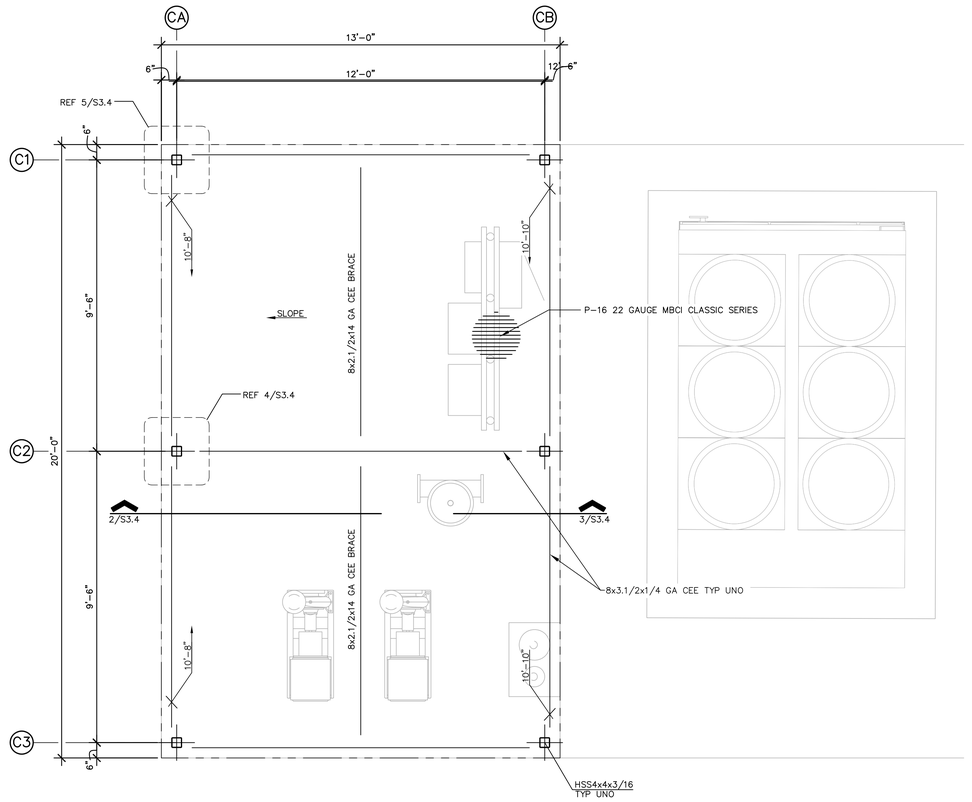


1 CANOPY FRAMING PLAN

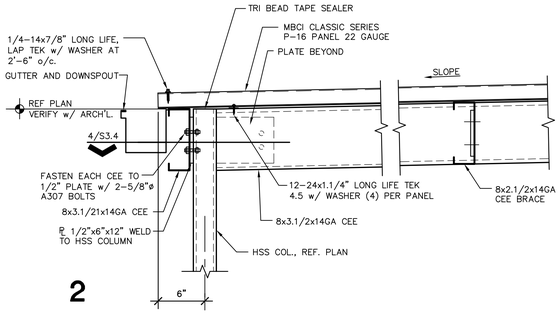
1/2" = 1'-0" CENTRAL PLANT

N

PLAN NORTH

NOTES:

1. ALL STRUCTURAL STEEL FRAMING MEMBERS SHALL BE SHOP PRIMED AND PAINTED, WITH A MINIMUM OF TWO (2) COATS OF CUSTOM COLOR TO BE SELECTED BY OWNER.
2. ROOF PANELS SHALL BE 16" WIDE P-16 22 GAUGE MBCI CLASSIC SERIES. PANELS SHALL HAVE CUSTOM PAINT COLOR TO BE SELECTED BY OWNER.
3. ALL HSS COLUMNS SHALL BE HSS4x4x3/16 UNLESS NOTED OTHERWISE.
4. ALL CEE PURLINS SHALL BE 8x3.1/2x16 GA UNLESS NOTED OTHERWISE.



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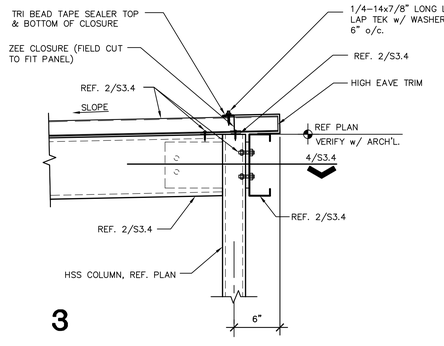

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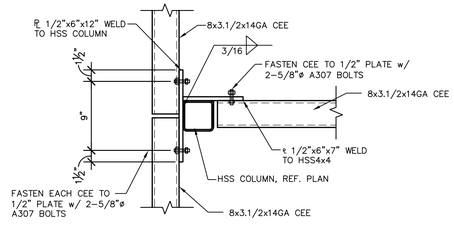
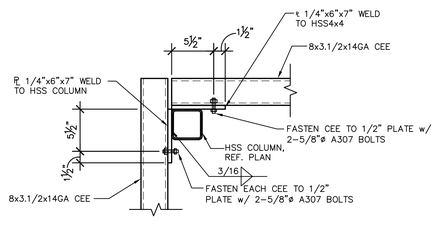
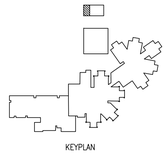


4 TYPICAL CONNECTION AT INTERIOR HSS COLUMN



5 TYPICAL CONNECTION AT CORNER HSS COLUMN



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